September 14, 2022

Mr. Jake Janicek
EHS Specialist
Caerus Operating LLC
143 Diamond Ave.
Parachute, CO 81635

# REPORT OF WORK COMPLETED

**Project Name**: Mesa 13 Partially Buried Vessel Removal Investigation
**Facility Name:** Puckett-67S96W 7SWNW
**COGCC Location ID**: 334986
**Legal Description**: SWNW Sec. 7, T7S-R96W Garfield County, CO
**Location (Lat/Long)**: 39.454030, -108.156860

On behalf of Caerus Operating LLC (Caerus), Campos EPC (CEPC) has prepared this Report of Work Completed (ROWC) to document the recent partially buried vessel (PBV) removal assessment activities at the Puckett-67S96W 7SWNW Pad, also known as Mesa 13 (Site). This ROWC provides background and purpose of the assessment, methodology, summarized results, and recommendations for additional action. Attachments to this ROWC include field notes and photos, Site exhibit with sample locations, soil analytical data table, and laboratory reports.

## BACKGROUND

The Site is approximately 5.5 miles west of Parachute, CO within the Grand Valley Field. Land use is primarily oil and gas operations and high mountain desert rangeland. Lithology consists mostly of organic silts and clays. The Site is situated on a mesa and topography at the site generally slopes to the northwest. The nearest watercourse is Starkey Gulch approximately 0.3 miles northwest, which is a tributary to Parachute Creek approximately 3.2 miles northeast of the Site. Depth to groundwater at the Site is estimated to be >100 feet (ft).

To the purpose of decommissioning a partially buried produced water tank per Colorado Oil and Gas Conservation Commission (COGCC) Rule 913.c.(9), a Proposed Sampling Plan (PSP) was submitted as part of a Form 27 (Doc. #403071190).

## METHODOLOGY

On June 8, 2022 CEPC personnel conducted the assessment in accordance with the PSP outlined in the associated Form 27. Following the removal of the partially buried vessel, CEPC completed a visual and olfactory inspection of the base and four sidewalls of the excavation. Hand tools with strict decontamination practices were used to collect soil samples from the base of the tank excavation at eight ft below ground surface (bgs) and from the sidewalls of the excavation at six ft bgs. All samples were collected in laboratory provided jars, immediately packed on ice, and submitted via courier to Pace Analytical for analysis of all constituents listed on COGCC Table 915-1. Additionally, on June 7, 2022, four background soil samples were collected from nearby, undisturbed native areas and submitted for analysis of Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), pH, Boron, and Arsenic. Soil samples and pertinent features onsite were surveyed using a Trimble RTX Data Collector with sub-inch accuracy. An aerial survey to gather updated imagery of the Site was conducted with an Autel Evo II drone.

As part of this investigation, a source sample was collected from a produced water tank onsite. The source sample was collected in laboratory provided jars, immediately packed on ice, and submitted for laboratory analysis of pH and Arsenic.

## RESULTS

During the assessment, visual inspection of the Site indicated no staining or odors from the base or sidewalls of the excavation. Laboratory results indicated compliance for all samples, as compared to COGCC Table 915-1 Residential Soil Screening Level (SSL) Concentrations, with exception to pH in multiple excavation samples ranging from 8.33 to 8.76, and Arsenic in all excavation samples ranging from 7.3 milligrams per kilogram (mg/kg) to 14.3 mg/kg.

Laboratory results also indicated an exceedance of the Residential SSL concentrations for Arsenic in all four background samples, ranging from 3.95 mg/kg to 15.8 mg/kg. Source sample analysis indicated a pH value of 6.50 and an Arsenic concentration of 0.00307 mg/kg.

## CONCLUSION

Based on laboratory results, Arsenic concentrations at the Site are within known background concentrations, and source water analysis indicated that a release of produced water would not increase pH levels at the Site.

Based on these investigative results, CEPC concludes that historical impacts are not present at the Site and a no further action request is warranted. Additionally, based on laboratory results and background data, CEPC recommends using the stockpile material as backfill at the Site.

Thank you for the opportunity to support you on this project. Please reach out anytime with questions regarding this report and associated field work.

Steve Sivigliano, CES
Environmental Project Manager | Campos EPC, LLC

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**Steve.Sivigliano@camposepc.com**
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**Amanda.Baca@camposepc.com**
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## Attachments

- Site Exhibits with sample locations
- Soil Analytical Table
- Laboratory Report
- Field Notes



CAMPOS | EPC


CAMPOS | EPC

CAERUS OPERATING LLC

MESA 13
PUCKETT-67S96W / 7SWNW
COGCC LOCATION ID: 334986
GARFIELD COUNTY, CO
SWNW SEC. 7 T7S-R96W

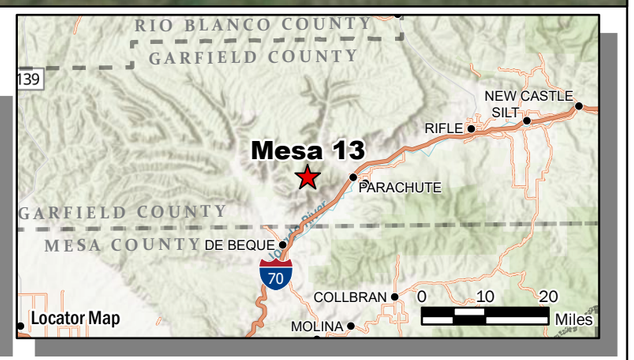
DRAFTER: LR | DATE: 6/14/2022

Legend

- Soil Sample Location

COORDINATE SYSTEM
GCS NORTH AMERICAN 1983

| Identifier | Latitude NAD83 | Longitude NAD83 | Elevation |
|---|---|---|---|
| BG-S@2.5' | 39.453277 | -108.157235 | 8379.86 ft |
| BG-W@3' | 39.454262 | -108.157464 | 8331.65 ft |
| BG-N@1' | 39.455056 | -108.156592 | 8311.33 ft |
| BG-E@2' | 39.453850 | -108.156288 | 8354.00 ft |
| EWALL@6' | 39.454473 | -108.156289 | 8352.85 ft |
| SWALL@6' | 39.454448 | -108.156306 | 8353.52 ft |
| BASE@8' | 39.454475 | -108.156317 | 8351.61 ft |
| WWALL@6' | 39.454469 | -108.156347 | 8352.56 ft |
| NWALL@6' | 39.454495 | -108.156334 | 8354.42 ft |



**SOIL ANALYTICAL RESULTS TABLE**
**CAERUS OIL AND GAS - MESA 13 PBV REMOVAL ASSESSMENT**

CAMPOS | EPC

| Sample Name | ORGANIC COMPOUNDS in mg/kg | | | | | | | | SOIL SUITABILITY | | | | METALS in mg/kg | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GRO | DRO | ORO | TPH | Benzene | Toluene | Ethylbenzene | Total Xylenes | Electrical Conductivity (mmhos/cm) | Sodium Adsorption Ratio | pH (su) | Boron-hot water soluble (mg/L) | Arsenic | Barium | Cadmium | Chromium (VI) | Copper | Lead | Nickel | Selenium | Silver | Zinc |
| 20220608-MESA 13(N.WALL)@6' | 0.135 | 5.95 | 14.2 | 20.285 | <0.001 | <0.005 | <0.0025 | 0.0126 | 0.172 | 1.26 | **8.55** | <0.2 | **5.94** | 222 | <0.5 | <1 | 11.5 | 7.21 | 11.6 | <2 | <1 | 28.2 |
| 20220608-MESA 13(E.WALL)@6' | 0.25 | 31.3 | 83.5 | 115.05 | <0.001 | <0.005 | <0.0025 | <0.0065 | 0.932 | 4.15 | 8.23 | 0.665 | **12.8** | 275 | <0.5 | <1 | 18.3 | 8.5 | 17.9 | <2 | <1 | 51.4 |
| 20220608-MESA 13(S.WALL)@6' | 0.269 | 22.2 | 70.0 | 92.469 | <0.001 | <0.005 | <0.0025 | <0.0065 | 0.921 | 3.83 | **8.33** | 0.61 | **13.3** | 378 | <0.5 | <1 | 19.8 | 8.43 | 19.0 | <2 | <1 | 51.8 |
| 20220608-MESA 13(W.WALL)@6' | 0.223 | 13.7 | 50.0 | 63.923 | <0.001 | <0.005 | <0.0025 | <0.0065 | 0.28 | 2.36 | **8.76** | 0.635 | **14.3** | 279 | <0.5 | <1 | 20.9 | 10.2 | 17.5 | <2 | <1 | 48.1 |
| 20220608-MESA 13(BASE)@8' | 0.233 | 10.30 | 34.2 | 44.733 | <0.001 | <0.005 | <0.0025 | 0.0142 | 0.12 | 1.15 | **8.59** | <0.2 | **7.3** | 194 | <0.5 | <1 | 12.9 | 6.25 | 12.8 | <2 | <1 | 34.3 |
| 20220607-MESA 13(BG-N)@1' | na | na | na | na | na | na | na | na | 0.0734 | 0.0748 | 6.53 | 0.396 | **3.95** | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-E)@2' | na | na | na | na | na | na | na | na | 0.0395 | 0.0830 | 6.44 | 0.212 | **6.05** | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-S)@2.5' | na | na | na | na | na | na | na | na | 0.0433 | 0.102 | 6.70 | 0.322 | **15.8** | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-W)@3' | na | na | na | na | na | na | na | na | 0.0503 | 0.131 | 6.79 | 0.338 | **7.16** | na | na | na | na | na | na | na | na | na |
| **PRODUCED WATER SAMPLE** | | | | | | | | | | | | | | | | | | | | | | |
| 20220817-MESA 13(PW-01) | na | na | na | na | na | na | na | na | na | na | **6.50** | na | **0.00307** | na | na | na | na | na | na | na | na | na |
| **COGCC TABLE 915-1** RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS | 500 mg/kg | | | | 1.2 mg/kg | 490 mg/kg | 5.8 mg/kg | 58 mg/kg | <4.0 mmhos/cm | <6 unitless | 6 - 8.3 su | 2 mg/L | 0.68 mg/kg | 15,000 mg/kg | 71 mg/kg | 0.3 mg/kg | 3,100 mg/kg | 400 mg/kg | 1,500 mg/kg | 390 mg/kg | 390 mg/kg | 23,000 mg/kg |
| PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS | 500 mg/kg | | | | 0.0026 mg/kg | 0.69 mg/kg | 0.78 mg/kg | 9.9 mg/kg | <4.0 mmhos/cm | <6 unitless | 6 - 8.3 su | 2 mg/L | 0.29 mg/kg | 82 mg/kg | 0.38 mg/kg | 0.00067 mg/kg | 46 mg/kg | 14 mg/kg | 26 mg/kg | 0.26 mg/kg | 0.8 mg/kg | 370 mg/kg |

Notes:

**Bold with yellow highlight** - exceeds COGCC Table 915-1 residential soil screening level concentration

< - less than laboratory reporting detection limit (RDL)
COGCC - Colorado Oil and Gas Convservation Commission
TPH - Total Petroleum Hydrocarbons (volatile and extractable)
GRO - Gasoline Range Organics
DRO - Diesel Range Organics
ORO - Oil Range Organics
mg/kg - milligrams per kilogram
mg/L - milligrams per Liter
mmhos/cm - millimhos per centimeter
su - standard unit
na - not analyzed

## SOIL ANALYTICAL RESULTS TABLE (continued)
## CAERUS OIL AND GAS - MESA 13 PBV REMOVAL ASSESSMENT

CAMPOS | EPC

| Sample Name | ORGANIC COMPOUNDS in mg/kg (continued) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1, 2, 4-trimethylbenzene | 1, 3, 5-trimethylbenzene | Acenaphthene | Anthracene | Benz(a) anthracene | Benzo(b) fluoranthene | Benzo(k) fluoranthene | Benzo(a) pyrene | Chrysene | Dibenzo(a,h) anthracene | Fluoranthene | Fluorene | Indeno (1, 2, 3-cd) pyrene | 1-methylnaphthalene | 2-mehtylnaphthalene | Naphthalene | Pyrene |
| 20220608-MESA 13(N.WALL)@6' | 0.00513 | 0.0107 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.02 | <0.02 | <0.02 | <0.006 |
| 20220608-MESA 13(E.WALL)@6' | <0.005 | <0.005 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.02 | <0.02 | <0.02 | <0.006 |
| 20220608-MESA 13(S.WALL)@6' | <0.005 | <0.005 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.02 | <0.02 | <0.02 | <0.006 |
| 20220608-MESA 13(W.WALL)@6' | <0.005 | <0.005 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.02 | <0.02 | <0.02 | <0.006 |
| 20220608-MESA 13(BASE)@8' | <0.005 | <0.005 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.006 | <0.02 | <0.02 | <0.02 | <0.006 |
| 20220607-MESA 13(BG-N)@1' | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-E)@2' | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-S)@2.5' | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| 20220607-MESA 13(BG-W)@3' | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| **COGCC TABLE 915-1** RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS | 30 mg/kg | 27 mg/kg | 360 mg/kg | 1800 mg/kg | 1.1 mg/kg | 1.1 mg/kg | 11 mg/kg | 0.11 mg/kg | 110 mg/kg | 0.11 mg/kg | 240 mg/kg | 240 mg/kg | 1.1 mg/kg | 18 mg/kg | 24 mg/kg | 2 mg/kg | 180 mg/kg |
| PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS | 0.0081 mg/kg | 0.0087 mg/kg | 0.55 mg/kg | 5.8 mg/kg | 0.011 mg/kg | 0.3 mg/kg | 2.9 mg/kg | 0.24 mg/kg | 9 mg/kg | 0.096 mg/kg | 8.9 mg/kg | 0.54 mg/kg | 0.98 mg/kg | 0.006 mg/kg | 0.019 mg/kg | 0.0038 mg/kg | 1.3 mg/kg |

Notes:

**Bold with yellow highlight** - exceeds COGCC Table 915-1 residential soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

su - standard unit

na - not analyzed

# ANALYTICAL REPORT

August 26, 2022



## Caerus Oil and Gas

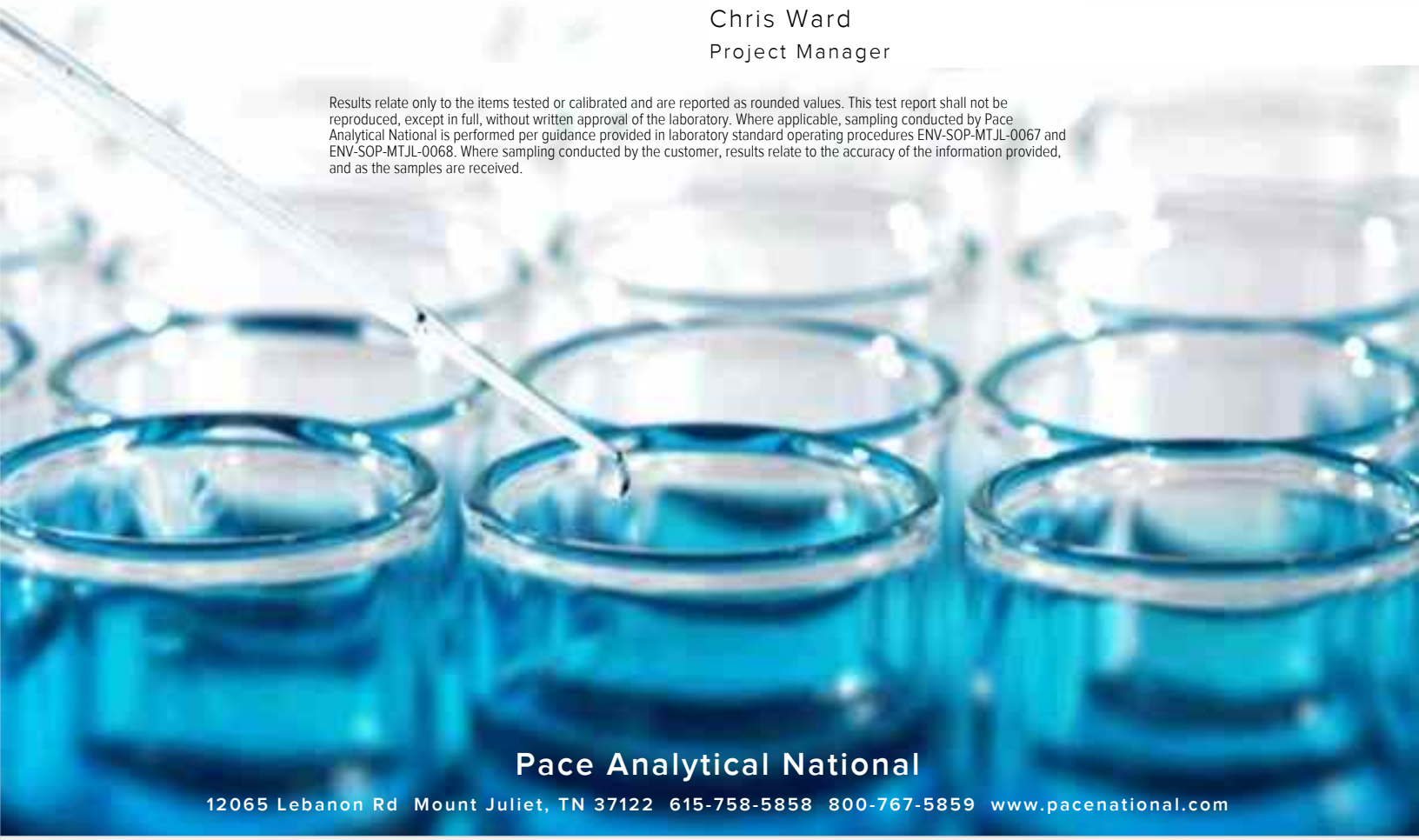
| | |
|---|---|
| Sample Delivery Group: | L1527442 |
| Samples Received: | 08/19/2022 |
| Project Number: | |
| Description: | Mesa 13 |
| Site: | MESA 13 |
| Report To: | Brett Middleton<br>143 Diamond Avenue<br>Parachute, CO 81635 |

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

## 20220817-MESA 13(PW-01) L1527442-01 GW

Collected by: Chad Dodge
Collected date/time: 08/17/22 12:00
Received date/time: 08/19/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Wet Chemistry by Method 9040C | WG1916257 | 1 | 08/25/22 16:00 | 08/25/22 16:00 | NTG | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1915460 | 10 | 08/25/22 15:33 | 08/25/22 22:29 | LD | Mt. Juliet, TN |

# CASE NARRATIVE

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

Chris Ward
Project Manager

## Wet Chemistry by Method 9040C

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | pH | | | date / time | |
| pH | 6.50 | T8 | 1 | 08/25/2022 16:00 | WG1916257 |

Sample Narrative:

L1527442-01 WG1916257: 6.5 at 23.1C

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | date / time | |
| Arsenic | 0.00307 | J | 0.00180 | 0.0200 | 10 | 08/25/2022 22:29 | WG1915460 |

## L1526526-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1526526-02 08/25/22 16:00 • (DUP) R3830550-2 08/25/22 16:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | su | su | | % | | % |
| pH | 7.93 | 7.88 | 1 | 0.633 | | 1 |

Sample Narrative:

OS: 7.93 at 22.1C

DUP: 7.88 at 21.7C

## L1527292-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1527292-08 08/25/22 16:00 • (DUP) R3830550-3 08/25/22 16:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | su | su | | % | | % |
| pH | 7.90 | 7.86 | 1 | 0.508 | | 1 |

Sample Narrative:

OS: 7.9 at 22.4C

DUP: 7.86 at 22.3C

## Laboratory Control Sample (LCS)

(LCS) R3830550-1 08/25/22 16:00

| Analyte | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|---|---|---|---|---|---|
| | su | su | % | % | |
| pH | 10.0 | 9.93 | 99.3 | 99.0-101 | |

Sample Narrative:

LCS: 9.93 at 22.6C

## Method Blank (MB)

(MB) R3830637-1 08/25/22 21:01

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Arsenic | U | | 0.000180 | 0.00200 |

## Laboratory Control Sample (LCS)

(LCS) R3830637-2 08/25/22 21:04

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Arsenic | 0.0500 | 0.0478 | 95.6 | 80.0-120 | |

## L1527645-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527645-11 08/25/22 21:07 • (MS) R3830637-4 08/25/22 21:14 • (MSD) R3830637-5 08/25/22 21:17

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.0500 | 0.000614 | 0.0485 | 0.0490 | 95.8 | 96.8 | 1 | 75.0-125 | | | 0.979 | 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. |
| T8 | Sample(s) received past/too close to holding time expiration. |

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: D082

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: Campos EPC | Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO |
| Address: 1401 Blake St. Denver, CO 80202 | |
| Report To: Brett Middleton | Email To: bmiddleton@caerusoilandgas.com |
| Copy To: jjanicek@caerusoilandgas.com | Site Collection Info/Address: |
| Customer Project Name/Number: Mesa 13 | State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET |
| Phone: 970-619-0600 Email: same as above | Site/Facility ID #: Mesa 13 |
| Collected By (print): Chad Dodge | Purchase Order #: Quote #: |
| Collected By (signature): Chad Dodge | Turnaround Date Required: standard |
| Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) |

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [✓] Yes [ ] No

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

Analysis: _____

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

Container Preservative Type **

Lab Project Manager:

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

Analyses

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | Arsenic, pH |
|---|---|---|---|---|---|---|---|---|---|
| 20220817-Mesa 13(PW-01) | P | | 8/17/22 | 1200 | - | - | 2hcl | 5 | X |
| | | | | | - | - | - | | |
| | | | | | - | - | - | | |
| | | | | | - | - | - | | |
| | | | | | - | - | - | | |
| | | | | | - | - | - | | |
| | | | | | - | - | - | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

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: 4527442

-01

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N (NA)

SHORT HOLDS PRESENT (<72 hours): Y (N) N/A

Lab Tracking #:

Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y (N) NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

| | | | |
|---|---|---|---|
| Relinquished by/Company: (Signature) Chad Dodge | Date/Time: 8/18/22-1200 | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: 8/18/22 1508 | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) D. Ramsey | Date/Time: 09/19 0900 |

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

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

Non Conformance(s): YES / (NO)

Page: _____ of: _____

US27442

| Tracking Numbers | Temperature |
| --- | --- |
| 5755 8084 9451 | NSA6 2.7+.0= 2-7 |
| 5755 8084 9234 | NSA6 4.0+.0= 4.0 |
| | |
| | |
| | |
| | |

# ANALYTICAL REPORT

June 29, 2022



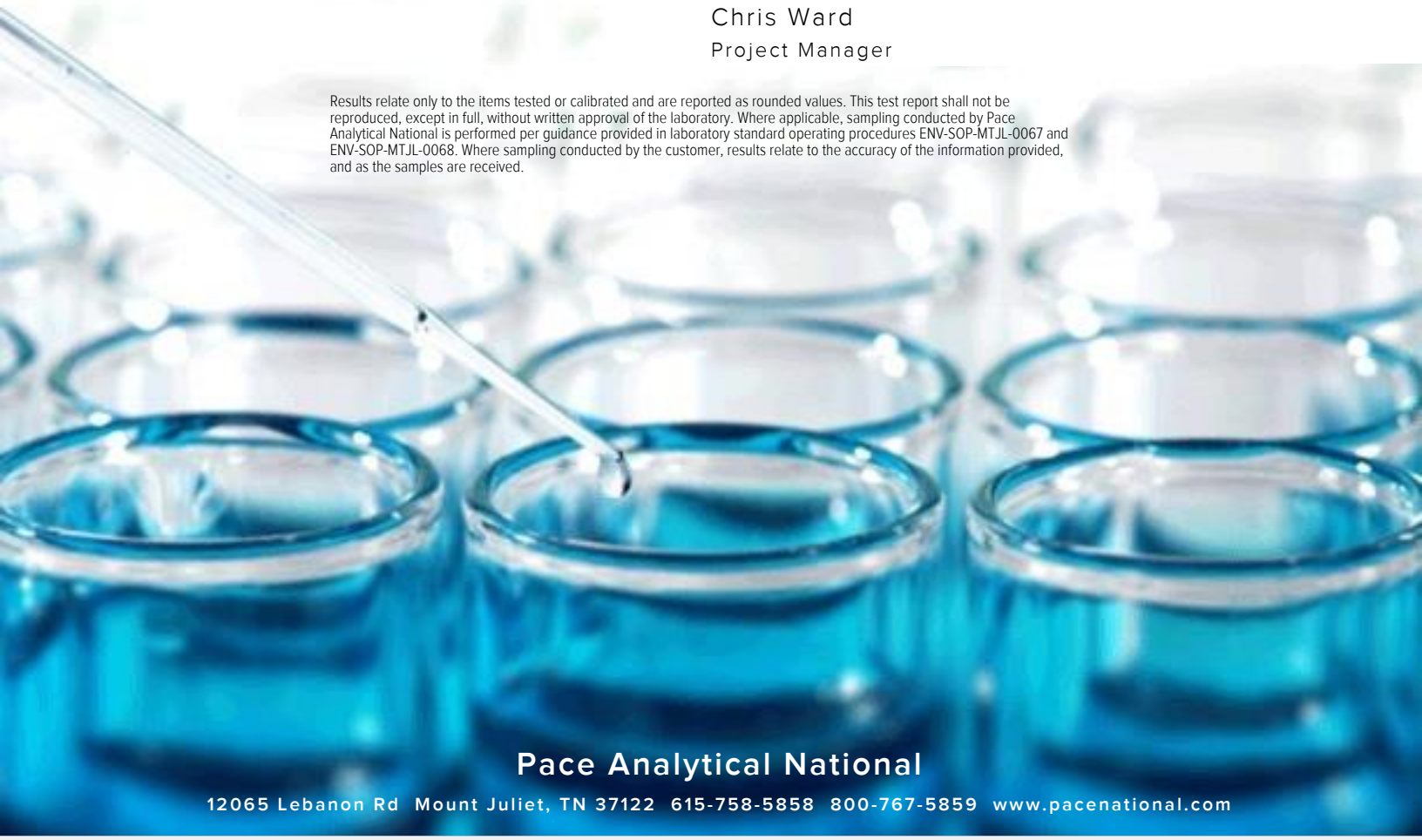
## Caerus Oil and Gas

| | |
|---|---|
| Sample Delivery Group: | L1503232 |
| Samples Received: | 06/09/2022 |
| Project Number: | |
| Description: | Mesa-13 |
| Site: | MESA-13 |
| Report To: | Brett Middleton<br>143 Diamond Avenue<br>Parachute, CO 81635 |

Entire Report Reviewed By:

Chris Ward
Project Manager





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

# TABLE OF CONTENTS

## 20220607-MESA-13 (BG-N) @ 1' L1503232-01 Solid

Collected by: Evan Mason | Collected date/time: 06/07/22 15:50 | Received date/time: 06/09/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1881325 | 1 | 06/27/22 21:03 | 06/27/22 21:03 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1878923 | 1 | 06/14/22 10:00 | 06/14/22 12:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1877892 | 1 | 06/11/22 07:11 | 06/11/22 12:00 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1882343 | 1 | 06/23/22 22:45 | 06/28/22 21:45 | CCE | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1879551 | 5 | 06/15/22 08:13 | 06/16/22 01:53 | SJM | Mt. Juliet, TN |

## 20220607-MESA-13 (BG-E) @ 2' L1503232-02 Solid

Collected by: Evan Mason | Collected date/time: 06/07/22 16:00 | Received date/time: 06/09/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1881325 | 1 | 06/27/22 21:06 | 06/27/22 21:06 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1878311 | 1 | 06/12/22 18:00 | 06/13/22 09:24 | NIJ | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1877892 | 1 | 06/11/22 07:11 | 06/11/22 12:00 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1882343 | 1 | 06/23/22 22:45 | 06/28/22 21:48 | CCE | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1879551 | 5 | 06/15/22 08:13 | 06/16/22 01:56 | SJM | Mt. Juliet, TN |

## 20220607-MESA-13 (BG-S) @ 2.5' L1503232-03 Solid

Collected by: Evan Mason | Collected date/time: 06/07/22 16:10 | Received date/time: 06/09/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1881325 | 1 | 06/27/22 21:09 | 06/27/22 21:09 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1878923 | 1 | 06/14/22 10:00 | 06/14/22 12:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1877892 | 1 | 06/11/22 07:11 | 06/11/22 12:00 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1882343 | 1 | 06/23/22 22:45 | 06/28/22 21:56 | CCE | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1879551 | 5 | 06/15/22 08:13 | 06/16/22 02:00 | SJM | Mt. Juliet, TN |

## 20220607-MESA-13 (BG-W) @ 6' L1503232-04 Solid

Collected by: Evan Mason | Collected date/time: 06/07/22 16:20 | Received date/time: 06/09/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1881325 | 1 | 06/27/22 21:12 | 06/27/22 21:12 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1878923 | 1 | 06/14/22 10:00 | 06/14/22 12:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1877892 | 1 | 06/11/22 07:15 | 06/11/22 12:00 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1882343 | 1 | 06/23/22 22:45 | 06/28/22 21:59 | CCE | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881998 | 5 | 06/20/22 11:40 | 06/20/22 22:32 | 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

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | SAR | | | | |
| Sodium Adsorption Ratio | 0.0748 | | 1 | 06/27/2022 21:03 | WG1881325 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | pH | | | | |
| pH | 6.53 | T8 | 1 | 06/14/2022 12:00 | WG1878923 |

Sample Narrative:

L1503232-01 WG1878923: 6.53 at 24.1C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 73.4 | | 10.0 | 1 | 06/11/2022 12:00 | WG1877892 |

Sample Narrative:

L1503232-01 WG1877892: at 25C

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

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | | |
| Hot Water Sol. Boron | 0.396 | | 0.0167 | 0.200 | 1 | 06/28/2022 21:45 | WG1882343 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | | |
| Arsenic | 3.95 | | 0.100 | 1.00 | 5 | 06/16/2022 01:53 | WG1879551 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Sodium Adsorption Ratio | 0.0830 | | 1 | 06/27/2022 21:06 | WG1881325 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 6.44 | T8 | 1 | 06/13/2022 09:24 | WG1878311 |

Sample Narrative:
L1503232-02 WG1878311: 6.44 at 24.3C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 39.5 | | 10.0 | 1 | 06/11/2022 12:00 | WG1877892 |

Sample Narrative:
L1503232-02 WG1877892: at 25C

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

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | | |
| Hot Water Sol. Boron | 0.212 | | 0.0167 | 0.200 | 1 | 06/28/2022 21:48 | WG1882343 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | | |
| Arsenic | 6.05 | | 0.100 | 1.00 | 5 | 06/16/2022 01:56 | WG1879551 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Sodium Adsorption Ratio | 0.102 | | 1 | 06/27/2022 21:09 | WG1881325 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 6.70 | T8 | 1 | 06/14/2022 12:00 | WG1878923 |

Sample Narrative:
L1503232-03 WG1878923: 6.7 at 24C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 43.3 | | 10.0 | 1 | 06/11/2022 12:00 | WG1877892 |

Sample Narrative:
L1503232-03 WG1877892: at 25C

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

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | | |
| Hot Water Sol. Boron | 0.322 | | 0.0167 | 0.200 | 1 | 06/28/2022 21:56 | WG1882343 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | | |
| Arsenic | 15.8 | | 0.100 | 1.00 | 5 | 06/16/2022 02:00 | WG1879551 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Sodium Adsorption Ratio | 0.131 | | 1 | 06/27/2022 21:12 | WG1881325 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 6.79 | T8 | 1 | 06/14/2022 12:00 | WG1878923 |

Sample Narrative:
L1503232-04 WG1878923: 6.79 at 23.9C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 50.3 | | 10.0 | 1 | 06/11/2022 12:00 | WG1877892 |

Sample Narrative:
L1503232-04 WG1877892: at 25C

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

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/l | | mg/l | mg/l | | | |
| Hot Water Sol. Boron | 0.338 | | 0.0167 | 0.200 | 1 | 06/28/2022 21:59 | WG1882343 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | | |
| Arsenic | 7.16 | | 0.100 | 1.00 | 5 | 06/20/2022 22:32 | WG1881998 |

## L1503378-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1503378-11 06/13/22 09:24 • (DUP) R3802414-2 06/13/22 09:24

| Analyte | Original Result su | DUP Result su | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| pH | 7.80 | 7.79 | 1 | 0.128 | | 1 |

Sample Narrative:

OS: 7.8 at 23.5C

DUP: 7.79 at 23.6C

## L1503378-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1503378-15 06/13/22 09:24 • (DUP) R3802414-3 06/13/22 09:24

| Analyte | Original Result su | DUP Result su | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| pH | 6.65 | 6.68 | 1 | 0.450 | | 1 |

Sample Narrative:

OS: 6.65 at 24.3C

DUP: 6.68 at 23.8C

## Laboratory Control Sample (LCS)

(LCS) R3802414-1 06/13/22 09:24

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

Sample Narrative:

LCS: 9.9 at 23.7C

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

## L1503224-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1503224-03 06/14/22 12:00 • (DUP) R3803363-2 06/14/22 12:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 6.84 | 6.83 | 1 | 0.146 | | 1 |

Sample Narrative:

OS: 6.84 at 24.3C

DUP: 6.83 at 24.3C

## L1503232-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1503232-01 06/14/22 12:00 • (DUP) R3803363-3 06/14/22 12:00

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

Sample Narrative:

OS: 6.53 at 24.1C

DUP: 6.51 at 24.1C

## Laboratory Control Sample (LCS)

(LCS) R3803363-1 06/14/22 12:00

| Analyte | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|---|---|---|---|---|---|
| | su | su | % | % | |
| pH | 10.0 | 9.92 | 99.2 | 99.0-101 | |

Sample Narrative:

LCS: 9.92 at 24.3C

## Method Blank (MB)

(MB) R3802044-1 06/11/22 12:00

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

Sample Narrative:
BLANK: at 25C

## L1501949-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1501949-04 06/11/22 12:00 • (DUP) R3802044-3 06/11/22 12:00

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 336 | 299 | 1 | 11.6 | | 20 |

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

## L1503116-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1503116-01 06/11/22 12:00 • (DUP) R3802044-4 06/11/22 12:00

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 95.7 | 104 | 1 | 8.70 | | 20 |

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

## Laboratory Control Sample (LCS)

(LCS) R3802044-2 06/11/22 12:00

| Analyte | Spike Amount umhos/cm | LCS Result umhos/cm | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Specific Conductance | 268 | 288 | 107 | 85.0-115 | |

Sample Narrative:
LCS: at 25C

## Method Blank (MB)

(MB) R3808648-1 06/28/22 21:23

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

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

(LCS) R3808648-2 06/28/22 21:25 • (LCSD) R3808648-3 06/28/22 21:28

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water Sol. Boron | 1.00 | 0.970 | 0.974 | 97.0 | 97.4 | 80.0-120 | | | 0.369 | 20 |

## Method Blank (MB)

(MB) R3803662-1 06/16/22 00:31

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

## Laboratory Control Sample (LCS)

(LCS) R3803662-2 06/16/22 00:35

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Arsenic | 100 | 97.8 | 97.8 | 80.0-120 | |

## L1503476-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503476-08 06/16/22 00:38 • (MS) R3803662-5 06/16/22 00:48 • (MSD) R3803662-6 06/16/22 00:51

| 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 | 407 | 427 | 478 | 19.9 | 70.3 | 5 | 75.0-125 | V | V | 11.1 | 20 |

## Method Blank (MB)

(MB) R3805265-1 06/20/22 20:53

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

## Laboratory Control Sample (LCS)

(LCS) R3805265-2 06/20/22 20:57

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Arsenic | 100 | 98.2 | 98.2 | 80.0-120 | |

## L1494367-102 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1494367-102 06/20/22 21:00 • (MS) R3805265-5 06/20/22 21:10 • (MSD) R3805265-6 06/20/22 21:13

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 100 | 9.63 | 99.7 | 96.2 | 90.1 | 86.6 | 5 | 75.0-125 | | | 3.60 | 20 |

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

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

## Abbreviations and Definitions

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

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

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

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

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: Campos EPC | Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO |
| Address: 1401 Blake St. Denver, CO 80202 | |
| Report To: Brett Middleton | Email To: bmiddleton@caerusoilandgas.com |
| Copy To: | Site Collection Info/Address: |
| Customer Project Name/Number: Mesa-13 | State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET |
| Phone: 970-619-0600 Email: same as above | Site/Facility ID #: Mesa-13 Compliance Monitoring? [ ] Yes [ ] No |
| Collected By (print): Chad Dodge | Purchase Order #: Quote #: DW PWS ID #: DW Location Code: |
| Collected By (Signature): | Turnaround Date Required: standard Immediately Packed on Ice: [✓] Yes [ ] No |
| Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____ |

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

Container Preservative Type **

Lab Project Manager:

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

Analyses

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | COGCC Table 915-1 EC, SAR, Boron (Hot water sol.), pH, Arsenic | Lab Profile/Line: |
|---|---|---|---|---|---|---|---|---|---|---|
| 20220607-Mesa-13(BG-N)@1' | SL | Grab | 6/7/22 | 1550 | - | - | - | 1 | X | -01 |
| 20220607-Mesa-13(BG-E)@2' | | | | 1600 | - | - | - | 1 | X | -02 |
| 20220607-Mesa-13(BG-S)@2.5' | | | | 1610 | - | - | - | 1 | X | -03 |
| 20220607-Mesa-13(BG-W)@3' | | | | 1620 | - | - | - | 1 | X | -04 |
| | | | | | - | - | - | | | |
| | | | | | - | - | - | | | |
| | | | | | - | - | - | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

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: WMNT 1603232 3.8 +0 = 3.8

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 5755 8084 8010

Samples received via: FEDEX UPS Client Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

| | | | |
|---|---|---|---|
| Relinquished by/Company: (Signature) | Date/Time: 6/8/22 1200 | Received by/Company: (Signature) | Date/Time: 6/8 RS |
| Relinquished by/Company: (Signature) | Date/Time: 6/8/22 1700 | Received by/Company: (Signature) | Date/Time: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: 6/9/22 0900 |

D020

Acctnum:
Template:
Prelogin:
PM:
PB:

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

Non Conformance(s): YES / NO

Page: _____ of: _____

# ANALYTICAL REPORT

July 05, 2022

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

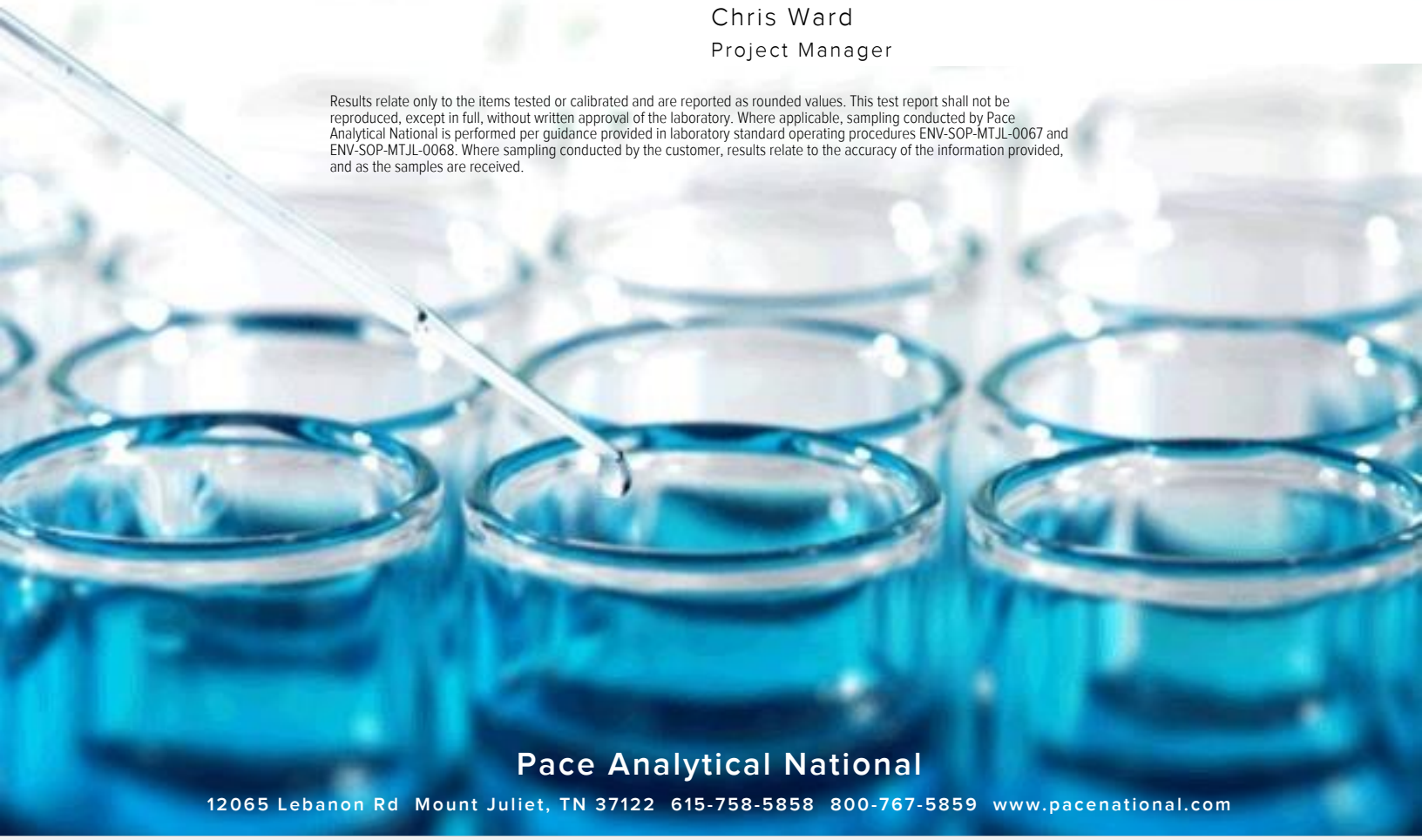
## Caerus Oil and Gas

| | |
|---|---|
| Sample Delivery Group: | L1503724 |
| Samples Received: | 06/10/2022 |
| Project Number: | MESA 13 |
| Description: | Mesa 13 |
| Site: | MESA 13 |
| Report To: | Blair Rollins<br>143 Diamond Avenue<br>Parachute, CO 81635 |

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager





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

# TABLE OF CONTENTS

## 20220608-MESA 13 (N WALL) @ 6' L1503724-01 Solid

Collected by: Evan Mason | Collected date/time: 06/08/22 12:30 | Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1882332 | 1 | 07/03/22 21:06 | 07/03/22 21:06 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 7199 | WG1881558 | 1 | 06/20/22 18:00 | 06/22/22 09:53 | ARD | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1879954 | 1 | 06/16/22 12:00 | 06/16/22 14:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1880054 | 1 | 06/15/22 16:06 | 06/18/22 10:33 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B | WG1881139 | 1 | 06/19/22 16:18 | 06/20/22 23:50 | CCE | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1883528 | 1 | 06/29/22 20:03 | 07/01/22 17:58 | ZSA | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881141 | 5 | 06/19/22 16:23 | 06/20/22 20:14 | LD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1879497 | 1 | 06/14/22 16:51 | 06/15/22 11:49 | MGF | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG1879455 | 1 | 06/14/22 16:51 | 06/15/22 07:23 | ACG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015M | WG1882295 | 1 | 06/21/22 08:26 | 06/22/22 10:13 | JAS | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1882274 | 1 | 06/21/22 17:56 | 06/22/22 06:28 | AGW | Mt. Juliet, TN |

## 20220608-MESA 13 (E WALL) @ 6' L1503724-02 Solid

Collected by: Evan Mason | Collected date/time: 06/08/22 12:40 | Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1882332 | 1 | 07/03/22 21:09 | 07/03/22 21:09 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 7199 | WG1881558 | 1 | 06/20/22 18:00 | 06/22/22 09:59 | ARD | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1879901 | 1 | 06/16/22 08:00 | 06/17/22 10:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1880013 | 1 | 06/15/22 15:48 | 06/18/22 13:42 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B | WG1881139 | 1 | 06/19/22 16:18 | 06/20/22 23:53 | CCE | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1883528 | 1 | 06/29/22 20:03 | 07/01/22 18:01 | ZSA | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881141 | 5 | 06/19/22 16:23 | 06/20/22 20:18 | LD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1879497 | 1 | 06/14/22 16:51 | 06/15/22 12:12 | MGF | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG1879455 | 1 | 06/14/22 16:51 | 06/15/22 07:42 | ACG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015M | WG1882295 | 1 | 06/21/22 08:26 | 06/21/22 16:23 | JAS | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1882274 | 1 | 06/21/22 17:56 | 06/22/22 06:48 | AGW | Mt. Juliet, TN |

## 20220608-MESA 13 (S WALL) @ 6' L1503724-03 Solid

Collected by: Evan Mason | Collected date/time: 06/08/22 12:50 | Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1882332 | 1 | 07/03/22 21:11 | 07/03/22 21:11 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 7199 | WG1881558 | 1 | 06/20/22 18:00 | 06/22/22 10:19 | ARD | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1879954 | 1 | 06/16/22 12:00 | 06/16/22 14:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1880054 | 1 | 06/15/22 16:06 | 06/18/22 10:33 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B | WG1881139 | 1 | 06/19/22 16:18 | 06/20/22 23:57 | CCE | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1883528 | 1 | 06/29/22 20:03 | 07/01/22 18:04 | ZSA | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881141 | 5 | 06/19/22 16:23 | 06/20/22 20:21 | LD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1879497 | 1 | 06/14/22 16:51 | 06/15/22 12:36 | MGF | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG1879455 | 1 | 06/14/22 16:51 | 06/15/22 08:01 | ACG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015M | WG1882295 | 1 | 06/21/22 08:26 | 06/21/22 17:03 | JAS | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1882274 | 1 | 06/21/22 17:56 | 06/22/22 07:07 | AGW | Mt. Juliet, TN |

## 20220608-MESA 13 (W WALL) @ 6' L1503724-04 Solid

Collected by: Evan Mason | Collected date/time: 06/08/22 13:00 | Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1882332 | 1 | 07/03/22 21:14 | 07/03/22 21:14 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 7199 | WG1881558 | 1 | 06/20/22 18:00 | 06/22/22 10:25 | ARD | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1879954 | 1 | 06/16/22 12:00 | 06/16/22 14:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1880054 | 1 | 06/15/22 16:06 | 06/18/22 10:33 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B | WG1881139 | 1 | 06/19/22 16:18 | 06/21/22 00:06 | CCE | Mt. Juliet, TN |

## 20220608-MESA 13 (W WALL) @ 6' L1503724-04 Solid

Collected by: Evan Mason
Collected date/time: 06/08/22 13:00
Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1883528 | 1 | 06/29/22 20:03 | 07/01/22 18:12 | ZSA | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881141 | 5 | 06/19/22 16:23 | 06/20/22 20:24 | LD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1879497 | 1 | 06/14/22 16:51 | 06/15/22 12:59 | MGF | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG1879455 | 1 | 06/14/22 16:51 | 06/15/22 08:20 | ACG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015M | WG1882295 | 1 | 06/21/22 08:26 | 06/21/22 17:36 | TJD | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1882274 | 1 | 06/21/22 17:56 | 06/22/22 07:27 | AGW | Mt. Juliet, TN |

## 20220608-MESA 13 (BASE) @ 8' L1503724-05 Solid

Collected by: Evan Mason
Collected date/time: 06/08/22 13:10
Received date/time: 06/10/22 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Calculated Results | WG1882332 | 1 | 07/03/22 21:22 | 07/03/22 21:22 | CCE | Mt. Juliet, TN |
| Wet Chemistry by Method 7199 | WG1881558 | 1 | 06/20/22 18:00 | 06/22/22 10:30 | ARD | Mt. Juliet, TN |
| Wet Chemistry by Method 9045D | WG1879901 | 1 | 06/16/22 08:00 | 06/17/22 10:00 | GI | Mt. Juliet, TN |
| Wet Chemistry by Method 9050AMod | WG1880013 | 1 | 06/15/22 15:48 | 06/18/22 13:42 | ARD | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B | WG1881139 | 1 | 06/19/22 16:18 | 06/21/22 00:09 | CCE | Mt. Juliet, TN |
| Metals (ICP) by Method 6010B-NE493 Ch 2 | WG1883528 | 1 | 06/29/22 20:03 | 07/01/22 18:15 | ZSA | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1881141 | 5 | 06/19/22 16:23 | 06/20/22 20:28 | LD | Mt. Juliet, TN |
| Volatile Organic Compounds (GC) by Method 8015D/GRO | WG1879497 | 1 | 06/14/22 16:51 | 06/15/22 13:23 | MGF | Mt. Juliet, TN |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG1879455 | 1 | 06/14/22 16:51 | 06/15/22 08:40 | ACG | Mt. Juliet, TN |
| Semi-Volatile Organic Compounds (GC) by Method 8015M | WG1882295 | 1 | 06/21/22 08:26 | 06/21/22 17:50 | TJD | Mt. Juliet, TN |
| Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM | WG1882276 | 1 | 06/21/22 18:00 | 06/22/22 11:42 | JNJ | Mt. Juliet, TN |

# CASE NARRATIVE

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

Chris Ward
Project Manager

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | SAR | | | | |
| Sodium Adsorption Ratio | 1.26 | | 1 | 07/03/2022 21:06 | WG1882332 |

## Wet Chemistry by Method 7199

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Hexavalent Chromium | ND | | 1.00 | 1 | 06/22/2022 09:53 | WG1881558 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | pH | | | | |
| pH | 8.55 | T8 | 1 | 06/16/2022 14:00 | WG1879954 |

Sample Narrative:

L1503724-01 WG1879954: 8.55 at 24.2C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 172 | | 10.0 | 1 | 06/18/2022 10:33 | WG1880054 |

Sample Narrative:

L1503724-01 WG1880054: at 25C

## Metals (ICP) by Method 6010B

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Barium | 222 | | 0.500 | 1 | 06/20/2022 23:50 | WG1881139 |
| Cadmium | ND | | 0.500 | 1 | 06/20/2022 23:50 | WG1881139 |
| Copper | 11.5 | | 2.00 | 1 | 06/20/2022 23:50 | WG1881139 |
| Lead | 7.21 | | 0.500 | 1 | 06/20/2022 23:50 | WG1881139 |
| Nickel | 11.6 | | 2.00 | 1 | 06/20/2022 23:50 | WG1881139 |
| Selenium | ND | | 2.00 | 1 | 06/20/2022 23:50 | WG1881139 |
| Silver | ND | | 1.00 | 1 | 06/20/2022 23:50 | WG1881139 |
| Zinc | 28.2 | | 5.00 | 1 | 06/20/2022 23:50 | WG1881139 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/l | | mg/l | | | |
| Hot Water Sol. Boron | ND | | 0.200 | 1 | 07/01/2022 17:58 | WG1883528 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Arsenic | 5.94 | | 1.00 | 5 | 06/20/2022 20:14 | WG1881141 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| TPH (GC/FID) Low Fraction | 0.135 | | 0.100 | 1 | 06/15/2022 11:49 | WG1879497 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *97.9* | | *77.0-120* | | *06/15/2022 11:49* | WG1879497 |

## 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 | 06/15/2022 07:23 | WG1879455 |
| Toluene | ND | | 0.00500 | 1 | 06/15/2022 07:23 | WG1879455 |
| Ethylbenzene | ND | | 0.00250 | 1 | 06/15/2022 07:23 | WG1879455 |
| Xylenes, Total | 0.0126 | | 0.00650 | 1 | 06/15/2022 07:23 | WG1879455 |
| 1,2,4-Trimethylbenzene | 0.00513 | | 0.00500 | 1 | 06/15/2022 07:23 | WG1879455 |
| 1,3,5-Trimethylbenzene | 0.0107 | | 0.00500 | 1 | 06/15/2022 07:23 | WG1879455 |
| *(S) Toluene-d8* | *99.9* | | *75.0-131* | | *06/15/2022 07:23* | WG1879455 |
| *(S) 4-Bromofluorobenzene* | *107* | | *67.0-138* | | *06/15/2022 07:23* | WG1879455 |
| *(S) 1,2-Dichloroethane-d4* | *79.6* | | *70.0-130* | | *06/15/2022 07:23* | WG1879455 |

## 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 | 5.95 | | 4.00 | 1 | 06/22/2022 10:13 | WG1882295 |
| C28-C36 Motor Oil Range | 14.2 | B | 4.00 | 1 | 06/22/2022 10:13 | WG1882295 |
| *(S) o-Terphenyl* | *33.7* | | *18.0-148* | | *06/22/2022 10:13* | WG1882295 |

## 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 | 06/22/2022 06:28 | WG1882274 |
| Anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Benzo(a)anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Benzo(b)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Benzo(k)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Benzo(a)pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Chrysene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Dibenz(a,h)anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Fluorene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| Indeno(1,2,3-cd)pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| 1-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:28 | WG1882274 |
| 2-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:28 | WG1882274 |
| Naphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:28 | WG1882274 |
| Pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:28 | WG1882274 |
| *(S) p-Terphenyl-d14* | *90.0* | | *23.0-120* | | *06/22/2022 06:28* | WG1882274 |
| *(S) Nitrobenzene-d5* | *85.6* | | *14.0-149* | | *06/22/2022 06:28* | WG1882274 |
| *(S) 2-Fluorobiphenyl* | *87.0* | | *34.0-125* | | *06/22/2022 06:28* | WG1882274 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Sodium Adsorption Ratio | 4.15 | | 1 | 07/03/2022 21:09 | WG1882332 |

## Wet Chemistry by Method 7199

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | | 1.00 | 1 | 06/22/2022 09:59 | WG1881558 |

## Wet Chemistry by Method 9045D

| Analyte | Result pH | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 8.23 | T8 | 1 | 06/17/2022 10:00 | WG1879901 |

Sample Narrative:
L1503724-02 WG1879901: 8.23 at 24.1C

## Wet Chemistry by Method 9050AMod

| Analyte | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Specific Conductance | 932 | | 10.0 | 1 | 06/18/2022 13:42 | WG1880013 |

Sample Narrative:
L1503724-02 WG1880013: at 25C

## Metals (ICP) by Method 6010B

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Barium | 275 | | 0.500 | 1 | 06/20/2022 23:53 | WG1881139 |
| Cadmium | ND | | 0.500 | 1 | 06/20/2022 23:53 | WG1881139 |
| Copper | 18.3 | | 2.00 | 1 | 06/20/2022 23:53 | WG1881139 |
| Lead | 8.52 | | 0.500 | 1 | 06/20/2022 23:53 | WG1881139 |
| Nickel | 17.9 | | 2.00 | 1 | 06/20/2022 23:53 | WG1881139 |
| Selenium | ND | | 2.00 | 1 | 06/20/2022 23:53 | WG1881139 |
| Silver | ND | | 1.00 | 1 | 06/20/2022 23:53 | WG1881139 |
| Zinc | 51.4 | | 5.00 | 1 | 06/20/2022 23:53 | WG1881139 |

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

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Hot Water Sol. Boron | 0.665 | | 0.200 | 1 | 07/01/2022 18:01 | WG1883528 |

## Metals (ICPMS) by Method 6020

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Arsenic | 12.8 | | 1.00 | 5 | 06/20/2022 20:18 | WG1881141 |

## 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 | 0.250 | | 0.100 | 1 | 06/15/2022 12:12 | WG1879497 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *95.4* | | *77.0-120* | | *06/15/2022 12:12* | WG1879497 |

## 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 | 06/15/2022 07:42 | WG1879455 |
| Toluene | ND | | 0.00500 | 1 | 06/15/2022 07:42 | WG1879455 |
| Ethylbenzene | ND | | 0.00250 | 1 | 06/15/2022 07:42 | WG1879455 |
| Xylenes, Total | ND | | 0.00650 | 1 | 06/15/2022 07:42 | WG1879455 |
| 1,2,4-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 07:42 | WG1879455 |
| 1,3,5-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 07:42 | WG1879455 |
| *(S) Toluene-d8* | *102* | | *75.0-131* | | *06/15/2022 07:42* | WG1879455 |
| *(S) 4-Bromofluorobenzene* | *106* | | *67.0-138* | | *06/15/2022 07:42* | WG1879455 |
| *(S) 1,2-Dichloroethane-d4* | *78.8* | | *70.0-130* | | *06/15/2022 07:42* | WG1879455 |

## 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 | 31.3 | | 4.00 | 1 | 06/21/2022 16:23 | WG1882295 |
| C28-C36 Motor Oil Range | 83.5 | | 4.00 | 1 | 06/21/2022 16:23 | WG1882295 |
| *(S) o-Terphenyl* | *59.9* | | *18.0-148* | | *06/21/2022 16:23* | WG1882295 |

## 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 | 06/22/2022 06:48 | WG1882274 |
| Anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Benzo(a)anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Benzo(b)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Benzo(k)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Benzo(a)pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Chrysene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Dibenz(a,h)anthracene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Fluorene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| Indeno(1,2,3-cd)pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| 1-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:48 | WG1882274 |
| 2-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:48 | WG1882274 |
| Naphthalene | ND | | 0.0200 | 1 | 06/22/2022 06:48 | WG1882274 |
| Pyrene | ND | | 0.00600 | 1 | 06/22/2022 06:48 | WG1882274 |
| *(S) p-Terphenyl-d14* | *94.8* | | *23.0-120* | | *06/22/2022 06:48* | WG1882274 |
| *(S) Nitrobenzene-d5* | *69.4* | | *14.0-149* | | *06/22/2022 06:48* | WG1882274 |
| *(S) 2-Fluorobiphenyl* | *75.8* | | *34.0-125* | | *06/22/2022 06:48* | WG1882274 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | SAR | | | | |
| Sodium Adsorption Ratio | 3.83 | | 1 | 07/03/2022 21:11 | WG1882332 |

## Wet Chemistry by Method 7199

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Hexavalent Chromium | ND | | 1.00 | 1 | 06/22/2022 10:19 | WG1881558 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | pH | | | | |
| pH | 8.33 | T8 | 1 | 06/16/2022 14:00 | WG1879954 |

Sample Narrative:

L1503724-03 WG1879954: 8.33 at 24.1C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 921 | | 10.0 | 1 | 06/18/2022 10:33 | WG1880054 |

Sample Narrative:

L1503724-03 WG1880054: at 25C

## Metals (ICP) by Method 6010B

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Barium | 378 | | 0.500 | 1 | 06/20/2022 23:57 | WG1881139 |
| Cadmium | ND | | 0.500 | 1 | 06/20/2022 23:57 | WG1881139 |
| Copper | 19.8 | | 2.00 | 1 | 06/20/2022 23:57 | WG1881139 |
| Lead | 8.43 | | 0.500 | 1 | 06/20/2022 23:57 | WG1881139 |
| Nickel | 19.0 | | 2.00 | 1 | 06/20/2022 23:57 | WG1881139 |
| Selenium | ND | | 2.00 | 1 | 06/20/2022 23:57 | WG1881139 |
| Silver | ND | | 1.00 | 1 | 06/20/2022 23:57 | WG1881139 |
| Zinc | 51.8 | | 5.00 | 1 | 06/20/2022 23:57 | WG1881139 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/l | | mg/l | | | |
| Hot Water Sol. Boron | 0.610 | | 0.200 | 1 | 07/01/2022 18:04 | WG1883528 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Arsenic | 13.3 | | 1.00 | 5 | 06/20/2022 20:21 | WG1881141 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| TPH (GC/FID) Low Fraction | 0.269 | | 0.100 | 1 | 06/15/2022 12:36 | WG1879497 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *94.7* | | *77.0-120* | | *06/15/2022 12:36* | WG1879497 |

## 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 | 06/15/2022 08:01 | WG1879455 |
| Toluene | ND | | 0.00500 | 1 | 06/15/2022 08:01 | WG1879455 |
| Ethylbenzene | ND | | 0.00250 | 1 | 06/15/2022 08:01 | WG1879455 |
| Xylenes, Total | ND | | 0.00650 | 1 | 06/15/2022 08:01 | WG1879455 |
| 1,2,4-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:01 | WG1879455 |
| 1,3,5-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:01 | WG1879455 |
| *(S) Toluene-d8* | *101* | | *75.0-131* | | *06/15/2022 08:01* | WG1879455 |
| *(S) 4-Bromofluorobenzene* | *105* | | *67.0-138* | | *06/15/2022 08:01* | WG1879455 |
| *(S) 1,2-Dichloroethane-d4* | *79.9* | | *70.0-130* | | *06/15/2022 08:01* | WG1879455 |

## 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 | 22.2 | | 4.00 | 1 | 06/21/2022 17:03 | WG1882295 |
| C28-C36 Motor Oil Range | 70.0 | | 4.00 | 1 | 06/21/2022 17:03 | WG1882295 |
| *(S) o-Terphenyl* | *36.3* | | *18.0-148* | | *06/21/2022 17:03* | WG1882295 |

## 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 | 06/22/2022 07:07 | WG1882274 |
| Anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Benzo(a)anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Benzo(b)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Benzo(k)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Benzo(a)pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Chrysene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Dibenz(a,h)anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Fluorene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| Indeno(1,2,3-cd)pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| 1-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:07 | WG1882274 |
| 2-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:07 | WG1882274 |
| Naphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:07 | WG1882274 |
| Pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:07 | WG1882274 |
| *(S) p-Terphenyl-d14* | *93.3* | | *23.0-120* | | *06/22/2022 07:07* | WG1882274 |
| *(S) Nitrobenzene-d5* | *74.7* | | *14.0-149* | | *06/22/2022 07:07* | WG1882274 |
| *(S) 2-Fluorobiphenyl* | *80.3* | | *34.0-125* | | *06/22/2022 07:07* | WG1882274 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| Sodium Adsorption Ratio | 2.36 | | 1 | 07/03/2022 21:14 | WG1882332 |

## Wet Chemistry by Method 7199

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | | 1.00 | 1 | 06/22/2022 10:25 | WG1881558 |

## Wet Chemistry by Method 9045D

| Analyte | Result pH | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| pH | 8.76 | T8 | 1 | 06/16/2022 14:00 | WG1879954 |

Sample Narrative:
L1503724-04 WG1879954: 8.76 at 24.4C

## Wet Chemistry by Method 9050AMod

| Analyte | Result umhos/cm | Qualifier | RDL umhos/cm | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Specific Conductance | 280 | | 10.0 | 1 | 06/18/2022 10:33 | WG1880054 |

Sample Narrative:
L1503724-04 WG1880054: at 25C

## Metals (ICP) by Method 6010B

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Barium | 279 | | 0.500 | 1 | 06/21/2022 00:06 | WG1881139 |
| Cadmium | ND | | 0.500 | 1 | 06/21/2022 00:06 | WG1881139 |
| Copper | 20.9 | | 2.00 | 1 | 06/21/2022 00:06 | WG1881139 |
| Lead | 10.2 | | 0.500 | 1 | 06/21/2022 00:06 | WG1881139 |
| Nickel | 17.5 | | 2.00 | 1 | 06/21/2022 00:06 | WG1881139 |
| Selenium | ND | | 2.00 | 1 | 06/21/2022 00:06 | WG1881139 |
| Silver | ND | | 1.00 | 1 | 06/21/2022 00:06 | WG1881139 |
| Zinc | 48.1 | | 5.00 | 1 | 06/21/2022 00:06 | WG1881139 |

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

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Hot Water Sol. Boron | 0.635 | | 0.200 | 1 | 07/01/2022 18:12 | WG1883528 |

## Metals (ICPMS) by Method 6020

| Analyte | Result mg/kg | Qualifier | RDL mg/kg | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Arsenic | 14.3 | | 1.00 | 5 | 06/20/2022 20:24 | WG1881141 |

## 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 | 0.223 | | 0.100 | 1 | 06/15/2022 12:59 | WG1879497 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *95.8* | | *77.0-120* | | *06/15/2022 12:59* | WG1879497 |

## 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 | 06/15/2022 08:20 | WG1879455 |
| Toluene | ND | | 0.00500 | 1 | 06/15/2022 08:20 | WG1879455 |
| Ethylbenzene | ND | | 0.00250 | 1 | 06/15/2022 08:20 | WG1879455 |
| Xylenes, Total | ND | | 0.00650 | 1 | 06/15/2022 08:20 | WG1879455 |
| 1,2,4-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:20 | WG1879455 |
| 1,3,5-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:20 | WG1879455 |
| *(S) Toluene-d8* | *102* | | *75.0-131* | | *06/15/2022 08:20* | WG1879455 |
| *(S) 4-Bromofluorobenzene* | *105* | | *67.0-138* | | *06/15/2022 08:20* | WG1879455 |
| *(S) 1,2-Dichloroethane-d4* | *80.1* | | *70.0-130* | | *06/15/2022 08:20* | WG1879455 |

## 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 | 13.7 | | 4.00 | 1 | 06/21/2022 17:36 | WG1882295 |
| C28-C36 Motor Oil Range | 50.0 | | 4.00 | 1 | 06/21/2022 17:36 | WG1882295 |
| *(S) o-Terphenyl* | *27.0* | | *18.0-148* | | *06/21/2022 17:36* | WG1882295 |

## 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 | 06/22/2022 07:27 | WG1882274 |
| Anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Benzo(a)anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Benzo(b)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Benzo(k)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Benzo(a)pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Chrysene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Dibenz(a,h)anthracene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Fluorene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| Indeno(1,2,3-cd)pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| 1-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:27 | WG1882274 |
| 2-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:27 | WG1882274 |
| Naphthalene | ND | | 0.0200 | 1 | 06/22/2022 07:27 | WG1882274 |
| Pyrene | ND | | 0.00600 | 1 | 06/22/2022 07:27 | WG1882274 |
| *(S) p-Terphenyl-d14* | *83.0* | | *23.0-120* | | *06/22/2022 07:27* | WG1882274 |
| *(S) Nitrobenzene-d5* | *75.8* | | *14.0-149* | | *06/22/2022 07:27* | WG1882274 |
| *(S) 2-Fluorobiphenyl* | *78.3* | | *34.0-125* | | *06/22/2022 07:27* | WG1882274 |

## Calculated Results

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | SAR | | | | |
| Sodium Adsorption Ratio | 1.15 | | 1 | 07/03/2022 21:22 | WG1882332 |

## Wet Chemistry by Method 7199

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Hexavalent Chromium | ND | | 1.00 | 1 | 06/22/2022 10:30 | WG1881558 |

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|
| | pH | | | | |
| pH | 8.59 | T8 | 1 | 06/17/2022 10:00 | WG1879901 |

Sample Narrative:

L1503724-05 WG1879901: 8.59 at 24C

## Wet Chemistry by Method 9050AMod

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | umhos/cm | | umhos/cm | | | |
| Specific Conductance | 120 | | 10.0 | 1 | 06/18/2022 13:42 | WG1880013 |

Sample Narrative:

L1503724-05 WG1880013: at 25C

## Metals (ICP) by Method 6010B

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Barium | 194 | | 0.500 | 1 | 06/21/2022 00:09 | WG1881139 |
| Cadmium | ND | | 0.500 | 1 | 06/21/2022 00:09 | WG1881139 |
| Copper | 12.9 | | 2.00 | 1 | 06/21/2022 00:09 | WG1881139 |
| Lead | 6.25 | | 0.500 | 1 | 06/21/2022 00:09 | WG1881139 |
| Nickel | 12.8 | | 2.00 | 1 | 06/21/2022 00:09 | WG1881139 |
| Selenium | ND | | 2.00 | 1 | 06/21/2022 00:09 | WG1881139 |
| Silver | ND | | 1.00 | 1 | 06/21/2022 00:09 | WG1881139 |
| Zinc | 34.3 | | 5.00 | 1 | 06/21/2022 00:09 | WG1881139 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/l | | mg/l | | | |
| Hot Water Sol. Boron | ND | | 0.200 | 1 | 07/01/2022 18:15 | WG1883528 |

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| Arsenic | 7.30 | | 1.00 | 5 | 06/20/2022 20:28 | WG1881141 |

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

| Analyte | Result | Qualifier | RDL | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | | | |
| TPH (GC/FID) Low Fraction | 0.233 | | 0.100 | 1 | 06/15/2022 13:23 | WG1879497 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *97.4* | | *77.0-120* | | *06/15/2022 13:23* | WG1879497 |

## 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 | 06/15/2022 08:40 | WG1879455 |
| Toluene | ND | | 0.00500 | 1 | 06/15/2022 08:40 | WG1879455 |
| Ethylbenzene | ND | | 0.00250 | 1 | 06/15/2022 08:40 | WG1879455 |
| Xylenes, Total | 0.0142 | | 0.00650 | 1 | 06/15/2022 08:40 | WG1879455 |
| 1,2,4-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:40 | WG1879455 |
| 1,3,5-Trimethylbenzene | ND | | 0.00500 | 1 | 06/15/2022 08:40 | WG1879455 |
| *(S) Toluene-d8* | *103* | | *75.0-131* | | *06/15/2022 08:40* | WG1879455 |
| *(S) 4-Bromofluorobenzene* | *105* | | *67.0-138* | | *06/15/2022 08:40* | WG1879455 |
| *(S) 1,2-Dichloroethane-d4* | *78.2* | | *70.0-130* | | *06/15/2022 08:40* | WG1879455 |

## 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 | 10.3 | | 4.00 | 1 | 06/21/2022 17:50 | WG1882295 |
| C28-C36 Motor Oil Range | 34.2 | | 4.00 | 1 | 06/21/2022 17:50 | WG1882295 |
| *(S) o-Terphenyl* | *37.2* | | *18.0-148* | | *06/21/2022 17:50* | WG1882295 |

## 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 | 06/22/2022 11:42 | WG1882276 |
| Anthracene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Benzo(a)anthracene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Benzo(b)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Benzo(k)fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Benzo(a)pyrene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Chrysene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Dibenz(a,h)anthracene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Fluoranthene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Fluorene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| Indeno(1,2,3-cd)pyrene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| 1-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 11:42 | WG1882276 |
| 2-Methylnaphthalene | ND | | 0.0200 | 1 | 06/22/2022 11:42 | WG1882276 |
| Naphthalene | ND | | 0.0200 | 1 | 06/22/2022 11:42 | WG1882276 |
| Pyrene | ND | | 0.00600 | 1 | 06/22/2022 11:42 | WG1882276 |
| *(S) p-Terphenyl-d14* | *60.8* | | *23.0-120* | | *06/22/2022 11:42* | WG1882276 |
| *(S) Nitrobenzene-d5* | *44.6* | | *14.0-149* | | *06/22/2022 11:42* | WG1882276 |
| *(S) 2-Fluorobiphenyl* | *57.8* | | *34.0-125* | | *06/22/2022 11:42* | WG1882276 |

## Method Blank (MB)

(MB) R3806103-1 06/22/22 09:15

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

## L1503724-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1503724-02 06/22/22 09:59 • (DUP) R3806103-3 06/22/22 10:04

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

## L1503725-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1503725-02 06/22/22 10:40 • (DUP) R3806103-4 06/22/22 10:45

| Analyte | Original Result mg/kg | DUP Result mg/kg | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | ND | 1 | 1.49 | | 20 |

## Laboratory Control Sample (LCS)

(LCS) R3806103-2 06/22/22 09:22

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Hexavalent Chromium | 10.0 | 9.77 | 97.7 | 80.0-120 | |

## L1503725-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503725-04 06/22/22 10:56 • (MS) R3806103-5 06/22/22 11:01 • (MSD) R3806103-6 06/22/22 11:06

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 20.0 | ND | 19.5 | 20.0 | 94.5 | 96.8 | 1 | 75.0-125 | | | 2.35 | 20 |

## L1503725-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1503725-04 06/22/22 10:56 • (MS) R3806103-8 06/22/22 11:27

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MS Rec. % | Dilution | Rec. Limits % | MS Qualifier |
|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 687 | ND | 703 | 102 | 50 | 75.0-125 | |

## L1503728-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1503728-03 06/17/22 10:00 • (DUP) R3804235-2 06/17/22 10:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 8.04 | 8.01 | 1 | 0.374 | | 1 |

Sample Narrative:

OS: 8.04 at 23.81C

DUP: 8.01 at 24.2C

## L1504170-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1504170-01 06/17/22 10:00 • (DUP) R3804235-3 06/17/22 10:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 8.15 | 8.17 | 1 | 0.245 | | 1 |

Sample Narrative:

OS: 8.15 at 24C

DUP: 8.17 at 24.1C

## Laboratory Control Sample (LCS)

(LCS) R3804235-1 06/17/22 10:00

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

Sample Narrative:

LCS: 9.9 at 24C

## L1504172-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1504172-01 06/16/22 14:00 • (DUP) R3803975-2 06/16/22 14:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 7.91 | 7.91 | 1 | 0.000 | | 1 |

Sample Narrative:

OS: 7.91 at 24.5C

DUP: 7.91 at 24.6C

## L1504176-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1504176-01 06/16/22 14:00 • (DUP) R3803975-3 06/16/22 14:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 8.02 | 8.01 | 1 | 0.125 | | 1 |

Sample Narrative:

OS: 8.02 at 25C

DUP: 8.01 at 25C

## Laboratory Control Sample (LCS)

(LCS) R3803975-1 06/16/22 14:00

| Analyte | Spike Amount | LCS Result | LCS Rec. | Rec. Limits | LCS Qualifier |
|---|---|---|---|---|---|
| | su | su | % | % | |
| pH | 10.0 | 9.92 | 99.2 | 99.0-101 | |

Sample Narrative:

LCS: 9.92 at 24.3C

## Method Blank (MB)

(MB) R3804631-1 06/18/22 13:42

| 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

## L1501136-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1501136-01 06/18/22 13:42 • (DUP) R3804631-3 06/18/22 13:42

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 166 | 148 | 1 | 11.2 | | 20 |

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

## L1503724-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1503724-02 06/18/22 13:42 • (DUP) R3804631-4 06/18/22 13:42

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 932 | 899 | 1 | 3.60 | | 20 |

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

## Laboratory Control Sample (LCS)

(LCS) R3804631-2 06/18/22 13:42

| Analyte | Spike Amount umhos/cm | LCS Result umhos/cm | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Specific Conductance | 268 | 278 | 104 | 85.0-115 | |

Sample Narrative:
LCS: at 25C

## Method Blank (MB)

(MB) R3804589-1 06/18/22 10:33

| 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

## L1503722-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1503722-01 06/18/22 10:33 • (DUP) R3804589-3 06/18/22 10:33

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 116 | 124 | 1 | 6.93 | | 20 |

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

## L1503725-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1503725-02 06/18/22 10:33 • (DUP) R3804589-4 06/18/22 10:33

| Analyte | Original Result umhos/cm | DUP Result umhos/cm | Dilution | DUP RPD % | DUP Qualifier | DUP RPD Limits % |
|---|---|---|---|---|---|---|
| Specific Conductance | 85.7 | 99.9 | 1 | 15.3 | | 20 |

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

## Laboratory Control Sample (LCS)

(LCS) R3804589-2 06/18/22 10:33

| Analyte | Spike Amount umhos/cm | LCS Result umhos/cm | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Specific Conductance | 268 | 287 | 107 | 85.0-115 | |

Sample Narrative:
LCS: at 25C

## Method Blank (MB)

(MB) R3805284-1 06/20/22 22:53

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

## Laboratory Control Sample (LCS)

(LCS) R3805284-2 06/20/22 22:56

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Barium | 100 | 99.2 | 99.2 | 80.0-120 | |
| Cadmium | 100 | 93.9 | 93.9 | 80.0-120 | |
| Copper | 100 | 93.4 | 93.4 | 80.0-120 | |
| Lead | 100 | 94.8 | 94.8 | 80.0-120 | |
| Nickel | 100 | 95.7 | 95.7 | 80.0-120 | |
| Selenium | 100 | 95.3 | 95.3 | 80.0-120 | |
| Silver | 20.0 | 17.0 | 85.1 | 80.0-120 | |
| Zinc | 100 | 90.8 | 90.8 | 80.0-120 | |

## L1503722-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503722-02 06/20/22 22:59 • (MS) R3805284-5 06/20/22 23:08 • (MSD) R3805284-6 06/20/22 23:11

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 100 | 214 | 311 | 403 | 97.2 | 190 | 1 | 75.0-125 | | J3 J5 | 25.9 | 20 |
| Cadmium | 100 | 0.504 | 106 | 109 | 105 | 108 | 1 | 75.0-125 | | | 2.83 | 20 |
| Copper | 100 | 13.1 | 121 | 123 | 108 | 110 | 1 | 75.0-125 | | | 1.89 | 20 |
| Lead | 100 | 9.98 | 115 | 118 | 106 | 108 | 1 | 75.0-125 | | | 1.89 | 20 |
| Nickel | 100 | 14.7 | 125 | 125 | 110 | 111 | 1 | 75.0-125 | | | 0.644 | 20 |
| Selenium | 100 | ND | 106 | 110 | 106 | 110 | 1 | 75.0-125 | | | 3.43 | 20 |
| Silver | 20.0 | ND | 19.2 | 19.9 | 95.8 | 99.4 | 1 | 75.0-125 | | | 3.63 | 20 |
| Zinc | 100 | 42.3 | 140 | 142 | 97.5 | 99.4 | 1 | 75.0-125 | | | 1.35 | 20 |

## Method Blank (MB)

(MB) R3810319-1 07/01/22 17:39

| 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) R3810319-2 07/01/22 17:42 • (LCSD) R3810319-3 07/01/22 17:44

| 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 | 1.12 | 1.10 | 112 | 110 | 80.0-120 | | | 1.69 | 20 |

## Method Blank (MB)

(MB) R3805253-7 06/20/22 20:10

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

## Laboratory Control Sample (LCS)

(LCS) R3805253-2 06/20/22 19:03

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Arsenic | 100 | 96.4 | 96.4 | 80.0-120 | |

## L1503722-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503722-02 06/20/22 19:06 • (MS) R3805253-5 06/20/22 19:16 • (MSD) R3805253-6 06/20/22 19:20

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 100 | 6.42 | 104 | 105 | 97.3 | 98.9 | 5 | 75.0-125 | | | 1.58 | 20 |

## Method Blank (MB)

(MB) R3803538-2 06/15/22 06:52

| Analyte | MB Result mg/kg | MB Qualifier | MB MDL mg/kg | MB RDL mg/kg |
|---|---|---|---|---|
| TPH (GC/FID) Low Fraction | U | | 0.0217 | 0.100 |
| *(S) a,a,a-Trifluorotoluene(FID)* | *102* | | | *77.0-120* |

## Laboratory Control Sample (LCS)

(LCS) R3803538-1 06/15/22 05:54

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| TPH (GC/FID) Low Fraction | 5.50 | 5.48 | 99.6 | 72.0-127 | |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | *106* | *77.0-120* | |

## L1503236-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503236-01 06/15/22 07:53 • (MS) R3803538-3 06/15/22 15:20 • (MSD) R3803538-4 06/15/22 15:43

| 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 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPH (GC/FID) Low Fraction | 5.39 | ND | 2.65 | 3.68 | 48.1 | 66.5 | 1 | 10.0-151 | | J3 | 32.5 | 28 |
| *(S) a,a,a-Trifluorotoluene(FID)* | | | | | *100* | *102* | | *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) R3804369-3 06/15/22 00:56

| 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* | *106* | | | *67.0-138* |
| *(S) 1,2-Dichloroethane-d4* | *81.8* | | | *70.0-130* |

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

(LCS) R3804369-1 06/14/22 23:40 • (LCSD) R3804369-2 06/14/22 23:59

| 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 | 0.119 | 0.122 | 95.2 | 97.6 | 70.0-123 | | | 2.49 | 20 |
| Toluene | 0.125 | 0.124 | 0.124 | 99.2 | 99.2 | 75.0-121 | | | 0.000 | 20 |
| Ethylbenzene | 0.125 | 0.121 | 0.118 | 96.8 | 94.4 | 74.0-126 | | | 2.51 | 20 |
| Xylenes, Total | 0.375 | 0.374 | 0.371 | 99.7 | 98.9 | 72.0-127 | | | 0.805 | 20 |
| 1,2,4-Trimethylbenzene | 0.125 | 0.105 | 0.105 | 84.0 | 84.0 | 70.0-126 | | | 0.000 | 20 |
| 1,3,5-Trimethylbenzene | 0.125 | 0.0996 | 0.102 | 79.7 | 81.6 | 73.0-127 | | | 2.38 | 20 |
| *(S) Toluene-d8* | | | | *101* | *98.8* | *75.0-131* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *110* | *107* | *67.0-138* | | | | |
| *(S) 1,2-Dichloroethane-d4* | | | | *85.2* | *87.7* | *70.0-130* | | | | |

## L1503725-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503725-05 06/15/22 10:15 • (MS) R3804369-4 06/15/22 10:34 • (MSD) R3804369-5 06/15/22 10:54

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.125 | ND | 0.102 | 0.106 | 81.6 | 84.8 | 1 | 10.0-149 | | | 3.85 | 37 |
| Toluene | 0.125 | ND | 0.108 | 0.113 | 86.4 | 90.4 | 1 | 10.0-156 | | | 4.52 | 38 |
| Ethylbenzene | 0.125 | ND | 0.107 | 0.108 | 85.6 | 86.4 | 1 | 10.0-160 | | | 0.930 | 38 |
| Xylenes, Total | 0.375 | ND | 0.328 | 0.339 | 87.0 | 89.9 | 1 | 10.0-160 | | | 3.30 | 38 |
| 1,2,4-Trimethylbenzene | 0.125 | ND | 0.0959 | 0.0953 | 76.7 | 76.2 | 1 | 10.0-160 | | | 0.628 | 36 |
| 1,3,5-Trimethylbenzene | 0.125 | ND | 0.0905 | 0.0927 | 72.4 | 74.2 | 1 | 10.0-160 | | | 2.40 | 38 |
| *(S) Toluene-d8* | | | | | *100* | *103* | | *75.0-131* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | | *104* | *106* | | *67.0-138* | | | | |
| *(S) 1,2-Dichloroethane-d4* | | | | | *80.9* | *80.7* | | *70.0-130* | | | | |

## Method Blank (MB)

(MB) R3805708-2 06/21/22 13:45

| 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 | 2.16 | J | 0.274 | 4.00 |
| *(S) o-Terphenyl* | *84.1* | | | *18.0-148* |

## Laboratory Control Sample (LCS)

(LCS) R3805708-1 06/21/22 13:32

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| C10-C28 Diesel Range | 50.0 | 37.2 | 74.4 | 50.0-150 | |
| *(S) o-Terphenyl* | | | *78.7* | *18.0-148* | |

## L1503725-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503725-02 06/21/22 18:04 • (MS) R3805795-1 06/21/22 18:18 • (MSD) R3805795-2 06/21/22 18:55

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 Diesel Range | 49.0 | 17.0 | 50.7 | 47.0 | 68.8 | 61.5 | 1 | 50.0-150 | | | 7.57 | 20 |
| *(S) o-Terphenyl* | | | | | *40.8* | *57.8* | | *18.0-148* | | | | |

## Method Blank (MB)

(MB) R3806074-2 06/22/22 06:08

| 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* | *79.5* | | | *23.0-120* |
| *(S) Nitrobenzene-d5* | *60.2* | | | *14.0-149* |
| *(S) 2-Fluorobiphenyl* | *70.7* | | | *34.0-125* |

## Laboratory Control Sample (LCS)

(LCS) R3806074-1 06/22/22 05:49

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Acenaphthene | 0.0800 | 0.0610 | 76.3 | 50.0-120 | |
| Anthracene | 0.0800 | 0.0657 | 82.1 | 50.0-126 | |
| Benzo(a)anthracene | 0.0800 | 0.0683 | 85.4 | 45.0-120 | |
| Benzo(b)fluoranthene | 0.0800 | 0.0667 | 83.4 | 42.0-121 | |
| Benzo(k)fluoranthene | 0.0800 | 0.0661 | 82.6 | 49.0-125 | |
| Benzo(a)pyrene | 0.0800 | 0.0608 | 76.0 | 42.0-120 | |
| Chrysene | 0.0800 | 0.0694 | 86.8 | 49.0-122 | |
| Dibenz(a,h)anthracene | 0.0800 | 0.0655 | 81.9 | 47.0-125 | |
| Fluoranthene | 0.0800 | 0.0697 | 87.1 | 49.0-129 | |
| Fluorene | 0.0800 | 0.0656 | 82.0 | 49.0-120 | |
| Indeno(1,2,3-cd)pyrene | 0.0800 | 0.0685 | 85.6 | 46.0-125 | |
| 1-Methylnaphthalene | 0.0800 | 0.0574 | 71.8 | 51.0-121 | |
| 2-Methylnaphthalene | 0.0800 | 0.0605 | 75.6 | 50.0-120 | |
| Naphthalene | 0.0800 | 0.0556 | 69.5 | 50.0-120 | |
| Pyrene | 0.0800 | 0.0664 | 83.0 | 43.0-123 | |

## Laboratory Control Sample (LCS)

(LCS) R3806074-1 06/22/22 05:49

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| *(S) p-Terphenyl-d14* | | | *96.6* | *23.0-120* | |
| *(S) Nitrobenzene-d5* | | | *63.9* | *14.0-149* | |
| *(S) 2-Fluorobiphenyl* | | | *72.4* | *34.0-125* | |

## L1503476-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503476-08 06/22/22 12:22 • (MS) R3806074-3 06/22/22 12:42 • (MSD) R3806074-4 06/22/22 13:02

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 0.0776 | ND | 0.0558 | 0.0641 | 71.9 | 82.6 | 1 | 14.0-127 | | | 13.8 | 27 |
| Anthracene | 0.0776 | ND | 0.0598 | 0.0697 | 77.1 | 89.8 | 1 | 10.0-145 | | | 15.3 | 30 |
| Benzo(a)anthracene | 0.0776 | ND | 0.0661 | 0.0718 | 85.2 | 92.5 | 1 | 10.0-139 | | | 8.27 | 30 |
| Benzo(b)fluoranthene | 0.0776 | ND | 0.0579 | 0.0637 | 72.5 | 80.0 | 1 | 10.0-140 | | | 9.54 | 36 |
| Benzo(k)fluoranthene | 0.0776 | ND | 0.0566 | 0.0648 | 72.9 | 83.5 | 1 | 10.0-137 | | | 13.5 | 31 |
| Benzo(a)pyrene | 0.0776 | ND | 0.0674 | 0.0735 | 84.4 | 92.2 | 1 | 10.0-141 | | | 8.66 | 31 |
| Chrysene | 0.0776 | ND | 0.0634 | 0.0699 | 81.7 | 90.1 | 1 | 10.0-145 | | | 9.75 | 30 |
| Dibenz(a,h)anthracene | 0.0776 | ND | 0.0558 | 0.0634 | 71.9 | 81.7 | 1 | 10.0-132 | | | 12.8 | 31 |
| Fluoranthene | 0.0776 | ND | 0.0679 | 0.0720 | 83.7 | 88.9 | 1 | 10.0-153 | | | 5.86 | 33 |
| Fluorene | 0.0776 | ND | 0.0611 | 0.0701 | 78.7 | 90.3 | 1 | 11.0-130 | | | 13.7 | 29 |
| Indeno(1,2,3-cd)pyrene | 0.0776 | ND | 0.0627 | 0.0686 | 80.8 | 88.4 | 1 | 10.0-137 | | | 8.99 | 32 |
| 1-Methylnaphthalene | 0.0776 | ND | 0.0537 | 0.0597 | 69.2 | 76.9 | 1 | 10.0-142 | | | 10.6 | 28 |
| 2-Methylnaphthalene | 0.0776 | ND | 0.0567 | 0.0639 | 73.1 | 82.3 | 1 | 10.0-137 | | | 11.9 | 28 |
| Naphthalene | 0.0776 | ND | 0.0522 | 0.0558 | 67.3 | 71.9 | 1 | 10.0-135 | | | 6.67 | 27 |
| Pyrene | 0.0776 | ND | 0.0637 | 0.0677 | 77.7 | 82.9 | 1 | 10.0-148 | | | 6.09 | 35 |
| *(S) p-Terphenyl-d14* | | | | | *73.9* | *97.0* | | *23.0-120* | | | | |
| *(S) Nitrobenzene-d5* | | | | | *56.7* | *77.6* | | *14.0-149* | | | | |
| *(S) 2-Fluorobiphenyl* | | | | | *58.7* | *80.8* | | *34.0-125* | | | | |

## Method Blank (MB)

(MB) R3806035-2 06/22/22 06:03

| 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* | *103* | | | *23.0-120* |
| *(S) Nitrobenzene-d5* | *46.4* | | | *14.0-149* |
| *(S) 2-Fluorobiphenyl* | *63.3* | | | *34.0-125* |

## Laboratory Control Sample (LCS)

(LCS) R3806035-1 06/22/22 05:45

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Acenaphthene | 0.0800 | 0.0542 | 67.8 | 50.0-120 | |
| Anthracene | 0.0800 | 0.0552 | 69.0 | 50.0-126 | |
| Benzo(a)anthracene | 0.0800 | 0.0573 | 71.6 | 45.0-120 | |
| Benzo(b)fluoranthene | 0.0800 | 0.0661 | 82.6 | 42.0-121 | |
| Benzo(k)fluoranthene | 0.0800 | 0.0658 | 82.3 | 49.0-125 | |
| Benzo(a)pyrene | 0.0800 | 0.0522 | 65.3 | 42.0-120 | |
| Chrysene | 0.0800 | 0.0623 | 77.9 | 49.0-122 | |
| Dibenz(a,h)anthracene | 0.0800 | 0.0625 | 78.1 | 47.0-125 | |
| Fluoranthene | 0.0800 | 0.0587 | 73.4 | 49.0-129 | |
| Fluorene | 0.0800 | 0.0578 | 72.3 | 49.0-120 | |
| Indeno(1,2,3-cd)pyrene | 0.0800 | 0.0630 | 78.8 | 46.0-125 | |
| 1-Methylnaphthalene | 0.0800 | 0.0544 | 68.0 | 51.0-121 | |
| 2-Methylnaphthalene | 0.0800 | 0.0524 | 65.5 | 50.0-120 | |
| Naphthalene | 0.0800 | 0.0536 | 67.0 | 50.0-120 | |
| Pyrene | 0.0800 | 0.0614 | 76.8 | 43.0-123 | |

## Laboratory Control Sample (LCS)

(LCS) R3806035-1 06/22/22 05:45

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| *(S) p-Terphenyl-d14* | | | *100* | *23.0-120* | |
| *(S) Nitrobenzene-d5* | | | *60.6* | *14.0-149* | |
| *(S) 2-Fluorobiphenyl* | | | *68.7* | *34.0-125* | |

## L1503701-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503701-01 06/22/22 06:20 • (MS) R3806035-3 06/22/22 06:38 • (MSD) R3806035-4 06/22/22 06:56

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 0.0780 | ND | 0.0495 | 0.0435 | 63.5 | 55.8 | 1 | 14.0-127 | | | 12.9 | 27 |
| Anthracene | 0.0780 | ND | 0.0497 | 0.0445 | 63.7 | 57.1 | 1 | 10.0-145 | | | 11.0 | 30 |
| Benzo(a)anthracene | 0.0780 | ND | 0.0511 | 0.0456 | 65.5 | 58.5 | 1 | 10.0-139 | | | 11.4 | 30 |
| Benzo(b)fluoranthene | 0.0780 | ND | 0.0595 | 0.0527 | 76.3 | 67.6 | 1 | 10.0-140 | | | 12.1 | 36 |
| Benzo(k)fluoranthene | 0.0780 | ND | 0.0583 | 0.0526 | 74.7 | 67.4 | 1 | 10.0-137 | | | 10.3 | 31 |
| Benzo(a)pyrene | 0.0780 | ND | 0.0534 | 0.0483 | 68.5 | 61.9 | 1 | 10.0-141 | | | 10.0 | 31 |
| Chrysene | 0.0780 | ND | 0.0556 | 0.0499 | 71.3 | 64.0 | 1 | 10.0-145 | | | 10.8 | 30 |
| Dibenz(a,h)anthracene | 0.0780 | ND | 0.0563 | 0.0511 | 72.2 | 65.5 | 1 | 10.0-132 | | | 9.68 | 31 |
| Fluoranthene | 0.0780 | ND | 0.0536 | 0.0480 | 68.7 | 61.5 | 1 | 10.0-153 | | | 11.0 | 33 |
| Fluorene | 0.0780 | ND | 0.0530 | 0.0480 | 67.9 | 61.5 | 1 | 11.0-130 | | | 9.90 | 29 |
| Indeno(1,2,3-cd)pyrene | 0.0780 | ND | 0.0550 | 0.0497 | 70.5 | 63.7 | 1 | 10.0-137 | | | 10.1 | 32 |
| 1-Methylnaphthalene | 0.0780 | ND | 0.0467 | 0.0392 | 59.9 | 50.3 | 1 | 10.0-142 | | | 17.5 | 28 |
| 2-Methylnaphthalene | 0.0780 | ND | 0.0456 | 0.0394 | 52.6 | 44.6 | 1 | 10.0-137 | | | 14.6 | 28 |
| Naphthalene | 0.0780 | ND | 0.0442 | 0.0366 | 56.7 | 46.9 | 1 | 10.0-135 | | | 18.8 | 27 |
| Pyrene | 0.0780 | ND | 0.0558 | 0.0502 | 71.5 | 64.4 | 1 | 10.0-148 | | | 10.6 | 35 |
| *(S) p-Terphenyl-d14* | | | | | *99.6* | *87.3* | | *23.0-120* | | | | |
| *(S) Nitrobenzene-d5* | | | | | *40.6* | *31.6* | | *14.0-149* | | | | |
| *(S) 2-Fluorobiphenyl* | | | | | *66.2* | *57.6* | | *34.0-125* | | | | |

## L1503701-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503701-02 06/22/22 07:14 • (MS) R3806035-5 06/22/22 07:32 • (MSD) R3806035-6 06/22/22 07:49

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 0.0800 | ND | 0.0535 | 0.0496 | 66.9 | 62.0 | 1 | 14.0-127 | | | 7.57 | 27 |
| Anthracene | 0.0800 | ND | 0.0527 | 0.0478 | 65.9 | 59.8 | 1 | 10.0-145 | | | 9.75 | 30 |
| Benzo(a)anthracene | 0.0800 | ND | 0.0536 | 0.0490 | 67.0 | 61.3 | 1 | 10.0-139 | | | 8.97 | 30 |
| Benzo(b)fluoranthene | 0.0800 | ND | 0.0630 | 0.0577 | 78.8 | 72.1 | 1 | 10.0-140 | | | 8.78 | 36 |
| Benzo(k)fluoranthene | 0.0800 | ND | 0.0621 | 0.0573 | 77.6 | 71.6 | 1 | 10.0-137 | | | 8.04 | 31 |
| Benzo(a)pyrene | 0.0800 | ND | 0.0567 | 0.0527 | 70.9 | 65.9 | 1 | 10.0-141 | | | 7.31 | 31 |

## L1503701-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503701-02 06/22/22 07:14 • (MS) R3806035-5 06/22/22 07:32 • (MSD) R3806035-6 06/22/22 07:49

| 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 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrysene | 0.0800 | ND | 0.0596 | 0.0551 | 74.5 | 68.9 | 1 | 10.0-145 | | | 7.85 | 30 |
| Dibenz(a,h)anthracene | 0.0800 | ND | 0.0610 | 0.0560 | 76.3 | 70.0 | 1 | 10.0-132 | | | 8.55 | 31 |
| Fluoranthene | 0.0800 | ND | 0.0564 | 0.0523 | 70.5 | 65.4 | 1 | 10.0-153 | | | 7.54 | 33 |
| Fluorene | 0.0800 | ND | 0.0562 | 0.0535 | 70.3 | 66.9 | 1 | 11.0-130 | | | 4.92 | 29 |
| Indeno(1,2,3-cd)pyrene | 0.0800 | ND | 0.0579 | 0.0537 | 72.4 | 67.1 | 1 | 10.0-137 | | | 7.53 | 32 |
| 1-Methylnaphthalene | 0.0800 | ND | 0.0531 | 0.0453 | 66.4 | 56.6 | 1 | 10.0-142 | | | 15.9 | 28 |
| 2-Methylnaphthalene | 0.0800 | ND | 0.0507 | 0.0439 | 63.4 | 54.9 | 1 | 10.0-137 | | | 14.4 | 28 |
| Naphthalene | 0.0800 | ND | 0.0536 | 0.0447 | 67.0 | 55.9 | 1 | 10.0-135 | | | 18.1 | 27 |
| Pyrene | 0.0800 | ND | 0.0602 | 0.0557 | 75.3 | 69.6 | 1 | 10.0-148 | | | 7.77 | 35 |
| *(S) p-Terphenyl-d14* | | | | | *98.2* | *89.2* | | *23.0-120* | | | | |
| *(S) Nitrobenzene-d5* | | | | | *55.9* | *30.6* | | *14.0-149* | | | | |
| *(S) 2-Fluorobiphenyl* | | | | | *78.1* | *62.4* | | *34.0-125* | | | | |

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

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

## Abbreviations and Definitions

| | |
|---|---|
| MDL | Method Detection Limit. |
| 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. |
| J5 | The sample matrix interfered with the ability to make any accurate determination; spike value is high. |
| T8 | Sample(s) received past/too close to holding time expiration. |

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

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

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: Campos EPC | Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO |
| Address: 1401 Blake St. Denver, CO 80202 | |
| Report To: Brett Middleton | Email To: bmiddleton@caerusoilandgas.com |
| Copy To: sjanicek@caerusoilandgas.com | Site Collection Info/Address: |
| Customer Project Name/Number: Mesa 13 | State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET |
| Phone: 970-619-0600 Email: same as above | Site/Facility ID #: Mesa 13 |
| Collected By (print): Evan Mason | Purchase Order #: Quote #: |
| Collected By (signature): | Turnaround Date Required: standard |
| Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) |
| | Compliance Monitoring? [ ] Yes [ ] No |
| | DW PWS ID #: DW Location Code: |
| | Immediately Packed on Ice: [✓] Yes [ ] No |
| | Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____ |

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:

* 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) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | COGCC Table 915-1 | EC, SAR, pH, Boron (hot water sol.), Arsenic | Lab Profile/Line: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20220608-Mesa13(N wall)e6' | SL | Grab | 6/8/22 | 1230 | - | - | - | 2 | X | | -01 |
| 20220608-Mesa13(E wall)e6' | | | | 1240 | - | - | - | 2 | X | | -02 |
| 20220608-Mesa13(S wall)e6' | | | | 1250 | - | - | - | 2 | X | | -03 |
| 20220608-Mesa13(W wall)e6' | | | | 1300 | - | - | - | 2 | X | | -04 |
| 20220608-Mesa13(base)e8' | ↓ | ↓ | — | 1310 | - | - | - | 2 | X | | -05 |
| | | | | | - | - | - | | | | |
| | | | | | - | - | - | | | | |

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: JAA6
L503724 1.6 + 0 = 1.6

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

| | | | | |
|---|---|---|---|---|
| Relinquished by/Company: (Signature) | Date/Time: 6/9/22 1200 | Received by/Company: (Signature) | Date/Time: 6/9/22 1200 | D056 |
| Relinquished by/Company: (Signature) | Date/Time: 6/9 1500 | Received by/Company: (Signature) | Date/Time: | Acctnum: Template: Prelogin: PM: PB: |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: 6/10/22 0900 | |

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

Non Conformance(s): YES / NO

Page: _____ of: _____

# ANALYTICAL REPORT

July 25, 2022



## Caerus Oil and Gas

Sample Delivery Group: L1510324

Samples Received: 06/30/2022

Project Number:

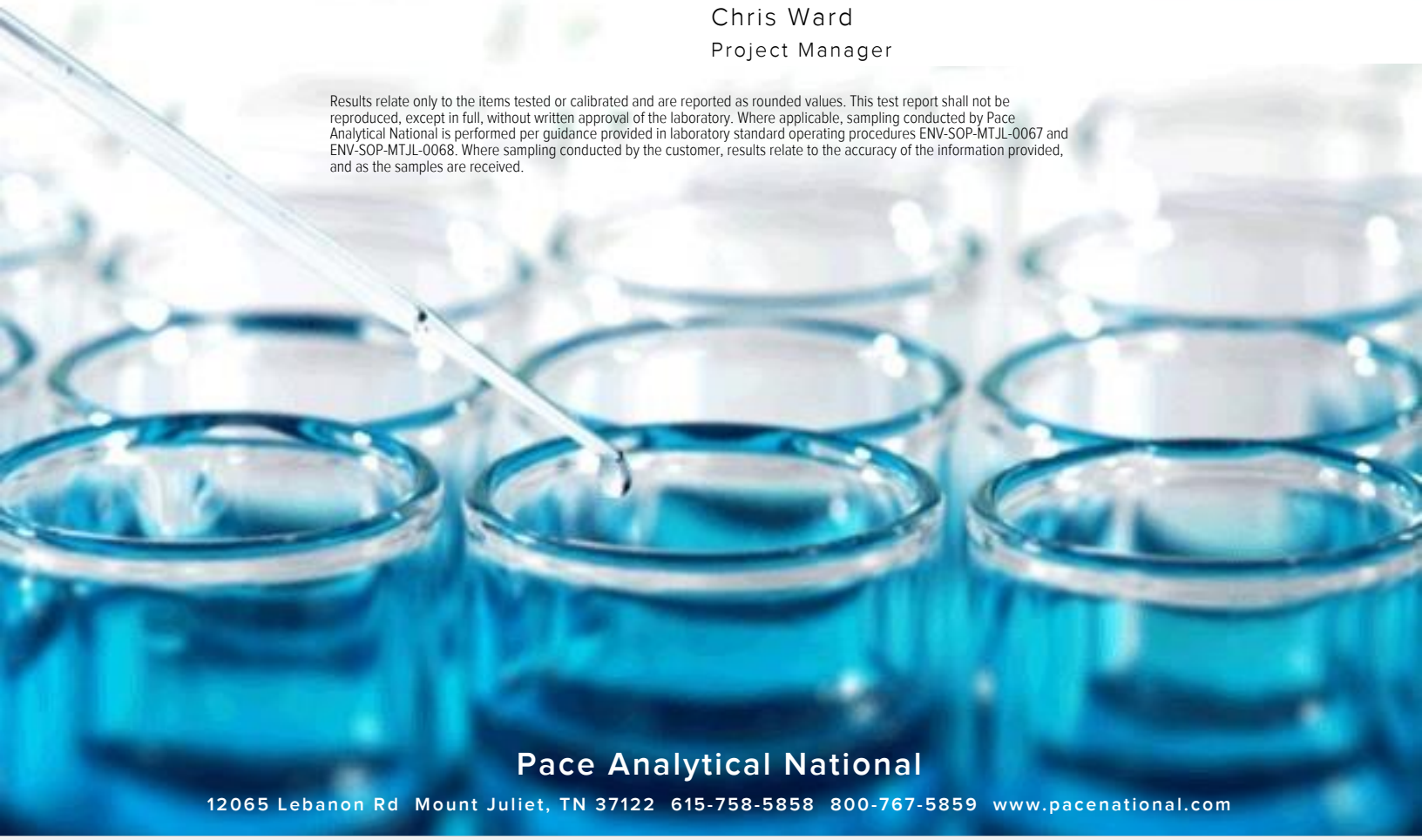
Description:

Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager





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

# TABLE OF CONTENTS

# SAMPLE SUMMARY

## 20220628-MESA3(PW) L1510324-01 Solid

Collected by: Evan Mason
Collected date/time: 06/28/22 11:20
Received date/time: 06/30/22 09:30

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst | Location |
|---|---|---|---|---|---|---|
| Wet Chemistry by Method 9045D | WG1891660 | 1 | 07/08/22 10:00 | 07/08/22 12:00 | GI | Mt. Juliet, TN |
| Metals (ICPMS) by Method 6020 | WG1899084 | 5 | 07/21/22 21:15 | 07/22/22 11:10 | 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

## Wet Chemistry by Method 9045D

| Analyte | Result | Qualifier | Dilution | Analysis | Batch |
|---|---|---|---|---|---|
| | pH | | | date / time | |
| pH | 7.04 | T8 | 1 | 07/08/2022 12:00 | WG1891660 |

Sample Narrative:

L1510324-01 WG1891660: 7.04 at 24.3C

## Metals (ICPMS) by Method 6020

| Analyte | Result | Qualifier | MDL | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|---|
| | mg/kg | | mg/kg | mg/kg | | date / time | |
| Arsenic | U | | 0.100 | 1.00 | 5 | 07/22/2022 11:10 | WG1899084 |

## L1511269-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1511269-02 07/08/22 12:00 • (DUP) R3812426-2 07/08/22 12:00

| Analyte | Original Result | DUP Result | Dilution | DUP RPD | DUP Qualifier | DUP RPD Limits |
|---|---|---|---|---|---|---|
| | pH | su | | % | | % |
| pH | 8.28 | 8.31 | 1 | 0.362 | | 1 |

Sample Narrative:

OS: 8.28 at 24.1C

DUP: 8.31 at 24.1C

## Laboratory Control Sample (LCS)

(LCS) R3812426-1 07/08/22 12:00

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

Sample Narrative:

LCS: 9.9 at 23.5C

## Method Blank (MB)

(MB) R3818113-1 07/22/22 10:46

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

## Laboratory Control Sample (LCS)

(LCS) R3818113-2 07/22/22 10:50

| Analyte | Spike Amount mg/kg | LCS Result mg/kg | LCS Rec. % | Rec. Limits % | LCS Qualifier |
|---|---|---|---|---|---|
| Arsenic | 100 | 87.3 | 87.3 | 80.0-120 | |

## L1510845-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1510845-12 07/22/22 10:53 • (MS) R3818113-5 07/22/22 11:03 • (MSD) R3818113-6 07/22/22 11:06

| Analyte | Spike Amount mg/kg | Original Result mg/kg | MS Result mg/kg | MSD Result mg/kg | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 100 | 12.4 | 107 | 116 | 94.2 | 103 | 5 | 75.0-125 | | | 8.04 | 20 |

# GLOSSARY OF TERMS

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| | |
|---|---|
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
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| RPD | Relative Percent Difference. |
| SDG | Sample Delivery Group. |
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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. |
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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 |
|---|---|
| T8 | Sample(s) received past/too close to holding time expiration. |

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

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

J073

**ALL SHADED AREAS are for LAB USE ONLY**

| | |
|---|---|
| Company: Campos EPC | Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO |
| Address: 1401 Blake St. Denver, CO 80202 | |
| Report To: Brett Middleton | Email To: bmiddleton@caerusoilandgas.com |
| Copy To: Jake.Janicek@caerusoilandgas.com | Site Collection Info/Address: |
| Customer Project Name/Number: | State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET |
| Phone: 970-619-0600 Email: same as above | Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No |
| Collected By (print): Evan Mason | Purchase Order #: Quote #: DW PWS ID #: DW Location Code: |
| Collected By (signature): | Turnaround Date Required: standard Immediately Packed on Ice: [✓] Yes [ ] No |
| Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____ | Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [ ] No Analysis: _____ |

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

| Customer Sample ID | Matrix * | Comp / Grab | Collected (or Composite Start) Date | Collected (or Composite Start) Time | Composite End Date | Composite End Time | Res Cl | # of Ctns | COGCC Table 915-1 | EC, SAR, pH, Boron (hot water sol.), Arsenic | pH | Arsenic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20220628-Mesa 3 (PW) | P | | 6/28/22 | 1120 | - | - | - | 2 | | | X | X |
| | | | | 0730 | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | - | - | - | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**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:**

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:
L1510324
-01

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 5755-8084-9885

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: _____oC
Comments:

| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
|---|---|---|---|
| | 6/29/22-1538 | | 6/29 1538 |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
| | 6/29/22 | | 09:30 6/30/22 |
| Relinquished by/Company: (Signature) | Date/Time: | Received by/Company: (Signature) | Date/Time: |
| | | | |

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

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Location PBV BG Sampling Date 6/7/22

Project / Client Calvus

65°F. Sunny. Wind gusts.

1030: Arrive on site w/ Chad to collect BG samples @ specified sites

- Review & sign JSA
- Review scope of work
- Prepare equipment for sampling

1100: Begin sampling

| Sample ID/Pad Name: | Time: |
|---|---|
| 20220607- PuckeH 257-1(BG-N)@1' | 1100 |
| " (BG-E)@2' | 1110 |
| " (BG-S)@2.5' | 1120 |
| " (BG-W)@3' | 1130 |
| 20220607- PuckeH 31-36 (BG-N)@1' | 1230 |
| " (BG-E)@2' | 1240 |
| " (BG-S)@2.5' | 1250 |
| " (BG-W)@3' | 1300 |
| 20220607- Mesa-14 (BG-N)@1' | 1310 |
| " (BG-E)@2' | 1320 |
| " (BG-S)@2.5' | 1330 |
| " (BG-W)@3' | 1340 |
| 20220607-Mesa-2 (BG-N)@1' | 1430 |
| " (BG-E)@2' | 1440 |
| " (BG-S)@2.5' | 1450 |
| " (BG-W)@3' | 1500 |

Location PBV BG Sampling Date 6/7/22

Project / Client Caerus

| Sample ID / Pad Name: | | Time |
|---|---|---|
| 20220607 - Puckett 31B-7 | (BG-N) @ 1' | 1510 |
| " | (BG-E) @ 2' | 1520 |
| " | (BG-S) @ 2.5' | 1530 |
| " | (BG-W) @ 3' | 1540 |
| 20220607 - Mesa-13 | (BG-N) @ 1' | 1550 |
| " | (BG-E) @ 2' | 1600 |
| " | (BG-S) @ 2.5' | 1610 |
| " | (BG-W) @ 3' | 1620 |
| 20220607 - Mesa-9 | (BG-N) @ 1' | 1630 |
| " | (BG-E) @ 2' | 1640 |
| " | (BG-S) @ 2.5' | 1650 |
| " | (BG-W) @ 3' | 1700 |

1630: All background samples collected, loaded up equipment, offsite

6/7/22

Location PBV Sampling Date 6/8/22

Project / Client Caerus

70° Sunny, calm & clear

1030: Arrive on site w/ Evan to collect excavation samples / drone imagery @ specified sites

- Review & sign JSA
- Review scope of work
- Prepare drone & equipment for sampling

1100: Begin sampling

| Sample ID / Pad Name: | Time | PID: |
|---|---|---|
| 20220608 - Mesa 14 (N wall) @ 6' | 1100 | 12.21 |
| " (E wall) @ 6' | 1110 | 13.20 |
| " (S wall) @ 6' | 1120 | 11.12 |
| " (W wall) @ 6' | 1130 | 13.50 |
| " (Base) @ 8' | 1140 | 14.40 |
| 20220608 - Mesa 13 (N wall) @ 6' | 1230 | |
| " (E wall) @ 6' | 1240 | |
| " (S wall) @ 6' | 1250 | |
| " (W wall) @ 6' | 1300 | |
| " (Base) @ 8' | 1310 | |
| 20220608 - Mesa 9 (N wall) @ 5' | 1400 | |
| " (E wall) @ 5' | 1415 | |
| " (S wall) @ 5' | 1430 | |
| " (W wall) @ 5' | 1445 | |
| " (Base) @ 7' | 1500 | |

1600: End of day

6/8/22