

July 27, 2023



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Report of Work Completed – Release Investigation

COGCC Location Name (ID)	BAXTER PASS SOUTH UNIT (12449)
Operator Location Name	Garden Gulch 8" Pipeline
COGCC Remediation Project	24488
Legal Description	SWSE Sec. 32 T5S-R96W
Coordinates (Lat/Long)	39.566968/-108.183634
County	Garfield County, Colorado

Mr. Rollins,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document remedial investigation activities associated with the release of produced water along the Garden Gulch 8 inch (") to Latham Pipeline (Location). The Location is 10.2 miles northwest of Parachute, Colorado, in Garfield County as illustrated in the attached Topographic Map. Additional information on the Location and the associated remediation project is provided in the title block above, the attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the spill investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On March 22, 2022, produced water was observed surfacing at the adjacent Latham Laydown Yard. It is estimated that approximately 30 barrels of produced water were released due to the flowline failure. The failed portion of flowline was exposed, and standing fluids were recovered via hydro vacuum truck. The release was reported in a Colorado Oil and Gas Conservation Commission (COGCC) Form 19 Document 402993777. Subsequently, COGCC Form 27 Document 403106734 was submitted, and Remediation Project 24488 was issued.

On March 22 through March 24, 2022, Confluence coordinated and oversaw initial site investigation activities associated with the release at the Location. The faulty portion of the flowline was exposed by trenching and was inspected for point(s) of failure. One soil sample was collected beneath the point of release (POR) and a second soil sample was collected from the west sidewall of the excavation to characterize potential soil impacts. Additionally, two surface water samples were collected from House Log Gulch: one upgradient of the POR and one downgradient of the POR. A waste characterization sample was also collected of the produced water from the POR before the pipeline repair was completed. A stockpile was generated by excavation activities, and two composite samples were collected: one from the north portion of the stockpile and one from the south portion. Analytical results from the event

exceeded COGCC Table 915-1 Protection of Groundwater Soil Screening Levels for various organic constituents, Soil Suitability for Reclamation (SSR) standards, and metals. Confluence returned to the site from April 7 to June 3, 2022, to perform additional remedial investigation. During the surface water evaluation, visual impacts were discovered in the silt traps at the Latham Laydown Yard adjacent to the Garden Gulch 8" Pipeline POR. A hydrovacuum truck was used to remove material from five silt traps and from the release excavation over the course of several investigation events. The POR excavation was expanded to measure 35 feet by 20 feet by 8 feet below ground surface (bgs). The excavation could not be advanced further due to impervious lithology at 8 feet bgs. Approximately 1 to 2 feet of soil was removed from the base of the silt traps. Soil samples were collected from the base of five silt traps and from the base and sidewalls of the POR excavation to delineate the vertical and horizontal extents of soil impacts. Analytical results from the sampling events exceeded COGCC Table 915-1 Protection of Groundwater Soil Screening Levels for various organic constituents, SSRs, and metals.

Several background samples were collected on April 28, 2022, to characterize native levels of inorganic constituents of concern at the Location. Analytical results from the sampling events exceeded COGCC Table 915-1 Protection of Groundwater Soil Screening Levels for pH and arsenic.

On July 19, 2022, Confluence returned to the Location to collect additional surface water samples from House Log Gulch, immediately adjacent to the Location. Samples were collected from the same upgradient, and downgradient locations identified on March 22, 2022. One spring sample was also collected from the unnamed spring located approximately 40 feet west of House Log Gulch. No hydrocarbon odor or sheen were observed in these samples.

On August 22 through 25, 2022, Confluence coordinated and oversaw the advancement of soil borings at the Location to delineate soil impacts, further characterize native levels of inorganic constituents, and install groundwater monitoring wells. Using a drill rig equipped with a combination of solid stem augers and air core rotary, eight soil borings were advanced to depths ranging from 6 to 20 feet bgs. During drilling activities, soil samples were collected, characterized, and field screened approximately every 2 to 5 feet of auger advancement. Soil conditions, observations, and field screening results were recorded in soil boring logs. Soil borings SB01 through SB04 were completed as groundwater monitoring wells MW01 through MW04, with SB04/MW04 being advanced 0.08 miles upgradient of the release area to characterize native levels of soil and groundwater inorganic constituents. SB05 was also advanced approximately 0.07 miles upgradient of the release area to characterize native levels of soil inorganic constituents. SB06 through SB08 were advanced to characterize and delineate soil impacts associated with the pipeline release. MW01 and MW02 were developed and sampled on August 23, 2022.

Confluence returned to the Location on September 19, 2022, to develop MW03 and MW04, sample all monitoring wells, and sample surface waters associated with House Log Gulch for the third quarter of 2022.

Confluence returned to the Location on October 31, 2022, to collect fourth quarter 2022 water samples. Groundwater samples were collected from MW01 through MW04, surface water samples were collected upgradient and downgradient from House Log Gulch, and one spring sample collected from the unnamed spring.



On April 24, 2023, Caerus submitted COGCC Document 403370349 to provide updates to first quarter the sampling schedule and request a reduced analyte suite. Due to safety concerns and site access issues surrounding winter weather conditions, first quarter 2023 water samples could not be collected. Sampling was conducted as soon as practical during the second quarter, and samples were collected again during June of 2023 to assess second quarter conditions. A reduced analyte suite of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylenes, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, electrical conductivity (EC), sodium adsorption ratio (SAR), barium, cadmium, copper, lead, nickel, and selenium were requested. The COGCC approved Document 403370349 on May 30, 2023, with the caveat that arsenic, hexavalent chromium, pH, and hot water soluble boron be added to the reduced analyte suite.

Methodology

On May 12, 2023, Confluence collected water samples from installed groundwater monitoring wells and surface water. Groundwater samples were collected from MW01 through MW04, surface water samples were collected from upgradient and downgradient on House Log Gulch, and one spring sample collected from an unnamed spring.

On May 24, 2023, Confluence returned to the Location to reassess and sample all locations after May 12, 2023, sample analysis indicated benzene exceedances within MW02 and MW03. Groundwater samples were collected from MW01 through MW04, surface water samples were collected from upgradient and downgradient on House Log Gulch, one spring sample collected from the unnamed spring, and five samples from the silt traps surrounding the project area.

On June 6, 2023, Confluence returned to the Location to collect second quarter 2023 water samples. Groundwater samples were collected from MW01 through MW04, surface water samples were collected from upgradient and downgradient on House Log Gulch, and one spring sample was collected from an unnamed spring.

All samples were collected in laboratory provided jars, immediately placed on ice, and shipped to a laboratory. Samples were submitted for analysis of COGCC Table 915-1 water constituents of concern. Sample locations are presented in the attached Site Diagrams.

Results

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

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

Lithology and Hydrogeology

Lithology at the Location is characterized by clayey sand with gravel. Groundwater expected to flow northeast along the unnamed tributary in House Gulch and ultimately to the Colorado River,



located 11.08 miles southeast of the Location. Depth to groundwater at the POR is estimated to be approximately 27 feet bgs based on depth to water observations within the installed groundwater monitoring wells.

May - June Surface and Groundwater Results

May 12, 2023, field screening did not indicate groundwater impacts with no sheen or odor observed, and water quality parameters were consistent with historical values at the location.. Analytical results of groundwater samples MW01 through MW04 are compliant with COGCC Table 915-1 Groundwater Standards except for benzene with concentrations exceeding at 26.4 micrograms per liter ($\mu\text{g/L}$) in MW02 and 113 $\mu\text{g/L}$ in MW03. Analytical results of surface water samples are compliant with COGCC Table 915-1 Groundwater Standards for all constituents. May 24, 2023, field screening did not indicate groundwater impacts with no sheen or odor observed, and water quality parameters were consistent with historical values at the location.. Analytical results of groundwater samples MW01 through MW04 are compliant with COGCC Table 915-1 Groundwater Standards except for benzene with concentrations exceeding at 141 $\mu\text{g/L}$ in MW02 and 174 $\mu\text{g/L}$ in MW03. Analytical results of surface water sampling are compliant with COGCC Table 915-1 Groundwater Standards. Analytical results of silt trap samples are compliant with COGCC Table 915-1 Groundwater Standards.

June 6, 2023, field screening did not indicate groundwater impacts with no sheen or odor observed, and water quality parameters were consistent with historical values at the location.. Analytical results of second quarter groundwater samples MW01 through MW04 are compliant with COGCC Table 915-1 Groundwater Standards except for benzene and total dissolved solids (TDS). Benzene concentrations exceed at 162 $\mu\text{g/L}$ in MW02 and 185 $\mu\text{g/L}$ in MW03. TDS concentrations exceed 1.25 times the background limit of 442 mg/L established from the MW04 sample collected on September 19, 2022, with a value of 562 mg/L in MW01. Analytical results of second quarter surface water samples are compliant with COGCC Table 915-1 Groundwater Standards.

Analysis and Recommendations

Based on soil analytical results and approved alternative allowable limits to date, levels of organic and inorganic constituents of concern exceeding COGCC Table 915-1 Protection of Groundwater Soil Screening Levels remain undelineated in the release area. Based on water analytical results, levels of benzene exceeding COGCC Table 915-1 allowable groundwater limits are present within MW02 and MW03 immediately downgradient of the POR, and TDS concentrations exceeding allowable background limits are present in MW01.

Confluence recommends a two-phase approach to remediate soil and groundwater impacts at the Location. The first phase consists of advancing soil borings in and around the POR to delineate the vertical and horizontal extent of soil impacts. Soil borings will be completed as injection wells to inject a slurry of powdered carbon product and an alternative electron acceptor at the POR to enhance biodegradation and demobilize hydrocarbon impacts. Following treatment of the POR, additional injection wells will be installed downgradient of the POR along the east and west sides of the access road to facilitate additional remedial injections aiming to prevent downgradient mobilization of impacts. Additionally, Confluence recommends continued quarterly monitoring of surface waters and groundwater to maintain delineation of groundwater impacts.



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

Regards,



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Attachments

- Topographic Location Diagram
- Site Diagram – Water Monitoring
- Site Diagram – Proposed Remediation Plan
- Analytical Results Summary Table – Water
- Analytical Results Summary Table – Soil
- Laboratory Reports



Topographic Location Map

Garden Gulch 8-Inch Pipeline
Latham Laydown Yard
(MOC Water Storage Facility)
COGCC Location ID: 425128
Garfield County
SWSE Sec. 32 T5S-R96W



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

Created by: Sage Maher on 07/07/2022.

Garden Gulch 8" to Latham



Site Diagram Water Monitoring

Caerus Oil and Gas LLC

Garden Gulch 8-Inch Pipeline

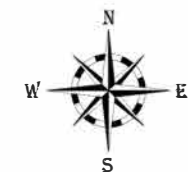
Latham Laydown Yard

(MOC Water Storage Facility)




COGCC Location ID: 425128

Garfield County

SWSE Sec. 32 T5S-R96W



Legend

-  Surface Water Sample – 10/31/2022
-  Monitoring Wells – 10/31/2022
-  Excavation Extent

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

Map created by: Alex Slorby on 11/01/2022.

LATHAM GG 8 INCH-(MW01)

LATHAM GG 8 INCH-(MW02)

LATHAM GG 8 INCH-(MW03)

LATHAM GG 8 INCH-(SP-LANTHAM)

LATHAM GG 8 INCH-(ST-UP)

LATHAM GG 8 INCH-(MW04)

LATHAM GG 8 INCH-(ST-DOWN)

Site Diagram Proposed Remediation Plan

Caerus Oil and Gas LLC

Garden Gulch 8" Pipeline

Latham Laydown Yard

(MOC Water Storage Facility)







COGCC Location ID: 425128

Garfield County

SWSE Sec. 32 T5S-R96W



Legend

-  Proposed Infiltration Well
-  Proposed Monitoring Point
-  Monitoring Well Location
-  Surface Water Sample Location
-  Excavation Extent – 04/19/2022
-  Approximate Pipeline ROW

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

Map created by: Andrew Smith on 7/19/2023.

200 ft

20230707-LANTHAM GG 8 INCH-(ST-DOWN)

20230707-LANTHAM GG 8 INCH-(MW01)

20230707-LANTHAM GG 8 INCH-(MW02)

20230707-LANTHAM GG 8 INCH-(MW03)

20230707-LANTHAM GG 8 INCH-(SP-LANTHAM)

20230707-LANTHAM GG 8 INCH-(ST-UP)

		Organic Compounds (µg/L)							Inorganics (mg/L)		
COGCC Allowable Concentration (915-Groundwater)		5	560-1,000	700	1,400-10,000	140	67	67	1.25xBG	250 or 1.25xBG	250 or 1.25xBG
Sample Date	Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes - total	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS 1.25 x background	Chlorides 1.25 x background	Sulfates 1.25 x background
6/6/23	20230606-LATHAM GG 8 INCH-(MW01)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	562	41.8	40.2
6/6/23	20230606-LATHAM GG 8 INCH-(MW02)	162	<1.00	0.524	2.83	<5.00	<1.00	0.288	477	46.7	37.4
6/6/23	20230606-LATHAM GG 8 INCH-(MW03)	185	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	545	43.1	44.9
6/6/23	20230606-LATHAM GG 8 INCH-(MW04)	0.191	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	367	1.96	50.9
6/6/23	20230606-LATHAM GG 8 INCH-(SP-LATHAM)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	552	33.7	37.0
6/6/23	2230606-LATHAM GG 8 INCH-(ST-UP)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	251	1.29	26.7
6/6/23	2230606-LATHAM GG 8 INCH-(ST-DOWN)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	285	5.10	28.5
5/24/23	20230524-LATHAM GG 8 INCH-(MW01)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	506	44.3	47.9
5/24/23	20230524-LATHAM GG 8 INCH-(MW02)	141	<1.00	1.38	8.22	<5.00	<1.00	<1.00	471	50.4	43.1
5/24/23	20230524-LATHAM GG 8 INCH-(MW03)	174	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	523	49.5	51.8
5/24/23	20230524-LATHAM GG 8 INCH-(MW04)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	386	2.28	50.7
5/24/23	20230524-LATHAM GG 8 INCH-(SP-LATHAM)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	523	36.5	43.5
5/24/23	20230524-LATHAM GG 8 INCH-(ST-UP)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	237	1.54	25.0
5/24/23	20230524-LATHAM GG 8 INCH-(ST-DOWN)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	263	4.01	26.7
5/24/23	20230524-LATHAM GG 8 INCH-(SILT-TRAP-1)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	298	25.1	67.1
5/24/23	20230524-LATHAM GG 8 INCH-(SILT-TRAP-2)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	302	26.5	37.6
5/24/23	20230524-LATHAM GG 8 INCH-(SILT-TRAP-3)	1.28	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	439	27.2	49.1
5/24/23	20230524-LATHAM GG 8 INCH-(SILT-TRAP-4)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	438	27.3	49.0
5/24/23	20230524-LATHAM GG 8 INCH-(SILT-TRAP-5)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	433	27.3	49.0
5/12/23	20230512-LATHAM GG 8 INCH-(MW01)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	475	51.6	45.0
5/12/23	20230512-LATHAM GG 8 INCH-(MW02)	26.4	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	502	66.7	45.1
5/12/23	20230512-LATHAM GG 8 INCH-(MW03)	113	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	517	55.0	46.0
5/12/23	20230512-LATHAM GG 8 INCH-(MW04)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	340	2.57	41.5
5/12/23	20230512-LATHAM GG 8 INCH-(SP-LATHAM)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	450	34.8	35.5
5/12/23	20230512-LATHAM GG 8 INCH-(ST-UP)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	241	1.82	21.8
5/12/23	20230512-LATHAM GG 8 INCH-(ST-DOWN)	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	235	3.62	22.3
10/31/22	20221031-GG8"-MW-01	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	556	70.9	50.7
10/31/22	20221031-GG8"-MW-02	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	594	117	69.8
10/31/22	20221031-GG8"-MW-03	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	509	30.4	41.6
10/31/22	20221031-GG8"-MW-04	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	410	3.39	37.5
10/31/22	20221031-GG8"-Upgradient	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	281	4.85	29.6
10/31/22	20221031-GG8"-Spring	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	393	13.2	40.2
10/31/22	20221031-GG8"-Downgradient	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	361	11.5	39.7
9/19/22	20220919-GG8"-MW-01	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	604	102	67.3
9/19/22	20220919-GG8"-MW-02	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	649	99.2	79.0
9/19/22	20220919-GG8"-MW-03	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	674	28.9	43.0
9/19/22	20220919-GG8"-MW-04	0.137	0.460	0.308	<3.00	<5.00	<1.00	<1.00	442	5.20	37.0
9/19/22	20220919-GG8"-Upgradient	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	395	4.86	44.3
9/19/22	20220919-GG8"-Spring	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	427	22.6	42.5
9/19/22	20220919-GG8"-Downgradient	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	374	10.7	40.9
8/23/22	20220823-GG8"-MW-01	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	728	95.3	146
8/23/22	20220823-GG8"-MW-02	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	724	119	160
7/19/22	220719-GG8"-UPGRADIENT_SW	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	370	1.90	25.8
7/19/22	220719-GG8"-SPRING_SW	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	430	15.5	41.4
7/19/22	220719-GG8"-DOWNGRADIENT_SW	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	372	7.77	36.8
3/23/22	220323_Latham_WW_Source	18700	29600	<5000	<15000	<25000	<5000	<5000	8640	5690	6.38
3/22/22	220322_Latham_SW_DownCreek	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	405	20.0	45.3
3/22/22	220322_Latham_SW_UpCrk	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	409	19.8	46.7

Blue Fill = Exceedance

Dark Gray Italics = Below Reporting Detection Limit (RDL)

"NA" = Not Analyzed

mg/L = milligrams per liter / parts per million

Laboratory Results Summary Table - Soil
Garden Gulch 8-Inch Pipeline Release
Latham Laydown Yard

Soil Screening and Remediation Limits			Organic Compounds (mg/kg [ppm])																											
COGCC Table 915-1 Groundwater Protection-->			NA	500	NA	NA	NA	0.0026	0.69	0.78	9.9	0.0081	0.0087	0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	0.006	0.019	0.0038	1.3		
Sample Date	Sampling Source (Equipment, Depth, Sample Type, etc.)	Sample ID	PHD (ppm)	TPH (total volatile and extractable petroleum hydrocarbons) (GRO-DRO)	TPH-GRO (C6-C10) Low Fraction	TPH-ORO (C10-C20) High Fraction	TPH-ORO (C20-C30) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total (sum of o, m, p-isomers)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indene(1,2,3-c)Diyne	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Pyrene		
8/25/2022	Pipeline -7	2020825-GG8-S807@5'-7'	NA	2909	1790	636	483	3.14	51.4	4.53	118	14.3	15.7	0.0153	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0414	<0.0060	0.537	1.96	1.04	<0.0060		
8/25/2022	Pipeline -9	2020825-GG8-S807@9'	NA	484	484	NA	NA	0.133	2.25	0.362	9.68	1.83	2.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
8/25/2022	Pipeline -6.5	2020825-GG8-S808@5'-6.5'	NA	470	908	190	271	0.0472	0.854	0.0706	1.57	0.0735	0.0965	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.00675	<0.0060	0.0987	0.348	0.139	<0.0060		
8/25/2022	Pipeline -8	2020825-GG8-S808@6.5'-8'	NA	18.5	5.01	<4.00	13.5	0.438	12.1	0.158	2.58	0.0305	0.0272	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060		
8/24/2022	Pipeline -7	2020824-GG8-S806@5'-7'	NA	48.0	NA	7.21	40.8	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/24/2022	Pipeline -11	2020824-GG8-S806@10'-11'	NA	14.7	1107	0.448	340	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	0.0103	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/23/2022	Pipeline -4	2020823-GG8-S803@2'-4'	NA	0.0	280	<10.0	85.1	195	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/23/2022	Pipeline -9.5	2020823-GG8-S803@7.5'-9.5'	NA	0.0	126	<10.0	24.2	192	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/23/2022	Pipeline -13.5	2020823-GG8-S803@12'-13.5'	NA	0.0	54.4	<10.0	11.5	42.9	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/23/2022	Pipeline -15.5	2020823-GG8-S803@15'-15.5'	NA	0.0	104.4	<10.0	28.0	76.4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/22/2022	Pipeline -2	2020822-GG8-S801@0'-2'	NA	56.2	0.121	10.1	46.0	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/22/2022	Pipeline -4	2020822-GG8-S801@2'-4'	NA	16.1	<10.0	5.20	10.9	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/22/2022	Pipeline -6	2020822-GG8-S801@4'-6'	NA	196	<10.0	44.6	151	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
8/22/2022	Pipeline -2	2020822-GG8-S802@0'-2'	NA	426	<10.0	152	274	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
6/3/2022	Pipeline -2	220603-GG8-SILT_TRAP_3@2'	NA	273	<10.0	31.3	242	<0.00100	<0.00500	<0.00250	0.0119	<0.00500	0.00775	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
6/3/2022	Pipeline -2	220603-GG8-SILT_TRAP_4@2'	NA	194	<10.0	45.9	148	<0.00100	0.00598	<0.00250	0.00668	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
5/16/2022	Pipeline 0	2020516-Garden_Gulch_8"-SILT_TRAP_1	NA	1.4	83.1	<10.0	<10.0	83.1	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
5/16/2022	Pipeline 0	2020516-Garden_Gulch_8"-SILT_TRAP_2	NA	0.8	35.5	<10.0	<10.0	35.5	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
5/16/2022	Pipeline 0	2020516-Garden_Gulch_8"-SILT_TRAP_3	NA	1.6	52.5	<10.0	<10.0	52.5	0.00121	0.0134	<0.00250	0.0310	<0.00500	0.00713	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
5/16/2022	Pipeline 0	2020516-Garden_Gulch_8"-SILT_TRAP_4	NA	2.0	22.5	<10.0	6.65	15.8	0.00270	0.0174	<0.00250	0.0840	0.0104	0.0211	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/28/2022	Pipeline -1	2020428-Garden_Gulch_8"-SILT_TRAP_1@1'	NA	1.7	187	0.115	66.6	120	0.00285	0.0244	<0.00250	0.0209	<0.00500	<0.00500	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/28/2022	Pipeline -1	2020428-Garden_Gulch_8"-SILT_TRAP_2@1'	NA	1.1	34.5	1.27	9.41	23.8	0.0324	0.292	0.0184	0.336	0.0215	0.0232	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/28/2022	Pipeline -1	2020428-Garden_Gulch_8"-SILT_TRAP_3@1'	NA	10.8	115.1	2.24	21.1	91.8	0.110	0.665	0.0463	1.50	0.101	0.122	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/28/2022	Pipeline -1	2020428-Garden_Gulch_8"-SILT_TRAP_4@1'	NA	3.1	134	0.204	31.8	102	0.00570	0.0527	0.00380	0.0696	0.00617	0.0116	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/28/2022	Pipeline -1	2020428-Garden_Gulch_8"-SILT_TRAP_5@1'	NA	1	130	<10.0	22.0	108	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/19/2022	Pipeline -7	2020419-Garden_Gulch_8"-SSW@7'	NA	2.5	97.2	<10.0	18.8	78.4	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/19/2022	Pipeline -6.5	2020419-Garden_Gulch_8"-WSW@6.5'	NA	2.2	7.87	<10.0	<10.0	7.87	<0.00100	<0.00500	<0.00250	<0.00650	<0.00500	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600		
4/15/2022	Pipeline -5.5	2020415-Garden_Gulch_8"-SSW@5.5'	NA	6.9	ND	<10.0	<10.0	<10.0	<0.0250	<0.0250	<0.0750																			

**Laboratory Results Summary Table - Soil
Garden Gulch 8-Inch Pipeline Release
Latham Laydown Yard**

2/6/2023

Soil Screening and Remediation Limits				Soil Suitability for Reclamation				Metals (mg/kg (ppm))											
COGCC Table 915-1 Groundwater Protection ->				4	6	6-8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370		
Sample Date	Sample Source (Well/Bore, Separator, Tank, Battery, Dump, Line, PH, Cisterns, Depth - Z (feet))	Depth - Z (feet) (NEGATIVE VALUE) (below ground surface (bgs))	Sample ID	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	NaCl (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Boron - Hot Water Soluble (mg/L)	Arsenic	Barium	Cadmium (mg/kg)	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc		
8/25/2022	Pipeline	-7	20220825-GG8-SB07@5'-7'	0.184	0.185	7.83	<0.200	66.6	2420	0.976	1.47	58.9	25.4	38.7	<2.00	<1.00	75.8		
8/25/2022	Pipeline	-9	20220825-GG8-SB07@9'	0.266	0.226	7.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
8/25/2022	Pipeline	-6.5	20220825-GG8-SB08@5'-6.5'	0.132	0.348	7.59	<0.200	29.6	839	0.877	1.69	37.1	25.4	39.2	<2.00	<1.00	73.9		
8/25/2022	Pipeline	-8	20220825-GG8-SB08@6.5'-8'	0.110	0.163	7.65	<0.200	32.5	555	0.702	1.83	52.6	23.7	31.7	<2.00	<1.00	47.1		
8/24/2022	Pipeline	-7	20220824-GG8-SB06@5'-7'	0.273	0.670	8.19	<0.200	21.7	1120	<0.500	<1.00	28.2	16.4	25.5	<2.00	<1.00	69.6		
8/24/2022	Pipeline	-11	20220824-GG8-SB06@10'-11'	0.333	0.783	8.22	<0.200	43.4	1450	<0.500	<1.00	21.3	26.0	7.19	<2.00	<1.00	31.7		
8/23/2022	Pipeline	-4	20220823-GG8-SB03@2'-4'	0.133	0.0895	8.32	<0.200	10.0	873	0.677	<1.00	41.3	24.1	28.6	<2.00	<1.00	74.8		
8/23/2022	Pipeline	-9.5	20220823-GG8-SB03@7.5'-9.5'	0.0456	0.0755	7.98	<0.200	20.4	343	0.751	1.62	41.4	23.4	28.0	<2.00	<1.00	77.4		
8/23/2022	Pipeline	-13.5	20220823-GG8-SB03@12'-13.5'	0.112	0.358	8.25	<0.200	6.69	165	<0.500	1.91	22.8	18.4	16.8	<2.00	<1.00	64.9		
8/23/2022	Pipeline	-15.5	20220823-GG8-SB03@15'-15.5'	0.237	0.447	8.19	<0.200	8.43	192	0.751	1.53	37.8	20.4	23.2	<2.00	<1.00	76.6		
8/22/2022	Pipeline	-2	20220822-GG8-SB01@0'-2'	0.643	1.25	7.81	0.448	17.6	275	<0.500	<1.00	24.7	17.7	22.2	<2.00	<1.00	65.8		
8/22/2022	Pipeline	-4	20220822-GG8-SB01@2'-4'	0.173	1.74	7.83	<0.200	10.2	151	<0.500	2.10	21.1	17.1	18.2	<2.00	<1.00	62.0		
8/22/2022	Pipeline	-6	20220822-GG8-SB01@4'-6'	0.223	1.56	7.88	<0.200	26.5	215	<0.500	2.64	18.0	40.1	21.3	<2.00	<1.00	68.7		
8/22/2022	Pipeline	-2	20220822-GG8-SB02@0'-2'	0.162	0.687	8.25	<0.200	19.8	218	0.607	2.54	19.8	17.7	31.7	<2.00	<1.00	51.3		
6/3/2022	Pipeline	-2	220603-GG8-SILT_TRAP_3@2'	0.862	11.8	7.90	<0.200	69.9	876	0.896	1.64	55.0	26.4	39.8	2.14	<1.00	56.2		
6/3/2022	Pipeline	-2	220603-GG8-SILT_TRAP_4@2'	0.352	4.58	8.20	0.363	8.11	410	0.527	2.12	38.4	25.6	24.8	<2.00	<1.00	75.7		
5/16/2022	Pipeline	0	20220516-Garden_Gulch_8"-SILT_TRAP_1	0.172	0.674	7.83	0.378	25.3	677	<0.500	<1.00	26.4	20.4	22.5	<2.00	<1.00	34.2		
5/16/2022	Pipeline	0	20220516-Garden_Gulch_8"-SILT_TRAP_2	0.249	0.642	7.63	0.204	14.9	467	<0.500	2.53	30.4	18.9	25.0	<2.00	<1.00	50.4		
5/16/2022	Pipeline	0	20220516-Garden_Gulch_8"-SILT_TRAP_3	0.564	6.56	7.92	0.407	60.9	924	2.54	1.95	50.3	24.6	55.9	<2.00	<1.00	44.7		
5/16/2022	Pipeline	0	20220516-Garden_Gulch_8"-SILT_TRAP_4	0.506	2.78	8.46	0.405	94.3	361	<0.500	<1.00	20.8	13.7	19.2	<2.00	<1.00	61.8		
4/28/2022	Pipeline	-1	20220428-Garden_Gulch_8"-SILT_TRAP_1@1'	0.200	0.718	7.97	0.430	9.84	362	<0.500	<1.00	19.7	13.2	21.0	<2.00	<1.00	47.8		
4/28/2022	Pipeline	-1	20220428-Garden_Gulch_8"-SILT_TRAP_2@1'	0.239	0.754	7.97	0.235	8.91	263	0.502	<1.00	19.3	12.8	21.4	<2.00	<1.00	53.5		
4/28/2022	Pipeline	-1	20220428-Garden_Gulch_8"-SILT_TRAP_3@1'	2.490	2.43	7.03	0.330	84.6	887	2.98	2.89	62.6	28.2	67.9	3.95	<1.00	60.2		
4/28/2022	Pipeline	-1	20220428-Garden_Gulch_8"-SILT_TRAP_4@1'	0.429	3.89	8.55	1.22	84.3	403	0.577	<1.00	29.6	16.3	24.5	<2.00	<1.00	66		
4/28/2022	Pipeline	-1	20220428-Garden_Gulch_8"-SILT_TRAP_5@1'	0.302	2.00	8.28	0.969	7.97	336	0.653	<1.00	22.7	15.0	21.4	<2.00	<1.00	57.2		
4/19/2022	Pipeline	-7	20220419-Garden_Gulch_8"-SSW@7'	0.103	0.874	7.69	0.204	50.4	634	0.674	2.94	50.2	29.3	37.1	<2.00	<1.00	62.9		
4/19/2022	Pipeline	-6.5	20220419-Garden_Gulch_8"-WSW@6.5'	0.402	0.983	7.66	<0.200	7.32	208	<0.500	<1.00	16.5	13.3	19.1	<2.00	<1.00	52.7		
4/15/2022	Pipeline	-5.5	20220415-Garden_Gulch_Bin-ESW@5.5'	1.570	1.23	7.22	<1.20	22.2	379	<5.00	<0.250	17.6	16.5	23.7	<2.00	<1.00	56.5		
4/15/2022	Pipeline	0	20220415-Garden_Gulch_Bin-SILT_TRAP_5	1.110	9.14	8.05	1.79	14.4	411	<5.00	<0.250	23.6	18.1	27.6	<2.00	<1.00	78.7		
4/15/2022	Pipeline	0	20220415-Garden_Gulch_Bin-SILT_TRAP_4	1.260	11	8.27	2.33	11.8	378	<5.00	0.298	16.4	13.2	22.7	<2.00	<1.00	65.1		
4/15/2022	Pipeline	0	20220415-Garden_Gulch_Bin-SILT_TRAP_1	0.517	1.59	7.81	<1.20	11.7	343	<5.00	0.267	17.0	15.2	23.4	<2.00	<1.00	58.2		
4/15/2022	Pipeline	0	20220415-Garden_Gulch_Bin-SILT_TRAP_3	1.980	12.4	7.70	1.85	67.1	1180	5.74	<0.250	45.9	26.1	50.3	<2.00	<1.00	83.6		
4/15/2022	Pipeline	0	20220415-Garden_Gulch_Bin-SILT_TRAP_2	7.350	5.60	7.73	<1.20	13.4	392	<5.00	<0.250	19.3	14.6	26.4	<2.00	<1.00	84.0		
3/24/2022	Pipeline	0	220324_Latham_SS_Comp_Stock_J_N	2.380	13.6	7.74	1.15	13.7	369	<0.500	<1.00	17.5	14.5	19.3	<2.00	<1.00	53.5		
3/24/2022	Pipeline	0	220324_Latham_SS_Comp_Stock_J_S	2.160	14.0	7.65	0.641	8.58	450	<0.735	<1.00	19.9	13.8	22.4	<2.94	<1.47	52.9		
3/23/2022	Pipeline	-8	220323_Latham_SS_POR@8'	4.950	39.3	7.45	3.34	9.56	295	<0.500	<1.00	17.2	14.7	23.7	<2.00	<1.00	56.2		
3/23/2022	Pipeline	-6	220323_Latham_SS_W@6'	2.390	17.4	7.90	0.740	9.32	329	<0.500	<1.00	14.6	14.6	24.7	<2.00	<1.00	48.3		
8/24/2022	Background	-5	20220824-GG8-SB05@0'-5'	1.130	0.483	7.91	<0.200	54.3	616	<0.500	<1.00	38.9	19.1	23.0	<2.00	<1.00	52.9		
8/24/2022	Background	-10	20220824-GG8-SB05@5'-10'	0.244	0.949	8.48	<0.200	34.2	433	0.619	<1.00	35.6	21.5	25.1	2.44	<1.00	59.6		
8/24/2022	Background	-15	20220824-GG8-SB05@10'-15'	0.326	0.679	8.32	<0.200	35.5	540	0.707	<1.00	38.0	22.1	27.2	<2.00	<1.00	66.3		
8/24/2022	Background	-20	20220824-GG8-SB05@15'-20'	0.113	0.704	8.26	<0.200	15.5	239	<0.500	4.45	30.5	18.1	32.4	<2.00	<1.00	78.5		
8/23/2022	Background	-5	20220823-GG8-SB04@3'-5'	0.343	1.00	8.32	0.230	33.3	410	0.373	<1.00	30.6	14.8	19.4	1.51	<1.00	48.1		
8/23/2022	Background	-10	20220823-GG8-SB04@8'-10'	0.323	1.22	8.20	0.221	31.4	468	0.393	<1.00	31.5	14.9	19.3	2.05	<1.00	46.7		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_1@0.5'	0.0855	0.0731	7.66	0.111	15.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_1@0.5'	0.0866	0.0852	7.93	N/A	19.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_1@0.5'	0.0784	0.0826	7.63	N/A	23.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_1@0.5'	0.0781	0.0807	7.73	N/A	18.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_1@0.5'	0.0799	0.0804	8.01	N/A	18.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_2@0.5'	0.146	0.0718	7.79	0.196	21.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_2@0.5'	0.155	0.0718	8.26	N/A	13.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_2@0.5'	0.144	0.0701	8.15	N/A	17.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_2@0.5'	0.159	0.0673	7.80	N/A	19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_2@0.5'	0.154	0.0635	7.88	N/A	22.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-1	20220428-GARDEN_GULCH_8"-BG_3@1'	0.160	1.91	8.36	0.0827	11.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-1	20220428-GARDEN_GULCH_8"-BG_3@1'	0.173	1.92	8.58	N/A	8.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-1	20220428-GARDEN_GULCH_8"-BG_3@1'	0.173	2.11	8.34	N/A	9.97	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-1	20220428-GARDEN_GULCH_8"-BG_3@1'	0.171	1.93	8.39	N/A	8.90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-1	20220428-GARDEN_GULCH_8"-BG_3@1'	0.167	1.93	8.44	N/A	11.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_4@0.5'	0.134	0.0936	7.92	0.344	8.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_4@0.5'	0.143	0.0899	7.94	N/A	9.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_4@0.5'	0.142	0.0823	8.01	N/A	20.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_4@0.5'	0.150	0.0910	7.98	N/A	9.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4/28/2022	Background	-0.5	20220428-GARDEN_GULCH_8"-BG_4@0.5'	0.139	0.0929	7.98	N/A	8.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		



ANALYTICAL REPORT

May 23, 2023

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: L1616226
Samples Received: 05/13/2023
Project Number: GARDEN GULCH 8"
Description: Garden Gulch 8" Latham Laydown

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

Entire Report Reviewed By:

Chris Ward

Chris Ward
Project Manager

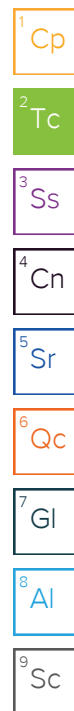
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory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

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

20230512-LATHAM GG 8 INCH-(MW01) L1616226-01 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 12:00

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 16:13	05/19/23 16:13	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 05:12	05/22/23 05:12	JBE	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

20230512-LATHAM GG 8 INCH-(MW02) L1616226-02 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 11:35

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 17:07	05/19/23 17:07	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 05:33	05/22/23 05:33	JBE	Mt. Juliet, TN

20230512-LATHAM GG 8 INCH-(MW03) L1616226-03 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 11:15

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 17:34	05/19/23 17:34	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 05:55	05/22/23 05:55	JBE	Mt. Juliet, TN

20230512-LATHAM GG 8 INCH-(MW04) L1616226-04 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 10:30

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 12:24	05/19/23 12:24	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 06:16	05/22/23 06:16	JBE	Mt. Juliet, TN

20230512-LATHAM GG 8 INCH-(SP-LATHAM) L1616226-05 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 12:15

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 18:01	05/19/23 18:01	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 06:37	05/22/23 06:37	JBE	Mt. Juliet, TN

20230512-LATHAM GG 8 INCH-(ST-UP) L1616226-06 GW

Collected by
Alex Slorby

Collected date/time
05/12/23 12:25

Received date/time
05/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 18:14	05/19/23 18:14	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 06:59	05/22/23 06:59	JBE	Mt. Juliet, TN

SAMPLE SUMMARY

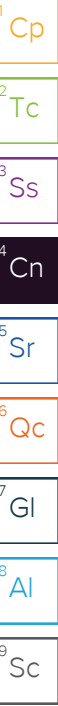
20230512-LATHAM GG 8 INCH-(ST-DOWN) L1616226-07 GW				Collected by Alex Slorby	Collected date/time 05/12/23 12:10	Received date/time 05/13/23 09:00	<div><div>1</div>Cp</div>
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	<div><div>2</div>Tc</div>
Gravimetric Analysis by Method 2540 C-2011	WG2062529	1	05/18/23 16:03	05/19/23 03:44	AS	Mt. Juliet, TN	<div><div>3</div>Ss</div>
Wet Chemistry by Method 9056A	WG2063018	1	05/19/23 18:27	05/19/23 18:27	LBR	Mt. Juliet, TN	<div><div>4</div>Cn</div>
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2064068	1	05/22/23 07:20	05/22/23 07:20	JBE	Mt. Juliet, TN	<div><div>5</div>Sr</div>
							<div><div>6</div>Qc</div>
							<div><div>7</div>Gl</div>
							<div><div>8</div>Al</div>
							<div><div>9</div>Sc</div>

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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	475		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	51.6		1.00	1	05/19/2023 16:13	WG2063018
Sulfate	45.0		5.00	1	05/19/2023 16:13	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/22/2023 05:12	WG2064068
Toluene	ND		0.00100	1	05/22/2023 05:12	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 05:12	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 05:12	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 05:12	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:12	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:12	WG2064068
(S) Toluene-d8	110		80.0-120		05/22/2023 05:12	WG2064068
(S) 4-Bromofluorobenzene	100		77.0-126		05/22/2023 05:12	WG2064068
(S) 1,2-Dichloroethane-d4	110		70.0-130		05/22/2023 05:12	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	502		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	66.7		1.00	1	05/19/2023 17:07	WG2063018
Sulfate	45.1		5.00	1	05/19/2023 17:07	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	0.0264		0.00100	1	05/22/2023 05:33	WG2064068
Toluene	ND		0.00100	1	05/22/2023 05:33	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 05:33	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 05:33	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 05:33	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:33	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:33	WG2064068
(S) Toluene-d8	109		80.0-120		05/22/2023 05:33	WG2064068
(S) 4-Bromofluorobenzene	99.9		77.0-126		05/22/2023 05:33	WG2064068
(S) 1,2-Dichloroethane-d4	105		70.0-130		05/22/2023 05:33	WG2064068

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	517		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	55.0		1.00	1	05/19/2023 17:34	WG2063018
Sulfate	46.0		5.00	1	05/19/2023 17:34	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	0.113	E	0.00100	1	05/22/2023 05:55	WG2064068
Toluene	ND		0.00100	1	05/22/2023 05:55	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 05:55	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 05:55	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 05:55	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:55	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 05:55	WG2064068
(S) Toluene-d8	111		80.0-120		05/22/2023 05:55	WG2064068
(S) 4-Bromofluorobenzene	97.6		77.0-126		05/22/2023 05:55	WG2064068
(S) 1,2-Dichloroethane-d4	108		70.0-130		05/22/2023 05:55	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	340		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	2.57		1.00	1	05/19/2023 12:24	WG2063018
Sulfate	41.5		5.00	1	05/19/2023 12:24	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/22/2023 06:16	WG2064068
Toluene	ND		0.00100	1	05/22/2023 06:16	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 06:16	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 06:16	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 06:16	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:16	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:16	WG2064068
(S) Toluene-d8	109		80.0-120		05/22/2023 06:16	WG2064068
(S) 4-Bromofluorobenzene	103		77.0-126		05/22/2023 06:16	WG2064068
(S) 1,2-Dichloroethane-d4	112		70.0-130		05/22/2023 06:16	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	450		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	34.8		1.00	1	05/19/2023 18:01	WG2063018
Sulfate	35.5		5.00	1	05/19/2023 18:01	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/22/2023 06:37	WG2064068
Toluene	ND		0.00100	1	05/22/2023 06:37	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 06:37	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 06:37	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 06:37	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:37	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:37	WG2064068
(S) Toluene-d8	109		80.0-120		05/22/2023 06:37	WG2064068
(S) 4-Bromofluorobenzene	99.6		77.0-126		05/22/2023 06:37	WG2064068
(S) 1,2-Dichloroethane-d4	111		70.0-130		05/22/2023 06:37	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	241		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	1.82		1.00	1	05/19/2023 18:14	WG2063018
Sulfate	21.8		5.00	1	05/19/2023 18:14	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/22/2023 06:59	WG2064068
Toluene	ND		0.00100	1	05/22/2023 06:59	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 06:59	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 06:59	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 06:59	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:59	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 06:59	WG2064068
(S) Toluene-d8	110		80.0-120		05/22/2023 06:59	WG2064068
(S) 4-Bromofluorobenzene	103		77.0-126		05/22/2023 06:59	WG2064068
(S) 1,2-Dichloroethane-d4	113		70.0-130		05/22/2023 06:59	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	235		10.0	1	05/19/2023 03:44	WG2062529

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	3.62		1.00	1	05/19/2023 18:27	WG2063018
Sulfate	22.3		5.00	1	05/19/2023 18:27	WG2063018

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/22/2023 07:20	WG2064068
Toluene	ND		0.00100	1	05/22/2023 07:20	WG2064068
Ethylbenzene	ND		0.00100	1	05/22/2023 07:20	WG2064068
Xylenes, Total	ND		0.00300	1	05/22/2023 07:20	WG2064068
Naphthalene	ND		0.00500	1	05/22/2023 07:20	WG2064068
1,2,4-Trimethylbenzene	ND		0.00100	1	05/22/2023 07:20	WG2064068
1,3,5-Trimethylbenzene	ND		0.00100	1	05/22/2023 07:20	WG2064068
(S) Toluene-d8	110		80.0-120		05/22/2023 07:20	WG2064068
(S) 4-Bromofluorobenzene	101		77.0-126		05/22/2023 07:20	WG2064068
(S) 1,2-Dichloroethane-d4	112		70.0-130		05/22/2023 07:20	WG2064068

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3927281-1 05/19/23 03:44

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1617123-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1617123-04 05/19/23 03:44 • (DUP) R3927281-3 05/19/23 03:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	94.0	90.0	1	4.35		5

L1617123-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1617123-05 05/19/23 03:44 • (DUP) R3927281-4 05/19/23 03:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	87.0	91.0	1	4.49		5

Laboratory Control Sample (LCS)

(LCS) R3927281-2 05/19/23 03:44

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8440	95.9	77.3-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3927304-1 05/19/23 10:26

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1616226-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1616226-04 05/19/23 12:24 • (DUP) R3927304-3 05/19/23 12:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	2.57	2.65	1	3.10		15
Sulfate	41.5	41.5	1	0.0852		15

L1617138-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1617138-03 05/19/23 19:48 • (DUP) R3927304-6 05/19/23 20:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	23.5	22.5	1	4.29		15
Sulfate	30.4	28.7	1	5.59		15

Laboratory Control Sample (LCS)

(LCS) R3927304-2 05/19/23 10:39

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	38.4	95.9	80.0-120	
Sulfate	40.0	38.6	96.5	80.0-120	

L1616226-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1616226-04 05/19/23 12:24 • (MS) R3927304-4 05/19/23 12:51 • (MSD) R3927304-5 05/19/23 13:05

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	2.57	52.0	50.4	98.9	95.8	1	80.0-120			3.07	15
Sulfate	50.0	41.5	89.2	86.8	95.4	90.6	1	80.0-120			2.76	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1617138-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1617138-03 05/19/23 19:48 • (MS) R3927304-7 05/19/23 20:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	23.5	72.3	97.6	1	80.0-120	
Sulfate	50.0	30.4	79.2	97.5	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3928129-3 05/22/23 02:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	109			80.0-120
(S) 4-Bromofluorobenzene	101			77.0-126
(S) 1,2-Dichloroethane-d4	105			70.0-130

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

(LCS) R3928129-1 05/22/23 00:57 • (LCSD) R3928129-2 05/22/23 01:19

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 %
Benzene	0.00500	0.00479	0.00468	95.8	93.6	70.0-123			2.32	20
Toluene	0.00500	0.00473	0.00483	94.6	96.6	79.0-120			2.09	20
Ethylbenzene	0.00500	0.00518	0.00516	104	103	79.0-123			0.387	20
Xylenes, Total	0.0150	0.0152	0.0152	101	101	79.0-123			0.000	20
Naphthalene	0.00500	0.00440	0.00463	88.0	92.6	54.0-135			5.09	20
1,2,4-Trimethylbenzene	0.00500	0.00444	0.00462	88.8	92.4	76.0-121			3.97	20
1,3,5-Trimethylbenzene	0.00500	0.00456	0.00468	91.2	93.6	76.0-122			2.60	20
(S) Toluene-d8				105	109	80.0-120				
(S) 4-Bromofluorobenzene				96.4	99.2	77.0-126				
(S) 1,2-Dichloroethane-d4				106	104	70.0-130				

L1616172-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1616172-02 05/22/23 04:09 • (MS) R3928129-4 05/22/23 09:47 • (MSD) R3928129-5 05/22/23 10:09

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 %
Benzene	0.00500	ND	0.00531	0.00557	106	111	1	17.0-158			4.78	27
Toluene	0.00500	ND	0.00548	0.00568	110	114	1	26.0-154			3.58	28
Ethylbenzene	0.00500	ND	0.00612	0.00617	122	123	1	30.0-155			0.814	27
Xylenes, Total	0.0150	ND	0.0171	0.0180	114	120	1	29.0-154			5.13	28
Naphthalene	0.00500	ND	ND	0.00508	90.0	102	1	12.0-156			12.1	35
1,2,4-Trimethylbenzene	0.00500	ND	0.00480	0.00532	96.0	106	1	26.0-154			10.3	27
1,3,5-Trimethylbenzene	0.00500	ND	0.00503	0.00532	101	106	1	28.0-153			5.60	27

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1616172-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1616172-02 05/22/23 04:09 • (MS) R3928129-4 05/22/23 09:47 • (MSD) R3928129-5 05/22/23 10:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
(S) Toluene-d8					106	104		80.0-120				
(S) 4-Bromofluorobenzene					97.7	97.4		77.0-126				
(S) 1,2-Dichloroethane-d4					114	112		70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

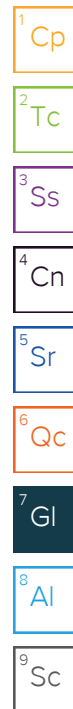
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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ACCREDITATIONS & LOCATIONS

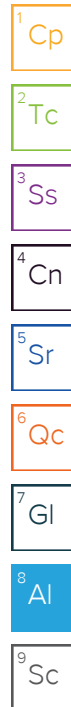
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

Company: Caerus Oil and Gas LLC		Billing Information:	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins		Email To: Info on file	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address:	
Customer Project Name/Number: Garden Gulch 8" Latham Laydown		State: County/City: Time Zone Collected:	
		CO / Garfield [] PT [X] MT [] CT [] ET	
Phone:	Site/Facility ID #: Garden Gulch 8 Inch	Compliance Monitoring?	
Email:		[] Yes [X] No	
Collected By (print):	Purchase Order #:	DW PWS ID #:	
Alex Slorby	Quote #:	DW Location Code:	
Collected By (signature):	Turnaround Date Required: Standard	Immediately Packed on Ice:	
	Turnaround	[X] Yes [] No	
Sample Disposal:	Rush: (Expedite Charges Apply)	Field Filtered (if applicable):	
[] Dispose as appropriate	[] Same Day [] Next Day	[] Yes [] No	
[] Return	[] 2 Day [] 3 Day		
[] Archive:	[] 4 Day [] 5 Day	Analysis:	
[] Hold:			

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res CI	# of Ctns	Container Type: Plastic (P) or Glass (G)
			Date	Time	Date	Time			
20230512-LATHAM GG 8 INCH-(MW01)	GW	G	5/12/2023	1200				5	G/P
20230512-LATHAM GG 8 INCH-(MW02)	GW	G	5/12/2023	1135				5	G/P
20230512-LATHAM GG 8 INCH-(MW03)	GW	G	5/12/2023	1115				5	G/P
20230512-LATHAM GG 8 INCH-(MW04)	GW	G	5/12/2023	1030				5	G/P
20230512-LATHAM GG 8 INCH-(SP-LATHAM)	GW	G	5/12/2023	1215				5	G/P
20230512-LATHAM GG 8 INCH-(ST-UP)	GW	G	5/12/2023	1225				5	G/P
20230512-LATHAM GG 8 INCH-(ST-DOWN)	GW	G	5/12/2023	1210				5	G/P

Customer Remarks / Special Conditions / Possible Hazards:	Type of Ice Used: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Blue <input type="checkbox"/> Dry <input type="checkbox"/> None
	Packing Material Used:
	Radchem sample(s) screened (<500 cpm): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA

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

MTJL Log-in Number Here

L1616226

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Container Preservative Type **										Lab Project Manager:									
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other																			
Analyses										Lab Profile/Line:									
BTEX Naphthalene 1,2,4-trimethylbenzene 1,3,5-trimethylbenzene TDS Chloride, Sulfate										Lab Sample Receipt Checklist:									
										Custody Receipts Present/Intact Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA									
										Custody Signatures Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										Collector Signature Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										Bottles Intact <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										Correct Bottles <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										Sufficient Volume <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										Samples Received on Ice <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										VOA - Headspace Acceptable <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
										USDA Regulated Soils <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA									
Samples in Holding Time <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
Residual Chlorine Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
Cl Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
Sample pH Acceptable <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
pH Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
Sulfide Present <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
Lead Acetate Strips: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA																			
LAB USE ONLY:																			
Lab Sample # / Comments:																			

Relinquished by/Company: (Signature)	Date/Time: 5/12/23 1500	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 5/12/23 1700	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 5-13-23/900

SHORT HOLDS PRESENT (<72 hours): Y <input checked="" type="checkbox"/> N/A	LAB Sample Temperature Info:
Lab Tracking #: 582 754 7331	Temp Blank Received: Y <input type="checkbox"/> N <input type="checkbox"/> NA
Samples received via:	Therm ID#: 3.4+0=3.4
FEDEX UPS Client Courier Pace Courier	Cooler 1 Temp Upon Receipt: <input type="checkbox"/> oC
	Cooler 1 Therm Corr. Factor: <input type="checkbox"/> oC
	Cooler 1 Corrected Temp: <input type="checkbox"/> oC
	Comments:
	Trip Blank Received: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
	HCL MeOH TSP Other
	Non Conformance(s):
	Page: of:



ANALYTICAL REPORT

June 05, 2023

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: L1620444
Samples Received: 05/26/2023
Project Number:
Description: Garden Gulch 8" Pipeline Release (Latham Laydown)
Site: LATHAM LAYDOWN
Report To: Brett M. , Jake J. , Blair R.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Chris Ward
Project Manager

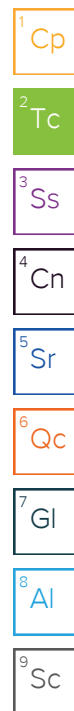
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory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

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

20230524-LATHAM GG 8 INCH-(SILT-TRAP-1) L1620444-01 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:30

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 11:39	06/02/23 11:39	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	05/31/23 23:14	05/31/23 23:14	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(SILT-TRAP-2) L1620444-02 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:35

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 12:30	06/02/23 12:30	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	05/31/23 23:34	05/31/23 23:34	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(SILT-TRAP-3) L1620444-03 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:40

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 12:43	06/02/23 12:43	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	05/31/23 23:54	05/31/23 23:54	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(SILT-TRAP-4) L1620444-04 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:45

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 12:56	06/02/23 12:56	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 00:14	06/01/23 00:14	JHH	Mt. Juliet, TN

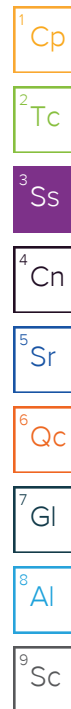
20230524-LATHAM GG 8 INCH-(SILT-TRAP-5) L1620444-05 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:50

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 13:34	06/02/23 13:34	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 00:35	06/01/23 00:35	JHH	Mt. Juliet, TN



CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	298	J3	10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	25.1		1.00	1	06/02/2023 11:39	WG2070504
Sulfate	67.1		5.00	1	06/02/2023 11:39	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/31/2023 23:14	WG2068496
Toluene	ND		0.00100	1	05/31/2023 23:14	WG2068496
Ethylbenzene	ND		0.00100	1	05/31/2023 23:14	WG2068496
Xylenes, Total	ND		0.00300	1	05/31/2023 23:14	WG2068496
Naphthalene	ND	J3	0.00500	1	05/31/2023 23:14	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:14	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:14	WG2068496
(S) Toluene-d8	104		80.0-120		05/31/2023 23:14	WG2068496
(S) 4-Bromofluorobenzene	99.2		77.0-126		05/31/2023 23:14	WG2068496
(S) 1,2-Dichloroethane-d4	102		70.0-130		05/31/2023 23:14	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	302		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	26.5		1.00	1	06/02/2023 12:30	WG2070504
Sulfate	37.6		5.00	1	06/02/2023 12:30	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	05/31/2023 23:34	WG2068496
Toluene	ND		0.00100	1	05/31/2023 23:34	WG2068496
Ethylbenzene	ND		0.00100	1	05/31/2023 23:34	WG2068496
Xylenes, Total	ND		0.00300	1	05/31/2023 23:34	WG2068496
Naphthalene	ND	J3	0.00500	1	05/31/2023 23:34	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:34	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:34	WG2068496
(S) Toluene-d8	104		80.0-120		05/31/2023 23:34	WG2068496
(S) 4-Bromofluorobenzene	101		77.0-126		05/31/2023 23:34	WG2068496
(S) 1,2-Dichloroethane-d4	103		70.0-130		05/31/2023 23:34	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	439		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	27.2		1.00	1	06/02/2023 12:43	WG2070504
Sulfate	49.1		5.00	1	06/02/2023 12:43	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	0.00128		0.00100	1	05/31/2023 23:54	WG2068496
Toluene	ND		0.00100	1	05/31/2023 23:54	WG2068496
Ethylbenzene	ND		0.00100	1	05/31/2023 23:54	WG2068496
Xylenes, Total	ND		0.00300	1	05/31/2023 23:54	WG2068496
Naphthalene	ND	J3	0.00500	1	05/31/2023 23:54	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:54	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	05/31/2023 23:54	WG2068496
(S) Toluene-d8	103		80.0-120		05/31/2023 23:54	WG2068496
(S) 4-Bromofluorobenzene	97.9		77.0-126		05/31/2023 23:54	WG2068496
(S) 1,2-Dichloroethane-d4	104		70.0-130		05/31/2023 23:54	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	438		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	27.3		1.00	1	06/02/2023 12:56	WG2070504
Sulfate	49.0		5.00	1	06/02/2023 12:56	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	06/01/2023 00:14	WG2068496
Toluene	ND		0.00100	1	06/01/2023 00:14	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 00:14	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 00:14	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 00:14	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:14	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:14	WG2068496
(S) Toluene-d8	104		80.0-120		06/01/2023 00:14	WG2068496
(S) 4-Bromofluorobenzene	96.8		77.0-126		06/01/2023 00:14	WG2068496
(S) 1,2-Dichloroethane-d4	104		70.0-130		06/01/2023 00:14	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	433		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	27.3		1.00	1	06/02/2023 13:34	WG2070504
Sulfate	49.0		5.00	1	06/02/2023 13:34	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	06/01/2023 00:35	WG2068496
Toluene	ND		0.00100	1	06/01/2023 00:35	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 00:35	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 00:35	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 00:35	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:35	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:35	WG2068496
(S) Toluene-d8	101		80.0-120		06/01/2023 00:35	WG2068496
(S) 4-Bromofluorobenzene	95.3		77.0-126		06/01/2023 00:35	WG2068496
(S) 1,2-Dichloroethane-d4	104		70.0-130		06/01/2023 00:35	WG2068496

1
Cp

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Al

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Sc

Method Blank (MB)

(MB) R3931874-1 05/31/23 10:47

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1620444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620444-01 05/31/23 10:47 • (DUP) R3931874-3 05/31/23 10:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	298	323	1	8.05	J3	5

L1620454-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620454-01 05/31/23 10:47 • (DUP) R3931874-4 05/31/23 10:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	506	519	1	2.54		5

Laboratory Control Sample (LCS)

(LCS) R3931874-2 05/31/23 10:47

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	7890	89.7	77.3-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3932457-1 06/02/23 10:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1620444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620444-01 06/02/23 11:39 • (DUP) R3932457-3 06/02/23 11:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	25.1	24.9	1	0.644		15
Sulfate	67.1	66.6	1	0.776		15

L1620463-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1620463-08 06/02/23 17:10 • (DUP) R3932457-6 06/02/23 17:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13.1	13.2	1	1.11		15
Sulfate	27.1	27.3	1	0.566		15

Laboratory Control Sample (LCS)

(LCS) R3932457-2 06/02/23 10:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	36.4	91.0	80.0-120	
Sulfate	40.0	39.4	98.5	80.0-120	

L1620444-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620444-01 06/02/23 11:39 • (MS) R3932457-4 06/02/23 12:05 • (MSD) R3932457-5 06/02/23 12:17

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 %
Chloride	50.0	25.1	71.6	71.9	92.9	93.5	1	80.0-120			0.386	15
Sulfate	50.0	67.1	113	114	92.6	93.0	1	80.0-120			0.179	15

1
Cp

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Tc

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Ss

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Cn

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Sr

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Qc

7
Gl

8
Al

9
Sc

L1620463-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1620463-08 06/02/23 17:10 • (MS) R3932457-7 06/02/23 17:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	13.1	60.3	94.5	1	80.0-120	
Sulfate	50.0	27.1	76.6	99.0	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3931672-2 05/31/23 21:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	101			80.0-120
(S) 4-Bromofluorobenzene	98.1			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R3931672-1 05/31/23 20:11 • (LCSD) R3931672-3 05/31/23 22:09

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 %
Benzene	0.00500	0.00494	0.00463	98.8	92.6	70.0-123			6.48	20
Toluene	0.00500	0.00491	0.00460	98.2	92.0	79.0-120			6.52	20
Ethylbenzene	0.00500	0.00457	0.00457	91.4	91.4	79.0-123			0.000	20
Xylenes, Total	0.0150	0.0138	0.0131	92.0	87.3	79.0-123			5.20	20
Naphthalene	0.00500	0.00368	0.00300	73.6	60.0	54.0-135		J3	20.4	20
1,2,4-Trimethylbenzene	0.00500	0.00480	0.00419	96.0	83.8	76.0-121			13.6	20
1,3,5-Trimethylbenzene	0.00500	0.00496	0.00441	99.2	88.2	76.0-122			11.7	20
(S) Toluene-d8				103	104	80.0-120				
(S) 4-Bromofluorobenzene				102	98.3	77.0-126				
(S) 1,2-Dichloroethane-d4				107	105	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

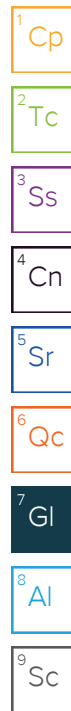
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

MDL	Method Detection Limit.
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

J3	The associated batch QC was outside the established quality control range for precision.
----	--



ACCREDITATIONS & LOCATIONS

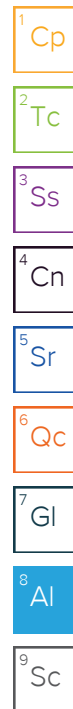
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

Company: Caerus Oil and Gas LLC
Address: Info on file
Report To: Jake Janicek, Brett Middleton, Blair Rollins
Copy To: Chris McKisson, remediation@confluence-cc.com
Billing Information: Info on file
Email To: Info on file
Site Collection Info/Address:

Customer Project Name/Number: Garden Gulch 8" Pipeline Release (Latham Laydown)
State: County/City: Time Zone Collected: CO / Garfield [] PT [X] MT [] CT [] ET
Phone: Site/Facility ID #: Latham Laydown
Email: Compliance Monitoring? [] Yes [X] No
Collected By (print): Alex Slorby
Purchase Order #: DW PWS ID #: DW Location Code:
Collected By (signature): Turnaround Date Required: 3-DAY TAT
Immediately Packed on Ice: [X] Yes [] No
Sample Disposal: Rush: (Expedite Charges Apply) Field Filtered (if applicable):
[] Dispose as appropriate [] Same Day [] Next Day [] Yes [] No
[] Return [] 2 Day [X] 3 Day
[] Archive: [] 4 Day [] 5 Day
[] Hold: 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)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)
			Date	Time	Date	Time			
20230524-LATHAM GG 8 INCH-(SILT-TRAP-1)	GW	G	5/24/2023	1230				5	G/P
20230524-LATHAM GG 8 INCH-(SILT-TRAP-2)	GW	G	5/24/2023	1235				5	G/P
20230524-LATHAM GG 8 INCH-(SILT-TRAP-3)	GW	G	5/24/2023	1240				5	G/P
20230524-LATHAM GG 8 INCH-(SILT-TRAP-4)	GW	G	5/24/2023	1245				5	G/P
6126 6537 3887 Sample Prefix (SILT-TRAP-5)	GW	G	5/24/23	1250				5	G/P

Sample Receipt Checklist
COC Seal Present/Intact: ☒ N If Applicable
COC Signed/Accurate: ☒ N VOA Zero Headspace: ☒ N
Bottles arrive intact: ☒ N Pres. Correct/Check: ☒ N
Correct bottles used: ☒ N
Sufficient volume sent: ☒ N
RAD Screen <0.5 mR/hr: ☒ N
NSAT 2.140-2.1

Wet Blue Dry None
Radchem sample(s) screened (<500 cpm): Y N NA

Relinquished by/Company: (Signature) Alex Slorby Date/Time: 5/24/23 1200
Relinquished by/Company: (Signature) AA Date/Time: 5/25/23 1600
Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number Here
MTJL Log-In Number Here
B039
ALL BOLD OUTLINED AREAS are for LAB USE ONLY
Container Preservative Type ** Lab Project Manager:

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

Analyses										Lab Profile/Line:	
BTEX	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS	Chloride, Sulfate					Lab Sample Receipt Checklist:	
										Custody Seals Present/Intact	
										Custody Signatures Present	
										Collector Signature Present	
										Bottles Intact	
										Correct Bottles	
										Sufficient Volume	
										Samples Received on Ice	
										VOA - Headspace Acceptable	
										USDA Regulated Soils	
										Samples in Holding Time	
										Residual Chlorine Present	
										Cl Strips:	
										Sample pH Acceptable	
										pH Strips:	
										Sulfide Present	
										Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments: L1620444
-01
-02
-03
-04
-05
SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Tracking #:
Samples received via: FEDEX UPS Client Courier Pace Courier

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

Caerus Oil and Gas

Sample Delivery Group: L1620450
Samples Received: 05/26/2023
Project Number:
Description: Garden Gulch 8" Pipeline Release (Latham laydown)
Site: LATHAM LAYDOWN
Report To: Brett M. , Jake J. , Blair R.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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

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

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

SAMPLE SUMMARY

20230524-LATHAM GG 8 INCH-(ST-UP) L1620450-01 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:20

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 13:47	06/02/23 13:47	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 00:55	06/01/23 00:55	JHH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

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20230524-LATHAM GG 8 INCH-(ST-DOWN) L1620450-02 GW

Collected by
Alex Slorby

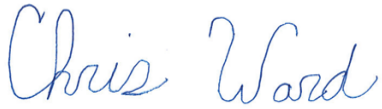
Collected date/time
05/24/23 12:00

Received date/time
05/26/23 09:00

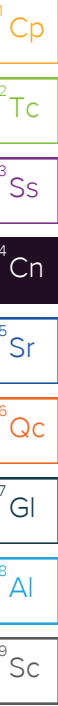
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068920	1	05/31/23 08:34	05/31/23 09:57	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 13:59	06/02/23 13:59	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 01:15	06/01/23 01:15	JHH	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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	237		10.0	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	1.54		1.00	1	06/02/2023 13:47	WG2070504
Sulfate	25.0		5.00	1	06/02/2023 13:47	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/01/2023 00:55	WG2068496
Toluene	ND		0.00100	1	06/01/2023 00:55	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 00:55	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 00:55	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 00:55	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:55	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 00:55	WG2068496
(S) Toluene-d8	102		80.0-120		06/01/2023 00:55	WG2068496
(S) 4-Bromofluorobenzene	95.6		77.0-126		06/01/2023 00:55	WG2068496
(S) 1,2-Dichloroethane-d4	103		70.0-130		06/01/2023 00:55	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	263		10.0	1	05/31/2023 09:57	WG2068920

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	4.01		1.00	1	06/02/2023 13:59	WG2070504
Sulfate	26.7		5.00	1	06/02/2023 13:59	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	06/01/2023 01:15	WG2068496
Toluene	ND		0.00100	1	06/01/2023 01:15	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 01:15	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 01:15	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 01:15	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:15	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:15	WG2068496
(S) Toluene-d8	103		80.0-120		06/01/2023 01:15	WG2068496
(S) 4-Bromofluorobenzene	95.8		77.0-126		06/01/2023 01:15	WG2068496
(S) 1,2-Dichloroethane-d4	102		70.0-130		06/01/2023 01:15	WG2068496

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3931855-1 05/31/23 09:57

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1620076-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620076-01 05/31/23 09:57 • (DUP) R3931855-3 05/31/23 09:57

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	360	369	1	2.47		5

L1620161-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620161-01 05/31/23 09:57 • (DUP) R3931855-4 05/31/23 09:57

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	172	184	1	6.74	J3	5

Laboratory Control Sample (LCS)

(LCS) R3931855-2 05/31/23 09:57

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	7780	88.4	77.3-123	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3932457-1 06/02/23 10:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1620444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620444-01 06/02/23 11:39 • (DUP) R3932457-3 06/02/23 11:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	25.1	24.9	1	0.644		15
Sulfate	67.1	66.6	1	0.776		15

L1620463-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1620463-08 06/02/23 17:10 • (DUP) R3932457-6 06/02/23 17:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13.1	13.2	1	1.11		15
Sulfate	27.1	27.3	1	0.566		15

Laboratory Control Sample (LCS)

(LCS) R3932457-2 06/02/23 10:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	36.4	91.0	80.0-120	
Sulfate	40.0	39.4	98.5	80.0-120	

L1620444-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620444-01 06/02/23 11:39 • (MS) R3932457-4 06/02/23 12:05 • (MSD) R3932457-5 06/02/23 12:17

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 %
Chloride	50.0	25.1	71.6	71.9	92.9	93.5	1	80.0-120			0.386	15
Sulfate	50.0	67.1	113	114	92.6	93.0	1	80.0-120			0.179	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1620463-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1620463-08 06/02/23 17:10 • (MS) R3932457-7 06/02/23 17:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	13.1	60.3	94.5	1	80.0-120	
Sulfate	50.0	27.1	76.6	99.0	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3931672-2 05/31/23 21:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	101			80.0-120
(S) 4-Bromofluorobenzene	98.1			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R3931672-1 05/31/23 20:11 • (LCSD) R3931672-3 05/31/23 22:09

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 %
Benzene	0.00500	0.00494	0.00463	98.8	92.6	70.0-123			6.48	20
Toluene	0.00500	0.00491	0.00460	98.2	92.0	79.0-120			6.52	20
Ethylbenzene	0.00500	0.00457	0.00457	91.4	91.4	79.0-123			0.000	20
Xylenes, Total	0.0150	0.0138	0.0131	92.0	87.3	79.0-123			5.20	20
Naphthalene	0.00500	0.00368	0.00300	73.6	60.0	54.0-135		J3	20.4	20
1,2,4-Trimethylbenzene	0.00500	0.00480	0.00419	96.0	83.8	76.0-121			13.6	20
1,3,5-Trimethylbenzene	0.00500	0.00496	0.00441	99.2	88.2	76.0-122			11.7	20
(S) Toluene-d8				103	104	80.0-120				
(S) 4-Bromofluorobenzene				102	98.3	77.0-126				
(S) 1,2-Dichloroethane-d4				107	105	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

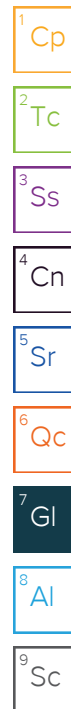
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

MDL	Method Detection Limit.
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

J3	The associated batch QC was outside the established quality control range for precision.
----	--



ACCREDITATIONS & LOCATIONS

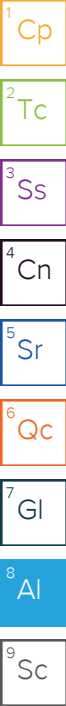
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

Company: Caerus Oil and Gas LLC		Billing Information:	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins		Email To: Info on file	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address:	
Customer Project Name/Number: Garden Gulch 8" Pipeline Release (Latham Laydown)		State: County/City: Time Zone Collected:	
		CO / Garfield [] PT [X] MT [] CT [] ET	
Phone:	Site/Facility ID #: Latham Laydown	Compliance Monitoring?	
Email:		[] Yes [X] No	
Collected By (print): Alex Slorby	Purchase Order #:	DW PWS ID #:	
	Quote #:	DW Location Code:	
Collected By (signature): <i>Alex Slorby</i>	Turnaround Date Required: 3-DAY TAT	Immediately Packed on Ice:	
		[X] Yes [] No	
Sample Disposal:	Rush: (Expedite Charges Apply)	Field Filtered (if applicable):	
[] Dispose as appropriate	[] Same Day [] Next Day	[] Yes [] No	
[] Return	[] 2 Day [X] 3 Day	Analysis:	
[] Archive:	[] 4 Day [] 5 Day		
[] Hold:			

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)
			Date	Time	Date	Time			
20230524-LATHAM GG 8 INCH-(ST-UP)	GW	G	5/24/2023	1220				5	G/P
20230524-LATHAM GG 8 INCH-(ST-DOWN)	GW	G	5/24/2023	1200				5	G/P

6126 6537 3887

Sample Receipt Checklist

COC Seal Present/Intact: ☒ N If Applicable
COC Signed/Accurate: ☒ N VOA Zero Headspace: ☒ Y N
Bottles arrive intact: ☒ N Pres. Correct/Check: ☒ Y N
Correct bottles used: ☒ N
Sufficient volume sent: ☒ N
RAD Screen <0.5 mR/hr: ☒ N
NSR 7
2.110=2.1

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

Relinquished by/Company: (Signature) <i>Alex Slorby</i>	Date/Time: 5/25/23 1200	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: 5/25/23 1600
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: 5/25/23 1600	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: 5/26/23 900
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

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

MTJL Log-in Number Here

B043

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Container Preservative Type **										Lab Project Manager:																																																																					
** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other																																																																															
Analyses										Lab Profile/Line:																																																																					
<table><tr><td>BTEX</td><td>Naphthalene</td><td>1,2,4-trimethylbenzene</td><td>1,3,5-trimethylbenzene</td><td>TDS</td><td>Chloride, Sulfate</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>										BTEX	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS	Chloride, Sulfate	X	X	X	X	X	X	X	X	X	X	X	X																																											Lab Sample Receipt Checklist: Custody Seals Present/Intact <input checked="" type="checkbox"/> Y N NA Custody Signatures Present <input checked="" type="checkbox"/> Y N NA Collector Signature Present <input checked="" type="checkbox"/> Y N NA Bottles Intact <input checked="" type="checkbox"/> Y N NA Correct Bottles <input checked="" type="checkbox"/> Y N NA Sufficient Volume <input checked="" type="checkbox"/> Y N NA Samples Received on Ice <input checked="" type="checkbox"/> Y N NA VOA - Headspace Acceptable <input checked="" type="checkbox"/> Y N NA USDA Regulated Soils <input checked="" type="checkbox"/> Y N NA Samples in Holding Time <input checked="" type="checkbox"/> Y N NA Residual Chlorine Present <input checked="" type="checkbox"/> Y N NA Cl Strips: <input checked="" type="checkbox"/> Y N NA Sample pH Acceptable <input checked="" type="checkbox"/> Y N NA pH Strips: <input checked="" type="checkbox"/> Y N NA Sulfide Present <input checked="" type="checkbox"/> Y N NA Lead Acetate Strips: <input checked="" type="checkbox"/> Y N NA LAB USE ONLY: Lab Sample # / Comments: 11620450 -01 -02									
										BTEX	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS	Chloride, Sulfate																																																																
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Packing Material Used:										SHORT HOLDS PRESENT (<72 hours): Y N N/A																																																																					
Radchem sample(s) screened (<500 cpm): Y N NA										Lab Tracking #:																																																																					
										Samples received via: FEDEX UPS Client Courier Pace Courier																																																																					
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										Trip Blank Received: Y N NA HCL MeOH TSP Other																																																																					
										Non Conformance(s): YES / NO																																																																					
										Page: of:																																																																					



ANALYTICAL REPORT

June 05, 2023

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: L1620454
Samples Received: 05/26/2023
Project Number:
Description: Garden Gulch 8" Pipeline Release (Latham Laydown)
Site: LATHAM LAYDOWN
Report To: Brett M. , Jake J. , Blair R.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Chris Ward
Project Manager

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

Pace Analytical National

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

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

SAMPLE SUMMARY

20230524-LATHAM GG 8 INCH-(MW01) L1620454-01 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 11:55

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 14:12	06/02/23 14:12	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 01:35	06/01/23 01:35	JHH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

20230524-LATHAM GG 8 INCH-(MW02) L1620454-02 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 11:35

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 14:25	06/02/23 14:25	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 01:55	06/01/23 01:55	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(MW03) L1620454-03 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 11:10

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 14:38	06/02/23 14:38	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 02:16	06/01/23 02:16	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(MW04) L1620454-04 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 10:40

Received date/time
05/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 14:50	06/02/23 14:50	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 02:36	06/01/23 02:36	JHH	Mt. Juliet, TN

20230524-LATHAM GG 8 INCH-(SP-LATHAM) L1620454-05 GW

Collected by
Alex Slorby

Collected date/time
05/24/23 12:10

Received date/time
05/26/23 09:00

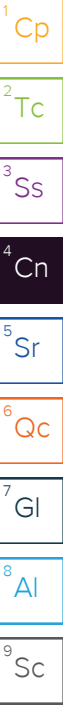
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2068922	1	05/31/23 08:53	05/31/23 10:47	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2070504	1	06/02/23 15:03	06/02/23 15:03	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2068496	1	06/01/23 02:56	06/01/23 02:56	JHH	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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	506		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	44.3		1.00	1	06/02/2023 14:12	WG2070504
Sulfate	47.9		5.00	1	06/02/2023 14:12	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	06/01/2023 01:35	WG2068496
Toluene	ND		0.00100	1	06/01/2023 01:35	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 01:35	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 01:35	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 01:35	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:35	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:35	WG2068496
(S) Toluene-d8	102		80.0-120		06/01/2023 01:35	WG2068496
(S) 4-Bromofluorobenzene	96.8		77.0-126		06/01/2023 01:35	WG2068496
(S) 1,2-Dichloroethane-d4	104		70.0-130		06/01/2023 01:35	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	471		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	50.4		1.00	1	06/02/2023 14:25	WG2070504
Sulfate	43.1		5.00	1	06/02/2023 14:25	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	0.141		0.00100	1	06/01/2023 01:55	WG2068496
Toluene	ND		0.00100	1	06/01/2023 01:55	WG2068496
Ethylbenzene	0.00138		0.00100	1	06/01/2023 01:55	WG2068496
Xylenes, Total	0.00822		0.00300	1	06/01/2023 01:55	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 01:55	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:55	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 01:55	WG2068496
(S) Toluene-d8	102		80.0-120		06/01/2023 01:55	WG2068496
(S) 4-Bromofluorobenzene	97.9		77.0-126		06/01/2023 01:55	WG2068496
(S) 1,2-Dichloroethane-d4	102		70.0-130		06/01/2023 01:55	WG2068496

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	523		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	49.5		1.00	1	06/02/2023 14:38	WG2070504
Sulfate	51.8		5.00	1	06/02/2023 14:38	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	0.174		0.00100	1	06/01/2023 02:16	WG2068496
Toluene	ND		0.00100	1	06/01/2023 02:16	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 02:16	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 02:16	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 02:16	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:16	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:16	WG2068496
(S) Toluene-d8	104		80.0-120		06/01/2023 02:16	WG2068496
(S) 4-Bromofluorobenzene	101		77.0-126		06/01/2023 02:16	WG2068496
(S) 1,2-Dichloroethane-d4	104		70.0-130		06/01/2023 02:16	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	386		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	2.28		1.00	1	06/02/2023 14:50	WG2070504
Sulfate	50.7		5.00	1	06/02/2023 14:50	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/01/2023 02:36	WG2068496
Toluene	ND		0.00100	1	06/01/2023 02:36	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 02:36	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 02:36	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 02:36	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:36	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:36	WG2068496
(S) Toluene-d8	101		80.0-120		06/01/2023 02:36	WG2068496
(S) 4-Bromofluorobenzene	96.3		77.0-126		06/01/2023 02:36	WG2068496
(S) 1,2-Dichloroethane-d4	105		70.0-130		06/01/2023 02:36	WG2068496

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	523		10.0	1	05/31/2023 10:47	WG2068922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Chloride	36.5		1.00	1	06/02/2023 15:03	WG2070504
Sulfate	43.5		5.00	1	06/02/2023 15:03	WG2070504

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	06/01/2023 02:56	WG2068496
Toluene	ND		0.00100	1	06/01/2023 02:56	WG2068496
Ethylbenzene	ND		0.00100	1	06/01/2023 02:56	WG2068496
Xylenes, Total	ND		0.00300	1	06/01/2023 02:56	WG2068496
Naphthalene	ND	J3	0.00500	1	06/01/2023 02:56	WG2068496
1,2,4-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:56	WG2068496
1,3,5-Trimethylbenzene	ND		0.00100	1	06/01/2023 02:56	WG2068496
(S) Toluene-d8	102		80.0-120		06/01/2023 02:56	WG2068496
(S) 4-Bromofluorobenzene	94.9		77.0-126		06/01/2023 02:56	WG2068496
(S) 1,2-Dichloroethane-d4	106		70.0-130		06/01/2023 02:56	WG2068496

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3931874-1 05/31/23 10:47

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1620444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620444-01 05/31/23 10:47 • (DUP) R3931874-3 05/31/23 10:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	298	323	1	8.05	J3	5

L1620454-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620454-01 05/31/23 10:47 • (DUP) R3931874-4 05/31/23 10:47

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	506	519	1	2.54		5

Laboratory Control Sample (LCS)

(LCS) R3931874-2 05/31/23 10:47

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	7890	89.7	77.3-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3932457-1 06/02/23 10:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

L1620444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1620444-01 06/02/23 11:39 • (DUP) R3932457-3 06/02/23 11:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	25.1	24.9	1	0.644		15
Sulfate	67.1	66.6	1	0.776		15

L1620463-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1620463-08 06/02/23 17:10 • (DUP) R3932457-6 06/02/23 17:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	13.1	13.2	1	1.11		15
Sulfate	27.1	27.3	1	0.566		15

Laboratory Control Sample (LCS)

(LCS) R3932457-2 06/02/23 10:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	36.4	91.0	80.0-120	
Sulfate	40.0	39.4	98.5	80.0-120	

L1620444-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1620444-01 06/02/23 11:39 • (MS) R3932457-4 06/02/23 12:05 • (MSD) R3932457-5 06/02/23 12:17

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 %
Chloride	50.0	25.1	71.6	71.9	92.9	93.5	1	80.0-120			0.386	15
Sulfate	50.0	67.1	113	114	92.6	93.0	1	80.0-120			0.179	15

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1620463-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1620463-08 06/02/23 17:10 • (MS) R3932457-7 06/02/23 17:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50.0	13.1	60.3	94.5	1	80.0-120	
Sulfate	50.0	27.1	76.6	99.0	1	80.0-120	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3931672-2 05/31/23 21:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	101			80.0-120
(S) 4-Bromofluorobenzene	98.1			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R3931672-1 05/31/23 20:11 • (LCSD) R3931672-3 05/31/23 22:09

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 %
Benzene	0.00500	0.00494	0.00463	98.8	92.6	70.0-123			6.48	20
Toluene	0.00500	0.00491	0.00460	98.2	92.0	79.0-120			6.52	20
Ethylbenzene	0.00500	0.00457	0.00457	91.4	91.4	79.0-123			0.000	20
Xylenes, Total	0.0150	0.0138	0.0131	92.0	87.3	79.0-123			5.20	20
Naphthalene	0.00500	0.00368	0.00300	73.6	60.0	54.0-135		J3	20.4	20
1,2,4-Trimethylbenzene	0.00500	0.00480	0.00419	96.0	83.8	76.0-121			13.6	20
1,3,5-Trimethylbenzene	0.00500	0.00496	0.00441	99.2	88.2	76.0-122			11.7	20
(S) Toluene-d8				103	104	80.0-120				
(S) 4-Bromofluorobenzene				102	98.3	77.0-126				
(S) 1,2-Dichloroethane-d4				107	105	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

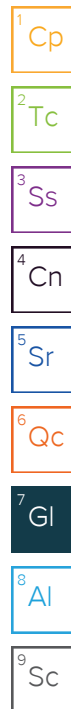
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

MDL	Method Detection Limit.
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

J3	The associated batch QC was outside the established quality control range for precision.
----	--



ACCREDITATIONS & LOCATIONS

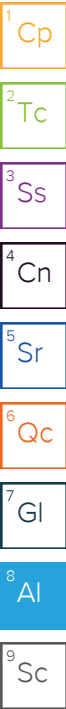
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

Company: Caerus Oil and Gas LLC
Address: Info on file
Report To: Jake Janicek, Brett Middleton, Blair Rollins
Copy To: Chris McKisson, remediation@confluence-cc.com
Billing Information: Info on file
Email To: Info on file
Site Collection Info/Address:

Customer Project Name/Number: Garden Gulch 8" Pipeline Release (Latham Laydown)
State: County/City: Time Zone Collected:
CO / Garfield [] PT [X] MT [] CT [] ET
Phone: Site/Facility ID #: Latham Laydown
Email: Compliance Monitoring? [] Yes [X] No
Collected By (print): Purchase Order #: DW PWS ID #:
Alex Slorby Quote #: DW Location Code:
Collected By (signature): Turnaround Date Required: Immediately Packed on Ice:
3-DAY TAT [X] Yes [] No
Sample Disposal: Rush: (Expedite Charges Apply) Field Filtered (if applicable):
[] Dispose as appropriate [] Same Day [] Next Day [] Yes [] No
[] Return [] 2 Day [X] 3 Day
[] Archive: [] 4 Day [] 5 Day
[] Hold: 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)		Composite End		Res Cl	# of Ctns	Container Type
			Date	Time	Date	Time			
20230524-LATHAM GG 8 INCH-(MW01)	GW	G	5/24/2023	1155				5	G/P
20230524-LATHAM GG 8 INCH-(MW02)	GW	G	5/24/2023	1135				5	G/P
20230524-LATHAM GG 8 INCH-(MW03)	GW	G	5/24/2023	1110				5	G/P
20230524-LATHAM GG 8 INCH-(MW04)	GW	G	5/24/2023	1040				5	G/P
20230524-LATHAM GG 8 INCH-(SP-LATHAM)	GW	G	5/24/2023	1210				5	G/P
6126 6537 3587									
Sample Receipt Checklist									
COC Seal Present/Intact: <u>0</u> N If Applicable									
COC Signed/Accurate: <u>X</u> N VOA Zero Headspace: <u>1</u>									
Bottles arrive intact: <u>Y</u> N Pres. Correct/Check: <u>Y</u> 1									
Correct bottles used: <u>4</u> N NS47									
Sufficient volume sent: <u>Y</u> N									
RAD Screen <0.5 mR/hr: <u>0</u> N 2140=2.1									
Cust					/et	Blue	Dry	None	

6126 6537 3587
Sample Receipt Checklist
COC Seal Present/Intact: ☒ N If Applicable
COC Signed/Accurate: ☒ N VOA Zero Headspace: ☒
Bottles arrive intact: ☒ N Pres. Correct/Check: ☒
Correct bottles used: ☒ N
Sufficient volume sent: ☒ N
RAD Screen <0.5 mR/hr: ☒ N
et Blue Dry None

Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:
5/25/23 1200
Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:
5/29/23 1600
Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:
5/26/23 9:00

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number
MTJL Log-in Number Here
B042
ALL BOLD OUTLINED AREAS are for LAB USE ONLY

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

Analyses 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: Y N NA
Sample pH Acceptable: Y N NA
pH Strips: Y N NA
Sulfide Present: Y N NA
Lead Acetate Strips: Y N NA
LAB USE ONLY:
Lab Sample # / Comments:
L1620454
-01
-02
-03
-04
-05

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

Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:
5/26/23 9:00
Trip Blank Received: Y N NA
HCL MeOH TSP Other
Non Conformance(s): YES / NO Page: of:

5/26-NCF-L1620454 CAERUSPCO

R2/R3/R4/RX/EX

Time estimate: 0h

Time spent: 0h

Members



Hailey Melson (responsible)



Chris Ward

- ☐ Parameter(s) past holding time
- ☐ Temperature not in range
- ☐ Improper container type
- ☐ pH not in range
- ☐ Insufficient sample volume
- ☐ Sample is biphasic
- ☐ Vials received with headspace
- ☒ Broken container
- ☐ Sufficient sample remains
- ☐ If broken container: Insufficient packing material around container
- ☐ If broken container: Insufficient packing material inside cooler
- ☐ If broken container: Improper handling by carrier: _____
- ☐ If broken container: Sample was frozen
- ☐ If broken container: Container lid not intact
- ☐ Client informed by Call
- ☐ Client informed by Email
- ☐ Client informed by Voicemail
- ☐ Date/Time: _____
- ☐ PM initials: _____
- ☐ Client Contact: _____

Comments

Hailey Melson

26 May 2023 1:50 PM

1 vial for MW01 received broken. 2 vials remain.

Caerus Oil and Gas

Sample Delivery Group: L1624621
Samples Received: 06/09/2023
Project Number:
Description: Garden Gulch 8-Inch Latham Laydown Yard
Groundwater
Site: LATHAM LAYDOWN YARD
Report To: Jake J. , Brett M. , Blair R.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



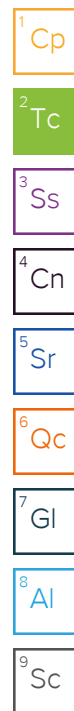
Chris Ward
Project Manager

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

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

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SAMPLE SUMMARY

20230606-LATHAM GG 8 INCH-(MW01) L1624621-01 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 11:00

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 17:19	06/14/23 17:19	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2078094	1	06/15/23 15:44	06/15/23 15:44	JHH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

20230606-LATHAM GG 8 INCH-(MW02) L1624621-02 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 11:30

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 17:37	06/14/23 17:37	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2078122	1	06/15/23 12:01	06/15/23 12:01	DWR	Mt. Juliet, TN

20230606-LATHAM GG 8 INCH-(MW03) L1624621-03 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 11:50

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 17:55	06/14/23 17:55	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2078122	1	06/15/23 12:23	06/15/23 12:23	DWR	Mt. Juliet, TN

20230606-LATHAM GG 8 INCH-(MW04) L1624621-04 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 10:25

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 18:13	06/14/23 18:13	SMC	Allen, TX
Wet Chemistry by Method 9056A	WG2077296	1	06/15/23 09:43	06/15/23 09:43	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2078122	1	06/15/23 12:44	06/15/23 12:44	DWR	Mt. Juliet, TN

20230606-LATHAM GG 8 INCH-(SP-LATHAM) L1624621-05 GW

Collected by
Alex Slorby

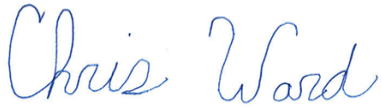
Collected date/time
06/06/23 12:00

Received date/time
06/09/23 09:00

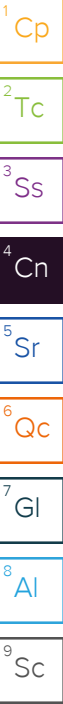
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 18:31	06/14/23 18:31	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2078122	1	06/15/23 13:06	06/15/23 13:06	DWR	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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	562		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	41.8		0.0541	0.800	1	06/14/2023 17:19	WG2077296
Sulfate	40.2		0.199	0.700	1	06/14/2023 17:19	WG2077296

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0000941	0.00100	1	06/15/2023 15:44	WG2078094
Toluene	U		0.000278	0.00100	1	06/15/2023 15:44	WG2078094
Ethylbenzene	U		0.000137	0.00100	1	06/15/2023 15:44	WG2078094
Xylenes, Total	U		0.000174	0.00300	1	06/15/2023 15:44	WG2078094
Naphthalene	U		0.00100	0.00500	1	06/15/2023 15:44	WG2078094
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/15/2023 15:44	WG2078094
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/15/2023 15:44	WG2078094
(S) Toluene-d8	103			80.0-120		06/15/2023 15:44	WG2078094
(S) 4-Bromofluorobenzene	87.3			77.0-126		06/15/2023 15:44	WG2078094
(S) 1,2-Dichloroethane-d4	88.8			70.0-130		06/15/2023 15:44	WG2078094

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	477		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	46.7		0.0541	0.800	1	06/14/2023 17:37	WG2077296
Sulfate	37.4		0.199	0.700	1	06/14/2023 17:37	WG2077296

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.162		0.0000941	0.00100	1	06/15/2023 12:01	WG2078122
Toluene	U		0.000278	0.00100	1	06/15/2023 12:01	WG2078122
Ethylbenzene	0.000524	J	0.000137	0.00100	1	06/15/2023 12:01	WG2078122
Xylenes, Total	0.00283	J	0.000174	0.00300	1	06/15/2023 12:01	WG2078122
Naphthalene	U		0.00100	0.00500	1	06/15/2023 12:01	WG2078122
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/15/2023 12:01	WG2078122
1,3,5-Trimethylbenzene	0.000288	J	0.000104	0.00100	1	06/15/2023 12:01	WG2078122
(S) Toluene-d8	98.0			80.0-120		06/15/2023 12:01	WG2078122
(S) 4-Bromofluorobenzene	104			77.0-126		06/15/2023 12:01	WG2078122
(S) 1,2-Dichloroethane-d4	115			70.0-130		06/15/2023 12:01	WG2078122

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	545		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Chloride	43.1		0.0541	0.800	1	06/14/2023 17:55	WG2077296
Sulfate	44.9		0.199	0.700	1	06/14/2023 17:55	WG2077296

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.185		0.0000941	0.00100	1	06/15/2023 12:23	WG2078122
Toluene	U		0.000278	0.00100	1	06/15/2023 12:23	WG2078122
Ethylbenzene	U		0.000137	0.00100	1	06/15/2023 12:23	WG2078122
Xylenes, Total	U		0.000174	0.00300	1	06/15/2023 12:23	WG2078122
Naphthalene	U		0.00100	0.00500	1	06/15/2023 12:23	WG2078122
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/15/2023 12:23	WG2078122
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/15/2023 12:23	WG2078122
(S) Toluene-d8	95.8			80.0-120		06/15/2023 12:23	WG2078122
(S) 4-Bromofluorobenzene	99.7			77.0-126		06/15/2023 12:23	WG2078122
(S) 1,2-Dichloroethane-d4	117			70.0-130		06/15/2023 12:23	WG2078122

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	367		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	1.96		0.0541	0.800	1	06/15/2023 09:43	WG2077296
Sulfate	50.9		0.199	0.700	1	06/14/2023 18:13	WG2077296

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000191	J	0.0000941	0.00100	1	06/15/2023 12:44	WG2078122
Toluene	U		0.000278	0.00100	1	06/15/2023 12:44	WG2078122
Ethylbenzene	U		0.000137	0.00100	1	06/15/2023 12:44	WG2078122
Xylenes, Total	U		0.000174	0.00300	1	06/15/2023 12:44	WG2078122
Naphthalene	U		0.00100	0.00500	1	06/15/2023 12:44	WG2078122
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/15/2023 12:44	WG2078122
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/15/2023 12:44	WG2078122
(S) Toluene-d8	96.1			80.0-120		06/15/2023 12:44	WG2078122
(S) 4-Bromofluorobenzene	98.0			77.0-126		06/15/2023 12:44	WG2078122
(S) 1,2-Dichloroethane-d4	117			70.0-130		06/15/2023 12:44	WG2078122

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	552		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chloride	33.7		0.0541	0.800	1	06/14/2023 18:31	WG2077296
Sulfate	37.0		0.199	0.700	1	06/14/2023 18:31	WG2077296

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	06/15/2023 13:06	WG2078122
Toluene	U		0.000278	0.00100	1	06/15/2023 13:06	WG2078122
Ethylbenzene	U		0.000137	0.00100	1	06/15/2023 13:06	WG2078122
Xylenes, Total	U		0.000174	0.00300	1	06/15/2023 13:06	WG2078122
Naphthalene	U		0.00100	0.00500	1	06/15/2023 13:06	WG2078122
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/15/2023 13:06	WG2078122
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/15/2023 13:06	WG2078122
(S) Toluene-d8	93.4			80.0-120		06/15/2023 13:06	WG2078122
(S) 4-Bromofluorobenzene	96.4			77.0-126		06/15/2023 13:06	WG2078122
(S) 1,2-Dichloroethane-d4	122			70.0-130		06/15/2023 13:06	WG2078122

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3937361-1 06/13/23 11:12

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1623398-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1623398-01 06/13/23 11:12 • (DUP) R3937361-3 06/13/23 11:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	815	864	1	5.88	J3	5

L1624621-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1624621-03 06/13/23 11:12 • (DUP) R3937361-4 06/13/23 11:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	545	563	1	3.25		5

Laboratory Control Sample (LCS)

(LCS) R3937361-2 06/13/23 11:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8490	96.5	77.3-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3937344-1 06/14/23 15:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Chloride	0.0637	⬇	0.0541	0.800
Sulfate	U		0.199	0.700

Laboratory Control Sample (LCS)

(LCS) R3937344-2 06/14/23 16:08

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Chloride	5.00	5.03	101	80.0-120	
Sulfate	5.00	5.05	101	80.0-120	

L1624537-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624537-04 06/14/23 16:26 • (MS) R3937344-3 06/14/23 23:34 • (MSD) R3937344-4 06/14/23 23:52

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	24.6	75.8	75.7	102	102	1	80.0-120			0.147	20
Sulfate	50.0	44.9	98.8	97.7	108	106	1	80.0-120			1.15	20

L1624537-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624537-05 06/15/23 00:10 • (MS) R3937344-5 06/15/23 00:28 • (MSD) R3937344-6 06/15/23 00:46

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	5.00	0.0726	4.98	4.99	98.2	98.4	1	80.0-120			0.231	20
Sulfate	5.00	U	5.58	5.04	112	101	1	80.0-120			10.2	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3937695-4 06/15/23 06:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	104			80.0-120
(S) 4-Bromofluorobenzene	89.1			77.0-126
(S) 1,2-Dichloroethane-d4	86.4			70.0-130

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

(LCS) R3937695-1 06/15/23 04:12 • (LCSD) R3937695-2 06/15/23 04:34

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 %
Benzene	0.00500	0.00480	0.00472	96.0	94.4	70.0-123			1.68	20
Toluene	0.00500	0.00503	0.00478	101	95.6	79.0-120			5.10	20
Ethylbenzene	0.00500	0.00476	0.00479	95.2	95.8	79.0-123			0.628	20
Xylenes, Total	0.0150	0.0141	0.0138	94.0	92.0	79.0-123			2.15	20
Naphthalene	0.00500	0.00415	0.00439	83.0	87.8	54.0-135			5.62	20
1,2,4-Trimethylbenzene	0.00500	0.00467	0.00465	93.4	93.0	76.0-121			0.429	20
1,3,5-Trimethylbenzene	0.00500	0.00486	0.00479	97.2	95.8	76.0-122			1.45	20
(S) Toluene-d8				101	99.2	80.0-120				
(S) 4-Bromofluorobenzene				87.1	89.3	77.0-126				
(S) 1,2-Dichloroethane-d4				88.9	88.0	70.0-130				

L1624638-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624638-01 06/15/23 11:03 • (MS) R3937695-5 06/15/23 18:16 • (MSD) R3937695-6 06/15/23 18:38

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 %
Benzene	0.00500	U	0.00394	0.00348	78.8	69.6	1	17.0-158			12.4	27
Toluene	0.00500	U	0.00394	0.00357	78.8	71.4	1	26.0-154			9.85	28
Ethylbenzene	0.00500	U	0.00399	0.00349	79.8	69.8	1	30.0-155			13.4	27
Xylenes, Total	0.0150	U	0.0118	0.0104	78.7	69.3	1	29.0-154			12.6	28
Naphthalene	0.00500	U	0.00454	0.00364	90.8	72.8	1	12.0-156			22.0	35
1,2,4-Trimethylbenzene	0.00500	U	0.00397	0.00342	79.4	68.4	1	26.0-154			14.9	27
1,3,5-Trimethylbenzene	0.00500	U	0.00386	0.00343	77.2	68.6	1	28.0-153			11.8	27

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1624638-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624638-01 06/15/23 11:03 • (MS) R3937695-5 06/15/23 18:16 • (MSD) R3937695-6 06/15/23 18:38

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 %
(S) Toluene-d8					97.9	99.1		80.0-120				
(S) 4-Bromofluorobenzene					93.9	92.6		77.0-126				
(S) 1,2-Dichloroethane-d4					96.4	93.8		70.0-130				

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Method Blank (MB)

(MB) R3937700-3 06/15/23 11:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	96.9			80.0-120
(S) 4-Bromofluorobenzene	101			77.0-126
(S) 1,2-Dichloroethane-d4	120			70.0-130

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

(LCS) R3937700-1 06/15/23 09:57 • (LCSD) R3937700-2 06/15/23 10:18

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 %
Benzene	0.00500	0.00466	0.00479	93.2	95.8	70.0-123			2.75	20
Toluene	0.00500	0.00438	0.00438	87.6	87.6	79.0-120			0.000	20
Ethylbenzene	0.00500	0.00456	0.00474	91.2	94.8	79.0-123			3.87	20
Xylenes, Total	0.0150	0.0138	0.0141	92.0	94.0	79.0-123			2.15	20
Naphthalene	0.00500	0.00330	0.00385	66.0	77.0	54.0-135			15.4	20
1,2,4-Trimethylbenzene	0.00500	0.00448	0.00475	89.6	95.0	76.0-121			5.85	20
1,3,5-Trimethylbenzene	0.00500	0.00457	0.00491	91.4	98.2	76.0-122			7.17	20
(S) Toluene-d8				94.1	96.8	80.0-120				
(S) 4-Bromofluorobenzene				98.4	102	77.0-126				
(S) 1,2-Dichloroethane-d4				118	121	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

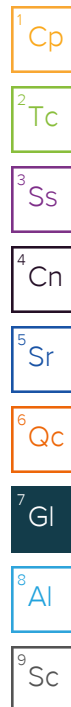
Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.



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		

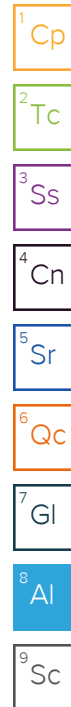
Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-22-37
Iowa	408	Oklahoma	8727
Louisiana	30686		

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.



June 16, 2023

Caerus Oil and Gas

Sample Delivery Group: L1624622
Samples Received: 06/09/2023
Project Number:
Description: Garden Gulch 8-Inch Latham Laydown Yard Surface Water
Site: LATHAM LAYDOWN YARD
Report To: Jake J. , Brett M. , Blair R.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

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

Pace Analytical National

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

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¹ Cp
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⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY

2230606-LATHAM GG 8 INCH-(ST-UP) L1624622-01 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 12:15

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 19:24	06/14/23 19:24	SMC	Allen, TX
Wet Chemistry by Method 9056A	WG2077296	1	06/15/23 10:01	06/15/23 10:01	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2077335	1	06/14/23 17:44	06/14/23 17:44	ADM	Mt. Juliet, TN

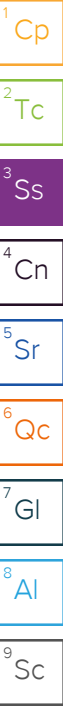
2230606-LATHAM GG 8 INCH-(ST-DOWN) L1624622-02 GW

Collected by
Alex Slorby

Collected date/time
06/06/23 11:10

Received date/time
06/09/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2076226	1	06/13/23 09:02	06/13/23 11:12	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2077296	1	06/14/23 19:42	06/14/23 19:42	SMC	Allen, TX
Wet Chemistry by Method 9056A	WG2077296	1	06/15/23 10:19	06/15/23 10:19	SMC	Allen, TX
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2077335	1	06/14/23 18:06	06/14/23 18:06	ADM	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



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Dissolved Solids	251		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Chloride	1.29		0.0541	0.800	1	06/15/2023 10:01	WG2077296
Sulfate	26.7		0.199	0.700	1	06/14/2023 19:24	WG2077296

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

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Benzene	U		0.0000941	0.00100	1	06/14/2023 17:44	WG2077335
Toluene	U		0.000278	0.00100	1	06/14/2023 17:44	WG2077335
Ethylbenzene	U		0.000137	0.00100	1	06/14/2023 17:44	WG2077335
Xylenes, Total	U		0.000174	0.00300	1	06/14/2023 17:44	WG2077335
Naphthalene	U		0.00100	0.00500	1	06/14/2023 17:44	WG2077335
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/14/2023 17:44	WG2077335
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/14/2023 17:44	WG2077335
(S) Toluene-d8	97.9			80.0-120		06/14/2023 17:44	WG2077335
(S) 4-Bromofluorobenzene	98.8			77.0-126		06/14/2023 17:44	WG2077335
(S) 1,2-Dichloroethane-d4	118			70.0-130		06/14/2023 17:44	WG2077335

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	<u>Qualifier</u>	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Dissolved Solids	285		10.0	1	06/13/2023 11:12	WG2076226

Wet Chemistry by Method 9056A

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Chloride	5.10		0.0541	0.800	1	06/15/2023 10:19	WG2077296
Sulfate	28.5		0.199	0.700	1	06/14/2023 19:42	WG2077296

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

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Benzene	U		0.0000941	0.00100	1	06/14/2023 18:06	WG2077335
Toluene	U		0.000278	0.00100	1	06/14/2023 18:06	WG2077335
Ethylbenzene	U		0.000137	0.00100	1	06/14/2023 18:06	WG2077335
Xylenes, Total	U		0.000174	0.00300	1	06/14/2023 18:06	WG2077335
Naphthalene	U		0.00100	0.00500	1	06/14/2023 18:06	WG2077335
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	06/14/2023 18:06	WG2077335
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	06/14/2023 18:06	WG2077335
(S) Toluene-d8	97.6			80.0-120		06/14/2023 18:06	WG2077335
(S) 4-Bromofluorobenzene	104			77.0-126		06/14/2023 18:06	WG2077335
(S) 1,2-Dichloroethane-d4	122			70.0-130		06/14/2023 18:06	WG2077335

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3937361-1 06/13/23 11:12

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Dissolved Solids	U		10.0	10.0

L1623398-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1623398-01 06/13/23 11:12 • (DUP) R3937361-3 06/13/23 11:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	815	864	1	5.88	J3	5

L1624621-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1624621-03 06/13/23 11:12 • (DUP) R3937361-4 06/13/23 11:12

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	545	563	1	3.25		5

Laboratory Control Sample (LCS)

(LCS) R3937361-2 06/13/23 11:12

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8490	96.5	77.3-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3937344-1 06/14/23 15:51

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Chloride	0.0637	⬇	0.0541	0.800
Sulfate	U		0.199	0.700

Laboratory Control Sample (LCS)

(LCS) R3937344-2 06/14/23 16:08

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	5.00	5.03	101	80.0-120	
Sulfate	5.00	5.05	101	80.0-120	

L1624537-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624537-04 06/14/23 16:26 • (MS) R3937344-3 06/14/23 23:34 • (MSD) R3937344-4 06/14/23 23:52

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	50.0	24.6	75.8	75.7	102	102	1	80.0-120			0.147	20
Sulfate	50.0	44.9	98.8	97.7	108	106	1	80.0-120			1.15	20

L1624537-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1624537-05 06/15/23 00:10 • (MS) R3937344-5 06/15/23 00:28 • (MSD) R3937344-6 06/15/23 00:46

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Chloride	5.00	0.0726	4.98	4.99	98.2	98.4	1	80.0-120			0.231	20
Sulfate	5.00	U	5.58	5.04	112	101	1	80.0-120			10.2	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3936909-3 06/14/23 11:27

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	95.6			80.0-120
(S) 4-Bromofluorobenzene	97.5			77.0-126
(S) 1,2-Dichloroethane-d4	117			70.0-130

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

(LCS) R3936909-1 06/14/23 10:23 • (LCSD) R3936909-2 06/14/23 10:44

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 %
Benzene	0.00500	0.00504	0.00470	101	94.0	70.0-123			6.98	20
Toluene	0.00500	0.00465	0.00451	93.0	90.2	79.0-120			3.06	20
Ethylbenzene	0.00500	0.00484	0.00461	96.8	92.2	79.0-123			4.87	20
Xylenes, Total	0.0150	0.0144	0.0140	96.0	93.3	79.0-123			2.82	20
Naphthalene	0.00500	0.00422	0.00414	84.4	82.8	54.0-135			1.91	20
1,2,4-Trimethylbenzene	0.00500	0.00504	0.00468	101	93.6	76.0-121			7.41	20
1,3,5-Trimethylbenzene	0.00500	0.00504	0.00463	101	92.6	76.0-122			8.48	20
(S) Toluene-d8				95.8	96.5	80.0-120				
(S) 4-Bromofluorobenzene				99.6	102	77.0-126				
(S) 1,2-Dichloroethane-d4				120	119	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

GLOSSARY OF TERMS

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

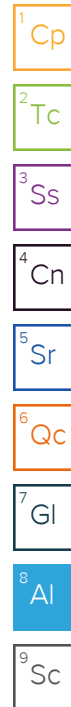
Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-22-37
Iowa	408	Oklahoma	8727
Louisiana	30686		

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.



Date/Time:	J111	
Date/Time:	Accnum: Template: Prelogin:	Trip Blank Received: Y (N) NA HCL MeOH TSP Other
Date/Time: PM: PB:		Non Conformance(s): YES / NO
		Page: _____ of: _____