

July 20, 2022



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## Report of Work Completed – Release Investigation

<b>COGCC Location Name (ID)</b>	BAXTER PASS SOUTH UNIT (12449)
<b>Operator Location Name</b>	Garden Gulch 8"
<b>COGCC Facility Name</b>	Garden Gulch 8" to Latham
<b>COGCC Spill/Release Point ID</b>	481814
<b>Legal Description</b>	SWSE Sec. 32 T5S-R96W
<b>Coordinates (Lat/Long)</b>	39.566968/-108.183634
<b>County</b>	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" 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 hydrovacuum. The release was reported in a Colorado Oil and Gas Conservation Commission (COGCC) Form 19 Document 402993777.

### Methodology

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) at 8 feet below ground surface (bgs), and a second soil sample was collected from the west sidewall of the excavation at 6 feet bgs to characterize potential soil impacts. Additionally, two surface water samples were collected from House Log Gulch: one upgradient of the site and one downgradient of the site. A waste

characterization sample (220323\_Latham\_WW\_Source) was also collected from the produced water on Location.

A stockpile was generated by excavation activities. Due to the size of the stockpile, two composite samples were collected: one from the north portion of the stockpile and one from the south portion. The soil samples were characterized using visual and olfactory observations. The POR sample was stained with an odor. The excavation soil sample and both composite stockpile samples did not contain noticeable staining or odor.

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 was used to remove material from five silt traps and from the release excavation over the course of several investigation events. The point of release excavation was expanded to measure 35 feet by 20 feet. 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 release excavation to delineate the vertical and horizontal extents of soil impacts. Several background samples were collected on April 28.

All soil samples were collected in laboratory provided jars, immediately placed on ice, and shipped to a laboratory. Characterization and delineation soil samples were submitted for analysis of COGCC Table 915-1 soil constituents of concern. Background soil samples were submitted for analysis of Soil Suitability for Reclamation (SSR) constituents and arsenic. Water samples were submitted for analysis of COGCC Table 915-1 water constituents of concern. Soil and water sample locations are presented in the attached Site Diagram.

## 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 Diagram. 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 west toward Parachute Creek and ultimately to the Colorado River, located 7.9 miles southeast of the Location. Depth to groundwater is estimated to be approximately 45 feet bgs based on Division of Water Resources (DWR) permits 123302 and 25481 located 0.5 miles north of the Location.

### Initial Site Assessment

Laboratory results of the POR soil sample indicate compliance with COGCC Table 915-1 Groundwater Protection Soil Screening Level allowable limits except for 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), boron, arsenic, barium, and lead. TPH exceeds allowable limits at 746 milligrams per kilogram (mg/kg), benzene exceeds at 3.08 mg/kg, toluene exceeds at 33.3 mg/kg, ethylbenzene exceeds at 2.21 mg/kg, xylenes exceed at 40.1 mg/kg, 1,2,4 trimethylbenzene exceeds at 4.46 mg/kg, 1,3,5 trimethylbenzene exceeds at 4.85 mg/kg, 1-methylnaphthalene exceeds at 0.0974 mg/kg, 2-methylnaphthalene exceeds at 0.317 mg/kg, and naphthalene exceeds at 0.185 mg/kg. EC exceeds allowable limits at 4.950 millimhos per centimeter (mmhos/cm), SAR exceeds at 39.3, boron exceeds at 3.34 milligrams per liter (mg/L), arsenic exceeds at 9.56 mg/kg, barium exceeds at 295 mg/kg, and lead exceeds at 14.7 mg/kg.

Laboratory results of excavation sidewall soil sample 220323\_Latham\_SS\_W@6 were within COGCC Table 915-1 Groundwater Protection Soil Screening Level allowable limits except for benzene, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, SAR, arsenic, barium, and lead. Benzene exceeded allowable limits at 0.0378 mg/kg, 1,2,4 trimethylbenzene exceeded at 0.0181 mg/kg, and 1,3,5 trimethylbenzene exceeded at 0.0185 mg/kg. SAR exceeded allowable limits at 17.4, arsenic exceeded at 9.32 mg/kg, barium exceeded at 329 mg/kg, and lead exceeded at 14.6 mg/kg.

Laboratory results of stockpile samples are within COGCC Table 915-1 Groundwater Protection Soil Screening Level allowable limits except for TPH, benzene, toluene, ethylbenzene, xylenes, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, SAR, arsenic, barium, and lead. TPH exceedances range from 554 to 1269 mg/kg, benzene ranges from 0.427 to 0.508 mg/kg, toluene ranges from 7.28 to 12.6 mg/kg, ethylbenzene ranges from 1.10 to 1.32 mg/kg, xylenes range from 19.3 to 30.5 mg/kg, 1,2,4 trimethylbenzene ranges from 3.59 to 6.52, 1,3,5 trimethylbenzene ranges from 3.90 to 7.22, 1-methylnaphthalene ranges from 0.145 to 0.216 mg/kg, 2-methylnaphthalene ranges from 0.489 to 0.735 mg/kg, and naphthalene ranges from 0.217 to 0.337 mg/kg. SAR exceedances range from 13.6 to 14.0, arsenic ranges from 8.58 to 13.7 mg/kg, barium ranges from 369 to 450 mg/kg, and lead exceeds at 14.5 mg/kg.

## Water Sampling

Laboratory results of the source characterization sample 220323\_Latham\_WW\_Source indicate compliance with COGCC Table 915-1 allowable limits except for benzene and toluene. Benzene exceeds allowable limits at 18700 micrograms per liter (µg/L), and toluene exceeds allowable limits at 29600 µg/L. Both surface water samples are within COGCC Table 915-1 allowable limits for all constituents of concern at levels below lab detection limits for all organic constituents.

## Additional Silt Trap Investigation

Laboratory results of the latest silt trap samples indicate compliance with Table 915-1 Groundwater Protection Soil Screening Level allowable limits with the exception of SAR, arsenic, barium, cadmium, hexavalent chromium, copper, lead, nickel, and selenium. SAR exceeds at 11.8 in silt trap 3, arsenic exceedances range from 7.97 to 69.9 mg/kg, barium exceedances range from 336 to 876 mg/kg, cadmium exceedances range from 0.527 mg/kg to 0.896 mg/kg, chromium exceedances range from 1.64 to 2.53 mg/kg, copper exceeds at 55.0 mg/kg in silt trap 3, lead exceeds at 15.0 to 26.4 mg/kg, nickel exceeds at 29.8 mg/kg in silt trap 3, and selenium exceeds at 2.14 mg/kg in silt trap 3.



## Additional Excavation Investigation

Laboratory results of the latest extents of the release excavation indicate compliance with Table 915-1 Groundwater Protection Soil Screening Level allowable limits with the exception of naphthalene, arsenic, barium, cadmium, hexavalent chromium, copper, lead, and nickel. Naphthalene exceeds at 0.0213 mg/kg in the south sidewall of the excavation. Arsenic exceedances range from 7.32 to 50.4 mg/kg, barium ranges from 208 to 634 mg/kg, cadmium exceeds at 0.674 mg/kg in the south sidewall, hexavalent chromium exceeds at 2.94 mg/kg in the south sidewall, copper exceeds at 50.2 in the south sidewall, lead ranges from 16.5 to 29.3 mg/kg, and nickel exceeds at 37.1 mg/kg in the south sidewall.

## Background Sampling

Laboratory results of background sampling indicate native levels of inorganic constituents of concern elevated above COGCC Table 915-1 Groundwater Protection Soil Screening Level allowable limits. Results indicate native pH as high as 8.58 and arsenic as high as 23.8 mg/kg.

## Analysis and Recommendations

Confluence recommends additional site investigation to delineate the extent of organic and inorganic soil impacts around the point of release via soil borings, to characterize groundwater quality via groundwater monitoring well installation, and to characterize surface water quality via quarterly surface water sampling. Additional material removal from the Latham Laydown Yard silt traps and sampling is also recommended. Confluence also recommends the collection of background samples to establish native levels of metals around the Location.

Based on background sampling results, Confluence recommends that Caerus requests consideration of Table 915-1 Footnote 11 to establish an alternative allowable limit for arsenic of 29.75 mg/kg.

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 – Sample Locations
- Site Diagram – Proposed Sample Locations
- Analytical Results Summary Table – Soil
- Analytical Results Summary Table – Water
- Laboratory Reports





## Topographic Location Map

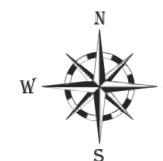
### Caerus Oil and Gas LLC

Garden Gulch 8" to Latham  
(BAXTER PASS SOUTH UNIT)

COGCC Location ID: 12449

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

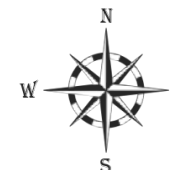




## Site Diagram Excavation and Silt Trap Samples

### Caerus Oil and Gas LLC

Garden Gulch 8" to Latham  
(BAXTER PASS SOUTH UNIT)  
COGCC Location ID: 12449  
Garfield County  
SWSE Sec. 32 T5S-R96W



### Legend

- ▮ Release Excavation – 03/23/2022
- ▮ Release Excavation – 04/15/2022
- ▮ Release Excavation – 04/19/2022
- ▮ Water Sample – 03/23/2022
- Soil Sample – 03/23/2022
- Soil Sample – 04/15/2022
- Soil Sample – 04/19/2022
- Soil Sample – 04/28/2022
- Soil Sample – 05/16/2022
- Soil Sample – 06/03/2022

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.

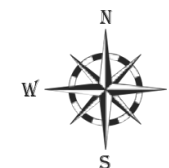
Map created by: Sage Maher on 07/07/2022.








## Site Diagram Soil and Water Samples

### Caerus Oil and Gas LLC

Garden Gulch 8" to Latham  
(BAXTER PASS SOUTH UNIT)  
COGCC Location ID: 12449  
Garfield County  
SWSE Sec. 32 T5S-R96W



### Legend

-  Surface Water Sample – 03/22/2022
-  Stockpile Soil Sample – 03/23/2022
-  Background Soil Sample – 04/28/2022
-  Release Excavation
-  Soil Stockpile

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: Sage Maher on 07/07/2022.

20220428-Garden\_Gulch\_8"-BKG\_3@1'

20220428-Garden\_Gulch\_8"-BKG\_5@0.5'

20220428-Garden\_Gulch\_8"-BKG\_2@0.5'

20220428-Garden\_Gulch\_8"-BKG\_1@0.5'

220322\_Latham\_SW\_DownCreek

220322\_Latham\_SW\_UpCrk

220323\_Latham\_SS\_Comp\_Stock\_I\_N

220323\_Latham\_SS\_Comp\_Stock\_I\_S



## Site Diagram Proposed Assessment

### 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

-  Excavation Extent
-  Proposed Soil Boring

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: Chris McKisson on 07/12/2022.



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	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	PID (ppm)	TPH (total volatile and extractable petroleum hydrocarbons) (GRO+DRO+ORO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	TPH-ORO (C28-C36) 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	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,CD)pyrene	1- Methylnaphthalene	2- Metyhlnaphthalene	Naphthalene	Pyrene	
3/23/2022	Pipeline	220323_Latham_SS_POR@8	NA	746	608	124	14.2	3.08	33.3	2.21	40.1	4.46	4.85	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00721	<0.00600	0.0974	0.317	0.185	<0.00600	
3/23/2022	Pipeline	220323_Latham_SS_W@6	NA	38.2	8.52	7.48	22.2	0.0378	0.168	0.0108	0.207	0.0181	0.0185	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.0200	<0.0200	<0.00600	
3/24/2022	Pipeline	220324_Latham_SS_Comp_Stock_I_N	NA	1269	709	414	146	0.508	7.28	1.10	19.3	3.59	3.90	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.0171	<0.00600	0.216	0.735	0.337	<0.00600	
3/24/2022	Pipeline	220324_Latham_SS_Comp_Stock_I_S	NA	554	390	89.3	74.7	0.427	12.6	1.32	30.5	6.52	7.22	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.0128	<0.00600	0.145	0.489	0.217	<0.00600	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-ESW@5.5	6.9	ND	<10.0	<10.0	<10.0	<0.0250	<0.0250	<0.0250	<0.0750	<0.0250	<0.0250	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_1	2.6	39.1	<10.0	39.1	<10.0	<0.0250	0.0295	<0.0250	<0.0750	<0.0250	<0.0250	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.014	<0.040	<0.040	0.027	<0.040	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_2	22.4	ND	<10.0	<10.0	<10.0	0.211	0.168	<0.0250	<0.0750	<0.0250	<0.0250	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_3	38.0	ND	<10.0	<10.0	<10.0	0.0971	0.314	<0.0250	0.105	<0.0250	<0.0250	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_4	26.8	ND	<10.0	<10.0	<10.0	0.471	2.04	0.0846	1.69	0.193	0.239	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.017	0.039	0.027	<0.040	
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_5	1.1	ND	<10.0	<10.0	<10.0	<0.0250	0.108	<0.0250	0.489	0.0828	0.336	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
4/19/2022	Pipeline	20220419-Garden_Gulch_8"-SSW@7'	2.5	97.2	<0.100	18.8	78.4	<0.00100	<0.00500	<0.00250	<0.00650	<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	<0.0200	<0.0200	0.0213	<0.00600	
4/19/2022	Pipeline	20220419-Garden_Gulch_8"-WSW@6.5'	2.2	7.87	<0.100	<4.00	7.87	<0.00100	<0.00500	<0.00250	<0.00650	<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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_1@1'	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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_2@1'	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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_3@1'	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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_4@1'	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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_5@1'	1	130	<0.100	22.0	108	<0.00100	<0.00500	<0.00250	<0.00650	<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	<0.0200	<0.0200	<0.0200	<0.00600	
5/16/2022	Pipeline	20220516-Garden_Gulch_8"-SILT_TRAP_1	1.4	83.1	<0.100	<20.0	83.1	<0.00100	<0.00500	<0.00250	<0.00650	<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	<0.0200	<0.0200	<0.0200	<0.00600	
5/16/2022	Pipeline	20220516-Garden_Gulch_8"-SILT_TRAP_2	0.8	35.5	<0.100	<20.0	35.5	<0.00100	<0.00500	<0.00250	<0.00650	<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	<0.0200	<0.0200	<0.0200	<0.00600	
5/16/2022	Pipeline	20220516-Garden_Gulch_8"-SILT_TRAP_3	1.6	52.5	<0.100	<20.0	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	<0.0200	<0.0200	<0.0200	<0.00600	
5/16/2022	Pipeline	20220516-Garden_Gulch_8"-SILT_TRAP_4	2.0	22.5	<0.100	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	<0.0200	<0.0200	<0.0200	<0.00600	
6/3/2022	Pipeline	220603_GG8"-SILT_TRAP_3@2'	NA	273	<0.100	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	<0.0200	<0.0200	<0.0200	<0.00600	
6/3/2022	Pipeline	220603_GG8"-SILT_TRAP_4@2'	NA	194	<0.100	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	<0.0200	<0.0200	<0.0200	<0.00600	
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA																										



Laboratory Results Summary Table - Soil  
Garden Gulch 8" Pipeline Release

Soil Screening and Remediation Limits				Soil Suitability for Reclamation				Metals (mg/kg (ppm))									
COGCC Table 915-1 Groundwater Protection -->			NA	4	6	6-8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
Sample Date	Solid/Soil Source (Equipment [Vault/Sump, Separator, Tank Battery, Dump Lines, Pit, Cuttings, Background, etc.]	Sample ID	PID (ppm)	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	SAR (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Boron - Hot Water Soluble (mg/L)	Arsenic	Barium	Cadmium (ng/kg)	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
3/23/2022	Pipeline	220323_Latham_SS_POR@8	NA	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	220323_Latham_SS_W@6	NA	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
3/24/2022	Pipeline	220324_Latham_SS_Comp_Stock_I_N	NA	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	220324_Latham_SS_Comp_Stock_I_S	NA	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
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-ESW@5.5	6.9	1.570	1.23	7.22	<1.20	22.2	379	<5.00	<0.250	17.6	16.5	23.7	<20.0	<1.00	56.5
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_1	2.6	0.517	1.59	7.81	<1.20	11.7	343	<5.00	0.267	17.0	15.2	23.4	<20.0	<1.00	58.2
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_2	22.4	7.350	5.60	7.73	<1.20	13.4	392	<5.00	<0.250	19.3	14.6	26.4	<20.0	<1.00	84.0
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_3	38.0	1.980	12.4	7.70	1.85	67.1	1180	5.74	<0.250	45.9	26.1	50.3	<20.0	<1.00	83.6
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_4	26.8	1.260	11.0	8.27	2.33	11.8	378	<5.00	0.298	16.4	13.2	22.7	<20.0	<1.00	65.1
4/15/2022	Pipeline	20220415-Garden_Gulch_8in-SILT_TRAP_5	1.1	1.110	9.14	8.05	1.79	14.4	411	<5.00	<0.250	23.6	18.1	27.6	<20.0	<1.00	78.7
4/19/2022	Pipeline	20220419-Garden_Gulch_8"-SSW@7'	2.5	0.103	0.874	7.69	0.204	50.4	634	0.674	2.94	50.2	29.3	37.1	<2.00	<2.00	62.9
4/19/2022	Pipeline	20220419-Garden_Gulch_8"-WSW@6.5'	2.2	0.402	0.983	7.66	<0.200	7.32	208	<0.500	<1.00	16.5	13.3	19.1	<2.00	<2.00	52.7
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_1@1'	1.7	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	20220428-Garden_Gulch_8"-SILT_TRAP_2@1'	1.1	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	20220428-Garden_Gulch_8"-SILT_TRAP_3@1'	10.8	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	20220428-Garden_Gulch_8"-SILT_TRAP_4@1'	3.1	0.429	3.89	8.55	1.22	8.43	403	0.577	<1.00	29.6	16.3	24.5	<2.00	<1.00	66
4/28/2022	Pipeline	20220428-Garden_Gulch_8"-SILT_TRAP_5@1'	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
5/16/2022	Pipeline	20220516-Garden_Gulch_8"-SILT_TRAP_1	1.4	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	20220516-Garden_Gulch_8"-SILT_TRAP_2	0.8	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	20220516-Garden_Gulch_8"-SILT_TRAP_3	1.6	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	20220516-Garden_Gulch_8"-SILT_TRAP_4	2.0	0.506	2.78	8.46	0.405	9.43	361	<0.500	<1.00	20.8	13.7	19.2	<2.00	<1.00	61.8
6/3/2022	Pipeline	220603_GG8"-SILT_TRAP_3@2'	NA	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	220603_GG8"-SILT_TRAP_4@2'	NA	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
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	0.0855	0.0731	7.66	0.111	15.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	0.0866	0.0852	7.93	NA	19.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	0.0784	0.0826	7.63	NA	23.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	0.0781	0.0807	7.73	NA	18.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_1@0.5'	NA	0.0799	0.0804	8.01	NA	18.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_2@0.5'	NA	0.146	0.0718	7.79	0.196	21.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_2@0.5'	NA	0.155	0.0718	8.26	NA	13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_2@0.5'	NA	0.144	0.0701	8.15	NA	17.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_2@0.5'	NA	0.159	0.0673	7.80	NA	19.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_2@0.5'	NA	0.154	0.0635	7.88	NA	22.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_3@1'	NA	0.160	1.91	8.36	0.0827	11.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_3@1'	NA	0.173	1.92	8.58	NA	8.48	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_3@1'	NA	0.173	2.11	8.34	NA	9.97	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_3@1'	NA	0.171	1.93	8.39	NA	8.90	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_3@1'	NA	0.167	1.93	8.44	NA	11.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_4@0.5'	NA	0.134	0.0936	7.92	0.344	8.36	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_4@0.5'	NA	0.143	0.0899	7.94	NA	9.53	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_4@0.5'	NA	0.142	0.0823	8.01	NA	20.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_4@0.5'	NA	0.150	0.0910	7.98	NA	9.22	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/28/2022	Background	20220428-GARDEN_GULCH_8"-BG_4@0.5'	NA	0.139	0.0929	7.98	NA	8.76	NA	NA	NA	NA	NA	NA	NA	NA	NA



**Laboratory Results Summary Table - Water**  
**Garden Gulch 8" Pipeline Release**

7/11/2022

		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
3/22/22	220322_Latham_SW_DownCreek	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	405.00	20.00	45
3/22/22	220322_Latham_SW_UpCrk	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	409.00	19.80	47
3/23/22	220323_Latham_WW_Source	18700	29600	<5000	<15000	<25000	<5000	<5000	8640.00	5690.00	6



## Caerus Oil and Gas

Sample Delivery Group: L1474769

Samples Received: 03/24/2022

Project Number:

Description: Garden Gulch 8"

Report To: Brett Middleton  
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](http://www.pacenational.com)



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



# SAMPLE SUMMARY

220322-LATHAM-SW-UPCRK L1474769-01 GW

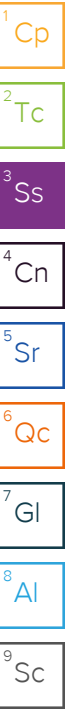
Collected by Adam Roll  
Collected date/time 03/22/22 09:02  
Received date/time 03/24/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1839491	1	03/28/22 13:45	03/28/22 16:14	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1837980	1	03/25/22 00:53	03/25/22 00:53	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1838633	1	03/26/22 11:44	03/26/22 11:44	ACG	Mt. Juliet, TN

220322-LATHAM-SW-DOWNCRK L1474769-02 GW

Collected by Adam Roll  
Collected date/time 03/22/22 12:25  
Received date/time 03/24/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1839491	1	03/28/22 13:45	03/28/22 16:14	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1837980	1	03/25/22 01:06	03/25/22 01:06	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1838851	1	03/26/22 23:57	03/26/22 23:57	JAH	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	409		10.0	1	03/28/2022 16:14	<a href="#">WG1839491</a>

## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	19.8		1.00	1	03/25/2022 00:53	<a href="#">WG1837980</a>
Sulfate	46.7		5.00	1	03/25/2022 00:53	<a href="#">WG1837980</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/26/2022 11:44	<a href="#">WG1838633</a>
Toluene	ND		0.00100	1	03/26/2022 11:44	<a href="#">WG1838633</a>
Ethylbenzene	ND		0.00100	1	03/26/2022 11:44	<a href="#">WG1838633</a>
Xylenes, Total	ND		0.00300	1	03/26/2022 11:44	<a href="#">WG1838633</a>
Naphthalene	ND		0.00500	1	03/26/2022 11:44	<a href="#">WG1838633</a>
1,2,4-Trimethylbenzene	ND		0.00100	1	03/26/2022 11:44	<a href="#">WG1838633</a>
1,3,5-Trimethylbenzene	ND		0.00100	1	03/26/2022 11:44	<a href="#">WG1838633</a>
(S) Toluene-d8	109		80.0-120		03/26/2022 11:44	<a href="#">WG1838633</a>
(S) 4-Bromofluorobenzene	99.4		77.0-126		03/26/2022 11:44	<a href="#">WG1838633</a>
(S) 1,2-Dichloroethane-d4	99.6		70.0-130		03/26/2022 11:44	<a href="#">WG1838633</a>

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	405		10.0	1	03/28/2022 16:14	<a href="#">WG1839491</a>

## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	20.0		1.00	1	03/25/2022 01:06	<a href="#">WG1837980</a>
Sulfate	45.3		5.00	1	03/25/2022 01:06	<a href="#">WG1837980</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/26/2022 23:57	<a href="#">WG1838851</a>
Toluene	ND		0.00100	1	03/26/2022 23:57	<a href="#">WG1838851</a>
Ethylbenzene	ND		0.00100	1	03/26/2022 23:57	<a href="#">WG1838851</a>
Xylenes, Total	ND		0.00300	1	03/26/2022 23:57	<a href="#">WG1838851</a>
Naphthalene	ND		0.00500	1	03/26/2022 23:57	<a href="#">WG1838851</a>
1,2,4-Trimethylbenzene	ND		0.00100	1	03/26/2022 23:57	<a href="#">WG1838851</a>
1,3,5-Trimethylbenzene	ND		0.00100	1	03/26/2022 23:57	<a href="#">WG1838851</a>
(S) Toluene-d8	94.1		80.0-120		03/26/2022 23:57	<a href="#">WG1838851</a>
(S) 4-Bromofluorobenzene	92.8		77.0-126		03/26/2022 23:57	<a href="#">WG1838851</a>
(S) 1,2-Dichloroethane-d4	116		70.0-130		03/26/2022 23:57	<a href="#">WG1838851</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3775308-1 03/28/22 16:14

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

L1475221-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1475221-01 03/28/22 16:14 • (DUP) R3775308-3 03/28/22 16:14

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	617	647	1	4.64		5

L1475221-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1475221-10 03/28/22 16:14 • (DUP) R3775308-4 03/28/22 16:14

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	619	657	1	6.06	J3	5

Laboratory Control Sample (LCS)

(LCS) R3775308-2 03/28/22 16:14

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8490	96.5	77.4-123	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3774104-1 03/24/22 21:02

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

L1474616-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1474616-09 03/24/22 22:19 • (DUP) R3774104-3 03/24/22 22:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	ND	ND	1	0.000		15
Sulfate	ND	ND	1	0.000		15

L1474827-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1474827-05 03/25/22 03:14 • (DUP) R3774104-6 03/25/22 03:27

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	3.43	3.53	1	2.96		15
Sulfate	9.86	10.1	1	2.56		15

Laboratory Control Sample (LCS)

(LCS) R3774104-2 03/24/22 21:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.0	97.4	80.0-120	
Sulfate	40.0	39.6	98.9	80.0-120	

L1474616-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474616-09 03/24/22 22:19 • (MS) R3774104-4 03/24/22 22:45 • (MSD) R3774104-5 03/24/22 22:58

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	ND	49.8	51.5	99.5	103	1	80.0-120			3.35	15
Sulfate	50.0	ND	50.6	52.4	101	105	1	80.0-120			3.58	15





L1474827-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1474827-05 03/25/22 03:14 • (MS) R3774104-7 03/25/22 03:40

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	3.43	52.6	98.3	1	80.0-120	
Sulfate	50.0	9.86	58.7	97.7	1	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3774464-3 03/26/22 05:36

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	0.000333	⬇	0.000104	0.00100
(S) Toluene-d8	114			80.0-120
(S) 4-Bromofluorobenzene	103			77.0-126
(S) 1,2-Dichloroethane-d4	97.2			70.0-130

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

(LCS) R3774464-1 03/26/22 04:35 • (LCSD) R3774464-2 03/26/22 04:55

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	0.00519	0.00555	104	111	70.0-123			6.70	20
Toluene	0.00500	0.00523	0.00543	105	109	79.0-120			3.75	20
Ethylbenzene	0.00500	0.00493	0.00528	98.6	106	79.0-123			6.86	20
Xylenes, Total	0.0150	0.0157	0.0159	105	106	79.0-123			1.27	20
Naphthalene	0.00500	0.00451	0.00479	90.2	95.8	54.0-135			6.02	20
1,2,4-Trimethylbenzene	0.00500	0.00487	0.00519	97.4	104	76.0-121			6.36	20
1,3,5-Trimethylbenzene	0.00500	0.00484	0.00491	96.8	98.2	76.0-122			1.44	20
(S) Toluene-d8				110	108	80.0-120				
(S) 4-Bromofluorobenzene				102	99.1	77.0-126				
(S) 1,2-Dichloroethane-d4				101	103	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3774632-1 03/26/22 15:59

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	97.6			80.0-120
(S) 4-Bromofluorobenzene	92.6			77.0-126
(S) 1,2-Dichloroethane-d4	120			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3774632-2 03/26/22 16:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00449	89.8	70.0-123	
Toluene	0.00500	0.00438	87.6	79.0-120	
Ethylbenzene	0.00500	0.00403	80.6	79.0-123	
Xylenes, Total	0.0150	0.0121	80.7	79.0-123	
Naphthalene	0.00500	0.00332	66.4	54.0-135	
1,2,4-Trimethylbenzene	0.00500	0.00381	76.2	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00402	80.4	76.0-122	
(S) Toluene-d8			98.3	80.0-120	
(S) 4-Bromofluorobenzene			96.1	77.0-126	
(S) 1,2-Dichloroethane-d4			116	70.0-130	

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

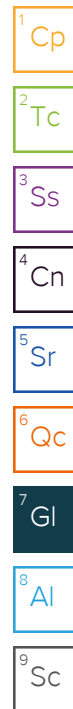
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

## Abbreviations and Definitions

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

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.



<b>Pace Analytical</b> CHAIN-OF-CUSTODY Analytical Request Document <small>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</small>								LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here											
<b>Company:</b> Caerus Oil and Gas LLC				<b>Billing Information:</b>				<b>ALL BOLD OUTLINED AREAS are for LAB USE ONLY</b> <div style="margin-top: 10px;">Container Preservative Type **      Lab Project Manager:</div> <div style="margin-top: 10px;">** 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</div>											
<b>Address:</b> Info on file				<b>Info on file</b>															
<b>Report To:</b> Jake Janicek, Brett Middleton, Blair Rollins				<b>Email To:</b> Info on file															
<b>Copy To:</b> Chris McKisson, remediation@confluence-cc.com				<b>Site Collection Info/Address:</b> Latham Laydown Yard															
<b>Customer Project Name/Number:</b> Garden Gulch 8"				<b>State:</b> County/City: Time Zone Collected: CO / Garfield [ ] PT [X] MT [ ] CT [ ] ET															
<b>Phone:</b>		<b>Site/Facility ID #:</b>		<b>Compliance Monitoring?</b> [ ] Yes [X] No		Container Type: Plastic (P) or Glass (G)		B186											
<b>Email:</b>																			
<b>Collected By (print):</b> Adam Roll		<b>Purchase Order # :</b>		<b>DW PWS ID #:</b>															
<b>Quote #:</b>				<b>DW Location Code:</b>															
<b>Collected By (signature):</b> Adam Roll		<b>Turnaround Date Required:</b>		<b>Immediately Packed on Ice:</b> [X] Yes [ ] No															
<b>Sample Disposal:</b> [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:		<b>Rush: (Expedite Charges Apply)</b> [ ] Same Day [ ] Next Day [ ] 2 Day [X] 3 Day [ ] 4 Day [ ] 5 Day		<b>Field Filtered (if applicable):</b> [ ] Yes [X] No															
* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)																			
Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	Analyses							Lab Profile/Line:		
			Date	Time	Date	Time													
Prefix= 220322-Latham										BTEX	naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS	chloride, sulfate				
<del>SID A.P.E.</del>	OT*	G	3/22/22	0940						X	X	X	X	X	X				
- SW-UpGrK	"	"	"	0902					"	X	X	X	X	X	X				
- SW-DowndrK	"	"	"	1225					"	X	X	X	X	X	X				
<del>SID S&amp;Twp</del>	"	"	"	1315					"	X	X	X	X	X	X				
<b>Customer Remarks / Special Conditions / Possible Hazards:</b> * Surface Water Two samples removed/not shipped. <i>(Signature)</i>																			
<b>Type of Ice Used:</b> Wet Blue Dry None <b>Packing Material Used:</b> <b>Radchem sample(s) screened (&lt;500 cpm):</b> Y N NA																			
<b>SHORT HOLDS PRESENT (&lt;72 hours):</b> Y N N/A <b>Lab Tracking #:</b> 5016 1231 9750 <b>Samples received via:</b> FEDEX UPS Client Courier Pace Courier																			
Relinquished by/Company: (Signature) <i>(Signature)</i>									Date/Time: 2/23/22 1730 Received by/Company: (Signature) <i>(Signature)</i>										
Relinquished by/Company: (Signature) <i>(Signature)</i>									Date/Time: 2/23 1800 Received by/Company: (Signature) <i>(Signature)</i>										
Relinquished by/Company: (Signature)									Date/Time: T. Robertson Received by/Company: (Signature)										
<b>MTJL LAB USE ONLY</b> Table #: _____ Acctnum: _____ Template: _____ Prelogin: _____ PM: _____ PB: _____																			
<b>LAB Sample Temperature Info:</b> Temp Blank Received: Y N NA Therm ID#: BAA7 Cooler 1 Temp Upon Receipt: 1.1 °C Cooler 1 Therm Corr. Factor: +0.0°C Cooler 1 Corrected Temp: 1.1 °C Comments:																			
Trip Blank Received: Y N NA HCL MeOH TSP Other Non Conformance(s): YES / NO Page: ____ of: ____																			



**Caerus Oil and Gas**

Sample Delivery Group: L1475360

Samples Received: 03/25/2022

Project Number:

Description: Garden Gulch 8"

Report To: Brett Middleton  
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](http://www.pacenational.com)

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# SAMPLE SUMMARY

## 220324\_LATHAM SS-COMP-STOCK-I-N L1475360-01 Solid

Collected by  
Adam Roll

Collected date/time  
03/24/22 13:15

Received date/time  
03/25/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1838801	1	03/30/22 20:25	03/30/22 20:25	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1840567	1	03/30/22 14:00	03/31/22 13:56	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1838795	1	03/26/22 14:00	03/26/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1839172	1	03/28/22 01:50	03/28/22 09:07	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1838397	1	03/28/22 16:49	03/29/22 01:40	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1838803	1	03/29/22 09:51	03/30/22 19:30	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1838399	5	03/28/22 09:04	03/28/22 19:01	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1838820	100	03/25/22 19:57	03/29/22 00:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1840302	8	03/25/22 19:57	03/30/22 05:20	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1840040	1	03/31/22 08:50	03/31/22 17:51	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1840040	10	03/31/22 08:50	04/01/22 01:48	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1840704	1	03/31/22 04:04	03/31/22 15:56	LEA	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

## 220324\_LATHAM SS-COMP-STOCK-I-S L1475360-02 Solid

Collected by  
Adam Roll

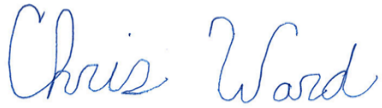
Collected date/time  
03/24/22 13:20

Received date/time  
03/25/22 09:00

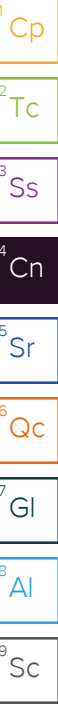
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1838801	1	03/30/22 20:28	03/30/22 20:28	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1840567	1	03/30/22 14:00	03/31/22 14:06	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1839840	1	03/29/22 13:00	03/29/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1839172	1	03/28/22 01:50	03/28/22 09:07	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1838397	1.470588	03/28/22 16:49	03/29/22 01:43	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1838803	1	03/29/22 09:51	03/30/22 19:33	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1838399	7.352941	03/28/22 09:04	03/28/22 19:04	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1840858	50	03/25/22 19:57	03/31/22 00:45	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1840302	1	03/25/22 19:57	03/30/22 01:14	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1841509	8	03/25/22 19:57	04/01/22 05:39	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1840040	1	03/31/22 08:50	03/31/22 16:08	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1840704	1	03/31/22 04:04	03/31/22 16:14	LEA	Mt. Juliet, TN

# CASE NARRATIVE

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



Chris Ward  
Project Manager



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	13.6		1	03/30/2022 20:25	WG1838801

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND	P1	1.00	1	03/31/2022 13:56	WG1840567

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.74	T8	1	03/26/2022 16:00	WG1838795

## Sample Narrative:

L1475360-01 WG1838795: 7.74 at 19.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2380		10.0	1	03/28/2022 09:07	WG1839172

## Sample Narrative:

L1475360-01 WG1839172: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	369		0.500	1	03/29/2022 01:40	WG1838397
Cadmium	ND		0.500	1	03/29/2022 01:40	WG1838397
Copper	17.5		2.00	1	03/29/2022 01:40	WG1838397
Lead	14.5		0.500	1	03/29/2022 01:40	WG1838397
Nickel	19.3		2.00	1	03/29/2022 01:40	WG1838397
Selenium	ND		2.00	1	03/29/2022 01:40	WG1838397
Silver	ND		1.00	1	03/29/2022 01:40	WG1838397
Zinc	53.5		5.00	1	03/29/2022 01:40	WG1838397

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

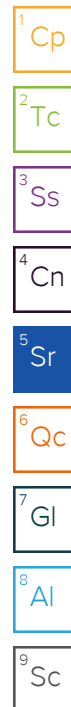
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.15		0.200	1	03/30/2022 19:30	WG1838803

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	13.7		1.00	5	03/28/2022 19:01	WG1838399

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	709		10.0	100	03/29/2022 00:00	WG1838820
(S) a,a,a-Trifluorotoluene(FID)	90.0		77.0-120		03/29/2022 00:00	WG1838820





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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.508		0.00800	8	03/30/2022 05:20	<a href="#">WG1840302</a>
Toluene	7.28		0.0400	8	03/30/2022 05:20	<a href="#">WG1840302</a>
Ethylbenzene	1.10		0.0200	8	03/30/2022 05:20	<a href="#">WG1840302</a>
Xylenes, Total	19.3		0.0520	8	03/30/2022 05:20	<a href="#">WG1840302</a>
1,2,4-Trimethylbenzene	3.59		0.0400	8	03/30/2022 05:20	<a href="#">WG1840302</a>
1,3,5-Trimethylbenzene	3.90		0.0400	8	03/30/2022 05:20	<a href="#">WG1840302</a>
(S) Toluene-d8	110		75.0-131		03/30/2022 05:20	<a href="#">WG1840302</a>
(S) 4-Bromofluorobenzene	105		67.0-138		03/30/2022 05:20	<a href="#">WG1840302</a>
(S) 1,2-Dichloroethane-d4	99.9		70.0-130		03/30/2022 05:20	<a href="#">WG1840302</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	414		40.0	10	04/01/2022 01:48	<a href="#">WG1840040</a>
C28-C36 Motor Oil Range	146		4.00	1	03/31/2022 17:51	<a href="#">WG1840040</a>
(S) o-Terphenyl	66.6		18.0-148		04/01/2022 01:48	<a href="#">WG1840040</a>
(S) o-Terphenyl	57.5		18.0-148		03/31/2022 17:51	<a href="#">WG1840040</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Anthracene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Benzo(a)anthracene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Benzo(b)fluoranthene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Benzo(k)fluoranthene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Benzo(a)pyrene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Chrysene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Dibenz(a,h)anthracene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Fluoranthene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Fluorene	0.0171		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
1-Methylnaphthalene	0.216		0.0200	1	03/31/2022 15:56	<a href="#">WG1840704</a>
2-Methylnaphthalene	0.735		0.0200	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Naphthalene	0.337		0.0200	1	03/31/2022 15:56	<a href="#">WG1840704</a>
Pyrene	ND		0.00600	1	03/31/2022 15:56	<a href="#">WG1840704</a>
(S) p-Terphenyl-d14	66.9		23.0-120		03/31/2022 15:56	<a href="#">WG1840704</a>
(S) Nitrobenzene-d5	0.000	<a href="#">J2</a>	14.0-149		03/31/2022 15:56	<a href="#">WG1840704</a>
(S) 2-Fluorobiphenyl	63.0		34.0-125		03/31/2022 15:56	<a href="#">WG1840704</a>

## Sample Narrative:

L1475360-01 WG1840704: Surrogate failure due to matrix interference

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	14.0		1	03/30/2022 20:28	WG1838801

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/31/2022 14:06	<a href="#">WG1840567</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.65	<a href="#">T8</a>	1	03/29/2022 15:00	<a href="#">WG1839840</a>

## Sample Narrative:

L1475360-02 WG1839840: 7.65 at 20.2C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2160		10.0	1	03/28/2022 09:07	<a href="#">WG1839172</a>

## Sample Narrative:

L1475360-02 WG1839172: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	450		0.735	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Cadmium	ND		0.735	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Copper	19.9		2.94	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Lead	13.8		0.735	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Nickel	22.4		2.94	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Selenium	ND		2.94	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Silver	ND		1.47	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>
Zinc	52.9		7.35	1.470588	03/29/2022 01:43	<a href="#">WG1838397</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.641		0.200	1	03/30/2022 19:33	<a href="#">WG1838803</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.58		1.47	7.352941	03/28/2022 19:04	<a href="#">WG1838399</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	390		5.00	50	03/31/2022 00:45	<a href="#">WG1840858</a>
(S) a,a,a-Trifluorotoluene(FID)	89.8		77.0-120		03/31/2022 00:45	<a href="#">WG1840858</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.427	<u>J5</u>	0.00100	1	03/30/2022 01:14	<a href="#">WG1840302</a>
Toluene	12.6		0.0400	8	04/01/2022 05:39	<a href="#">WG1841509</a>
Ethylbenzene	1.32	<u>V</u>	0.00250	1	03/30/2022 01:14	<a href="#">WG1840302</a>
Xylenes, Total	30.5		0.0520	8	04/01/2022 05:39	<a href="#">WG1841509</a>
1,2,4-Trimethylbenzene	6.52		0.0400	8	04/01/2022 05:39	<a href="#">WG1841509</a>
1,3,5-Trimethylbenzene	7.22		0.0400	8	04/01/2022 05:39	<a href="#">WG1841509</a>
(S) Toluene-d8	131		75.0-131		03/30/2022 01:14	<a href="#">WG1840302</a>
(S) Toluene-d8	102		75.0-131		04/01/2022 05:39	<a href="#">WG1841509</a>
(S) 4-Bromofluorobenzene	152	<u>J1</u>	67.0-138		03/30/2022 01:14	<a href="#">WG1840302</a>
(S) 4-Bromofluorobenzene	85.5		67.0-138		04/01/2022 05:39	<a href="#">WG1841509</a>
(S) 1,2-Dichloroethane-d4	86.4		70.0-130		03/30/2022 01:14	<a href="#">WG1840302</a>
(S) 1,2-Dichloroethane-d4	95.3		70.0-130		04/01/2022 05:39	<a href="#">WG1841509</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	89.3		4.00	1	03/31/2022 16:08	<a href="#">WG1840040</a>
C28-C36 Motor Oil Range	74.7		4.00	1	03/31/2022 16:08	<a href="#">WG1840040</a>
(S) o-Terphenyl	44.2		18.0-148		03/31/2022 16:08	<a href="#">WG1840040</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Anthracene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Benzo(a)anthracene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Benzo(b)fluoranthene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Benzo(k)fluoranthene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Benzo(a)pyrene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Chrysene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Dibenz(a,h)anthracene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Fluoranthene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Fluorene	0.0128		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
1-Methylnaphthalene	0.145		0.0200	1	03/31/2022 16:14	<a href="#">WG1840704</a>
2-Methylnaphthalene	0.489		0.0200	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Naphthalene	0.217		0.0200	1	03/31/2022 16:14	<a href="#">WG1840704</a>
Pyrene	ND		0.00600	1	03/31/2022 16:14	<a href="#">WG1840704</a>
(S) p-Terphenyl-d14	70.6		23.0-120		03/31/2022 16:14	<a href="#">WG1840704</a>
(S) Nitrobenzene-d5	0.000	<u>J2</u>	14.0-149		03/31/2022 16:14	<a href="#">WG1840704</a>
(S) 2-Fluorobiphenyl	67.7		34.0-125		03/31/2022 16:14	<a href="#">WG1840704</a>

## Sample Narrative:

L1475360-02 WG1840704: Surrogate failure due to matrix interference



Method Blank (MB)

(MB) R3776251-1 03/31/22 12:08

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

L1472988-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1472988-08 03/31/22 12:34 • (DUP) R3776251-3 03/31/22 12:39

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

L1475360-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1475360-01 03/31/22 13:56 • (DUP) R3776251-4 03/31/22 14:01

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3776251-2 03/31/22 12:13

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.45	94.5	80.0-120	

L1475741-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1475741-02 03/31/22 14:27 • (MS) R3776251-5 03/31/22 14:32 • (MSD) R3776251-6 03/31/22 14:37

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.2	19.3	96.2	96.5	1	75.0-125			0.321	20

L1475741-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1475741-02 03/31/22 14:27 • (MS) R3776251-7 03/31/22 14:43

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	666	ND	687	103	50	75.0-125	

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

L1474452-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1474452-01 03/26/22 16:00 • (DUP) R3774343-2 03/26/22 16:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.33	8.32	1	0.120		1

Sample Narrative:

OS: 8.33 at 19.5C

DUP: 8.32 at 19.5C



L1474960-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1474960-18 03/26/22 16:00 • (DUP) R3774343-3 03/26/22 16:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.91	7.90	1	0.127		1

Sample Narrative:

OS: 7.91 at 19.7C

DUP: 7.9 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R3774343-1 03/26/22 16:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 18.4C

L1475360-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1475360-02 03/29/22 15:00 • (DUP) R3775249-2 03/29/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.65	7.64	1	0.131		1

Sample Narrative:

OS: 7.65 at 20.2C

DUP: 7.64 at 20.3C

L1475394-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1475394-02 03/29/22 15:00 • (DUP) R3775249-3 03/29/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.73	8.73	1	0.000		1

Sample Narrative:

OS: 8.73 at 20.4C

DUP: 8.73 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R3775249-1 03/29/22 15:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 19.9C





Method Blank (MB)

(MB) R3774581-1 03/28/22 09:07

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

Sample Narrative:

BLANK: at 25C

L1475394-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1475394-12 03/28/22 09:07 • (DUP) R3774581-3 03/28/22 09:07

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	958	961	1	0.313		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1475744-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1475744-09 03/28/22 09:07 • (DUP) R3774581-4 03/28/22 09:07

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	6560	6470	1	1.38		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3774581-2 03/28/22 09:07

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	269	100	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3774962-1 03/29/22 01:07

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3774962-2 03/29/22 01:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	104	104	80.0-120	
Cadmium	100	99.1	99.1	80.0-120	
Copper	100	99.1	99.1	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	104	104	80.0-120	
Selenium	100	101	101	80.0-120	
Silver	20.0	19.5	97.7	80.0-120	
Zinc	100	99.4	99.4	80.0-120	

L1474430-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474430-01 03/29/22 01:12 • (MS) R3774962-5 03/29/22 01:19 • (MSD) R3774962-6 03/29/22 01:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	55.9	169	170	113	114	1	75.0-125			1.04	20
Cadmium	100	ND	106	108	106	108	1	75.0-125			1.95	20
Copper	100	10.1	115	119	105	109	1	75.0-125			3.09	20
Lead	100	ND	108	110	108	110	1	75.0-125			1.86	20
Nickel	100	4.68	117	119	112	114	1	75.0-125			1.76	20
Selenium	100	5.28	115	117	110	112	1	75.0-125			1.81	20
Silver	20.0	ND	19.9	20.4	99.6	102	1	75.0-125			2.25	20
Zinc	100	10.3	113	117	103	106	1	75.0-125			2.78	20

Method Blank (MB)

(MB) R3775891-1 03/30/22 19:22

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

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

(LCS) R3775891-2 03/30/22 19:24 • (LCSD) R3775891-3 03/30/22 19:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.02	1.04	102	104	80.0-120			1.39	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3774881-1 03/28/22 18:03

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

Laboratory Control Sample (LCS)

(LCS) R3774881-2 03/28/22 18:06

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	96.1	96.1	80.0-120	

L1474430-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474430-01 03/28/22 18:10 • (MS) R3774881-5 03/28/22 18:20 • (MSD) R3774881-6 03/28/22 18:23

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	ND	95.7	99.7	95.1	99.1	5	75.0-125			4.09	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3775134-2 03/28/22 13:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.731	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	95.3			77.0-120

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

(LCS) R3775134-1 03/28/22 12:30 • (LCSD) R3775134-3 03/28/22 14:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.70	5.38	85.5	97.8	72.0-127			13.5	20
(S) a,a,a-Trifluorotoluene(FID)				99.9	102	77.0-120				

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

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Gl

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Al

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Sc

Method Blank (MB)

(MB) R3776280-3 03/30/22 23:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.959	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	95.4			77.0-120

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

(LCS) R3776280-1 03/30/22 22:43 • (LCSD) R3776280-2 03/30/22 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.11	5.25	92.9	95.5	72.0-127			2.70	20
(S) a,a,a-Trifluorotoluene(FID)				98.5	97.9	77.0-120				

1  
Cp

2  
Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc



Method Blank (MB)

(MB) R3776254-3 03/29/22 22:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	117			75.0-131
(S) 4-Bromofluorobenzene	93.3			67.0-138
(S) 1,2-Dichloroethane-d4	91.2			70.0-130

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

(LCS) R3776254-1 03/29/22 21:28 • (LCSD) R3776254-2 03/29/22 21:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.118	0.115	94.4	92.0	70.0-123			2.58	20
Toluene	0.125	0.111	0.115	88.8	92.0	75.0-121			3.54	20
Ethylbenzene	0.125	0.119	0.117	95.2	93.6	74.0-126			1.69	20
Xylenes, Total	0.375	0.356	0.347	94.9	92.5	72.0-127			2.56	20
1,2,4-Trimethylbenzene	0.125	0.111	0.114	88.8	91.2	70.0-126			2.67	20
1,3,5-Trimethylbenzene	0.125	0.110	0.117	88.0	93.6	73.0-127			6.17	20
(S) Toluene-d8				105	106	75.0-131				
(S) 4-Bromofluorobenzene				99.9	93.8	67.0-138				
(S) 1,2-Dichloroethane-d4				111	107	70.0-130				

L1475360-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1475360-02 03/30/22 01:14 • (MS) R3776254-4 03/30/22 05:39 • (MSD) R3776254-5 03/30/22 05:58

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.427	1.32	1.20	714	618	1	10.0-149	J5	J5	9.52	37
Toluene	0.125	8.22	7.85	10.4	0.000	1740	1	10.0-156	E V	E V	27.9	38
Ethylbenzene	0.125	1.32	1.65	2.35	264	824	1	10.0-160	V	V	35.0	38
Xylenes, Total	0.375	24.6	22.7	30.4	0.000	1550	1	10.0-160	V	V	29.0	38
1,2,4-Trimethylbenzene	0.125	3.43	6.91	6.35	2780	2340	1	10.0-160	E V	E V	8.45	36
1,3,5-Trimethylbenzene	0.125	3.67	7.26	6.60	2870	2340	1	10.0-160	E V	E V	9.52	38
(S) Toluene-d8					70.4	102		75.0-131	J2			
(S) 4-Bromofluorobenzene					110	293		67.0-138		J1		
(S) 1,2-Dichloroethane-d4					91.9	93.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3776477-3 04/01/22 04:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	105			75.0-131
(S) 4-Bromofluorobenzene	89.8			67.0-138
(S) 1,2-Dichloroethane-d4	94.4			70.0-130

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

(LCS) R3776477-1 04/01/22 02:43 • (LCSD) R3776477-2 04/01/22 03:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Toluene	0.125	0.118	0.122	94.4	97.6	75.0-121			3.33	20
Xylenes, Total	0.375	0.336	0.353	89.6	94.1	72.0-127			4.93	20
1,2,4-Trimethylbenzene	0.125	0.108	0.116	86.4	92.8	70.0-126			7.14	20
1,3,5-Trimethylbenzene	0.125	0.113	0.119	90.4	95.2	73.0-127			5.17	20
(S) Toluene-d8				102	102	75.0-131				
(S) 4-Bromofluorobenzene				90.4	89.6	67.0-138				
(S) 1,2-Dichloroethane-d4				103	101	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3776217-1 03/31/22 11:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	71.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3776217-2 03/31/22 11:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	36.6	73.2	50.0-150	
(S) o-Terphenyl			79.6	18.0-148	

L1475466-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1475466-05 03/31/22 16:34 • (MS) R3776217-3 03/31/22 16:47 • (MSD) R3776217-4 03/31/22 17:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	12.2	54.8	45.7	85.2	67.0	1	50.0-150			18.1	20
(S) o-Terphenyl					63.8	65.5		18.0-148				

1  
Cp

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Method Blank (MB)

(MB) R3776258-2 03/31/22 13:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	84.9			23.0-120
(S) Nitrobenzene-d5	73.6			14.0-149
(S) 2-Fluorobiphenyl	81.5			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3776258-1 03/31/22 13:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0655	81.9	50.0-120	
Anthracene	0.0800	0.0609	76.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0641	80.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0642	80.3	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0627	78.4	49.0-125	
Benzo(a)pyrene	0.0800	0.0574	71.8	42.0-120	
Chrysene	0.0800	0.0665	83.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0710	88.8	47.0-125	
Fluoranthene	0.0800	0.0669	83.6	49.0-129	
Fluorene	0.0800	0.0637	79.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0688	86.0	46.0-125	
1-Methylnaphthalene	0.0800	0.0651	81.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0666	83.3	50.0-120	
Naphthalene	0.0800	0.0619	77.4	50.0-120	
Pyrene	0.0800	0.0654	81.8	43.0-123	



Laboratory Control Sample (LCS)

(LCS) R3776258-1 03/31/22 13:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			83.9	23.0-120	
(S) Nitrobenzene-d5			77.1	14.0-149	
(S) 2-Fluorobiphenyl			82.1	34.0-125	

L1475544-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1475544-05 03/31/22 16:32 • (MS) R3776258-3 03/31/22 16:50 • (MSD) R3776258-4 03/31/22 17:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0626	0.0632	78.3	79.0	1	14.0-127			0.954	27
Anthracene	0.0800	ND	0.0638	0.0645	79.8	80.6	1	10.0-145			1.09	30
Benzo(a)anthracene	0.0800	ND	0.0718	0.0712	89.8	89.0	1	10.0-139			0.839	30
Benzo(b)fluoranthene	0.0800	ND	0.0592	0.0565	74.0	70.6	1	10.0-140			4.67	36
Benzo(k)fluoranthene	0.0800	ND	0.0587	0.0584	73.4	73.0	1	10.0-137			0.512	31
Benzo(a)pyrene	0.0800	ND	0.0756	0.0824	94.5	103	1	10.0-141			8.61	31
Chrysene	0.0800	0.00904	0.0693	0.0660	75.3	71.2	1	10.0-145			4.88	30
Dibenz(a,h)anthracene	0.0800	ND	0.0617	0.0564	77.1	70.5	1	10.0-132			8.98	31
Fluoranthene	0.0800	ND	0.0709	0.0681	84.5	81.0	1	10.0-153			4.03	33
Fluorene	0.0800	ND	0.0629	0.0629	78.6	78.6	1	11.0-130			0.000	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0676	0.0677	84.5	84.6	1	10.0-137			0.148	32
1-Methylnaphthalene	0.0800	ND	0.0672	0.0666	84.0	83.3	1	10.0-142			0.897	28
2-Methylnaphthalene	0.0800	ND	0.0715	0.0704	83.9	82.6	1	10.0-137			1.55	28
Naphthalene	0.0800	ND	0.0615	0.0616	76.9	77.0	1	10.0-135			0.162	27
Pyrene	0.0800	0.0110	0.0698	0.0686	73.5	72.0	1	10.0-148			1.73	35
(S) p-Terphenyl-d14					81.3	76.9		23.0-120				
(S) Nitrobenzene-d5					76.3	73.4		14.0-149				
(S) 2-Fluorobiphenyl					77.1	75.4		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

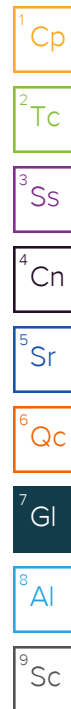
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

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

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

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





## Caerus Oil and Gas

Sample Delivery Group: L1474761

Samples Received: 03/24/2022

Project Number:

Description: Garden Gulch 8"

Report To: Brett Middleton  
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](http://www.pacenational.com)



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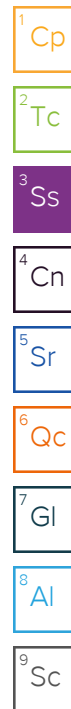
<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc

# SAMPLE SUMMARY

## 220323-LATHAM-SS-POR @ 8' L1474761-01 Solid

Collected by Adam Roll  
Collected date/time 03/23/22 11:30  
Received date/time 03/24/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1838799	1	03/31/22 10:37	03/31/22 10:37	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1839697	1	03/28/22 16:00	03/30/22 12:58	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1838196	1	03/25/22 09:02	03/25/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1839170	1	03/28/22 01:47	03/28/22 08:25	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1838397	1	03/28/22 16:49	03/29/22 01:30	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1838802	1	03/30/22 13:28	03/31/22 12:07	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1838399	5	03/28/22 09:04	03/28/22 18:54	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1840291	500	03/24/22 21:19	03/30/22 00:19	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1839104	8	03/24/22 21:19	03/29/22 00:12	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1840487	40	03/24/22 21:19	03/30/22 23:43	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1840039	1	03/30/22 07:53	03/30/22 16:59	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1839556	1	03/29/22 10:24	03/29/22 21:20	LEA	Mt. Juliet, TN



## 220323-LATHAM-WW-SOURCE L1474761-02 GW

Collected by Adam Roll  
Collected date/time 03/23/22 11:50  
Received date/time 03/24/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1839872	1	03/29/22 09:14	03/29/22 11:53	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9040C	WG1841179	1	03/31/22 16:00	03/31/22 16:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050A	WG1839769	1	03/29/22 08:56	03/29/22 08:56	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1837980	1	03/25/22 03:53	03/25/22 03:53	LBR	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1837980	100	03/25/22 00:40	03/25/22 00:40	LBR	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1842263	50	04/03/22 16:01	04/03/22 18:55	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1838796	5000	03/26/22 20:33	03/26/22 20:33	ACG	Mt. Juliet, TN

## 220323-LATHAM-SS-W @ 6' L1474761-03 Solid

Collected by Adam Roll  
Collected date/time 03/23/22 12:05  
Received date/time 03/24/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1838799	1	03/31/22 10:40	03/31/22 10:40	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1839697	1	03/28/22 16:00	03/30/22 13:03	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1838196	1	03/25/22 09:02	03/25/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1839170	1	03/28/22 01:47	03/28/22 08:25	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1838397	1	03/28/22 16:49	03/29/22 01:38	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1838802	1	03/30/22 13:28	03/31/22 12:09	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1838399	5	03/28/22 09:04	03/28/22 18:57	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1839309	25	03/24/22 21:19	03/28/22 21:29	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1839104	1	03/24/22 21:19	03/28/22 23:53	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1840039	1	03/30/22 07:53	03/30/22 15:28	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1839556	1	03/29/22 10:24	03/29/22 22:20	LEA	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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	39.3		1	03/31/2022 10:37	WG1838799

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/30/2022 12:58	<a href="#">WG1839697</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	<a href="#">T8</a>	1	03/25/2022 12:00	<a href="#">WG1838196</a>

## Sample Narrative:

L1474761-01 WG1838196: 7.45 at 20.3C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	4950		10.0	1	03/28/2022 08:25	<a href="#">WG1839170</a>

## Sample Narrative:

L1474761-01 WG1839170: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	295		0.500	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Cadmium	ND		0.500	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Copper	17.2		2.00	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Lead	14.7		0.500	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Nickel	23.7		2.00	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Selenium	ND		2.00	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Silver	ND		1.00	1	03/29/2022 01:30	<a href="#">WG1838397</a>
Zinc	56.2		5.00	1	03/29/2022 01:30	<a href="#">WG1838397</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	3.34		0.200	1	03/31/2022 12:07	<a href="#">WG1838802</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.56		1.00	5	03/28/2022 18:54	<a href="#">WG1838399</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	608		50.0	500	03/30/2022 00:19	<a href="#">WG1840291</a>
(S) a,a,a-Trifluorotoluene(FID)	89.4		77.0-120		03/30/2022 00:19	<a href="#">WG1840291</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	3.08		0.00800	8	03/29/2022 00:12	<a href="#">WG1839104</a>
Toluene	33.3		0.200	40	03/30/2022 23:43	<a href="#">WG1840487</a>
Ethylbenzene	2.21		0.0200	8	03/29/2022 00:12	<a href="#">WG1839104</a>
Xylenes, Total	40.1		0.0520	8	03/29/2022 00:12	<a href="#">WG1839104</a>
1,2,4-Trimethylbenzene	4.46		0.0400	8	03/29/2022 00:12	<a href="#">WG1839104</a>
1,3,5-Trimethylbenzene	4.85		0.0400	8	03/29/2022 00:12	<a href="#">WG1839104</a>
(S) Toluene-d8	110		75.0-131		03/29/2022 00:12	<a href="#">WG1839104</a>
(S) Toluene-d8	106		75.0-131		03/30/2022 23:43	<a href="#">WG1840487</a>
(S) 4-Bromofluorobenzene	101		67.0-138		03/29/2022 00:12	<a href="#">WG1839104</a>
(S) 4-Bromofluorobenzene	91.5		67.0-138		03/30/2022 23:43	<a href="#">WG1840487</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		03/29/2022 00:12	<a href="#">WG1839104</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		03/30/2022 23:43	<a href="#">WG1840487</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	124		4.00	1	03/30/2022 16:59	<a href="#">WG1840039</a>
C28-C36 Motor Oil Range	14.2		4.00	1	03/30/2022 16:59	<a href="#">WG1840039</a>
(S) o-Terphenyl	57.5		18.0-148		03/30/2022 16:59	<a href="#">WG1840039</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Anthracene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Benzo(a)anthracene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Benzo(b)fluoranthene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Benzo(k)fluoranthene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Benzo(a)pyrene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Chrysene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Dibenz(a,h)anthracene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Fluoranthene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Fluorene	0.00721		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
1-Methylnaphthalene	0.0974		0.0200	1	03/29/2022 21:20	<a href="#">WG1839556</a>
2-Methylnaphthalene	0.317		0.0200	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Naphthalene	0.185		0.0200	1	03/29/2022 21:20	<a href="#">WG1839556</a>
Pyrene	ND		0.00600	1	03/29/2022 21:20	<a href="#">WG1839556</a>
(S) p-Terphenyl-d14	91.3		23.0-120		03/29/2022 21:20	<a href="#">WG1839556</a>
(S) Nitrobenzene-d5	173	<a href="#">J1</a>	14.0-149		03/29/2022 21:20	<a href="#">WG1839556</a>
(S) 2-Fluorobiphenyl	70.2		34.0-125		03/29/2022 21:20	<a href="#">WG1839556</a>

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	8640		200	1	03/29/2022 11:53	<a href="#">WG1839872</a>

## Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.86	<a href="#">T8</a>	1	03/31/2022 16:00	<a href="#">WG1841179</a>

## Sample Narrative:

L1474761-02 WG1841179: 6.86 at 18.6C

## Wet Chemistry by Method 9050A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	15500		10.0	1	03/29/2022 08:56	<a href="#">WG1839769</a>

## Sample Narrative:

L1474761-02 WG1839769: at 25C

## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	5690		100	100	03/25/2022 00:40	<a href="#">WG1837980</a>
Sulfate	6.38		5.00	1	03/25/2022 03:53	<a href="#">WG1837980</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	50	04/03/2022 18:55	<a href="#">WG1842263</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	18.7		5.00	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
Toluene	29.6		5.00	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
Ethylbenzene	ND		5.00	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
Xylenes, Total	ND		15.0	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
Naphthalene	ND	<a href="#">J4</a>	25.0	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
1,2,4-Trimethylbenzene	ND		5.00	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
1,3,5-Trimethylbenzene	ND		5.00	5000	03/26/2022 20:33	<a href="#">WG1838796</a>
(S) Toluene-d8	101		80.0-120		03/26/2022 20:33	<a href="#">WG1838796</a>
(S) 4-Bromofluorobenzene	94.8		77.0-126		03/26/2022 20:33	<a href="#">WG1838796</a>
(S) 1,2-Dichloroethane-d4	127		70.0-130		03/26/2022 20:33	<a href="#">WG1838796</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	17.4		1	03/31/2022 10:40	WG1838799

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	03/30/2022 13:03	<a href="#">WG1839697</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	<a href="#">T8</a>	1	03/25/2022 12:00	<a href="#">WG1838196</a>

## Sample Narrative:

L1474761-03 WG1838196: 7.9 at 20.3C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2390		10.0	1	03/28/2022 08:25	<a href="#">WG1839170</a>

## Sample Narrative:

L1474761-03 WG1839170: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	329		0.500	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Cadmium	ND		0.500	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Copper	14.6		2.00	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Lead	14.6		0.500	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Nickel	24.7		2.00	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Selenium	ND		2.00	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Silver	ND		1.00	1	03/29/2022 01:38	<a href="#">WG1838397</a>
Zinc	48.3		5.00	1	03/29/2022 01:38	<a href="#">WG1838397</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.740		0.200	1	03/31/2022 12:09	<a href="#">WG1838802</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.32		1.00	5	03/28/2022 18:57	<a href="#">WG1838399</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	8.52	<a href="#">B</a>	2.50	25	03/28/2022 21:29	<a href="#">WG1839309</a>
(S) a,a,a-Trifluorotoluene(FID)	93.8		77.0-120		03/28/2022 21:29	<a href="#">WG1839309</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0378	<a href="#">J5</a>	0.00100	1	03/28/2022 23:53	<a href="#">WG1839104</a>
Toluene	0.168	<a href="#">J5</a>	0.00500	1	03/28/2022 23:53	<a href="#">WG1839104</a>
Ethylbenzene	0.0108		0.00250	1	03/28/2022 23:53	<a href="#">WG1839104</a>
Xylenes, Total	0.207	<a href="#">J5</a>	0.00650	1	03/28/2022 23:53	<a href="#">WG1839104</a>
1,2,4-Trimethylbenzene	0.0181		0.00500	1	03/28/2022 23:53	<a href="#">WG1839104</a>
1,3,5-Trimethylbenzene	0.0185		0.00500	1	03/28/2022 23:53	<a href="#">WG1839104</a>
(S) Toluene-d8	110		75.0-131		03/28/2022 23:53	<a href="#">WG1839104</a>
(S) 4-Bromofluorobenzene	93.9		67.0-138		03/28/2022 23:53	<a href="#">WG1839104</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/28/2022 23:53	<a href="#">WG1839104</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	7.48	<a href="#">J3 J6</a>	4.00	1	03/30/2022 15:28	<a href="#">WG1840039</a>
C28-C36 Motor Oil Range	22.2		4.00	1	03/30/2022 15:28	<a href="#">WG1840039</a>
(S) o-Terphenyl	56.9		18.0-148		03/30/2022 15:28	<a href="#">WG1840039</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Anthracene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Benzo(a)anthracene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Benzo(b)fluoranthene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Benzo(k)fluoranthene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Benzo(a)pyrene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Chrysene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Dibenz(a,h)anthracene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Fluoranthene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Fluorene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
1-Methylnaphthalene	ND		0.0200	1	03/29/2022 22:20	<a href="#">WG1839556</a>
2-Methylnaphthalene	ND		0.0200	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Naphthalene	ND		0.0200	1	03/29/2022 22:20	<a href="#">WG1839556</a>
Pyrene	ND		0.00600	1	03/29/2022 22:20	<a href="#">WG1839556</a>
(S) p-Terphenyl-d14	88.0		23.0-120		03/29/2022 22:20	<a href="#">WG1839556</a>
(S) Nitrobenzene-d5	71.7		14.0-149		03/29/2022 22:20	<a href="#">WG1839556</a>
(S) 2-Fluorobiphenyl	71.8		34.0-125		03/29/2022 22:20	<a href="#">WG1839556</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3776111-1 03/29/22 11:53

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

L1474903-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1474903-05 03/29/22 11:53 • (DUP) R3776111-3 03/29/22 11:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	649	661	1	1.83		5

L1475342-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1475342-02 03/29/22 11:53 • (DUP) R3776111-4 03/29/22 11:53

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Dissolved Solids	967	951	1	1.67		5

Laboratory Control Sample (LCS)

(LCS) R3776111-2 03/29/22 11:53

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Dissolved Solids	8800	8600	97.7	77.4-123	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3775765-1 03/30/22 12:40

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

L1474804-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1474804-02 03/30/22 13:13 • (DUP) R3775765-3 03/30/22 13:19

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	13.9		20

L1474804-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1474804-08 03/30/22 14:00 • (DUP) R3775765-4 03/30/22 14:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3775765-2 03/30/22 12:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	10.4	104	80.0-120	

L1474960-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474960-04 03/30/22 14:16 • (MS) R3775765-5 03/30/22 14:21 • (MSD) R3775765-6 03/30/22 14:26

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	9.92	11.5	49.6	57.7	1	75.0-125	J6	J6	15.1	20

L1474960-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1474960-04 03/30/22 14:16 • (MS) R3775765-7 03/30/22 14:31

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	665	ND	384	57.7	50	75.0-125	J6

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1474761-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1474761-02 03/31/22 16:00 • (DUP) R3776266-2 03/31/22 16:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	6.86	6.84	1	0.292		1

Sample Narrative:

OS: 6.86 at 18.6C

DUP: 6.84 at 18.8C

L1476333-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1476333-02 03/31/22 16:00 • (DUP) R3776266-3 03/31/22 16:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.54	7.51	1	0.399		1

Sample Narrative:

OS: 7.54 at 19.3C

DUP: 7.51 at 18.4C

Laboratory Control Sample (LCS)

(LCS) R3776266-1 03/31/22 16:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 18.9C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1473573-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1473573-02 03/25/22 12:00 • (DUP) R3774009-2 03/25/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.84	7.84	1	0.000		1

Sample Narrative:

OS: 7.84 at 20.2C

DUP: 7.84 at 20.2C

Laboratory Control Sample (LCS)

(LCS) R3774009-1 03/25/22 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 19C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3775011-1 03/29/22 08:56

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

Sample Narrative:

BLANK: at 25C

L1474761-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1474761-02 03/29/22 08:56 • (DUP) R3775011-3 03/29/22 08:56

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	15500	15500	1	0.0645		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3775011-2 03/29/22 08:56

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	265	98.9	85.0-115	

Sample Narrative:

LCS: at 25C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3774554-1 03/28/22 08:25

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

Sample Narrative:

BLANK: at 25C

L1474761-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1474761-01 03/28/22 08:25 • (DUP) R3774554-3 03/28/22 08:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4950	4920	1	0.608		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1474960-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1474960-05 03/28/22 08:25 • (DUP) R3774554-4 03/28/22 08:25

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	216	195	1	10.4		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3774554-2 03/28/22 08:25

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	270	101	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3774104-1 03/24/22 21:02

	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

L1474616-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1474616-09 03/24/22 22:19 • (DUP) R3774104-3 03/24/22 22:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	ND	ND	1	0.000		15
Sulfate	ND	ND	1	0.000		15

L1474827-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1474827-05 03/25/22 03:14 • (DUP) R3774104-6 03/25/22 03:27

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Chloride	3.43	3.53	1	2.96		15
Sulfate	9.86	10.1	1	2.56		15

Laboratory Control Sample (LCS)

(LCS) R3774104-2 03/24/22 21:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Chloride	40.0	39.0	97.4	80.0-120	
Sulfate	40.0	39.6	98.9	80.0-120	

L1474616-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474616-09 03/24/22 22:19 • (MS) R3774104-4 03/24/22 22:45 • (MSD) R3774104-5 03/24/22 22:58

	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	ND	49.8	51.5	99.5	103	1	80.0-120			3.35	15
Sulfate	50.0	ND	50.6	52.4	101	105	1	80.0-120			3.58	15





L1474827-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1474827-05 03/25/22 03:14 • (MS) R3774104-7 03/25/22 03:40

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	3.43	52.6	98.3	1	80.0-120	
Sulfate	50.0	9.86	58.7	97.7	1	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3774962-1 03/29/22 01:07

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3774962-2 03/29/22 01:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	104	104	80.0-120	
Cadmium	100	99.1	99.1	80.0-120	
Copper	100	99.1	99.1	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	104	104	80.0-120	
Selenium	100	101	101	80.0-120	
Silver	20.0	19.5	97.7	80.0-120	
Zinc	100	99.4	99.4	80.0-120	

L1474430-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474430-01 03/29/22 01:12 • (MS) R3774962-5 03/29/22 01:19 • (MSD) R3774962-6 03/29/22 01:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	55.9	169	170	113	114	1	75.0-125			1.04	20
Cadmium	100	ND	106	108	106	108	1	75.0-125			1.95	20
Copper	100	10.1	115	119	105	109	1	75.0-125			3.09	20
Lead	100	ND	108	110	108	110	1	75.0-125			1.86	20
Nickel	100	4.68	117	119	112	114	1	75.0-125			1.76	20
Selenium	100	5.28	115	117	110	112	1	75.0-125			1.81	20
Silver	20.0	ND	19.9	20.4	99.6	102	1	75.0-125			2.25	20
Zinc	100	10.3	113	117	103	106	1	75.0-125			2.78	20

Method Blank (MB)

(MB) R3776141-1 03/31/22 11:59

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

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

(LCS) R3776141-2 03/31/22 12:01 • (LCSD) R3776141-3 03/31/22 12:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.970	0.974	97.0	97.4	80.0-120			0.310	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3774881-1 03/28/22 18:03

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

Laboratory Control Sample (LCS)

(LCS) R3774881-2 03/28/22 18:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.1	96.1	80.0-120	

L1474430-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474430-01 03/28/22 18:10 • (MS) R3774881-5 03/28/22 18:20 • (MSD) R3774881-6 03/28/22 18:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	95.7	99.7	95.1	99.1	5	75.0-125			4.09	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3777056-1 04/03/22 18:28

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

Laboratory Control Sample (LCS)

(LCS) R3777056-2 04/03/22 18:31

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	0.0500	0.0486	97.2	80.0-120	

L1477319-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1477319-01 04/03/22 18:35 • (MS) R3777056-4 04/03/22 18:42 • (MSD) R3777056-5 04/03/22 18:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	0.0500	0.00200	0.0506	0.0507	97.1	97.3	1	75.0-125			0.213	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3775067-2 03/28/22 18:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	1.29	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	97.7			77.0-120

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

(LCS) R3775067-1 03/28/22 16:08 • (LCSD) R3775067-3 03/28/22 18:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.65	4.99	84.5	90.7	72.0-127			7.05	20
(S) a,a,a-Trifluorotoluene(FID)				110	113	77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3775589-2 03/29/22 19:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	1.15	⬇	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	95.6			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3775589-1 03/29/22 15:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.27	95.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			100	77.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3774625-3 03/26/22 14:14

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	103			80.0-120
(S) 4-Bromofluorobenzene	101			77.0-126
(S) 1,2-Dichloroethane-d4	129			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3774625-1 03/26/22 12:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00493	98.6	70.0-123	
Toluene	0.00500	0.00422	84.4	79.0-120	
Ethylbenzene	0.00500	0.00417	83.4	79.0-123	
Xylenes, Total	0.0150	0.0123	82.0	79.0-123	
Naphthalene	0.00500	0.00242	48.4	54.0-135	J4
1,2,4-Trimethylbenzene	0.00500	0.00452	90.4	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00475	95.0	76.0-122	
(S) Toluene-d8			95.9	80.0-120	
(S) 4-Bromofluorobenzene			105	77.0-126	
(S) 1,2-Dichloroethane-d4			124	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3775470-3 03/28/22 17:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	114			75.0-131
(S) 4-Bromofluorobenzene	96.6			67.0-138
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R3775470-1 03/28/22 16:34 • (LCSD) R3775470-2 03/28/22 16:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.0978	0.102	78.2	81.6	70.0-123			4.20	20
Toluene	0.125	0.111	0.117	88.8	93.6	75.0-121			5.26	20
Ethylbenzene	0.125	0.115	0.123	92.0	98.4	74.0-126			6.72	20
Xylenes, Total	0.375	0.344	0.365	91.7	97.3	72.0-127			5.92	20
1,2,4-Trimethylbenzene	0.125	0.0993	0.108	79.4	86.4	70.0-126			8.39	20
1,3,5-Trimethylbenzene	0.125	0.102	0.108	81.6	86.4	73.0-127			5.71	20
(S) Toluene-d8				108	112	75.0-131				
(S) 4-Bromofluorobenzene				96.4	97.6	67.0-138				
(S) 1,2-Dichloroethane-d4				103	103	70.0-130				

L1474761-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474761-03 03/28/22 23:53 • (MS) R3775470-4 03/29/22 00:31 • (MSD) R3775470-5 03/29/22 00:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.0378	0.301	0.291	211	203	1	10.0-149	J5	J5	3.38	37
Toluene	0.125	0.168	0.980	0.988	650	656	1	10.0-156	J5	J5	0.813	38
Ethylbenzene	0.125	0.0108	0.184	0.177	139	133	1	10.0-160			3.88	38
Xylenes, Total	0.375	0.207	1.23	1.17	273	257	1	10.0-160	J5	J5	5.00	38
1,2,4-Trimethylbenzene	0.125	0.0181	0.190	0.181	138	130	1	10.0-160			4.85	36
1,3,5-Trimethylbenzene	0.125	0.0185	0.192	0.186	139	134	1	10.0-160			3.17	38
(S) Toluene-d8					109	112		75.0-131				
(S) 4-Bromofluorobenzene					95.8	91.3		67.0-138				
(S) 1,2-Dichloroethane-d4					106	99.6		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3775875-3 03/30/22 17:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	U		0.00130	0.00500
(S) Toluene-d8	106			75.0-131
(S) 4-Bromofluorobenzene	96.2			67.0-138
(S) 1,2-Dichloroethane-d4	107			70.0-130

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

(LCS) R3775875-1 03/30/22 16:05 • (LCSD) R3775875-2 03/30/22 16:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Toluene	0.125	0.134	0.136	107	109	75.0-121			1.48	20
(S) Toluene-d8				106	105	75.0-131				
(S) 4-Bromofluorobenzene				93.1	93.9	67.0-138				
(S) 1,2-Dichloroethane-d4				111	113	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3775659-1 03/30/22 12:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	57.4			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3775659-2 03/30/22 12:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	33.1	66.2	50.0-150	
(S) o-Terphenyl			72.5	18.0-148	

L1474761-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474761-03 03/30/22 15:28 • (MS) R3775659-3 03/30/22 15:41 • (MSD) R3775659-4 03/30/22 15:54

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.0	7.48	25.7	36.5	37.2	59.0	1	50.0-150	J6	J3	34.7	20
(S) o-Terphenyl					57.3	73.2		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3775374-2 03/29/22 15:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	98.6			23.0-120
(S) Nitrobenzene-d5	73.9			14.0-149
(S) 2-Fluorobiphenyl	77.7			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3775374-1 03/29/22 15:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0577	72.1	50.0-120	
Anthracene	0.0800	0.0545	68.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0567	70.9	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0580	72.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0569	71.1	49.0-125	
Benzo(a)pyrene	0.0800	0.0442	55.3	42.0-120	
Chrysene	0.0800	0.0604	75.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0565	70.6	47.0-125	
Fluoranthene	0.0800	0.0560	70.0	49.0-129	
Fluorene	0.0800	0.0596	74.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0545	68.1	46.0-125	
1-Methylnaphthalene	0.0800	0.0584	73.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0560	70.0	50.0-120	
Naphthalene	0.0800	0.0570	71.3	50.0-120	
Pyrene	0.0800	0.0598	74.8	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3775374-1 03/29/22 15:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			109	23.0-120	
(S) Nitrobenzene-d5			85.9	14.0-149	
(S) 2-Fluorobiphenyl			88.4	34.0-125	

L1474590-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1474590-01 03/29/22 18:21 • (MS) R3775374-3 03/29/22 18:41 • (MSD) R3775374-4 03/29/22 19:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0525	0.0491	65.6	61.4	1	14.0-127			6.69	27
Anthracene	0.0800	ND	0.0516	0.0471	64.5	58.9	1	10.0-145			9.12	30
Benzo(a)anthracene	0.0800	ND	0.0591	0.0506	66.9	56.3	1	10.0-139			15.5	30
Benzo(b)fluoranthene	0.0800	0.0121	0.0639	0.0531	64.8	51.3	1	10.0-140			18.5	36
Benzo(k)fluoranthene	0.0800	ND	0.0550	0.0487	63.5	55.6	1	10.0-137			12.2	31
Benzo(a)pyrene	0.0800	0.00723	0.0561	0.0485	61.1	51.6	1	10.0-141			14.5	31
Chrysene	0.0800	0.00746	0.0623	0.0536	68.6	57.7	1	10.0-145			15.0	30
Dibenz(a,h)anthracene	0.0800	ND	0.0501	0.0469	62.6	58.6	1	10.0-132			6.60	31
Fluoranthene	0.0800	0.0149	0.0675	0.0533	65.8	48.0	1	10.0-153			23.5	33
Fluorene	0.0800	ND	0.0546	0.0501	68.3	62.6	1	11.0-130			8.60	29
Indeno(1,2,3-cd)pyrene	0.0800	0.00745	0.0541	0.0473	58.3	49.8	1	10.0-137			13.4	32
1-Methylnaphthalene	0.0800	ND	0.0539	0.0505	67.4	63.1	1	10.0-142			6.51	28
2-Methylnaphthalene	0.0800	ND	0.0519	0.0485	64.9	60.6	1	10.0-137			6.77	28
Naphthalene	0.0800	ND	0.0528	0.0496	66.0	62.0	1	10.0-135			6.25	27
Pyrene	0.0800	0.0139	0.0672	0.0556	66.6	52.1	1	10.0-148			18.9	35
(S) p-Terphenyl-d14					94.6	93.0		23.0-120				
(S) Nitrobenzene-d5					75.7	73.4		14.0-149				
(S) 2-Fluorobiphenyl					79.3	75.7		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

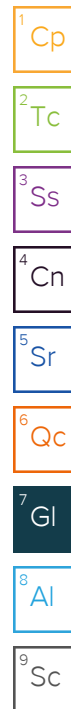
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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 is a LEGAL DOCUMENT - Complete all relevant fields.

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC

Address: Info on file

Report To: Jake Janicek, Brett Middleton, Blair Rollins

Copy To: Chris McKisson, remediation@confluence-cc.com

Customer Project Name/Number: **Garden Gulch 8"**

Phone: Site/Facility ID #: Compliance Monitoring?

Email: Purchase Order #: DW PWS ID #:

Collected By (print): **Adam Roll** Quote #: DW Location Code:

Collected By (signature): **Adam Roll** Turnaround Date Required: **Standard** Immediately Packed on Ice: ☒ Yes ☐ No

Sample Disposal: ☒ Dispose as appropriate ☐ Return ☐ Archive: Rush: (Expedite Charges Apply) ☐ Same Day ☐ Next Day ☐ 2 Day ☐ 3 Day ☐ 4 Day ☐ 5 Day Field Filtered (if applicable): ☐ Yes ☒ No Analysis:

State: County/City: Time Zone Collected: ☐ PT ☒ MT ☐ CT ☐ ET

3 3 3 3

\*\* Preservative Types: (1) none, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) nitric acid, (6) methanol, (7) sodium borohydride, (8) sodium cyanide, (9) acetone, (10) acetic acid, (11) ammonium hydroxide, (12) TSP, (13) Unpreserved, (14) Other

Analysis	Lab Profile/Line
BTEX	Lab Sample Receipt Checklist:
naphthalene	Container Seals Present/Intact Y N NA
1,2,4-trimethylbenzene	Container Signatures Present Y N NA
1,3,5-trimethylbenzene	Collector Signatures Present Y N NA
TDS	Bottles Intact Y N NA
chloride, sulfate	Correct Bottles Y N NA
Full 915-1 so. 15	Sufficient Volume Y N NA
	Samples Received on Ice Y N NA
	WFA - Headspace Acceptable Y N NA
	OSHA Regulated Soils Y N NA
	Samples in Holding Time Y N NA
	Residual Chlorine Present Y N NA
	Cl Strips:
	Sample pH Acceptable Y N NA
	pH Strips:
	Sulfide Present Y N NA
	Lead Acetate Strips:
	LAB USE ONLY:
	Lab Sample # / Comments:

\* 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	# of Ctns
Prefix = 220323-Latham			Date	Time	Date	Time
SS-POR@8"	SL	G	3/23/22	1130		2 G
WW-Source	WW	G	"	1150		5 GEP
SS-WE@6"	SL	G	"	1205		2 G

Add pH, EC, and As to 220323\_Latham\_WW\_Source sample analysis

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) Date/Time: 2/23/22 1730 Received by/Company: (Signature) Date/Time: 2/23/22 1730

Relinquished by/Company: (Signature) Date/Time: 2/23/22 1800 Received by/Company: (Signature) Date/Time:

Relinquished by/Company: (Signature) Date/Time: Received by/Company: (Signature) Date/Time:

MTJL LAB USE ONLY

Table #:

Accnum:

Template:

Prelogin:

PM:

PB:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: of:





75 Suttle Street  
Durango, CO 81303  
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[www.greenanalytical.com](http://www.greenanalytical.com)

26 April 2022

Blair Rollins  
Caerus Operating LLC  
143 Diamond Avenue  
Parachute, CO 81635  
RE: COGCC Table 915-1

Enclosed are the results of analyses for samples received by the laboratory on 04/18/22 15:30. The data to follow was performed, in whole or in part, by Green Analytical Laboratories. Any data that was performed by a subcontract laboratory is included within the GAL report, or with an additional report attached.

If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The signature is written in a cursive, flowing style.

Debbie Zufelt For Brenna Kampf  
Project Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water. TNI Certificate Number: T104704514-22-14

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8. TNI Certificate Number: T104704398-21-14



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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

**Reported:**  
04/26/22 11:05

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
20220415-Garden_Gulch_8in-SILT_TRAP_5	2204227-01	Solid	04/15/22 08:40	04/18/22 15:30	
20220415-Garden_Gulch_8in-SILT_TRAP_4	2204227-02	Solid	04/15/22 08:55	04/18/22 15:30	
20220415-Garden_Gulch_8in-SILT_TRAP_1	2204227-03	Solid	04/15/22 11:25	04/18/22 15:30	
20220415-Garden_Gulch_8in-SILT_TRAP_3	2204227-04	Solid	04/15/22 11:35	04/18/22 15:30	
20220415-Garden_Gulch_8in-SILT_TRAP_2	2204227-05	Solid	04/15/22 11:55	04/18/22 15:30	

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### 20220415-Garden\_Gulch\_8in-SILT\_TRAP\_5

#### 2204227-01 (Soil)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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#### General Chemistry

Hexavalent Chromium	<0.250	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D	M5	JDA
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#### Saturated Paste Extraction

Calcium	39.9	0.200	0.116	mg/L	2	04/22/22 10:51	EPA200.7		AES
Conductivity	1110			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	7.79	0.200	0.131	mg/L	2	04/22/22 10:52	EPA200.7		AES
pH	8.05			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	9.14			No Unit	1	04/22/22 10:51	Calculation		AES
Sodium	241	2.00	0.159	mg/L	2	04/22/22 10:51	EPA200.7		AES

#### Total Metals by ICP

Barium	411	5.00	1.10	mg/kg dry	100	04/22/22 11:29	6010B		AES
Cadmium	<5.00	5.00	2.54	mg/kg dry	100	04/22/22 11:29	6010B		AES
Copper	23.6	5.00	2.83	mg/kg dry	100	04/22/22 11:29	6010B		AES
Lead	18.1	10.0	4.02	mg/kg dry	100	04/22/22 11:29	6010B		AES
Nickel	27.6	5.00	2.41	mg/kg dry	100	04/22/22 11:29	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 11:29	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 11:29	6010B		AES
Zinc	78.7	10.0	2.18	mg/kg dry	100	04/22/22 11:29	6010B		AES

#### Total Metals by ICPMS

Arsenic	14.4	1.00	0.158	mg/kg dry	1000	04/21/22 16:24	6020A		AES
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#### Hot Water Extractable

Boron	1.79	1.20	0.568	mg/L	4	04/22/22 10:15	EPA200.7		AES
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### Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 12:23	8015B		JH
DRO >C10-C28*	<10.0	10.0	4.26	mg/kg	1	04/21/22 12:23	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 12:23	8015B		JH

Surrogate: 1-Chlorooctane	92.0 %	66.9-136	04/21/22 12:23	8015B	JH
Surrogate: 1-Chlorooctadecane	93.2 %	59.5-142	04/21/22 12:23	8015B	JH

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Debbie Zufelt For Brenna Kampf, Project Manager

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_5****2204227-01 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240****VOLATILES BY GC/MS**

Benzene*	<0.0250	0.0250	0.00885	mg/kg	50	04/21/22 16:59	8260B		MS
Toluene*	<b>0.108</b>	0.0250	0.00670	mg/kg	50	04/21/22 16:59	8260B		MS
Ethylbenzene*	<0.0250	0.0250	0.00405	mg/kg	50	04/21/22 16:59	8260B		MS
m+p - Xylene*	<b>0.413</b>	0.0500	0.0186	mg/kg	50	04/21/22 16:59	8260B		MS
o-Xylene*	<b>0.0758</b>	0.0250	0.00700	mg/kg	50	04/21/22 16:59	8260B		MS
Total Xylenes*	<b>0.489</b>	0.0750	0.0256	mg/kg	50	04/21/22 16:59	8260B		MS
1,3,5-Trimethylbenzene	<b>0.336</b>	0.0250	0.00450	mg/kg	50	04/21/22 16:59	8260B	QM-07, QR-03	MS
1,2,4-Trimethylbenzene	<b>0.0828</b>	0.0250	0.00650	mg/kg	50	04/21/22 16:59	8260B	QR-03	MS
Naphthalene*	<0.0250	0.0250	0.00500	mg/kg	50	04/21/22 16:59	8260B		MS
Surrogate: Dibromofluoromethane			98.3 %	84.6-114		04/21/22 16:59	8260B		MS
Surrogate: Toluene-d8			101 %	90.4-109		04/21/22 16:59	8260B		MS
Surrogate: 4-Bromofluorobenzene			97.0 %	82.5-117		04/21/22 16:59	8260B		MS

**Polynuclear Aromatic Compounds by GC/MS**

Naphthalene*	<0.015	0.040	0.015	mg/kg	40	04/25/22 18:57	8270C		CK
2-Methylnaphthalene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 18:57	8270C		CK
1-Methylnaphthalene	<0.016	0.040	0.016	mg/kg	40	04/25/22 18:57	8270C		CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 18:57	8270C		CK
Fluorene*	<0.014	0.040	0.014	mg/kg	40	04/25/22 18:57	8270C		CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 18:57	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 18:57	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 18:57	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 18:57	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 18:57	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 18:57	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 18:57	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 18:57	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 18:57	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 18:57	8270C		CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_5**

**2204227-01 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: Nitrobenzene-d5	82.5 %	39.6-121				04/25/22 18:57	8270C		CK
Surrogate: 2-Fluorobiphenyl	85.8 %	39.8-134				04/25/22 18:57	8270C		CK
Surrogate: Terphenyl-d14	90.1 %	33.3-136				04/25/22 18:57	8270C		CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_4****2204227-02 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Hexavalent Chromium	0.298	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D		JDA
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**Saturated Paste Extraction**

Calcium	38.7	0.200	0.116	mg/L	2	04/22/22 10:58	EPA200.7		AES
Conductivity	1260			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	6.46	0.200	0.131	mg/L	2	04/22/22 10:58	EPA200.7		AES
pH	8.27			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	11.0			No Unit	1	04/22/22 10:58	Calculation		AES
Sodium	280	2.00	0.159	mg/L	2	04/22/22 10:58	EPA200.7		AES

**Total Metals by ICP**

Barium	378	5.00	1.10	mg/kg dry	100	04/22/22 11:33	6010B		AES
Cadmium	<5.00	5.00	2.54	mg/kg dry	100	04/22/22 11:33	6010B		AES
Copper	16.4	5.00	2.83	mg/kg dry	100	04/22/22 11:33	6010B		AES
Lead	13.2	10.0	4.02	mg/kg dry	100	04/22/22 11:33	6010B		AES
Nickel	22.7	5.00	2.41	mg/kg dry	100	04/22/22 11:33	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 11:33	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 11:33	6010B		AES
Zinc	65.1	10.0	2.18	mg/kg dry	100	04/22/22 11:33	6010B		AES

**Total Metals by ICPMS**

Arsenic	11.8	1.00	0.158	mg/kg dry	1000	04/21/22 16:28	6020A		AES
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**Hot Water Extractable**

Boron	2.33	1.20	0.568	mg/L	4	04/22/22 10:19	EPA200.7		AES
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240****Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 12:45	8015B		JH
DRO >C10-C28*	<10.0	10.0	4.26	mg/kg	1	04/21/22 12:45	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 12:45	8015B		JH

Surrogate: 1-Chlorooctane	92.2 %	66.9-136	04/21/22 12:45	8015B	JH
Surrogate: 1-Chlorooctadecane	94.1 %	59.5-142	04/21/22 12:45	8015B	JH

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Debbie Zufelt For Brenna Kampf, Project Manager

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143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_4**

**2204227-02 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**VOLATILES BY GC/MS**

Benzene*	0.471	0.0250	0.00885	mg/kg	50	04/21/22 17:23	8260B		MS
Toluene*	2.04	0.0250	0.00670	mg/kg	50	04/21/22 17:23	8260B		MS
Ethylbenzene*	0.0846	0.0250	0.00405	mg/kg	50	04/21/22 17:23	8260B		MS
m+p - Xylene*	1.45	0.0500	0.0186	mg/kg	50	04/21/22 17:23	8260B		MS
o-Xylene*	0.245	0.0250	0.00700	mg/kg	50	04/21/22 17:23	8260B		MS
Total Xylenes*	1.69	0.0750	0.0256	mg/kg	50	04/21/22 17:23	8260B		MS
1,3,5-Trimethylbenzene	0.239	0.0250	0.00450	mg/kg	50	04/21/22 17:23	8260B		MS
1,2,4-Trimethylbenzene	0.193	0.0250	0.00650	mg/kg	50	04/21/22 17:23	8260B		MS
Naphthalene*	0.0299	0.0250	0.00500	mg/kg	50	04/21/22 17:23	8260B		MS

Surrogate: Dibromofluoromethane 97.8 % 84.6-114 04/21/22 17:23 8260B MS

Surrogate: Toluene-d8 98.8 % 90.4-109 04/21/22 17:23 8260B MS

Surrogate: 4-Bromofluorobenzene 97.2 % 82.5-117 04/21/22 17:23 8260B MS

**Polynuclear Aromatic Compounds by GC/MS**

Naphthalene*	0.027	0.040	0.015	mg/kg	40	04/25/22 19:27	8270C	J	CK
2-Methylnaphthalene*	0.039	0.040	0.023	mg/kg	40	04/25/22 19:27	8270C	J	CK
1-Methylnaphthalene	0.017	0.040	0.016	mg/kg	40	04/25/22 19:27	8270C	J	CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 19:27	8270C		CK
Fluorene*	<0.014	0.040	0.014	mg/kg	40	04/25/22 19:27	8270C		CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:27	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:27	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 19:27	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 19:27	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:27	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:27	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 19:27	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 19:27	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:27	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:27	8270C		CK

Surrogate: Nitrobenzene-d5 58.1 % 39.6-121 04/25/22 19:27 8270C CK

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt For Brenna Kampf, Project Manager

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_4**

**2204227-02 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: 2-Fluorobiphenyl	63.5 %	39.8-134				04/25/22 19:27	8270C		CK
Surrogate: Terphenyl-d14	63.7 %	33.3-136				04/25/22 19:27	8270C		CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### 20220415-Garden\_Gulch\_8in-SILT\_TRAP\_1

#### 2204227-03 (Soil)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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#### General Chemistry

Hexavalent Chromium	0.267	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D		JDA
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#### Saturated Paste Extraction

Calcium	57.0	0.100	0.058	mg/L	1	04/22/22 11:00	EPA200.7		AES
Conductivity	517			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	10.7	0.100	0.065	mg/L	1	04/22/22 11:00	EPA200.7		AES
pH	7.81			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	1.59			No Unit	1	04/22/22 11:00	Calculation		AES
Sodium	50.0	1.00	0.079	mg/L	1	04/22/22 11:00	EPA200.7		AES

#### Total Metals by ICP

Barium	343	5.00	1.10	mg/kg dry	100	04/22/22 11:37	6010B		AES
Cadmium	<5.00	5.00	2.54	mg/kg dry	100	04/22/22 11:37	6010B		AES
Copper	17.0	5.00	2.83	mg/kg dry	100	04/22/22 11:37	6010B		AES
Lead	15.2	10.0	4.02	mg/kg dry	100	04/22/22 11:37	6010B		AES
Nickel	23.4	5.00	2.41	mg/kg dry	100	04/22/22 11:37	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 11:37	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 11:37	6010B		AES
Zinc	58.2	10.0	2.18	mg/kg dry	100	04/22/22 11:37	6010B		AES

#### Total Metals by ICPMS

Arsenic	11.7	1.00	0.158	mg/kg dry	1000	04/21/22 16:31	6020A		AES
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#### Hot Water Extractable

Boron	<1.20	1.20	0.568	mg/L	4	04/22/22 10:27	EPA200.7		AES
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### Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 13:07	8015B		JH
DRO >C10-C28*	39.1	10.0	4.26	mg/kg	1	04/21/22 13:07	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 13:07	8015B		JH

Surrogate: 1-Chlorooctane	93.0 %	66.9-136	04/21/22 13:07	8015B	JH
Surrogate: 1-Chlorooctadecane	95.2 %	59.5-142	04/21/22 13:07	8015B	JH

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### 20220415-Garden\_Gulch\_8in-SILT\_TRAP\_1

#### 2204227-03 (Soil)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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#### Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240

##### VOLATILES BY GC/MS

Benzene*	<0.0250	0.0250	0.00885	mg/kg	50	04/21/22 17:45	8260B		MS
Toluene*	<b>0.0295</b>	0.0250	0.00670	mg/kg	50	04/21/22 17:45	8260B		MS
Ethylbenzene*	<0.0250	0.0250	0.00405	mg/kg	50	04/21/22 17:45	8260B		MS
m+p - Xylene*	<0.0500	0.0500	0.0186	mg/kg	50	04/21/22 17:45	8260B		MS
o-Xylene*	<0.0250	0.0250	0.00700	mg/kg	50	04/21/22 17:45	8260B		MS
Total Xylenes*	<0.0750	0.0750	0.0256	mg/kg	50	04/21/22 17:45	8260B		MS
1,3,5-Trimethylbenzene	<0.0250	0.0250	0.00450	mg/kg	50	04/21/22 17:45	8260B		MS
1,2,4-Trimethylbenzene	<0.0250	0.0250	0.00650	mg/kg	50	04/21/22 17:45	8260B		MS
Naphthalene*	<0.0250	0.0250	0.00500	mg/kg	50	04/21/22 17:45	8260B		MS

Surrogate: Dibromofluoromethane 98.1 % 84.6-114 04/21/22 17:45 8260B MS

Surrogate: Toluene-d8 98.7 % 90.4-109 04/21/22 17:45 8260B MS

Surrogate: 4-Bromofluorobenzene 98.6 % 82.5-117 04/21/22 17:45 8260B MS

##### Polynuclear Aromatic Compounds by GC/MS

Naphthalene*	<0.015	0.040	0.015	mg/kg	40	04/25/22 19:57	8270C		CK
2-Methylnaphthalene*	<b>0.027</b>	0.040	0.023	mg/kg	40	04/25/22 19:57	8270C	J	CK
1-Methylnaphthalene	<0.016	0.040	0.016	mg/kg	40	04/25/22 19:57	8270C		CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 19:57	8270C		CK
Fluorene*	<b>0.014</b>	0.040	0.014	mg/kg	40	04/25/22 19:57	8270C	J	CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:57	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:57	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 19:57	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 19:57	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:57	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:57	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 19:57	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 19:57	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 19:57	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 19:57	8270C		CK

Surrogate: Nitrobenzene-d5 72.3 % 39.6-121 04/25/22 19:57 8270C CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_1**

**2204227-03 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: 2-Fluorobiphenyl	78.9 %	39.8-134				04/25/22 19:57	8270C		CK
Surrogate: Terphenyl-d14	82.1 %	33.3-136				04/25/22 19:57	8270C		CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_3****2204227-04 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Hexavalent Chromium	<0.250	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D		JDA
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**Saturated Paste Extraction**

Calcium	44.9	0.200	0.116	mg/L	2	04/22/22 11:02	EPA200.7		AES
Conductivity	1980			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	8.12	0.200	0.131	mg/L	2	04/22/22 11:02	EPA200.7		AES
pH	7.70			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	12.4			No Unit	1	04/22/22 11:02	Calculation		AES
Sodium	345	2.00	0.159	mg/L	2	04/22/22 11:02	EPA200.7		AES

**Total Metals by ICP**

Barium	1180	50.0	11.0	mg/kg dry	1000	04/22/22 11:54	6010B		AES
Cadmium	5.74	5.00	2.54	mg/kg dry	100	04/22/22 11:42	6010B		AES
Copper	45.9	5.00	2.83	mg/kg dry	100	04/22/22 11:42	6010B		AES
Lead	26.1	10.0	4.02	mg/kg dry	100	04/22/22 11:42	6010B		AES
Nickel	50.3	5.00	2.41	mg/kg dry	100	04/22/22 11:42	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 11:41	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 11:41	6010B		AES
Zinc	83.6	10.0	2.18	mg/kg dry	100	04/22/22 11:42	6010B		AES

**Total Metals by ICPMS**

Arsenic	67.1	1.00	0.158	mg/kg dry	1000	04/21/22 16:35	6020A		AES
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**Hot Water Extractable**

Boron	1.85	1.20	0.568	mg/L	4	04/22/22 10:29	EPA200.7		AES
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240****Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 13:29	8015B		JH
DRO >C10-C28*	<10.0	10.0	4.26	mg/kg	1	04/21/22 13:29	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 13:29	8015B		JH

Surrogate: 1-Chlorooctane	91.6 %	66.9-136	04/21/22 13:29	8015B	JH
Surrogate: 1-Chlorooctadecane	95.0 %	59.5-142	04/21/22 13:29	8015B	JH

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_3**

**2204227-04 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**VOLATILES BY GC/MS**

Benzene*	0.0971	0.0250	0.00885	mg/kg	50	04/21/22 18:08	8260B		MS
Toluene*	0.314	0.0250	0.00670	mg/kg	50	04/21/22 18:08	8260B		MS
Ethylbenzene*	<0.0250	0.0250	0.00405	mg/kg	50	04/21/22 18:08	8260B		MS
m+p - Xylene*	0.0778	0.0500	0.0186	mg/kg	50	04/21/22 18:08	8260B		MS
o-Xylene*	0.0271	0.0250	0.00700	mg/kg	50	04/21/22 18:08	8260B		MS
Total Xylenes*	0.105	0.0750	0.0256	mg/kg	50	04/21/22 18:08	8260B		MS
1,3,5-Trimethylbenzene	<0.0250	0.0250	0.00450	mg/kg	50	04/21/22 18:08	8260B		MS
1,2,4-Trimethylbenzene	<0.0250	0.0250	0.00650	mg/kg	50	04/21/22 18:08	8260B		MS
Naphthalene*	<0.0250	0.0250	0.00500	mg/kg	50	04/21/22 18:08	8260B		MS

Surrogate: Dibromofluoromethane	98.7 %	84.6-114			04/21/22 18:08	8260B		MS
Surrogate: Toluene-d8	101 %	90.4-109			04/21/22 18:08	8260B		MS
Surrogate: 4-Bromofluorobenzene	97.8 %	82.5-117			04/21/22 18:08	8260B		MS

**Polynuclear Aromatic Compounds by GC/MS**

Naphthalene*	<0.015	0.040	0.015	mg/kg	40	04/25/22 20:27	8270C		CK
2-Methylnaphthalene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 20:27	8270C		CK
1-Methylnaphthalene	<0.016	0.040	0.016	mg/kg	40	04/25/22 20:27	8270C		CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 20:27	8270C		CK
Fluorene*	<0.014	0.040	0.014	mg/kg	40	04/25/22 20:27	8270C		CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:27	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:27	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 20:27	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 20:27	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:27	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:27	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 20:27	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 20:27	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:27	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:27	8270C		CK

Surrogate: Nitrobenzene-d5	66.6 %	39.6-121			04/25/22 20:27	8270C		CK
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*Debbie Zufelt*

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_3**

**2204227-04 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: 2-Fluorobiphenyl	71.0 %	39.8-134				04/25/22 20:27	8270C		CK
Surrogate: Terphenyl-d14	74.5 %	33.3-136				04/25/22 20:27	8270C		CK

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_2****2204227-05 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Hexavalent Chromium	<0.250	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D		JDA
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**Saturated Paste Extraction**

Calcium	652	1.00	0.579	mg/L	10	04/22/22 11:05	EPA200.7		AES
Conductivity	7350			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	113	1.00	0.654	mg/L	10	04/22/22 11:05	EPA200.7		AES
pH	7.73			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	5.60			No Unit	1	04/22/22 11:05	Calculation		AES
Sodium	589	10.0	0.793	mg/L	10	04/22/22 11:05	EPA200.7		AES

**Total Metals by ICP**

Barium	392	5.00	1.10	mg/kg dry	100	04/22/22 11:45	6010B		AES
Cadmium	<5.00	5.00	2.54	mg/kg dry	100	04/22/22 11:45	6010B		AES
Copper	19.3	5.00	2.83	mg/kg dry	100	04/22/22 11:45	6010B		AES
Lead	14.6	10.0	4.02	mg/kg dry	100	04/22/22 11:45	6010B		AES
Nickel	26.4	5.00	2.41	mg/kg dry	100	04/22/22 11:45	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 11:45	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 11:45	6010B		AES
Zinc	84.0	10.0	2.18	mg/kg dry	100	04/22/22 11:45	6010B		AES

**Total Metals by ICPMS**

Arsenic	13.4	1.00	0.158	mg/kg dry	1000	04/21/22 16:38	6020A		AES
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**Hot Water Extractable**

Boron	<1.20	1.20	0.568	mg/L	4	04/22/22 10:34	EPA200.7		AES
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240****Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 13:52	8015B		JH
DRO >C10-C28*	<10.0	10.0	4.26	mg/kg	1	04/21/22 13:52	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 13:52	8015B		JH

Surrogate: 1-Chlorooctane	93.3 %	66.9-136	04/21/22 13:52	8015B	JH
Surrogate: 1-Chlorooctadecane	94.9 %	59.5-142	04/21/22 13:52	8015B	JH

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Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_2**

**2204227-05 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**VOLATILES BY GC/MS**

Benzene*	0.211	0.0250	0.00885	mg/kg	50	04/21/22 18:31	8260B		MS
Toluene*	0.168	0.0250	0.00670	mg/kg	50	04/21/22 18:31	8260B		MS
Ethylbenzene*	<0.0250	0.0250	0.00405	mg/kg	50	04/21/22 18:31	8260B		MS
m+p - Xylene*	<0.0500	0.0500	0.0186	mg/kg	50	04/21/22 18:31	8260B		MS
o-Xylene*	<0.0250	0.0250	0.00700	mg/kg	50	04/21/22 18:31	8260B		MS
Total Xylenes*	<0.0750	0.0750	0.0256	mg/kg	50	04/21/22 18:31	8260B		MS
1,3,5-Trimethylbenzene	<0.0250	0.0250	0.00450	mg/kg	50	04/21/22 18:31	8260B		MS
1,2,4-Trimethylbenzene	<0.0250	0.0250	0.00650	mg/kg	50	04/21/22 18:31	8260B		MS
Naphthalene*	<0.0250	0.0250	0.00500	mg/kg	50	04/21/22 18:31	8260B		MS

Surrogate: Dibromofluoromethane	95.7 %	84.6-114			04/21/22 18:31	8260B		MS
Surrogate: Toluene-d8	102 %	90.4-109			04/21/22 18:31	8260B		MS
Surrogate: 4-Bromofluorobenzene	96.0 %	82.5-117			04/21/22 18:31	8260B		MS

**Polynuclear Aromatic Compounds by GC/MS**

Naphthalene*	<0.015	0.040	0.015	mg/kg	40	04/25/22 20:57	8270C		CK
2-Methylnaphthalene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 20:57	8270C		CK
1-Methylnaphthalene	<0.016	0.040	0.016	mg/kg	40	04/25/22 20:57	8270C		CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 20:57	8270C		CK
Fluorene*	<0.014	0.040	0.014	mg/kg	40	04/25/22 20:57	8270C		CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:57	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:57	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 20:57	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 20:57	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:57	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:57	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 20:57	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 20:57	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 20:57	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 20:57	8270C		CK

Surrogate: Nitrobenzene-d5	71.8 %	39.6-121			04/25/22 20:57	8270C		CK
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*Debbie Zufelt*

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**20220415-Garden\_Gulch\_8in-SILT\_TRAP\_2**

**2204227-05 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: 2-Fluorobiphenyl	77.0 %	39.8-134				04/25/22 20:57	8270C		CK
Surrogate: Terphenyl-d14	78.3 %	33.3-136				04/25/22 20:57	8270C		CK

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143 Diamond Avenue  
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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B220997 - General Prep - Wet Chem

##### Blank (B220997-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Hexavalent Chromium	ND	0.250	mg/kg
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##### LCS (B220997-BS1)

Prepared: 04/20/22 Analyzed: 04/22/22

Hexavalent Chromium	2.38	0.250	mg/kg	2.50	95.1	85-115
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### Saturated Paste Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221005 - Paste Extract

##### Blank (B221005-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Calcium	ND	0.100	mg/L
Magnesium	ND	0.100	mg/L
Sodium	ND	1.00	mg/L

##### Duplicate (B221005-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/22/22

Calcium	78.5	0.500	mg/L	78.0	0.636	20
Magnesium	9.09	0.500	mg/L	8.25	9.61	20
SAR	0.51	No Unit	0.48	6.06	20	
Sodium	17.9	5.00	mg/L	16.7	7.23	20

##### Reference (B221005-SRM1)

Prepared: 04/20/22 Analyzed: 04/22/22

SAR	11.6	No Unit	11.7	99.8	90-110
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#### Batch B221006 - Paste Extract

##### Duplicate (B221006-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

Conductivity	510	umho/cm @ 25.0°C	501	1.78	20
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##### Reference (B221006-SRM1)

Prepared: 04/20/22 Analyzed: 04/21/22

Conductivity	14500	umho/cm @ 25.0°C	14700	98.7	90-110
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#### Batch B221007 - Paste Extract

##### Duplicate (B221007-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**Saturated Paste Extraction - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B221007 - Paste Extract (Continued)**

**Duplicate (B221007-DUP1) (Continued)**

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

pH	7.95		pH Units	7.93				0.252	20	
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**Reference (B221007-SRM1)**

Prepared: 04/20/22 Analyzed: 04/21/22

pH	6.29		pH Units	6.32		99.5	92-108			
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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221008 - EPA 3050

##### Blank (B221008-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	ND	5.00	mg/kg dry
Cadmium	ND	5.00	mg/kg dry
Copper	ND	5.00	mg/kg dry
Lead	ND	10.0	mg/kg dry
Nickel	ND	5.00	mg/kg dry
Selenium	ND	20.0	mg/kg dry
Silver	ND	1.00	mg/kg dry
Zinc	ND	10.0	mg/kg dry

##### LCS (B221008-BS1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	193	5.00	mg/kg dry	200	96.7	80-120
Cadmium	182	5.00	mg/kg dry	200	91.2	80-120
Copper	400	5.00	mg/kg dry	400	100	80-120
Lead	186	10.0	mg/kg dry	200	92.9	80-120
Nickel	188	5.00	mg/kg dry	200	94.1	80-120
Selenium	818	20.0	mg/kg dry	800	102	80-120
Silver	9.62	1.00	mg/kg dry	10.0	96.2	80-120
Zinc	180	10.0	mg/kg dry	200	89.9	80-120

##### LCS Dup (B221008-BS1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	191	5.00	mg/kg dry	200	95.5	80-120	1.26	20
Cadmium	180	5.00	mg/kg dry	200	90.0	80-120	1.36	20
Copper	397	5.00	mg/kg dry	400	99.3	80-120	0.720	20
Lead	184	10.0	mg/kg dry	200	91.8	80-120	1.19	20
Nickel	186	5.00	mg/kg dry	200	93.2	80-120	0.869	20
Selenium	822	20.0	mg/kg dry	800	103	80-120	0.467	20
Silver	9.54	1.00	mg/kg dry	10.0	95.4	80-120	0.791	20
Zinc	171	10.0	mg/kg dry	200	85.7	80-120	4.79	20

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221009 - EPA 3050M

##### Blank (B221009-BLK1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	ND	0.100	mg/kg dry							
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##### LCS (B221009-BS1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	5.70	0.100	mg/kg dry	5.00		114	80-120			
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##### LCS Dup (B221009-BSD1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	5.42	0.100	mg/kg dry	5.00		108	80-120	5.14	20	
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### Hot Water Extractable - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221017 - Hot Water Soluble Metals Extract

##### Blank (B221017-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Boron	ND	1.20	mg/L							
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##### Duplicate (B221017-DUP1)

Source: 2204227-05 Prepared: 04/20/22 Analyzed: 04/22/22

Boron	0.768	1.20	mg/L		0.798			3.87	200	
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Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### Petroleum Hydrocarbons by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2042026 - General Prep - Organics

##### Blank (2042026-BLK1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	50.2		mg/kg	50.0		100	59.5-142			
Surrogate: 1-Chlorooctane	49.2		mg/kg	50.0		98.5	66.9-136			
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
GRO C6-C10	ND	10.0	mg/kg							

##### LCS (2042026-BS1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	52.9		mg/kg	50.0		106	59.5-142			
Surrogate: 1-Chlorooctane	53.9		mg/kg	50.0		108	66.9-136			
DRO >C10-C28	186	10.0	mg/kg	200		93.1	75.8-135			
GRO C6-C10	208	10.0	mg/kg	200		104	78.5-128			
Total TPH C6-C28	394	10.0	mg/kg	400		98.4	81.5-127			

##### LCS Dup (2042026-BSD1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	56.2		mg/kg	50.0		112	59.5-142			
Surrogate: 1-Chlorooctane	52.8		mg/kg	50.0		106	66.9-136			
DRO >C10-C28	190	10.0	mg/kg	200		95.2	75.8-135	2.20	17.9	
GRO C6-C10	201	10.0	mg/kg	200		101	78.5-128	3.11	21.4	
Total TPH C6-C28	392	10.0	mg/kg	400		97.9	81.5-127	0.564	17.6	

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### VOLATILES BY GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2042124 - Volatiles

##### Blank (2042124-BLK1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	ND	0.0250	mg/kg							
1,3,5-Trimethylbenzene	ND	0.0250	mg/kg							
Surrogate: 4-Bromofluorobenzene	1.20		mg/kg	1.25		96.2	82.5-117			
Benzene	ND	0.0250	mg/kg							
Surrogate: Dibromofluoromethane	1.21		mg/kg	1.25		97.2	84.6-114			
Ethylbenzene	ND	0.0250	mg/kg							
m+p - Xylene	ND	0.0500	mg/kg							
Naphthalene	ND	0.0250	mg/kg							
o-Xylene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	mg/kg							
Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	ND	0.0750	mg/kg							

##### LCS (2042124-BS1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	0.509	0.0250	mg/kg	0.500		102	62.4-140			
1,3,5-Trimethylbenzene	0.507	0.0250	mg/kg	0.500		101	64.4-138			
Surrogate: 4-Bromofluorobenzene	1.25		mg/kg	1.25		99.6	82.5-117			
Benzene	0.488	0.0250	mg/kg	0.500		97.6	73-130			
Surrogate: Dibromofluoromethane	1.25		mg/kg	1.25		99.6	84.6-114			
Ethylbenzene	0.522	0.0250	mg/kg	0.500		104	75.4-127			
m+p - Xylene	1.03	0.0500	mg/kg	1.00		103	71.8-133			
Naphthalene	0.437	0.0250	mg/kg	0.500		87.3	28.7-158			
o-Xylene	0.492	0.0250	mg/kg	0.500		98.4	78.6-125			
Toluene	0.482	0.0250	mg/kg	0.500		96.4	79-122			
Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	1.53	0.0750	mg/kg	1.50		102	74.6-130			

##### LCS Dup (2042124-BSD1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	0.540	0.0250	mg/kg	0.500		108	62.4-140	6.00	38.2	
1,3,5-Trimethylbenzene	0.536	0.0250	mg/kg	0.500		107	64.4-138	5.58	39.1	
Surrogate: 4-Bromofluorobenzene	1.23		mg/kg	1.25		98.1	82.5-117			
Benzene	0.500	0.0250	mg/kg	0.500		100	73-130	2.55	17.1	
Surrogate: Dibromofluoromethane	1.24		mg/kg	1.25		99.3	84.6-114			
Ethylbenzene	0.526	0.0250	mg/kg	0.500		105	75.4-127	0.872	16.5	
m+p - Xylene	1.04	0.0500	mg/kg	1.00		104	71.8-133	0.528	19.1	
Naphthalene	0.468	0.0250	mg/kg	0.500		93.5	28.7-158	6.86	64	
o-Xylene	0.509	0.0250	mg/kg	0.500		102	78.6-125	3.46	13.2	
Toluene	0.482	0.0250	mg/kg	0.500		96.3	79-122	0.0830	18.3	

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Debbie Zufelt

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**VOLATILES BY GC/MS - Quality Control**  
**(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2042124 - Volatiles (Continued)**

**LCS Dup (2042124-BSD1) (Continued)**

Prepared & Analyzed: 04/21/22

Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	1.55	0.0750	mg/kg	1.50		103	74.6-130	1.48	16.5	

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143 Diamond Avenue  
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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### Polynuclear Aromatic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2040420 - SW846-3510

##### Blank (2040420-BLK1)

Prepared: 04/11/22 Analyzed: 04/19/22

1-Methylnaphthalene	ND	0.040	mg/kg							
Surrogate: 2-Fluorobiphenyl	1.18		mg/kg	2.00		58.8	39.8-134			
2-Methylnaphthalene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Benzo[b]fluoranthene	ND	0.040	mg/kg							
Benzo[k]fluoranthene	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Naphthalene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	1.05		mg/kg	2.00		52.3	39.6-121			
Pyrene	ND	0.040	mg/kg							
Surrogate: Terphenyl-d14	1.24		mg/kg	2.00		61.9	33.3-136			

##### LCS (2040420-BS1)

Prepared: 04/11/22 Analyzed: 04/20/22

1-Methylnaphthalene	0.310	0.040	mg/kg	0.400		77.4	57.6-108			
Surrogate: 2-Fluorobiphenyl	1.59		mg/kg	2.00		79.7	39.8-134			
2-Methylnaphthalene	0.312	0.040	mg/kg	0.400		77.9	59-106			
Acenaphthene	0.310	0.040	mg/kg	0.400		77.5	60.9-105			
Acenaphthylene	0.329	0.040	mg/kg	0.400		82.2	57.4-107			
Anthracene	0.343	0.040	mg/kg	0.400		85.8	60.8-105			
Benzo[a]anthracene	0.328	0.040	mg/kg	0.400		82.0	56.1-121			
Benzo[a]pyrene	0.331	0.040	mg/kg	0.400		82.6	56.7-115			
Benzo[b]fluoranthene	0.346	0.040	mg/kg	0.400		86.4	45.4-128			
Benzo[g,h,i]perylene	0.339	0.040	mg/kg	0.400		84.7	56.5-107			
Benzo[k]fluoranthene	0.324	0.040	mg/kg	0.400		81.0	49.6-119			
Carbazole	0.349	0.040	mg/kg	0.400		87.3	59.7-107			
Chrysene	0.337	0.040	mg/kg	0.400		84.2	12.2-190			
Dibenz[a,h]anthracene	0.342	0.040	mg/kg	0.400		85.5	59.1-111			
Fluoranthene	0.351	0.040	mg/kg	0.400		87.8	60.6-111			
Fluorene	0.318	0.040	mg/kg	0.400		79.6	59.3-108			
Indeno[1,2,3-cd]pyrene	0.340	0.040	mg/kg	0.400		85.1	53.4-116			
Naphthalene	0.327	0.040	mg/kg	0.400		81.7	56.5-106			

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

**Polynuclear Aromatic Compounds by GC/MS - Quality Control**  
**(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 2040420 - SW846-3510 (Continued)**

**LCS (2040420-BS1) (Continued)**

Prepared: 04/11/22 Analyzed: 04/20/22

Surrogate: Nitrobenzene-d5	1.58		mg/kg	2.00		78.9	39.6-121			
Phenanthrene	0.333	0.040	mg/kg	0.400		83.2	59.9-107			
Pyrene	0.323	0.040	mg/kg	0.400		80.6	51.5-122			
Surrogate: Terphenyl-d14	1.61		mg/kg	2.00		80.3	33.3-136			

**LCS Dup (2040420-BSD1)**

Prepared: 04/11/22 Analyzed: 04/20/22

1-Methylnaphthalene	0.315	0.040	mg/kg	0.400		78.8	57.6-108	1.82	6.22	
Surrogate: 2-Fluorobiphenyl	1.59		mg/kg	2.00		79.6	39.8-134			
2-Methylnaphthalene	0.312	0.040	mg/kg	0.400		77.9	59-106	0.0417	6.23	
Acenaphthene	0.326	0.040	mg/kg	0.400		81.4	60.9-105	4.94	8.18	
Acenaphthylene	0.335	0.040	mg/kg	0.400		83.7	57.4-107	1.86	5	
Anthracene	0.341	0.040	mg/kg	0.400		85.2	60.8-105	0.608	3.68	
Benzo[a]anthracene	0.326	0.040	mg/kg	0.400		81.6	56.1-121	0.532	9.01	
Benzo[a]pyrene	0.334	0.040	mg/kg	0.400		83.5	56.7-115	1.04	4.92	
Benzo[b]fluoranthene	0.341	0.040	mg/kg	0.400		85.1	45.4-128	1.45	7.63	
Benzo[g,h,i]perylene	0.337	0.040	mg/kg	0.400		84.1	56.5-107	0.628	12.5	
Benzo[k]fluoranthene	0.324	0.040	mg/kg	0.400		80.9	49.6-119	0.0988	10.6	
Carbazole	0.347	0.040	mg/kg	0.400		86.7	59.7-107	0.727	8.65	
Chrysene	0.344	0.040	mg/kg	0.400		86.1	12.2-190	2.15	21.8	
Dibenz[a,h]anthracene	0.341	0.040	mg/kg	0.400		85.3	59.1-111	0.240	11.6	
Fluoranthene	0.340	0.040	mg/kg	0.400		85.0	60.6-111	3.22	7.54	
Fluorene	0.318	0.040	mg/kg	0.400		79.5	59.3-108	0.113	5.49	
Indeno[1,2,3-cd]pyrene	0.346	0.040	mg/kg	0.400		86.6	53.4-116	1.77	22.3	
Naphthalene	0.312	0.040	mg/kg	0.400		78.1	56.5-106	4.47	4.56	
Surrogate: Nitrobenzene-d5	1.56		mg/kg	2.00		78.2	39.6-121			
Phenanthrene	0.339	0.040	mg/kg	0.400		84.9	59.9-107	1.98	5.21	
Pyrene	0.333	0.040	mg/kg	0.400		83.3	51.5-122	3.18	10.6	
Surrogate: Terphenyl-d14	1.65		mg/kg	2.00		82.3	33.3-136			

Green Analytical Laboratories

*Debbie Zufelt*

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 11:05

### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
M5	Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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# 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/files/pass-standard-terms.pdf>  
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: Caerus Oil and Gas LLC  
Address: Info on file  
Billing Information: Info on file

Report To: Jake Janicek, Brett Middleton, Blair Rollins  
Email To: [brollins@caerusoilandgas.com](mailto:brollins@caerusoilandgas.com), [bmiddleton@caerusoilandgas.com](mailto:bmiddleton@caerusoilandgas.com)

Copy To: Chris McKisson, remediation@confluence-cc.com  
Site Collection Info/Address:

Customer Project Name/Number: Garden Gulch 8" Water  
State: CO / Garfield Time Zone Collected: [ ] PT [X] MT [ ] CT [ ] ET

Line Release  
Phone: Site/Facility ID #: Latham Laydown Yard  
Compliance Monitoring? [ ] Yes [X] No

Email: [ ] Yes [X] No  
Collected By (print): Purchase Order #: DW PWS ID #:  
Alex Storty Quote #: DW Location Code:

Collected By (signature): Turnaround Date Required: Standard 5-day  
Immediately Packed on Ice: [X] Yes [ ] No

Sample Disposal: Rush: [Expedite Charges Apply]  
Field Filtered (if applicable): [ ] Yes [ ] No  
[ ] Dispose as appropriate [ ] Same Day [ ] Next Day  
[ ] Return [ ] 2 Day [ ] 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) Date	Composite End Date	Res Cl	# of Cms	Container Type: Plastic (P) or Glass (G)
20220415-Garden_Gulch_8"-SLT_TRAP_5	SL	G	4/15/2022	0840		4	X
20220415-Garden_Gulch_8"-SLT_TRAP_4	SL	G	4/15/2022	0855		4	X
20220415-Garden_Gulch_8"-SLT_TRAP_1	SL	G	4/15/2022	1125		4	X
20220415-Garden_Gulch_8"-SLT_TRAP_3	SL	G	4/15/2022	1135		4	X
20220415-Garden_Gulch_8"-SLT_TRAP_2	SL	G	4/15/2022	1155		4	X

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None  
Packing Material Used:  
Radchem sample(s) screened (<500 ppm): Y N NA

Relinquished by/Company (Signature): *[Signature]*  
Date/Time: 04/18/22 1200  
Received by/Company (Signature): *[Signature]*  
Date/Time: 4/18/22 1530

Relinquished by/Company (Signature): *[Signature]*  
Date/Time: 4/18/22 1530  
Received by/Company (Signature): *[Signature]*  
Date/Time: 4/18/22 1530

Relinquished by/Company (Signature): *[Signature]*  
Date/Time: 4/19/22 1100  
Received by/Company (Signature): *[Signature]*  
Date/Time: 4/19/22 1100

## ALL BOLD OUTLINED AREAS are for LAB USE ONLY

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

Container Preservative Type \*\*  
Lab Project Manager:  
Analyses  
Table 915-1 VOCs  
TPH (ORO, GRO, DRO)  
Table 915-1 Metal's  
Table 915-1 PAHs  
pH, EC, SAR, Arsenic  
Boron (Hot Water Soluble Soil)

Lab Profile/line:  
Lab Sample Receipt Checklist:  
Custody Seals Present/Intact: Y N NA  
Custody Signatures Present: Y N NA  
Collector Signatures Present: Y N NA  
Bottles Intact: Y N NA  
Correct Bottles: Y N NA  
Sufficient Volume: Y N NA  
Samples Received on Ice: Y N NA  
VOA - Headspace Acceptable: Y N 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:  
2204227-01  
227-02  
227-03  
227-04  
227-05

LAB Sample Temperature Info:  
Temp Blank Received: Y N NA  
Therm ID#: *Laser-02*  
Cooler 1 Temp Upon Receipt: *5.0°C*  
Cooler 1 Therm Corr. Factor: *0°C*  
Cooler 1 Corrected Temp: *0°C*  
Comments:

MTJL LAB USE ONLY  
Table #:  
Actuam:  
Template:  
Prelogn:

Non Conformance(s):  
YES / NO  
Page: *50°C*  
HCL MeOH TSP Other





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26 April 2022

Blair Rollins  
Caerus Operating LLC  
143 Diamond Avenue  
Parachute, CO 81635  
RE: COGCC Table 915-1

Enclosed are the results of analyses for samples received by the laboratory on 04/18/22 15:30. The data to follow was performed, in whole or in part, by Green Analytical Laboratories. Any data that was performed by a subcontract laboratory is included within the GAL report, or with an additional report attached.

If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt For Brenna Kampf  
Project Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water. TNI Certificate Number: T104704514-22-14

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8. TNI Certificate Number: T104704398-21-14



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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

**Reported:**  
04/26/22 14:17

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
20220415-Garden_Gulch_8in-ESW@5.5'	2204226-01	Solid	04/15/22 12:15	04/18/22 15:30	

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

**20220415-Garden\_Gulch\_8in-ESW@5.5'****2204226-01 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Hexavalent Chromium	<0.250	0.250	0.128	mg/kg	25	04/22/22 11:00	3060A/3500-Cr D		JDA
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**Saturated Paste Extraction**

Calcium	188	0.200	0.116	mg/L	2	04/22/22 10:49	EPA200.7		AES
Conductivity	1570			umho/cm @ 25.0°C	1	04/21/22 09:25	ASA#9 10-3.3		VJW
Magnesium	46.0	0.200	0.131	mg/L	2	04/22/22 10:49	EPA200.7		AES
pH	7.22			pH Units	1	04/21/22 08:15	ASA#9 10-3.2		VJW
SAR	1.23			No Unit	1	04/22/22 10:49	Calculation		AES
Sodium	72.7	2.00	0.159	mg/L	2	04/22/22 10:49	EPA200.7		AES

**Total Metals by ICP**

Barium	379	5.00	1.10	mg/kg dry	100	04/22/22 13:24	6010B		AES
Cadmium	<5.00	5.00	2.54	mg/kg dry	100	04/22/22 13:24	6010B		AES
Copper	17.6	5.00	2.83	mg/kg dry	100	04/22/22 13:24	6010B		AES
Lead	16.5	10.0	4.02	mg/kg dry	100	04/22/22 13:24	6010B		AES
Nickel	23.7	5.00	2.41	mg/kg dry	100	04/22/22 13:24	6010B		AES
Selenium	<20.0	20.0	5.39	mg/kg dry	100	04/22/22 13:24	6010B		AES
Silver	<1.00	1.00	0.518	mg/kg dry	100	04/22/22 13:24	6010B		AES
Zinc	56.5	10.0	2.18	mg/kg dry	100	04/22/22 13:24	6010B		AES

**Total Metals by ICPMS**

Arsenic	22.2	1.00	0.158	mg/kg dry	1000	04/21/22 17:59	6020A		AES
---------	------	------	-------	-----------	------	----------------	-------	--	-----

**Hot Water Extractable**

Boron	<1.20	1.20	0.568	mg/L	4	04/22/22 10:12	EPA200.7		AES
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240****Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	6.25	mg/kg	1	04/21/22 14:16	8015B		JH
DRO >C10-C28*	<10.0	10.0	4.26	mg/kg	1	04/21/22 14:16	8015B		JH
EXT DRO >C28-C36	<10.0	10.0	4.26	mg/kg	1	04/21/22 14:16	8015B		JH

Surrogate: 1-Chlorooctane	92.4 %	66.9-136	04/21/22 14:16	8015B	JH
Surrogate: 1-Chlorooctadecane	94.5 %	59.5-142	04/21/22 14:16	8015B	JH

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

20220415-Garden\_Gulch\_8in-ESW@5.5'

2204226-01 (Soil)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
---------	--------	----	-----	-------	----------	----------	--------	-------	---------

Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240

VOLATILES BY GC/MS

Benzene*	<0.0250	0.0250	0.00885	mg/kg	50	04/21/22 18:54	8260B		MS
Toluene*	<0.0250	0.0250	0.00670	mg/kg	50	04/21/22 18:54	8260B		MS
Ethylbenzene*	<0.0250	0.0250	0.00405	mg/kg	50	04/21/22 18:54	8260B		MS
m+p - Xylene*	<0.0500	0.0500	0.0186	mg/kg	50	04/21/22 18:54	8260B		MS
o-Xylene*	<0.0250	0.0250	0.00700	mg/kg	50	04/21/22 18:54	8260B		MS
Total Xylenes*	<0.0750	0.0750	0.0256	mg/kg	50	04/21/22 18:54	8260B		MS
1,3,5-Trimethylbenzene	<0.0250	0.0250	0.00450	mg/kg	50	04/21/22 18:54	8260B		MS
1,2,4-Trimethylbenzene	<0.0250	0.0250	0.00650	mg/kg	50	04/21/22 18:54	8260B		MS
Naphthalene*	<0.0250	0.0250	0.00500	mg/kg	50	04/21/22 18:54	8260B		MS

Surrogate: Dibromofluoromethane 99.4 % 84.6-114 04/21/22 18:54 8260B MS

Surrogate: Toluene-d8 101 % 90.4-109 04/21/22 18:54 8260B MS

Surrogate: 4-Bromofluorobenzene 95.4 % 82.5-117 04/21/22 18:54 8260B MS

Polynuclear Aromatic Compounds by GC/MS

Naphthalene*	<0.015	0.040	0.015	mg/kg	40	04/25/22 21:27	8270C		CK
2-Methylnaphthalene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 21:27	8270C		CK
1-Methylnaphthalene	<0.016	0.040	0.016	mg/kg	40	04/25/22 21:27	8270C		CK
Acenaphthene*	<0.024	0.040	0.024	mg/kg	40	04/25/22 21:27	8270C		CK
Fluorene*	<0.014	0.040	0.014	mg/kg	40	04/25/22 21:27	8270C		CK
Anthracene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 21:27	8270C		CK
Fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 21:27	8270C		CK
Pyrene*	<0.013	0.040	0.013	mg/kg	40	04/25/22 21:27	8270C		CK
Benzo[a]anthracene*	<0.023	0.040	0.023	mg/kg	40	04/25/22 21:27	8270C		CK
Chrysene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 21:27	8270C		CK
Benzo[b]fluoranthene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 21:27	8270C		CK
Benzo[k]fluoranthene*	<0.016	0.040	0.016	mg/kg	40	04/25/22 21:27	8270C		CK
Benzo[a]pyrene*	<0.018	0.040	0.018	mg/kg	40	04/25/22 21:27	8270C		CK
Indeno[1,2,3-cd]pyrene*	<0.017	0.040	0.017	mg/kg	40	04/25/22 21:27	8270C		CK
Dibenz[a,h]anthracene*	<0.019	0.040	0.019	mg/kg	40	04/25/22 21:27	8270C		CK

Surrogate: Nitrobenzene-d5 76.2 % 39.6-121 04/25/22 21:27 8270C CK

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Debbie Zufelt

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

**20220415-Garden\_Gulch\_8in-ESW@5.5'**

**2204226-01 (Soil)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Subcontracted -- Cardinal Laboratories 101 East Marland Hobbs, NM 88240**

**Polynuclear Aromatic Compounds by GC/MS**

Surrogate: 2-Fluorobiphenyl	81.5 %	39.8-134				04/25/22 21:27	8270C		CK
Surrogate: Terphenyl-d14	81.0 %	33.3-136				04/25/22 21:27	8270C		CK

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B220997 - General Prep - Wet Chem

##### Blank (B220997-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Hexavalent Chromium	ND	0.250	mg/kg
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##### LCS (B220997-BS1)

Prepared: 04/20/22 Analyzed: 04/22/22

Hexavalent Chromium	2.38	0.250	mg/kg	2.50	95.1	85-115
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### Saturated Paste Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221005 - Paste Extract

##### Blank (B221005-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Calcium	ND	0.100	mg/L
Magnesium	ND	0.100	mg/L
Sodium	ND	1.00	mg/L

##### Duplicate (B221005-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/22/22

Calcium	78.5	0.500	mg/L	78.0	0.636	20
Magnesium	9.09	0.500	mg/L	8.25	9.61	20
SAR	0.51	No Unit	0.48	6.06	20	
Sodium	17.9	5.00	mg/L	16.7	7.23	20

##### Reference (B221005-SRM1)

Prepared: 04/20/22 Analyzed: 04/22/22

SAR	11.6	No Unit	11.7	99.8	90-110
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#### Batch B221006 - Paste Extract

##### Duplicate (B221006-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

Conductivity	510	umho/cm @ 25.0°C	501	1.78	20
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##### Reference (B221006-SRM1)

Prepared: 04/20/22 Analyzed: 04/21/22

Conductivity	14500	umho/cm @ 25.0°C	14700	98.7	90-110
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#### Batch B221007 - Paste Extract

##### Duplicate (B221007-DUP1)

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

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143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

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04/26/22 14:17

**Saturated Paste Extraction - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B221007 - Paste Extract (Continued)**

**Duplicate (B221007-DUP1) (Continued)**

Source: 2204232-02 Prepared: 04/20/22 Analyzed: 04/21/22

pH	7.95		pH Units	7.93				0.252	20	
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**Reference (B221007-SRM1)**

Prepared: 04/20/22 Analyzed: 04/21/22

pH	6.29		pH Units	6.32		99.5	92-108			
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143 Diamond Avenue  
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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### Total Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221008 - EPA 3050

##### Blank (B221008-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	ND	5.00	mg/kg dry
Cadmium	ND	5.00	mg/kg dry
Copper	ND	5.00	mg/kg dry
Lead	ND	10.0	mg/kg dry
Nickel	ND	5.00	mg/kg dry
Selenium	ND	20.0	mg/kg dry
Silver	ND	1.00	mg/kg dry
Zinc	ND	10.0	mg/kg dry

##### LCS (B221008-BS1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	193	5.00	mg/kg dry	200	96.7	80-120
Cadmium	182	5.00	mg/kg dry	200	91.2	80-120
Copper	400	5.00	mg/kg dry	400	100	80-120
Lead	186	10.0	mg/kg dry	200	92.9	80-120
Nickel	188	5.00	mg/kg dry	200	94.1	80-120
Selenium	818	20.0	mg/kg dry	800	102	80-120
Silver	9.62	1.00	mg/kg dry	10.0	96.2	80-120
Zinc	180	10.0	mg/kg dry	200	89.9	80-120

##### LCS Dup (B221008-BSD1)

Prepared: 04/20/22 Analyzed: 04/22/22

Barium	191	5.00	mg/kg dry	200	95.5	80-120	1.26	20
Cadmium	180	5.00	mg/kg dry	200	90.0	80-120	1.36	20
Copper	397	5.00	mg/kg dry	400	99.3	80-120	0.720	20
Lead	184	10.0	mg/kg dry	200	91.8	80-120	1.19	20
Nickel	186	5.00	mg/kg dry	200	93.2	80-120	0.869	20
Selenium	822	20.0	mg/kg dry	800	103	80-120	0.467	20
Silver	9.54	1.00	mg/kg dry	10.0	95.4	80-120	0.791	20
Zinc	171	10.0	mg/kg dry	200	85.7	80-120	4.79	20

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221009 - EPA 3050M

##### Blank (B221009-BLK1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	ND	0.100	mg/kg dry							
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##### LCS (B221009-BS1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	5.70	0.100	mg/kg dry	5.00		114	80-120			
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##### LCS Dup (B221009-BSD1)

Prepared: 04/20/22 Analyzed: 04/21/22

Arsenic	5.42	0.100	mg/kg dry	5.00		108	80-120	5.14	20	
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### Hot Water Extractable - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B221017 - Hot Water Soluble Metals Extract

##### Blank (B221017-BLK1)

Prepared: 04/20/22 Analyzed: 04/22/22

Boron	ND	1.20	mg/L							
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##### Duplicate (B221017-DUP1)

Source: 2204227-05 Prepared: 04/20/22 Analyzed: 04/22/22

Boron	0.768	1.20	mg/L		0.798			3.87	200	
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Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### Petroleum Hydrocarbons by GC FID - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2042026 - General Prep - Organics

##### Blank (2042026-BLK1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	50.2		mg/kg	50.0		100	59.5-142			
Surrogate: 1-Chlorooctane	49.2		mg/kg	50.0		98.5	66.9-136			
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
GRO C6-C10	ND	10.0	mg/kg							

##### LCS (2042026-BS1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	52.9		mg/kg	50.0		106	59.5-142			
Surrogate: 1-Chlorooctane	53.9		mg/kg	50.0		108	66.9-136			
DRO >C10-C28	186	10.0	mg/kg	200		93.1	75.8-135			
GRO C6-C10	208	10.0	mg/kg	200		104	78.5-128			
Total TPH C6-C28	394	10.0	mg/kg	400		98.4	81.5-127			

##### LCS Dup (2042026-BSD1)

Prepared: 04/20/22 Analyzed: 04/21/22

Surrogate: 1-Chlorooctadecane	56.2		mg/kg	50.0		112	59.5-142			
Surrogate: 1-Chlorooctane	52.8		mg/kg	50.0		106	66.9-136			
DRO >C10-C28	190	10.0	mg/kg	200		95.2	75.8-135	2.20	17.9	
GRO C6-C10	201	10.0	mg/kg	200		101	78.5-128	3.11	21.4	
Total TPH C6-C28	392	10.0	mg/kg	400		97.9	81.5-127	0.564	17.6	

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### VOLATILES BY GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2042124 - Volatiles

##### Blank (2042124-BLK1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	ND	0.0250	mg/kg							
1,3,5-Trimethylbenzene	ND	0.0250	mg/kg							
Surrogate: 4-Bromofluorobenzene	1.20		mg/kg	1.25		96.2	82.5-117			
Benzene	ND	0.0250	mg/kg							
Surrogate: Dibromofluoromethane	1.21		mg/kg	1.25		97.2	84.6-114			
Ethylbenzene	ND	0.0250	mg/kg							
m+p - Xylene	ND	0.0500	mg/kg							
Naphthalene	ND	0.0250	mg/kg							
o-Xylene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	mg/kg							
Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	ND	0.0750	mg/kg							

##### LCS (2042124-BS1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	0.509	0.0250	mg/kg	0.500		102	62.4-140			
1,3,5-Trimethylbenzene	0.507	0.0250	mg/kg	0.500		101	64.4-138			
Surrogate: 4-Bromofluorobenzene	1.25		mg/kg	1.25		99.6	82.5-117			
Benzene	0.488	0.0250	mg/kg	0.500		97.6	73-130			
Surrogate: Dibromofluoromethane	1.25		mg/kg	1.25		99.6	84.6-114			
Ethylbenzene	0.522	0.0250	mg/kg	0.500		104	75.4-127			
m+p - Xylene	1.03	0.0500	mg/kg	1.00		103	71.8-133			
Naphthalene	0.437	0.0250	mg/kg	0.500		87.3	28.7-158			
o-Xylene	0.492	0.0250	mg/kg	0.500		98.4	78.6-125			
Toluene	0.482	0.0250	mg/kg	0.500		96.4	79-122			
Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	1.53	0.0750	mg/kg	1.50		102	74.6-130			

##### LCS Dup (2042124-BSD1)

Prepared & Analyzed: 04/21/22

1,2,4-Trimethylbenzene	0.540	0.0250	mg/kg	0.500		108	62.4-140	6.00	38.2	
1,3,5-Trimethylbenzene	0.536	0.0250	mg/kg	0.500		107	64.4-138	5.58	39.1	
Surrogate: 4-Bromofluorobenzene	1.23		mg/kg	1.25		98.1	82.5-117			
Benzene	0.500	0.0250	mg/kg	0.500		100	73-130	2.55	17.1	
Surrogate: Dibromofluoromethane	1.24		mg/kg	1.25		99.3	84.6-114			
Ethylbenzene	0.526	0.0250	mg/kg	0.500		105	75.4-127	0.872	16.5	
m+p - Xylene	1.04	0.0500	mg/kg	1.00		104	71.8-133	0.528	19.1	
Naphthalene	0.468	0.0250	mg/kg	0.500		93.5	28.7-158	6.86	64	
o-Xylene	0.509	0.0250	mg/kg	0.500		102	78.6-125	3.46	13.2	
Toluene	0.482	0.0250	mg/kg	0.500		96.3	79-122	0.0830	18.3	

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

**VOLATILES BY GC/MS - Quality Control**  
**(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2042124 - Volatiles (Continued)**

**LCS Dup (2042124-BSD1) (Continued)**

Prepared & Analyzed: 04/21/22

Surrogate: Toluene-d8	1.26		mg/kg	1.25		101	90.4-109			
Total Xylenes	1.55	0.0750	mg/kg	1.50		103	74.6-130	1.48	16.5	

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Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### Polynuclear Aromatic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 2040420 - SW846-3510

##### Blank (2040420-BLK1)

Prepared: 04/11/22 Analyzed: 04/19/22

1-Methylnaphthalene	ND	0.040	mg/kg							
Surrogate: 2-Fluorobiphenyl	1.18		mg/kg	2.00		58.8	39.8-134			
2-Methylnaphthalene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Benzo[b]fluoranthene	ND	0.040	mg/kg							
Benzo[k]fluoranthene	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Naphthalene	ND	0.040	mg/kg							
Surrogate: Nitrobenzene-d5	1.05		mg/kg	2.00		52.3	39.6-121			
Pyrene	ND	0.040	mg/kg							
Surrogate: Terphenyl-d14	1.24		mg/kg	2.00		61.9	33.3-136			

##### LCS (2040420-BS1)

Prepared: 04/11/22 Analyzed: 04/20/22

1-Methylnaphthalene	0.310	0.040	mg/kg	0.400		77.4	57.6-108			
Surrogate: 2-Fluorobiphenyl	1.59		mg/kg	2.00		79.7	39.8-134			
2-Methylnaphthalene	0.312	0.040	mg/kg	0.400		77.9	59-106			
Acenaphthene	0.310	0.040	mg/kg	0.400		77.5	60.9-105			
Acenaphthylene	0.329	0.040	mg/kg	0.400		82.2	57.4-107			
Anthracene	0.343	0.040	mg/kg	0.400		85.8	60.8-105			
Benzo[a]anthracene	0.328	0.040	mg/kg	0.400		82.0	56.1-121			
Benzo[a]pyrene	0.331	0.040	mg/kg	0.400		82.6	56.7-115			
Benzo[b]fluoranthene	0.346	0.040	mg/kg	0.400		86.4	45.4-128			
Benzo[g,h,i]perylene	0.339	0.040	mg/kg	0.400		84.7	56.5-107			
Benzo[k]fluoranthene	0.324	0.040	mg/kg	0.400		81.0	49.6-119			
Carbazole	0.349	0.040	mg/kg	0.400		87.3	59.7-107			
Chrysene	0.337	0.040	mg/kg	0.400		84.2	12.2-190			
Dibenz[a,h]anthracene	0.342	0.040	mg/kg	0.400		85.5	59.1-111			
Fluoranthene	0.351	0.040	mg/kg	0.400		87.8	60.6-111			
Fluorene	0.318	0.040	mg/kg	0.400		79.6	59.3-108			
Indeno[1,2,3-cd]pyrene	0.340	0.040	mg/kg	0.400		85.1	53.4-116			
Naphthalene	0.327	0.040	mg/kg	0.400		81.7	56.5-106			

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

**Polynuclear Aromatic Compounds by GC/MS - Quality Control**  
**(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2040420 - SW846-3510 (Continued)**

**LCS (2040420-BS1) (Continued)**

Prepared: 04/11/22 Analyzed: 04/20/22

Surrogate: Nitrobenzene-d5	1.58		mg/kg	2.00		78.9	39.6-121			
Phenanthrene	0.333	0.040	mg/kg	0.400		83.2	59.9-107			
Pyrene	0.323	0.040	mg/kg	0.400		80.6	51.5-122			
Surrogate: Terphenyl-d14	1.61		mg/kg	2.00		80.3	33.3-136			

**LCS Dup (2040420-BSD1)**

Prepared: 04/11/22 Analyzed: 04/20/22

1-Methylnaphthalene	0.315	0.040	mg/kg	0.400		78.8	57.6-108	1.82	6.22	
Surrogate: 2-Fluorobiphenyl	1.59		mg/kg	2.00		79.6	39.8-134			
2-Methylnaphthalene	0.312	0.040	mg/kg	0.400		77.9	59-106	0.0417	6.23	
Acenaphthene	0.326	0.040	mg/kg	0.400		81.4	60.9-105	4.94	8.18	
Acenaphthylene	0.335	0.040	mg/kg	0.400		83.7	57.4-107	1.86	5	
Anthracene	0.341	0.040	mg/kg	0.400		85.2	60.8-105	0.608	3.68	
Benzo[a]anthracene	0.326	0.040	mg/kg	0.400		81.6	56.1-121	0.532	9.01	
Benzo[a]pyrene	0.334	0.040	mg/kg	0.400		83.5	56.7-115	1.04	4.92	
Benzo[b]fluoranthene	0.341	0.040	mg/kg	0.400		85.1	45.4-128	1.45	7.63	
Benzo[g,h,i]perylene	0.337	0.040	mg/kg	0.400		84.1	56.5-107	0.628	12.5	
Benzo[k]fluoranthene	0.324	0.040	mg/kg	0.400		80.9	49.6-119	0.0988	10.6	
Carbazole	0.347	0.040	mg/kg	0.400		86.7	59.7-107	0.727	8.65	
Chrysene	0.344	0.040	mg/kg	0.400		86.1	12.2-190	2.15	21.8	
Dibenz[a,h]anthracene	0.341	0.040	mg/kg	0.400		85.3	59.1-111	0.240	11.6	
Fluoranthene	0.340	0.040	mg/kg	0.400		85.0	60.6-111	3.22	7.54	
Fluorene	0.318	0.040	mg/kg	0.400		79.5	59.3-108	0.113	5.49	
Indeno[1,2,3-cd]pyrene	0.346	0.040	mg/kg	0.400		86.6	53.4-116	1.77	22.3	
Naphthalene	0.312	0.040	mg/kg	0.400		78.1	56.5-106	4.47	4.56	
Surrogate: Nitrobenzene-d5	1.56		mg/kg	2.00		78.2	39.6-121			
Phenanthrene	0.339	0.040	mg/kg	0.400		84.9	59.9-107	1.98	5.21	
Pyrene	0.333	0.040	mg/kg	0.400		83.3	51.5-122	3.18	10.6	
Surrogate: Terphenyl-d14	1.65		mg/kg	2.00		82.3	33.3-136			

Green Analytical Laboratories

*Debbie Zufelt*

Debbie Zufelt For Brenna Kampf, Project Manager

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Caerus Operating LLC  
143 Diamond Avenue  
Parachute CO, 81635

Project: COGCC Table 915-1  
Project Name / Number: Garden Gulch 8 in Water Line Release  
Project Manager: Blair Rollins

Reported:  
04/26/22 14:17

### Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt For Brenna Kampf, Project Manager

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## Caerus Oil and Gas

Sample Delivery Group: L1485085  
Samples Received: 04/21/2022  
Project Number:  
Description: Garden Gulch 8" Water Line Release  
Site: LATHAM LAYDOWN YARD  
Report To: Brett Middleton  
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](http://www.pacenational.com)

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# SAMPLE SUMMARY

20220419-GARDEN\_GULCH\_8"-SSW@7' L1485085-01 Solid

Collected by  
Alex Slorby

Collected date/time  
04/19/22 10:30

Received date/time  
04/21/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1853666	1	04/29/22 21:27	04/29/22 21:27	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1853625	1	04/27/22 18:30	04/28/22 15:58	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1855618	1	04/28/22 11:00	04/28/22 13:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1853898	1	04/27/22 10:02	04/28/22 09:48	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1853591	1	04/25/22 16:49	04/27/22 17:51	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1853680	1	04/27/22 16:45	04/29/22 20:21	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1853592	5	04/25/22 16:54	04/26/22 15:53	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1853596	1	04/24/22 08:21	04/25/22 13:55	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1853543	1	04/24/22 08:21	04/24/22 15:53	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1855179	1	04/28/22 08:19	04/28/22 11:57	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1854729	1	04/27/22 03:33	04/27/22 16:55	AMG	Mt. Juliet, TN

20220419-GARDEN\_GULCH\_8"-WSW@6.5' L1485085-02 Solid

Collected by  
Alex Slorby

Collected date/time  
04/19/22 10:50

Received date/time  
04/21/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1853666	1	04/29/22 21:30	04/29/22 21:30	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1853625	1	04/27/22 18:30	04/28/22 16:24	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1855618	1	04/28/22 11:00	04/28/22 13:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1853898	1	04/27/22 10:02	04/28/22 09:48	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1853591	1	04/25/22 16:49	04/27/22 17:59	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1853680	1	04/27/22 16:45	04/29/22 20:24	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1853592	5	04/25/22 16:54	04/26/22 15:57	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1853596	1	04/24/22 08:21	04/25/22 14:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1853543	1	04/24/22 08:21	04/24/22 16:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1855179	1	04/28/22 08:19	04/28/22 11:45	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1854729	1	04/27/22 03:33	04/27/22 14:36	AMG	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

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



Chris Ward  
Project Manager





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.874		1	04/29/2022 21:27	WG1853666

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	2.94		1.00	1	04/28/2022 15:58	<a href="#">WG1853625</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.69	<a href="#">T8</a>	1	04/28/2022 13:00	<a href="#">WG1855618</a>

## Sample Narrative:

L1485085-01 WG1855618: 7.69 at 20.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	103		10.0	1	04/28/2022 09:48	<a href="#">WG1853898</a>

## Sample Narrative:

L1485085-01 WG1853898: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	634		0.500	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Cadmium	0.674		0.500	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Copper	50.2		2.00	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Lead	29.3		0.500	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Nickel	37.1		2.00	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Selenium	ND		2.00	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Silver	ND		1.00	1	04/27/2022 17:51	<a href="#">WG1853591</a>
Zinc	62.9		5.00	1	04/27/2022 17:51	<a href="#">WG1853591</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.204		0.200	1	04/29/2022 20:21	<a href="#">WG1853680</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	50.4		1.00	5	04/26/2022 15:53	<a href="#">WG1853592</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/25/2022 13:55	<a href="#">WG1853596</a>
(S) a,a,a-Trifluorotoluene(FID)	91.7		77.0-120		04/25/2022 13:55	<a href="#">WG1853596</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/24/2022 15:53	<a href="#">WG1853543</a>
Toluene	ND		0.00500	1	04/24/2022 15:53	<a href="#">WG1853543</a>
Ethylbenzene	ND		0.00250	1	04/24/2022 15:53	<a href="#">WG1853543</a>
Xylenes, Total	ND		0.00650	1	04/24/2022 15:53	<a href="#">WG1853543</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/24/2022 15:53	<a href="#">WG1853543</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/24/2022 15:53	<a href="#">WG1853543</a>
(S) Toluene-d8	91.8		75.0-131		04/24/2022 15:53	<a href="#">WG1853543</a>
(S) 4-Bromofluorobenzene	109		67.0-138		04/24/2022 15:53	<a href="#">WG1853543</a>
(S) 1,2-Dichloroethane-d4	107		70.0-130		04/24/2022 15:53	<a href="#">WG1853543</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	18.8		4.00	1	04/28/2022 11:57	<a href="#">WG1855179</a>
C28-C36 Motor Oil Range	78.4		4.00	1	04/28/2022 11:57	<a href="#">WG1855179</a>
(S) o-Terphenyl	44.1		18.0-148		04/28/2022 11:57	<a href="#">WG1855179</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Anthracene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Benzo(a)anthracene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Benzo(b)fluoranthene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Benzo(k)fluoranthene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Benzo(a)pyrene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Chrysene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Fluoranthene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Fluorene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
1-Methylnaphthalene	ND		0.0200	1	04/27/2022 16:55	<a href="#">WG1854729</a>
2-Methylnaphthalene	ND		0.0200	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Naphthalene	0.0213		0.0200	1	04/27/2022 16:55	<a href="#">WG1854729</a>
Pyrene	ND		0.00600	1	04/27/2022 16:55	<a href="#">WG1854729</a>
(S) p-Terphenyl-d14	88.8		23.0-120		04/27/2022 16:55	<a href="#">WG1854729</a>
(S) Nitrobenzene-d5	79.4		14.0-149		04/27/2022 16:55	<a href="#">WG1854729</a>
(S) 2-Fluorobiphenyl	74.5		34.0-125		04/27/2022 16:55	<a href="#">WG1854729</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.983		1	04/29/2022 21:30	WG1853666

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	04/28/2022 16:24	<a href="#">WG1853625</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.66	<a href="#">T8</a>	1	04/28/2022 13:00	<a href="#">WG1855618</a>

## Sample Narrative:

L1485085-02 WG1855618: 7.66 at 19.9C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	402		10.0	1	04/28/2022 09:48	<a href="#">WG1853898</a>

## Sample Narrative:

L1485085-02 WG1853898: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	208		0.500	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Cadmium	ND		0.500	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Copper	16.5		2.00	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Lead	13.3		0.500	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Nickel	19.1		2.00	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Selenium	ND		2.00	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Silver	ND		1.00	1	04/27/2022 17:59	<a href="#">WG1853591</a>
Zinc	52.7		5.00	1	04/27/2022 17:59	<a href="#">WG1853591</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	04/29/2022 20:24	<a href="#">WG1853680</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.32		1.00	5	04/26/2022 15:57	<a href="#">WG1853592</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/25/2022 14:15	<a href="#">WG1853596</a>
(S) a,a,a-Trifluorotoluene(FID)	94.5		77.0-120		04/25/2022 14:15	<a href="#">WG1853596</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/24/2022 16:12	<a href="#">WG1853543</a>
Toluene	ND		0.00500	1	04/24/2022 16:12	<a href="#">WG1853543</a>
Ethylbenzene	ND		0.00250	1	04/24/2022 16:12	<a href="#">WG1853543</a>
Xylenes, Total	ND		0.00650	1	04/24/2022 16:12	<a href="#">WG1853543</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	04/24/2022 16:12	<a href="#">WG1853543</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	04/24/2022 16:12	<a href="#">WG1853543</a>
(S) Toluene-d8	91.9		75.0-131		04/24/2022 16:12	<a href="#">WG1853543</a>
(S) 4-Bromofluorobenzene	106		67.0-138		04/24/2022 16:12	<a href="#">WG1853543</a>
(S) 1,2-Dichloroethane-d4	105		70.0-130		04/24/2022 16:12	<a href="#">WG1853543</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	04/28/2022 11:45	<a href="#">WG1855179</a>
C28-C36 Motor Oil Range	7.87	B	4.00	1	04/28/2022 11:45	<a href="#">WG1855179</a>
(S) o-Terphenyl	38.6		18.0-148		04/28/2022 11:45	<a href="#">WG1855179</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Anthracene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Benzo(a)anthracene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Benzo(b)fluoranthene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Benzo(k)fluoranthene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Benzo(a)pyrene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Chrysene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Dibenz(a,h)anthracene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Fluoranthene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Fluorene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
1-Methylnaphthalene	ND		0.0200	1	04/27/2022 14:36	<a href="#">WG1854729</a>
2-Methylnaphthalene	ND		0.0200	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Naphthalene	ND		0.0200	1	04/27/2022 14:36	<a href="#">WG1854729</a>
Pyrene	ND		0.00600	1	04/27/2022 14:36	<a href="#">WG1854729</a>
(S) p-Terphenyl-d14	89.2		23.0-120		04/27/2022 14:36	<a href="#">WG1854729</a>
(S) Nitrobenzene-d5	80.1		14.0-149		04/27/2022 14:36	<a href="#">WG1854729</a>
(S) 2-Fluorobiphenyl	74.1		34.0-125		04/27/2022 14:36	<a href="#">WG1854729</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3786426-1 04/28/22 13:40

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

L1485055-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1485055-01 04/28/22 14:09 • (DUP) R3786426-3 04/28/22 14:14

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

L1485077-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1485077-07 04/28/22 15:06 • (DUP) R3786426-4 04/28/22 15:11

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

Laboratory Control Sample (LCS)

(LCS) R3786426-2 04/28/22 13:48

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.73	97.3	80.0-120	

L1485085-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485085-01 04/28/22 15:58 • (MS) R3786426-5 04/28/22 16:03 • (MSD) R3786426-6 04/28/22 16:08

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	2.94	22.1	18.5	95.8	77.6	1	75.0-125			17.9	20

L1485085-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1485085-01 04/28/22 15:58 • (MS) R3786426-7 04/28/22 16:13

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	636	2.94	620	97.5	50	75.0-125	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1485077-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1485077-13 04/28/22 13:00 • (DUP) R3786033-2 04/28/22 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	9.36	9.36	1	0.000		1

Sample Narrative:  
OS: 9.36 at 20C  
DUP: 9.36 at 20C

L1485085-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1485085-02 04/28/22 13:00 • (DUP) R3786033-3 04/28/22 13:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.66	7.66	1	0.000		1

Sample Narrative:  
OS: 7.66 at 19.9C  
DUP: 7.66 at 20C

Laboratory Control Sample (LCS)

(LCS) R3786033-1 04/28/22 13:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:  
LCS: 9.94 at 20C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3785900-1 04/28/22 09:48

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

Sample Narrative:

BLANK: at 25C

L1485077-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1485077-12 04/28/22 09:48 • (DUP) R3785900-3 04/28/22 09:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	849	884	1	4.04		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1485550-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1485550-03 04/28/22 09:48 • (DUP) R3785900-4 04/28/22 09:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1880	1980	1	4.97		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3785900-2 04/28/22 09:48

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	284	106	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3785755-1 04/27/22 16:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	0.259	J	0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3785755-2 04/27/22 16:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	105	105	80.0-120	
Cadmium	100	99.0	99.0	80.0-120	
Copper	100	102	102	80.0-120	
Lead	100	101	101	80.0-120	
Nickel	100	102	102	80.0-120	
Selenium	100	98.9	98.9	80.0-120	
Silver	20.0	19.1	95.6	80.0-120	
Zinc	100	96.6	96.6	80.0-120	

L1485077-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485077-08 04/27/22 16:56 • (MS) R3785755-5 04/27/22 17:04 • (MSD) R3785755-6 04/27/22 17:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	319	497	481	178	162	1	75.0-125	J5	J5	3.13	20
Cadmium	100	ND	108	105	108	105	1	75.0-125			2.81	20
Copper	100	30.2	142	138	112	108	1	75.0-125			2.75	20
Lead	100	14.8	122	120	108	105	1	75.0-125			1.98	20
Nickel	100	17.7	127	125	109	107	1	75.0-125			1.10	20
Selenium	100	ND	107	105	107	105	1	75.0-125			2.07	20
Silver	20.0	ND	21.2	20.7	106	103	1	75.0-125			2.55	20
Zinc	100	49.2	143	143	93.7	93.5	1	75.0-125			0.114	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3786851-1 04/29/22 19:29

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

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

(LCS) R3786851-2 04/29/22 19:31 • (LCSD) R3786851-3 04/29/22 19:34

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 %
Hot Water Sol. Boron	1.00	1.04	1.03	104	103	80.0-120			1.08	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3785197-1 04/26/22 14:34

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

Laboratory Control Sample (LCS)

(LCS) R3785197-2 04/26/22 14:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.1	95.1	80.0-120	

L1485077-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485077-08 04/26/22 14:40 • (MS) R3785197-5 04/26/22 14:50 • (MSD) R3785197-6 04/26/22 14:54

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	19.4	121	119	102	99.1	5	75.0-125			2.47	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3784867-2 04/25/22 06:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	94.8			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3784867-1 04/25/22 05:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.67	121	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	

L1485076-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485076-03 04/25/22 06:36 • (MS) R3784867-3 04/25/22 14:36 • (MSD) R3784867-4 04/25/22 14:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.56	0.605	5.78	6.26	93.1	104	1.01	10.0-151			7.97	28
(S) a,a,a-Trifluorotoluene(FID)					101	103		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3785117-3 04/24/22 08:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	91.8			75.0-131
(S) 4-Bromofluorobenzene	107			67.0-138
(S) 1,2-Dichloroethane-d4	107			70.0-130

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

(LCS) R3785117-1 04/24/22 07:02 • (LCSD) R3785117-2 04/24/22 07:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.132	0.136	106	109	70.0-123			2.99	20
Toluene	0.125	0.117	0.120	93.6	96.0	75.0-121			2.53	20
Ethylbenzene	0.125	0.108	0.115	86.4	92.0	74.0-126			6.28	20
Xylenes, Total	0.375	0.335	0.347	89.3	92.5	72.0-127			3.52	20
1,2,4-Trimethylbenzene	0.125	0.118	0.121	94.4	96.8	70.0-126			2.51	20
1,3,5-Trimethylbenzene	0.125	0.113	0.117	90.4	93.6	73.0-127			3.48	20
(S) Toluene-d8				90.1	91.2	75.0-131				
(S) 4-Bromofluorobenzene				104	105	67.0-138				
(S) 1,2-Dichloroethane-d4				110	111	70.0-130				

L1485084-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485084-05 04/24/22 14:56 • (MS) R3785117-4 04/24/22 19:04 • (MSD) R3785117-5 04/24/22 19:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.130	ND	0.121	0.119	96.2	94.6	1	10.0-149			1.67	37
Toluene	0.130	ND	0.109	0.105	85.7	82.5	1	10.0-156			3.74	38
Ethylbenzene	0.130	ND	0.104	0.102	82.6	81.0	1	10.0-160			1.94	38
Xylenes, Total	0.391	ND	0.313	0.305	82.6	80.5	1	10.0-160			2.59	38
1,2,4-Trimethylbenzene	0.130	ND	0.108	0.106	84.2	82.6	1	10.0-160			1.87	36
1,3,5-Trimethylbenzene	0.130	ND	0.107	0.105	85.6	84.0	1	10.0-160			1.89	38
(S) Toluene-d8					91.6	91.3		75.0-131				
(S) 4-Bromofluorobenzene					106	106		67.0-138				
(S) 1,2-Dichloroethane-d4					109	107		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) R3786095-1 04/28/22 11:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.04	J	0.274	4.00
(S) o-Terphenyl	75.7			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3786095-2 04/28/22 11:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	31.5	63.0	50.0-150	
(S) o-Terphenyl			69.7	18.0-148	

L1485550-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1485550-01 04/28/22 15:53 • (MS) R3786095-3 04/28/22 16:06 • (MSD) R3786095-4 04/28/22 16:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.8	173	158	156	0.000	0.000	5	50.0-150	J6	J6	1.27	20
(S) o-Terphenyl					106	112		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3785928-1 04/27/22 09:38

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	102			23.0-120
(S) Nitrobenzene-d5	88.7			14.0-149
(S) 2-Fluorobiphenyl	85.1			34.0-125

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Laboratory Control Sample (LCS)

(LCS) R3785928-2 04/27/22 09:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0668	83.5	50.0-120	
Anthracene	0.0800	0.0654	81.8	50.0-126	
Benzo(a)anthracene	0.0800	0.0674	84.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0720	90.0	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0707	88.4	49.0-125	
Benzo(a)pyrene	0.0800	0.0624	78.0	42.0-120	
Chrysene	0.0800	0.0710	88.8	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0702	87.8	47.0-125	
Fluoranthene	0.0800	0.0697	87.1	49.0-129	
Fluorene	0.0800	0.0692	86.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0680	85.0	46.0-125	
1-Methylnaphthalene	0.0800	0.0680	85.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0643	80.4	50.0-120	
Naphthalene	0.0800	0.0693	86.6	50.0-120	
Pyrene	0.0800	0.0680	85.0	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3785928-2 04/27/22 09:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			103	23.0-120	
(S) Nitrobenzene-d5			93.8	14.0-149	
(S) 2-Fluorobiphenyl			89.7	34.0-125	

L1484853-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1484853-01 04/27/22 10:17 • (MS) R3785928-3 04/27/22 10:37 • (MSD) R3785928-4 04/27/22 10:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0534	0.0547	66.8	68.4	1	14.0-127			2.41	27
Anthracene	0.0800	ND	0.0520	0.0558	65.0	69.8	1	10.0-145			7.05	30
Benzo(a)anthracene	0.0800	ND	0.0533	0.0594	66.6	74.3	1	10.0-139			10.8	30
Benzo(b)fluoranthene	0.0800	ND	0.0554	0.0587	69.3	73.4	1	10.0-140			5.78	36
Benzo(k)fluoranthene	0.0800	ND	0.0551	0.0588	68.9	73.5	1	10.0-137			6.50	31
Benzo(a)pyrene	0.0800	ND	0.0528	0.0576	66.0	72.0	1	10.0-141			8.70	31
Chrysene	0.0800	ND	0.0570	0.0610	71.3	76.3	1	10.0-145			6.78	30
Dibenz(a,h)anthracene	0.0800	ND	0.0547	0.0583	68.4	72.9	1	10.0-132			6.37	31
Fluoranthene	0.0800	ND	0.0553	0.0600	69.1	75.0	1	10.0-153			8.15	33
Fluorene	0.0800	ND	0.0546	0.0579	68.3	72.4	1	11.0-130			5.87	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0535	0.0581	66.9	72.6	1	10.0-137			8.24	32
1-Methylnaphthalene	0.0800	ND	0.0654	0.0718	68.9	76.9	1	10.0-142			9.33	28
2-Methylnaphthalene	0.0800	ND	0.0664	0.0766	62.3	75.0	1	10.0-137			14.3	28
Naphthalene	0.0800	ND	0.0708	0.0778	67.1	75.9	1	10.0-135			9.42	27
Pyrene	0.0800	ND	0.0522	0.0565	65.3	70.6	1	10.0-148			7.91	35
(S) p-Terphenyl-d14					88.7	88.8		23.0-120				
(S) Nitrobenzene-d5					86.2	82.6		14.0-149				
(S) 2-Fluorobiphenyl					79.7	76.4		34.0-125				

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.

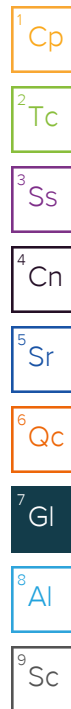
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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

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

**ALL BOLD OUTLINED AREAS are for LAB USE ONLY**

Container Preservative Type \*\*

**Lab Project Manager:**

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

## Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

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

LAB USE ONLY:

Lab Sample # / Comments:

LN85085  
-01  
-02





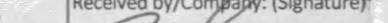
Company: Caerus Oil and Gas LLC		Billing Information:	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins		Email To: brollins@caerusoilandgas.com; bmiddleton@caerusoilandgas.com	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address:	
Customer Project Name/Number: Garden Gulch 8" Water Line Release		State:      County/City:      Time Zone Collected: CO / Garfield      [ ] PT [X] MT [ ] CT [ ] ET	
Phone:	Site/Facility ID #: Latham Laydown Yard	Compliance Monitoring?	
Email:		[ ] Yes      [X] No	
Collected By (print): Alex Slorby	Purchase Order # :	DW PWS ID #:	
	Quote #:	DW Location Code:	
Collected By (signature):	Turnaround Date Required: Standard 5-day	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 [ ] 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)			

[illegible]

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

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

LAB Sample Temperature Info:  
Temp Blank Received: Y N NA  
Therm ID#: \_\_\_\_\_  
Cooler 1 Temp Upon Receipt: \_\_\_\_oC  
Cooler 1 Therm Corr. Factor: \_\_\_\_oC  
Cooler 1 Corrected Temp: 3.3oC  
Comments:

Relinquished by/Company: (Signature) 	Date/Time: 4/20/2022 1200	Received by/Company: (Signature) 
Relinquished by/Company: (Signature) 	Date/Time: 4/20/2022	Received by/Company: (Signature) 
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature) 

Date/Time:	4/20/20	MTJL LAB USE ONLY
Date/Time:	4/21/22 0930	Table #: 6010
Date/Time:		Acctnum:
		Template:
		Prelogin:
		PM:
		PB:

Trip Blank Received: Y N NA HCL MeOH TSP Other	
Non Conformance(s): YES / NO	Page: _____ of: _____



May 10, 2022

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

## Caerus Oil and Gas

Sample Delivery Group: L1488352  
Samples Received: 04/30/2022  
Project Number:  
Description: Garden Gulch 8" Water Line Release  
Site: LATHAM LAYDOWN YARD  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Jason Romer  
Project Manager

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

**Pace Analytical National**

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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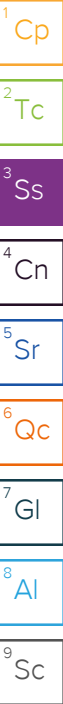
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# SAMPLE SUMMARY

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_1@1' L1488352-01  
Solid

Collected by Alex Slorby  
Collected date/time 04/28/22 08:55  
Received date/time 04/30/22 09:00



Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:05	05/09/22 17:05	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860177	1	05/07/22 18:00	05/09/22 15:45	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1859941	1	05/07/22 13:33	05/07/22 16:29	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1858096	1	05/05/22 18:30	05/06/22 07:23	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:41	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858100	5	05/05/22 18:34	05/06/22 12:33	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1858932	1	05/03/22 14:04	05/07/22 19:37	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858929	1	05/03/22 14:04	05/05/22 16:08	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859354	1	05/06/22 04:43	05/06/22 16:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1859382	1	05/05/22 19:56	05/06/22 00:41	AMG	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_2@1' L1488352-02  
Solid

Collected by Alex Slorby  
Collected date/time 04/28/22 09:10  
Received date/time 04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:08	05/09/22 17:08	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860177	1	05/07/22 18:00	05/09/22 16:01	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859173	1	05/05/22 10:00	05/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1859941	1	05/07/22 13:33	05/07/22 16:29	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1858096	1	05/05/22 18:30	05/06/22 07:32	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:44	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858100	5	05/05/22 18:34	05/06/22 12:44	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1858932	1	05/03/22 14:04	05/07/22 20:09	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858929	1	05/03/22 14:04	05/05/22 16:28	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859354	1	05/06/22 04:43	05/06/22 16:13	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1859382	1	05/05/22 19:56	05/06/22 01:01	AMG	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_3@1' L1488352-03  
Solid

Collected by Alex Slorby  
Collected date/time 04/28/22 09:25  
Received date/time 04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:11	05/09/22 17:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860177	1	05/07/22 18:00	05/09/22 16:06	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859167	1	05/06/22 13:00	05/06/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1859941	1	05/07/22 13:33	05/07/22 16:29	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1858096	1	05/05/22 18:30	05/06/22 07:35	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:47	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858100	5	05/05/22 18:34	05/06/22 12:47	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1858932	1	05/03/22 14:04	05/07/22 20:33	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858929	1	05/03/22 14:04	05/05/22 16:47	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859354	1	05/06/22 04:43	05/06/22 16:39	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1859382	1	05/05/22 19:56	05/06/22 01:21	AMG	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_4@1' L1488352-04  
Solid

Collected by Alex Slorby  
Collected date/time 04/28/22 09:40  
Received date/time 04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:13	05/09/22 17:13	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860177	1	05/07/22 18:00	05/09/22 16:16	JER	Mt. Juliet, TN

# SAMPLE SUMMARY

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_4@1' L1488352-04  
Solid

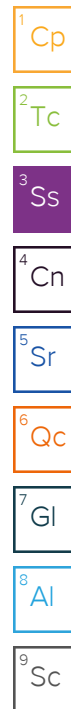
Collected by Alex Slorby  
Collected date/time 04/28/22 09:40  
Received date/time 04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1859173	1	05/05/22 10:00	05/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1859941	1	05/07/22 13:33	05/07/22 16:29	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1858096	1	05/05/22 18:30	05/06/22 07:38	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:51	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858100	5	05/05/22 18:34	05/06/22 12:51	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1858932	1	05/03/22 14:04	05/07/22 21:14	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858929	1	05/03/22 14:04	05/05/22 17:07	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859354	1	05/06/22 04:43	05/06/22 16:26	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1859382	1	05/05/22 19:56	05/06/22 05:22	AMG	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-SILT\_TRAP\_5@1' L1488352-05  
Solid

Collected by Alex Slorby  
Collected date/time 04/28/22 10:00  
Received date/time 04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:16	05/09/22 17:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860177	1	05/07/22 18:00	05/09/22 16:21	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859167	1	05/06/22 13:00	05/06/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1859941	1	05/07/22 13:33	05/07/22 16:29	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1858096	1	05/05/22 18:30	05/06/22 07:41	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858100	5	05/05/22 18:34	05/06/22 12:54	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1859000	1	05/03/22 14:04	05/07/22 14:11	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1858929	1	05/03/22 14:04	05/05/22 17:26	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859421	1	05/06/22 04:12	05/06/22 15:13	JDG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1859421	5	05/06/22 04:12	05/06/22 17:24	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1859382	1	05/05/22 19:56	05/06/22 01:41	AMG	Mt. Juliet, TN



# CASE NARRATIVE

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



Jason Romer  
Project Manager



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.718		1	05/09/2022 17:05	WG1857736

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/09/2022 15:45	<a href="#">WG1860177</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	<a href="#">T8</a>	1	05/06/2022 17:00	<a href="#">WG1859463</a>

## Sample Narrative:

L1488352-01 WG1859463: 7.97 at 20.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	200		10.0	1	05/07/2022 16:29	<a href="#">WG1859941</a>

## Sample Narrative:

L1488352-01 WG1859941: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	362		0.500	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Cadmium	ND		0.500	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Copper	19.7		2.00	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Lead	13.2		0.500	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Nickel	21.0		2.00	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Selenium	ND		2.00	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Silver	ND		1.00	1	05/06/2022 07:23	<a href="#">WG1858096</a>
Zinc	47.8		5.00	1	05/06/2022 07:23	<a href="#">WG1858096</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.430		0.200	1	05/10/2022 00:41	<a href="#">WG1857735</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.84		1.00	5	05/06/2022 12:33	<a href="#">WG1858100</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.115		0.100	1	05/07/2022 19:37	<a href="#">WG1858932</a>
(S) a,a,a-Trifluorotoluene(FID)	100		77.0-120		05/07/2022 19:37	<a href="#">WG1858932</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00285		0.00100	1	05/05/2022 16:08	<a href="#">WG1858929</a>
Toluene	0.0244		0.00500	1	05/05/2022 16:08	<a href="#">WG1858929</a>
Ethylbenzene	ND		0.00250	1	05/05/2022 16:08	<a href="#">WG1858929</a>
Xylenes, Total	0.0209		0.00650	1	05/05/2022 16:08	<a href="#">WG1858929</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/05/2022 16:08	<a href="#">WG1858929</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/05/2022 16:08	<a href="#">WG1858929</a>
(S) Toluene-d8	90.6		75.0-131		05/05/2022 16:08	<a href="#">WG1858929</a>
(S) 4-Bromofluorobenzene	88.3		67.0-138		05/05/2022 16:08	<a href="#">WG1858929</a>
(S) 1,2-Dichloroethane-d4	96.8		70.0-130		05/05/2022 16:08	<a href="#">WG1858929</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	66.6		4.00	1	05/06/2022 16:39	<a href="#">WG1859354</a>
C28-C36 Motor Oil Range	120		4.00	1	05/06/2022 16:39	<a href="#">WG1859354</a>
(S) o-Terphenyl	54.2		18.0-148		05/06/2022 16:39	<a href="#">WG1859354</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Anthracene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Benzo(a)anthracene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Benzo(a)pyrene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Chrysene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Fluoranthene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Fluorene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
1-Methylnaphthalene	ND		0.0200	1	05/06/2022 00:41	<a href="#">WG1859382</a>
2-Methylnaphthalene	ND		0.0200	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Naphthalene	ND		0.0200	1	05/06/2022 00:41	<a href="#">WG1859382</a>
Pyrene	ND		0.00600	1	05/06/2022 00:41	<a href="#">WG1859382</a>
(S) p-Terphenyl-d14	79.7		23.0-120		05/06/2022 00:41	<a href="#">WG1859382</a>
(S) Nitrobenzene-d5	77.0		14.0-149		05/06/2022 00:41	<a href="#">WG1859382</a>
(S) 2-Fluorobiphenyl	71.0		34.0-125		05/06/2022 00:41	<a href="#">WG1859382</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.754		1	05/09/2022 17:08	WG1857736

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/09/2022 16:01	<a href="#">WG1860177</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.97	<a href="#">T8</a>	1	05/05/2022 12:00	<a href="#">WG1859173</a>

## Sample Narrative:

L1488352-02 WG1859173: 7.97 at 21.3C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	239		10.0	1	05/07/2022 16:29	<a href="#">WG1859941</a>

## Sample Narrative:

L1488352-02 WG1859941: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	263		0.500	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Cadmium	0.502		0.500	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Copper	19.3		2.00	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Lead	12.8		0.500	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Nickel	21.4		2.00	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Selenium	ND		2.00	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Silver	ND		1.00	1	05/06/2022 07:32	<a href="#">WG1858096</a>
Zinc	53.5		5.00	1	05/06/2022 07:32	<a href="#">WG1858096</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.235		0.200	1	05/10/2022 00:44	<a href="#">WG1857735</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.91		1.00	5	05/06/2022 12:44	<a href="#">WG1858100</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.27		0.100	1	05/07/2022 20:09	<a href="#">WG1858932</a>
(S) a,a,a-Trifluorotoluene(FID)	97.5		77.0-120		05/07/2022 20:09	<a href="#">WG1858932</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0324		0.00100	1	05/05/2022 16:28	<a href="#">WG1858929</a>
Toluene	0.292		0.00500	1	05/05/2022 16:28	<a href="#">WG1858929</a>
Ethylbenzene	0.0184		0.00250	1	05/05/2022 16:28	<a href="#">WG1858929</a>
Xylenes, Total	0.336		0.00650	1	05/05/2022 16:28	<a href="#">WG1858929</a>
1,2,4-Trimethylbenzene	0.0215		0.00500	1	05/05/2022 16:28	<a href="#">WG1858929</a>
1,3,5-Trimethylbenzene	0.0232		0.00500	1	05/05/2022 16:28	<a href="#">WG1858929</a>
(S) Toluene-d8	89.1		75.0-131		05/05/2022 16:28	<a href="#">WG1858929</a>
(S) 4-Bromofluorobenzene	87.1		67.0-138		05/05/2022 16:28	<a href="#">WG1858929</a>
(S) 1,2-Dichloroethane-d4	99.1		70.0-130		05/05/2022 16:28	<a href="#">WG1858929</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.41		4.00	1	05/06/2022 16:13	<a href="#">WG1859354</a>
C28-C36 Motor Oil Range	23.8		4.00	1	05/06/2022 16:13	<a href="#">WG1859354</a>
(S) o-Terphenyl	43.7		18.0-148		05/06/2022 16:13	<a href="#">WG1859354</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Anthracene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Benzo(a)anthracene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Benzo(a)pyrene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Chrysene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Fluoranthene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Fluorene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
1-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:01	<a href="#">WG1859382</a>
2-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Naphthalene	ND		0.0200	1	05/06/2022 01:01	<a href="#">WG1859382</a>
Pyrene	ND		0.00600	1	05/06/2022 01:01	<a href="#">WG1859382</a>
(S) p-Terphenyl-d14	78.4		23.0-120		05/06/2022 01:01	<a href="#">WG1859382</a>
(S) Nitrobenzene-d5	78.0		14.0-149		05/06/2022 01:01	<a href="#">WG1859382</a>
(S) 2-Fluorobiphenyl	70.8		34.0-125		05/06/2022 01:01	<a href="#">WG1859382</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.43		1	05/09/2022 17:11	WG1857736

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	2.89		1.00	1	05/09/2022 16:06	<a href="#">WG1860177</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.03	<a href="#">T8</a>	1	05/06/2022 15:00	<a href="#">WG1859167</a>

## Sample Narrative:

L1488352-03 WG1859167: 7.03 at 20.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	2490		10.0	1	05/07/2022 16:29	<a href="#">WG1859941</a>

## Sample Narrative:

L1488352-03 WG1859941: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	887		0.500	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Cadmium	2.98		0.500	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Copper	62.6		2.00	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Lead	28.2		0.500	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Nickel	67.9		2.00	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Selenium	3.95		2.00	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Silver	ND		1.00	1	05/06/2022 07:35	<a href="#">WG1858096</a>
Zinc	60.2		5.00	1	05/06/2022 07:35	<a href="#">WG1858096</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.330		0.200	1	05/10/2022 00:47	<a href="#">WG1857735</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	84.6		1.00	5	05/06/2022 12:47	<a href="#">WG1858100</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2.24		0.100	1	05/07/2022 20:33	<a href="#">WG1858932</a>
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/07/2022 20:33	<a href="#">WG1858932</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.110		0.00100	1	05/05/2022 16:47	<a href="#">WG1858929</a>
Toluene	0.665		0.00500	1	05/05/2022 16:47	<a href="#">WG1858929</a>
Ethylbenzene	0.0463		0.00250	1	05/05/2022 16:47	<a href="#">WG1858929</a>
Xylenes, Total	1.50		0.00650	1	05/05/2022 16:47	<a href="#">WG1858929</a>
1,2,4-Trimethylbenzene	0.101		0.00500	1	05/05/2022 16:47	<a href="#">WG1858929</a>
1,3,5-Trimethylbenzene	0.122		0.00500	1	05/05/2022 16:47	<a href="#">WG1858929</a>
(S) Toluene-d8	91.9		75.0-131		05/05/2022 16:47	<a href="#">WG1858929</a>
(S) 4-Bromofluorobenzene	89.9		67.0-138		05/05/2022 16:47	<a href="#">WG1858929</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		05/05/2022 16:47	<a href="#">WG1858929</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	21.1		4.00	1	05/06/2022 16:39	<a href="#">WG1859354</a>
C28-C36 Motor Oil Range	91.8		4.00	1	05/06/2022 16:39	<a href="#">WG1859354</a>
(S) o-Terphenyl	58.6		18.0-148		05/06/2022 16:39	<a href="#">WG1859354</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Anthracene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Benzo(a)anthracene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Benzo(a)pyrene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Chrysene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Fluoranthene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Fluorene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
1-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:21	<a href="#">WG1859382</a>
2-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Naphthalene	ND		0.0200	1	05/06/2022 01:21	<a href="#">WG1859382</a>
Pyrene	ND		0.00600	1	05/06/2022 01:21	<a href="#">WG1859382</a>
(S) p-Terphenyl-d14	96.5		23.0-120		05/06/2022 01:21	<a href="#">WG1859382</a>
(S) Nitrobenzene-d5	91.4		14.0-149		05/06/2022 01:21	<a href="#">WG1859382</a>
(S) 2-Fluorobiphenyl	85.7		34.0-125		05/06/2022 01:21	<a href="#">WG1859382</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.89		1	05/09/2022 17:13	WG1857736

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/09/2022 16:16	<a href="#">WG1860177</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.55	<a href="#">T8</a>	1	05/05/2022 12:00	<a href="#">WG1859173</a>

## Sample Narrative:

L1488352-04 WG1859173: 8.55 at 21.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	429		10.0	1	05/07/2022 16:29	<a href="#">WG1859941</a>

## Sample Narrative:

L1488352-04 WG1859941: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	403		0.500	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Cadmium	0.577		0.500	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Copper	29.6		2.00	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Lead	16.3		0.500	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Nickel	24.5		2.00	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Selenium	ND		2.00	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Silver	ND		1.00	1	05/06/2022 07:38	<a href="#">WG1858096</a>
Zinc	66.0		5.00	1	05/06/2022 07:38	<a href="#">WG1858096</a>

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

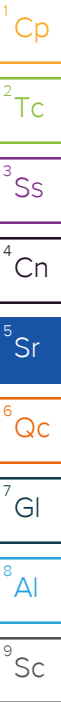
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.22		0.200	1	05/10/2022 00:51	<a href="#">WG1857735</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.43		1.00	5	05/06/2022 12:51	<a href="#">WG1858100</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.204		0.100	1	05/07/2022 21:14	<a href="#">WG1858932</a>
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		05/07/2022 21:14	<a href="#">WG1858932</a>





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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00570		0.00100	1	05/05/2022 17:07	<a href="#">WG1858929</a>
Toluene	0.0527		0.00500	1	05/05/2022 17:07	<a href="#">WG1858929</a>
Ethylbenzene	0.00380		0.00250	1	05/05/2022 17:07	<a href="#">WG1858929</a>
Xylenes, Total	0.0696		0.00650	1	05/05/2022 17:07	<a href="#">WG1858929</a>
1,2,4-Trimethylbenzene	0.00617		0.00500	1	05/05/2022 17:07	<a href="#">WG1858929</a>
1,3,5-Trimethylbenzene	0.0116		0.00500	1	05/05/2022 17:07	<a href="#">WG1858929</a>
(S) Toluene-d8	91.7		75.0-131		05/05/2022 17:07	<a href="#">WG1858929</a>
(S) 4-Bromofluorobenzene	87.1		67.0-138		05/05/2022 17:07	<a href="#">WG1858929</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		05/05/2022 17:07	<a href="#">WG1858929</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	31.8		4.00	1	05/06/2022 16:26	<a href="#">WG1859354</a>
C28-C36 Motor Oil Range	102		4.00	1	05/06/2022 16:26	<a href="#">WG1859354</a>
(S) o-Terphenyl	44.8		18.0-148		05/06/2022 16:26	<a href="#">WG1859354</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Anthracene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Benzo(a)anthracene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Benzo(a)pyrene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Chrysene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Fluoranthene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Fluorene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
1-Methylnaphthalene	ND		0.0200	1	05/06/2022 05:22	<a href="#">WG1859382</a>
2-Methylnaphthalene	ND		0.0200	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Naphthalene	ND		0.0200	1	05/06/2022 05:22	<a href="#">WG1859382</a>
Pyrene	ND		0.00600	1	05/06/2022 05:22	<a href="#">WG1859382</a>
(S) p-Terphenyl-d14	76.9		23.0-120		05/06/2022 05:22	<a href="#">WG1859382</a>
(S) Nitrobenzene-d5	79.9		14.0-149		05/06/2022 05:22	<a href="#">WG1859382</a>
(S) 2-Fluorobiphenyl	70.8		34.0-125		05/06/2022 05:22	<a href="#">WG1859382</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.00		1	05/09/2022 17:16	WG1857736

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/09/2022 16:21	<a href="#">WG1860177</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	<a href="#">T8</a>	1	05/06/2022 15:00	<a href="#">WG1859167</a>

## Sample Narrative:

L1488352-05 WG1859167: 8.28 at 20.5C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	302		10.0	1	05/07/2022 16:29	<a href="#">WG1859941</a>

## Sample Narrative:

L1488352-05 WG1859941: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	336		0.500	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Cadmium	0.653		0.500	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Copper	22.7		2.00	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Lead	15.0		0.500	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Nickel	21.4		2.00	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Selenium	ND		2.00	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Silver	ND		1.00	1	05/06/2022 07:41	<a href="#">WG1858096</a>
Zinc	57.2		5.00	1	05/06/2022 07:41	<a href="#">WG1858096</a>

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

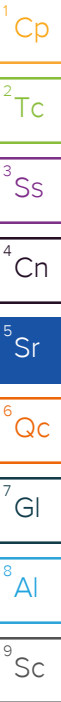
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.969		0.200	1	05/10/2022 00:55	<a href="#">WG1857735</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.97		1.00	5	05/06/2022 12:54	<a href="#">WG1858100</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/07/2022 14:11	<a href="#">WG1859000</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		05/07/2022 14:11	<a href="#">WG1859000</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	05/05/2022 17:26	<a href="#">WG1858929</a>
Toluene	ND		0.00500	1	05/05/2022 17:26	<a href="#">WG1858929</a>
Ethylbenzene	ND		0.00250	1	05/05/2022 17:26	<a href="#">WG1858929</a>
Xylenes, Total	ND		0.00650	1	05/05/2022 17:26	<a href="#">WG1858929</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/05/2022 17:26	<a href="#">WG1858929</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/05/2022 17:26	<a href="#">WG1858929</a>
(S) Toluene-d8	89.6		75.0-131		05/05/2022 17:26	<a href="#">WG1858929</a>
(S) 4-Bromofluorobenzene	90.8		67.0-138		05/05/2022 17:26	<a href="#">WG1858929</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		05/05/2022 17:26	<a href="#">WG1858929</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	22.0		4.00	1	05/06/2022 15:13	<a href="#">WG1859421</a>
C28-C36 Motor Oil Range	108		20.0	5	05/06/2022 17:24	<a href="#">WG1859421</a>
(S) o-Terphenyl	43.1		18.0-148		05/06/2022 17:24	<a href="#">WG1859421</a>
(S) o-Terphenyl	49.4		18.0-148		05/06/2022 15:13	<a href="#">WG1859421</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Anthracene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Benzo(a)anthracene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Benzo(a)pyrene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Chrysene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Fluoranthene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Fluorene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
1-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:41	<a href="#">WG1859382</a>
2-Methylnaphthalene	ND		0.0200	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Naphthalene	ND		0.0200	1	05/06/2022 01:41	<a href="#">WG1859382</a>
Pyrene	ND		0.00600	1	05/06/2022 01:41	<a href="#">WG1859382</a>
(S) p-Terphenyl-d14	99.4		23.0-120		05/06/2022 01:41	<a href="#">WG1859382</a>
(S) Nitrobenzene-d5	97.7		14.0-149		05/06/2022 01:41	<a href="#">WG1859382</a>
(S) 2-Fluorobiphenyl	89.0		34.0-125		05/06/2022 01:41	<a href="#">WG1859382</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3790080-1 05/09/22 14:56

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

L1488352-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-03 05/09/22 16:06 • (DUP) R3790080-7 05/09/22 16:11

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	2.89	2.87	1	0.488		20

L1490285-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1490285-01 05/09/22 17:34 • (DUP) R3790080-8 05/09/22 17:39

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	ND	ND	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3790080-2 05/09/22 15:04

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.57	95.7	80.0-120	

L1483927-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1483927-07 05/09/22 15:09 • (MS) R3790080-3 05/09/22 15:14 • (MSD) R3790080-4 05/09/22 15:19

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.0	16.5	94.9	82.6	1	75.0-125			13.9	20

L1483927-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1483927-07 05/09/22 15:09 • (MS) R3790080-5 05/09/22 15:24

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	646	ND	577	89.4	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1488348-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-01 05/06/22 15:00 • (DUP) R3789061-2 05/06/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.66	7.71	1	0.651		1

Sample Narrative:

OS: 7.66 at 20C

DUP: 7.71 at 21C

L1488348-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-11 05/06/22 15:00 • (DUP) R3789061-3 05/06/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.36	8.40	1	0.477		1

Sample Narrative:

OS: 8.36 at 20.3C

DUP: 8.4 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R3789061-1 05/06/22 15:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 20.1C



L1487959-98 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-98 05/05/22 12:00 • (DUP) R3788410-2 05/05/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.41	8.40	1	0.119		1

Sample Narrative:

OS: 8.41 at 21.8C

DUP: 8.4 at 21.8C

L1488352-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-02 05/05/22 12:00 • (DUP) R3788410-3 05/05/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.97	7.98	1	0.125		1

Sample Narrative:

OS: 7.97 at 21.3C

DUP: 7.98 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R3788410-1 05/05/22 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 19.9C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



L1488352-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-01 05/06/22 17:00 • (DUP) R3789117-2 05/06/22 17:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.97	7.97	1	0.000		1

Sample Narrative:

OS: 7.97 at 20.7C

DUP: 7.97 at 20.7C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1488805-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1488805-03 05/06/22 17:00 • (DUP) R3789117-3 05/06/22 17:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.15	8.15	1	0.000		1

Sample Narrative:

OS: 8.15 at 20.5C

DUP: 8.15 at 20.5C

Laboratory Control Sample (LCS)

(LCS) R3789117-1 05/06/22 17:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 20.6C

Method Blank (MB)

(MB) R3789256-1 05/07/22 16:29

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

Sample Narrative:

BLANK: at 25C

L1488357-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488357-01 05/07/22 16:29 • (DUP) R3789256-3 05/07/22 16:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	6920	6130	1	12.1		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1488357-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1488357-02 05/07/22 16:29 • (DUP) R3789256-4 05/07/22 16:29

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1300	1350	1	3.93		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3789256-2 05/07/22 16:29

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	282	105	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3788787-1 05/06/22 06:56

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

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3788787-2 05/06/22 06:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.2	97.2	80.0-120	
Cadmium	100	92.7	92.7	80.0-120	
Copper	100	98.3	98.3	80.0-120	
Lead	100	93.5	93.5	80.0-120	
Nickel	100	95.4	95.4	80.0-120	
Selenium	100	98.9	98.9	80.0-120	
Silver	20.0	17.6	88.2	80.0-120	
Zinc	100	93.0	93.0	80.0-120	

L1488347-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488347-01 05/06/22 07:02 • (MS) R3788787-5 05/06/22 07:11 • (MSD) R3788787-6 05/06/22 07:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	182	277	422	94.8	240	1	75.0-125		J3 J5	41.6	20
Cadmium	100	0.599	98.7	101	98.1	100	1	75.0-125			2.40	20
Copper	100	19.7	125	129	105	109	1	75.0-125			3.57	20
Lead	100	8.74	104	105	95.8	96.4	1	75.0-125			0.597	20
Nickel	100	31.9	126	135	94.5	103	1	75.0-125			6.80	20
Selenium	100	ND	105	107	105	107	1	75.0-125			2.10	20
Silver	20.0	ND	19.2	19.6	95.8	98.2	1	75.0-125			2.47	20
Zinc	100	44.4	130	130	85.5	85.3	1	75.0-125			0.128	20

Method Blank (MB)

(MB) R3789929-1 05/10/22 00:27

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

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

(LCS) R3789929-2 05/10/22 00:29 • (LCSD) R3789929-3 05/10/22 00:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	1.02	100	102	80.0-120			1.95	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3788933-1 05/06/22 12:03

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

Laboratory Control Sample (LCS)

(LCS) R3788933-2 05/06/22 12:06

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	88.9	88.9	80.0-120	

L1488347-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488347-01 05/06/22 12:10 • (MS) R3788933-5 05/06/22 12:20 • (MSD) R3788933-6 05/06/22 12:23

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	7.29	94.1	86.7	86.8	79.4	5	75.0-125			8.20	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3789505-3 05/07/22 09:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	105			77.0-120

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

(LCS) R3789505-1 05/07/22 08:34 • (LCSD) R3789505-2 05/07/22 08:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.18	5.47	94.2	99.5	72.0-127			5.45	20
(S) a,a,a-Trifluorotoluene(FID)				107	106	77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3789394-2 05/07/22 05:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	112			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3789394-1 05/07/22 04:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.91	89.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3789373-2 05/05/22 15:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	88.6			75.0-131
(S) 4-Bromofluorobenzene	97.6			67.0-138
(S) 1,2-Dichloroethane-d4	97.3			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3789373-1 05/05/22 12:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.127	102	70.0-123	
Toluene	0.125	0.108	86.4	75.0-121	
Ethylbenzene	0.125	0.100	80.0	74.0-126	
Xylenes, Total	0.375	0.298	79.5	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.109	87.2	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.106	84.8	73.0-127	
(S) Toluene-d8			89.3	75.0-131	
(S) 4-Bromofluorobenzene			99.1	67.0-138	
(S) 1,2-Dichloroethane-d4			109	70.0-130	

L1488354-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488354-01 05/05/22 21:02 • (MS) R3789373-3 05/05/22 22:01 • (MSD) R3789373-4 05/05/22 22:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	10.0	54.5	54.2	55.9	0.000	14.0	80	10.0-149	V		3.09	37
Toluene	10.0	403	359	396	0.000	0.000	80	10.0-156	E V	E V	9.80	38
Ethylbenzene	10.0	37.6	40.1	42.0	25.0	44.0	80	10.0-160			4.63	38
Xylenes, Total	30.0	580	516	573	0.000	0.000	80	10.0-160	V	V	10.5	38
1,2,4-Trimethylbenzene	10.0	90.2	82.2	80.6	0.000	0.000	80	10.0-160	V	V	1.97	36
1,3,5-Trimethylbenzene	10.0	91.1	81.0	81.3	0.000	0.000	80	10.0-160	V	V	0.370	38
(S) Toluene-d8					91.3	92.9		75.0-131				
(S) 4-Bromofluorobenzene					108	112		67.0-138				
(S) 1,2-Dichloroethane-d4					108	111		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) R3789163-1 05/06/22 15:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.523	J	0.274	4.00
(S) o-Terphenyl	73.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3789163-3 05/06/22 15:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	38.2	76.4	50.0-150	
(S) o-Terphenyl			90.8	18.0-148	

L1488204-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488204-03 05/06/22 17:05 • (MS) R3789163-4 05/06/22 18:00 • (MSD) R3789163-2 05/06/22 18:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.4	118	148	2740	60.7	5330	5	50.0-150		E J3 J5	180	20
(S) o-Terphenyl					51.2	0.000		18.0-148		J2		

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3788904-1 05/06/22 10:23

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

Laboratory Control Sample (LCS)

(LCS) R3788904-2 05/06/22 10:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	30.1	60.2	50.0-150	
(S) o-Terphenyl			60.4	18.0-148	

L1488356-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488356-04 05/06/22 13:01 • (MS) R3788904-3 05/06/22 13:14 • (MSD) R3788904-4 05/06/22 13:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	ND	29.4	43.0	58.8	89.0	1	50.0-150		J3	37.6	20
(S) o-Terphenyl					55.9	62.0		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3789046-2 05/05/22 23:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	120			23.0-120
(S) Nitrobenzene-d5	99.5			14.0-149
(S) 2-Fluorobiphenyl	101			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3789046-1 05/05/22 23:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0731	91.4	50.0-120	
Anthracene	0.0800	0.0723	90.4	50.0-126	
Benzo(a)anthracene	0.0800	0.0729	91.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0726	90.8	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0719	89.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0683	85.4	42.0-120	
Chrysene	0.0800	0.0723	90.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0731	91.4	47.0-125	
Fluoranthene	0.0800	0.0728	91.0	49.0-129	
Fluorene	0.0800	0.0740	92.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0743	92.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0752	94.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0730	91.3	50.0-120	
Naphthalene	0.0800	0.0731	91.4	50.0-120	
Pyrene	0.0800	0.0700	87.5	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3789046-1 05/05/22 23:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			110	23.0-120	
(S) Nitrobenzene-d5			97.5	14.0-149	
(S) 2-Fluorobiphenyl			96.5	34.0-125	

L1488328-25 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488328-25 05/05/22 23:41 • (MS) R3789046-3 05/06/22 00:01 • (MSD) R3789046-4 05/06/22 00:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0648	0.0580	81.0	72.5	1	14.0-127			11.1	27
Anthracene	0.0800	ND	0.0645	0.0594	80.6	74.3	1	10.0-145			8.23	30
Benzo(a)anthracene	0.0800	ND	0.0643	0.0632	80.4	79.0	1	10.0-139			1.73	30
Benzo(b)fluoranthene	0.0800	ND	0.0588	0.0587	73.5	73.4	1	10.0-140			0.170	36
Benzo(k)fluoranthene	0.0800	ND	0.0548	0.0547	68.5	68.4	1	10.0-137			0.183	31
Benzo(a)pyrene	0.0800	ND	0.0564	0.0587	70.5	73.4	1	10.0-141			4.00	31
Chrysene	0.0800	ND	0.0635	0.0601	79.4	75.1	1	10.0-145			5.50	30
Dibenz(a,h)anthracene	0.0800	ND	0.0539	0.0563	67.4	70.4	1	10.0-132			4.36	31
Fluoranthene	0.0800	ND	0.0643	0.0617	80.4	77.1	1	10.0-153			4.13	33
Fluorene	0.0800	ND	0.0653	0.0595	81.6	74.4	1	11.0-130			9.29	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0547	0.0601	68.4	75.1	1	10.0-137			9.41	32
1-Methylnaphthalene	0.0800	ND	0.0673	0.0611	84.1	76.4	1	10.0-142			9.66	28
2-Methylnaphthalene	0.0800	ND	0.0660	0.0593	82.5	74.1	1	10.0-137			10.7	28
Naphthalene	0.0800	ND	0.0661	0.0596	82.6	74.5	1	10.0-135			10.3	27
Pyrene	0.0800	ND	0.0599	0.0574	74.9	71.8	1	10.0-148			4.26	35
(S) p-Terphenyl-d14					94.8	88.6		23.0-120				
(S) Nitrobenzene-d5					88.0	79.7		14.0-149				
(S) 2-Fluorobiphenyl					86.3	78.8		34.0-125				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

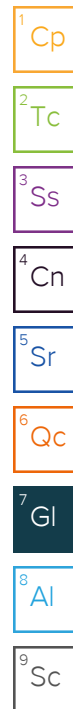
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

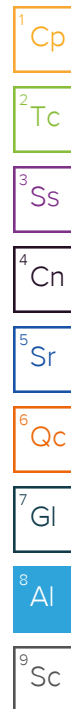
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.





Non Conformance(s): YES / NO	Page: _____ of: _____
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May 31, 2022

## Caerus Oil and Gas

Sample Delivery Group: L1495623  
Samples Received: 05/18/2022  
Project Number:  
Description: Silt Trap Sampling  
Site: GARDEN GULCH 8" PIPELINE  
Report To: Brett Middleton  
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](http://www.pacenational.com)

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# SAMPLE SUMMARY

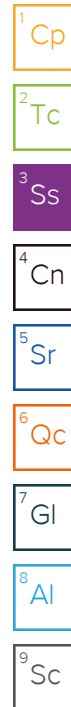
## 20220516-GARDEN\_GULCH\_8"-SILT\_TRAP\_1 L1495623-01 Solid

Collected by  
Alex Slorby

Collected date/time  
05/16/22 09:05

Received date/time  
05/18/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 13:59	05/26/22 13:59	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1868242	1	05/24/22 20:00	05/25/22 10:01	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869305	1	05/26/22 09:15	05/26/22 09:35	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1867629	1	05/24/22 11:23	05/25/22 11:36	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1868138	1	05/24/22 07:58	05/24/22 16:17	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:00	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1868140	5	05/24/22 09:06	05/25/22 13:06	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1866812	1	05/20/22 16:41	05/21/22 14:05	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1867427	1	05/20/22 16:41	05/21/22 22:17	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1870260	5	05/28/22 09:36	05/29/22 07:37	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1869077	1	05/25/22 07:58	05/25/22 15:39	AGW	Mt. Juliet, TN



## 20220516-GARDEN\_GULCH\_8"-SILT\_TRAP\_2 L1495623-02 Solid

Collected by  
Alex Slorby

Collected date/time  
05/16/22 09:35

Received date/time  
05/18/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:01	05/26/22 14:01	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1868242	1	05/24/22 20:00	05/25/22 10:06	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869305	1	05/26/22 09:15	05/26/22 09:35	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1867629	1	05/24/22 11:23	05/25/22 11:36	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1868138	1	05/24/22 07:58	05/24/22 16:20	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:03	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1868140	5	05/24/22 09:06	05/25/22 13:10	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1866812	1	05/20/22 16:41	05/21/22 14:26	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1867427	1	05/20/22 16:41	05/21/22 22:36	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1870260	5	05/28/22 09:36	05/29/22 08:03	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1869077	1	05/25/22 07:58	05/25/22 15:57	AGW	Mt. Juliet, TN

## 20220516-GARDEN\_GULCH\_8"-SILT\_TRAP\_3 L1495623-03 Solid

Collected by  
Alex Slorby

Collected date/time  
05/16/22 10:05

Received date/time  
05/18/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:04	05/26/22 14:04	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1868242	1	05/24/22 20:00	05/25/22 10:12	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869305	1	05/26/22 09:15	05/26/22 09:35	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1867629	1	05/24/22 11:23	05/25/22 11:36	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1868138	1	05/24/22 07:58	05/24/22 16:23	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:06	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1868140	5	05/24/22 09:06	05/25/22 13:13	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1866812	1	05/20/22 16:41	05/21/22 14:58	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1867427	1	05/20/22 16:41	05/21/22 22:54	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1870260	5	05/28/22 09:36	05/29/22 08:29	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1869077	1	05/25/22 07:58	05/25/22 15:21	AGW	Mt. Juliet, TN

## 20220516-GARDEN\_GULCH\_8"-SILT\_TRAP\_4 L1495623-04 Solid

Collected by  
Alex Slorby

Collected date/time  
05/16/22 13:10

Received date/time  
05/18/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1869122	1	05/26/22 14:07	05/26/22 14:07	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1868242	1	05/24/22 20:00	05/25/22 10:17	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1869305	1	05/26/22 09:15	05/26/22 09:35	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1867629	1	05/24/22 11:23	05/25/22 11:36	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1868138	1	05/24/22 07:58	05/24/22 16:26	ZSA	Mt. Juliet, TN

# SAMPLE SUMMARY

20220516-GARDEN_GULCH_8"-SILT_TRAP_4 L1495623-04 Solid				Collected by Alex Slorby	Collected date/time 05/16/22 13:10	Received date/time 05/18/22 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1869120	1	05/25/22 00:36	05/26/22 15:09	CCE	Mt. Juliet, TN	<sup>1</sup> Cp
Metals (ICPMS) by Method 6020	WG1868140	5	05/24/22 09:06	05/25/22 13:16	JPD	Mt. Juliet, TN	<sup>2</sup> Tc
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1866812	1	05/20/22 16:41	05/21/22 15:19	DWR	Mt. Juliet, TN	<sup>3</sup> Ss
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1867427	1	05/20/22 16:41	05/21/22 23:13	ACG	Mt. Juliet, TN	<sup>4</sup> Cn
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1870260	1	05/28/22 09:36	05/29/22 07:11	JDG	Mt. Juliet, TN	<sup>5</sup> Sr
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1869077	1	05/25/22 07:58	05/25/22 15:03	AGW	Mt. Juliet, TN	<sup>6</sup> Qc

<sup>7</sup>Gl

<sup>8</sup>Al

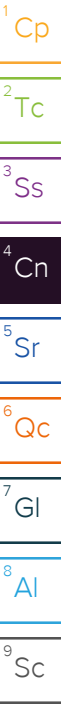
<sup>9</sup>Sc

# CASE NARRATIVE

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



Chris Ward  
Project Manager





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.674		1	05/26/2022 13:59	WG1869122

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/25/2022 10:01	<a href="#">WG1868242</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.83	<a href="#">T8</a>	1	05/26/2022 09:35	<a href="#">WG1869305</a>

## Sample Narrative:

L1495623-01 WG1869305: 7.83 at 21.5C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	172		10.0	1	05/25/2022 11:36	<a href="#">WG1867629</a>

## Sample Narrative:

L1495623-01 WG1867629: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	677		0.500	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Cadmium	ND		0.500	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Copper	26.4		2.00	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Lead	20.4		0.500	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Nickel	22.5		2.00	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Selenium	ND		2.00	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Silver	ND		1.00	1	05/24/2022 16:17	<a href="#">WG1868138</a>
Zinc	34.2		5.00	1	05/24/2022 16:17	<a href="#">WG1868138</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.378		0.200	1	05/26/2022 15:00	<a href="#">WG1869120</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	25.3		1.00	5	05/25/2022 13:06	<a href="#">WG1868140</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/21/2022 14:05	<a href="#">WG1866812</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		05/21/2022 14:05	<a href="#">WG1866812</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	05/21/2022 22:17	<a href="#">WG1867427</a>
Toluene	ND		0.00500	1	05/21/2022 22:17	<a href="#">WG1867427</a>
Ethylbenzene	ND		0.00250	1	05/21/2022 22:17	<a href="#">WG1867427</a>
Xylenes, Total	ND		0.00650	1	05/21/2022 22:17	<a href="#">WG1867427</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/21/2022 22:17	<a href="#">WG1867427</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/21/2022 22:17	<a href="#">WG1867427</a>
(S) Toluene-d8	102		75.0-131		05/21/2022 22:17	<a href="#">WG1867427</a>
(S) 4-Bromofluorobenzene	101		67.0-138		05/21/2022 22:17	<a href="#">WG1867427</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		05/21/2022 22:17	<a href="#">WG1867427</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		20.0	5	05/29/2022 07:37	<a href="#">WG1870260</a>
C28-C36 Motor Oil Range	83.1		20.0	5	05/29/2022 07:37	<a href="#">WG1870260</a>
(S) o-Terphenyl	58.7		18.0-148		05/29/2022 07:37	<a href="#">WG1870260</a>

## Sample Narrative:

L1495623-01 WG1870260: Cannot run at lower dilution due to viscosity of extract

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Anthracene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Benzo(a)anthracene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Benzo(a)pyrene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Chrysene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Fluoranthene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Fluorene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
1-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:39	<a href="#">WG1869077</a>
2-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Naphthalene	ND		0.0200	1	05/25/2022 15:39	<a href="#">WG1869077</a>
Pyrene	ND		0.00600	1	05/25/2022 15:39	<a href="#">WG1869077</a>
(S) p-Terphenyl-d14	51.8		23.0-120		05/25/2022 15:39	<a href="#">WG1869077</a>
(S) Nitrobenzene-d5	55.0		14.0-149		05/25/2022 15:39	<a href="#">WG1869077</a>
(S) 2-Fluorobiphenyl	42.7		34.0-125		05/25/2022 15:39	<a href="#">WG1869077</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.642		1	05/26/2022 14:01	WG1869122

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	2.53		1.00	1	05/25/2022 10:06	<a href="#">WG1868242</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.63	<a href="#">T8</a>	1	05/26/2022 09:35	<a href="#">WG1869305</a>

## Sample Narrative:

L1495623-02 WG1869305: 7.63 at 21.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	249		10.0	1	05/25/2022 11:36	<a href="#">WG1867629</a>

## Sample Narrative:

L1495623-02 WG1867629: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	467		0.500	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Cadmium	ND		0.500	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Copper	30.4		2.00	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Lead	18.9		0.500	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Nickel	25.0		2.00	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Selenium	ND		2.00	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Silver	ND		1.00	1	05/24/2022 16:20	<a href="#">WG1868138</a>
Zinc	50.4		5.00	1	05/24/2022 16:20	<a href="#">WG1868138</a>

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

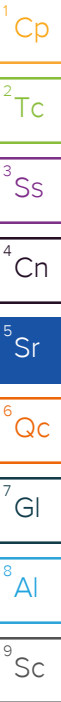
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.204		0.200	1	05/26/2022 15:03	<a href="#">WG1869120</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.9		1.00	5	05/25/2022 13:10	<a href="#">WG1868140</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/21/2022 14:26	<a href="#">WG1866812</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	111		77.0-120		05/21/2022 14:26	<a href="#">WG1866812</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	05/21/2022 22:36	<a href="#">WG1867427</a>
Toluene	ND		0.00500	1	05/21/2022 22:36	<a href="#">WG1867427</a>
Ethylbenzene	ND		0.00250	1	05/21/2022 22:36	<a href="#">WG1867427</a>
Xylenes, Total	ND		0.00650	1	05/21/2022 22:36	<a href="#">WG1867427</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/21/2022 22:36	<a href="#">WG1867427</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/21/2022 22:36	<a href="#">WG1867427</a>
(S) Toluene-d8	100		75.0-131		05/21/2022 22:36	<a href="#">WG1867427</a>
(S) 4-Bromofluorobenzene	103		67.0-138		05/21/2022 22:36	<a href="#">WG1867427</a>
(S) 1,2-Dichloroethane-d4	106		70.0-130		05/21/2022 22:36	<a href="#">WG1867427</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		20.0	5	05/29/2022 08:03	<a href="#">WG1870260</a>
C28-C36 Motor Oil Range	35.5		20.0	5	05/29/2022 08:03	<a href="#">WG1870260</a>
(S) o-Terphenyl	44.0		18.0-148		05/29/2022 08:03	<a href="#">WG1870260</a>

## Sample Narrative:

L1495623-02 WG1870260: Cannot run at lower dilution due to viscosity of extract

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Anthracene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Benzo(a)anthracene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Benzo(a)pyrene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Chrysene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Fluoranthene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Fluorene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
1-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:57	<a href="#">WG1869077</a>
2-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Naphthalene	ND		0.0200	1	05/25/2022 15:57	<a href="#">WG1869077</a>
Pyrene	ND		0.00600	1	05/25/2022 15:57	<a href="#">WG1869077</a>
(S) p-Terphenyl-d14	58.5		23.0-120		05/25/2022 15:57	<a href="#">WG1869077</a>
(S) Nitrobenzene-d5	59.6		14.0-149		05/25/2022 15:57	<a href="#">WG1869077</a>
(S) 2-Fluorobiphenyl	52.1		34.0-125		05/25/2022 15:57	<a href="#">WG1869077</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.56		1	05/26/2022 14:04	WG1869122

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	1.95		1.00	1	05/25/2022 10:12	<a href="#">WG1868242</a>

## Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.92	<a href="#">T8</a>	1	05/26/2022 09:35	<a href="#">WG1869305</a>

## Sample Narrative:

L1495623-03 WG1869305: 7.92 at 21.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	564		10.0	1	05/25/2022 11:36	<a href="#">WG1867629</a>

## Sample Narrative:

L1495623-03 WG1867629: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	924		0.500	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Cadmium	2.54		0.500	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Copper	50.3		2.00	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Lead	24.6		0.500	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Nickel	55.9		2.00	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Selenium	ND		2.00	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Silver	ND		1.00	1	05/24/2022 16:23	<a href="#">WG1868138</a>
Zinc	44.7		5.00	1	05/24/2022 16:23	<a href="#">WG1868138</a>

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

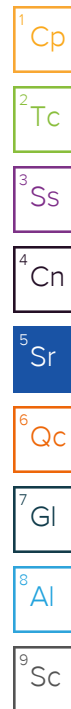
Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.407		0.200	1	05/26/2022 15:06	<a href="#">WG1869120</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	60.9		1.00	5	05/25/2022 13:13	<a href="#">WG1868140</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/21/2022 14:58	<a href="#">WG1866812</a>
(S) a,a,a-Trifluorotoluene(FID)	104		77.0-120		05/21/2022 14:58	<a href="#">WG1866812</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00121		0.00100	1	05/21/2022 22:54	<a href="#">WG1867427</a>
Toluene	0.0134		0.00500	1	05/21/2022 22:54	<a href="#">WG1867427</a>
Ethylbenzene	ND		0.00250	1	05/21/2022 22:54	<a href="#">WG1867427</a>
Xylenes, Total	0.0310		0.00650	1	05/21/2022 22:54	<a href="#">WG1867427</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/21/2022 22:54	<a href="#">WG1867427</a>
1,3,5-Trimethylbenzene	0.00713		0.00500	1	05/21/2022 22:54	<a href="#">WG1867427</a>
(S) Toluene-d8	101		75.0-131		05/21/2022 22:54	<a href="#">WG1867427</a>
(S) 4-Bromofluorobenzene	104		67.0-138		05/21/2022 22:54	<a href="#">WG1867427</a>
(S) 1,2-Dichloroethane-d4	107		70.0-130		05/21/2022 22:54	<a href="#">WG1867427</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		20.0	5	05/29/2022 08:29	<a href="#">WG1870260</a>
C28-C36 Motor Oil Range	52.5		20.0	5	05/29/2022 08:29	<a href="#">WG1870260</a>
(S) o-Terphenyl	44.9		18.0-148		05/29/2022 08:29	<a href="#">WG1870260</a>

## Sample Narrative:

L1495623-03 WG1870260: Cannot run at lower dilution due to viscosity of extract

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Anthracene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Benzo(a)anthracene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Benzo(a)pyrene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Chrysene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Fluoranthene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Fluorene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
1-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:21	<a href="#">WG1869077</a>
2-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Naphthalene	ND		0.0200	1	05/25/2022 15:21	<a href="#">WG1869077</a>
Pyrene	ND		0.00600	1	05/25/2022 15:21	<a href="#">WG1869077</a>
(S) p-Terphenyl-d14	56.8		23.0-120		05/25/2022 15:21	<a href="#">WG1869077</a>
(S) Nitrobenzene-d5	60.5		14.0-149		05/25/2022 15:21	<a href="#">WG1869077</a>
(S) 2-Fluorobiphenyl	47.6		34.0-125		05/25/2022 15:21	<a href="#">WG1869077</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.78		1	05/26/2022 14:07	WG1869122

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/25/2022 10:17	<a href="#">WG1868242</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.46	<a href="#">T8</a>	1	05/26/2022 09:35	<a href="#">WG1869305</a>

## Sample Narrative:

L1495623-04 WG1869305: 8.46 at 21.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	506		10.0	1	05/25/2022 11:36	<a href="#">WG1867629</a>

## Sample Narrative:

L1495623-04 WG1867629: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Barium	361		0.500	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Cadmium	ND		0.500	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Copper	20.8		2.00	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Lead	13.7		0.500	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Nickel	19.2		2.00	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Selenium	ND		2.00	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Silver	ND		1.00	1	05/24/2022 16:26	<a href="#">WG1868138</a>
Zinc	61.8		5.00	1	05/24/2022 16:26	<a href="#">WG1868138</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.405		0.200	1	05/26/2022 15:09	<a href="#">WG1869120</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.43		1.00	5	05/25/2022 13:16	<a href="#">WG1868140</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	05/21/2022 15:19	<a href="#">WG1866812</a>
(S) a,a,a-Trifluorotoluene(FID)	103		77.0-120		05/21/2022 15:19	<a href="#">WG1866812</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00270		0.00100	1	05/21/2022 23:13	<a href="#">WG1867427</a>
Toluene	0.0174		0.00500	1	05/21/2022 23:13	<a href="#">WG1867427</a>
Ethylbenzene	ND		0.00250	1	05/21/2022 23:13	<a href="#">WG1867427</a>
Xylenes, Total	0.0840		0.00650	1	05/21/2022 23:13	<a href="#">WG1867427</a>
1,2,4-Trimethylbenzene	0.0104		0.00500	1	05/21/2022 23:13	<a href="#">WG1867427</a>
1,3,5-Trimethylbenzene	0.0211		0.00500	1	05/21/2022 23:13	<a href="#">WG1867427</a>
(S) Toluene-d8	102		75.0-131		05/21/2022 23:13	<a href="#">WG1867427</a>
(S) 4-Bromofluorobenzene	105		67.0-138		05/21/2022 23:13	<a href="#">WG1867427</a>
(S) 1,2-Dichloroethane-d4	104		70.0-130		05/21/2022 23:13	<a href="#">WG1867427</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.65		4.00	1	05/29/2022 07:11	<a href="#">WG1870260</a>
C28-C36 Motor Oil Range	15.8		4.00	1	05/29/2022 07:11	<a href="#">WG1870260</a>
(S) o-Terphenyl	41.0		18.0-148		05/29/2022 07:11	<a href="#">WG1870260</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Anthracene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Benzo(a)anthracene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Benzo(a)pyrene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Chrysene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Fluoranthene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Fluorene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
1-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:03	<a href="#">WG1869077</a>
2-Methylnaphthalene	ND		0.0200	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Naphthalene	ND		0.0200	1	05/25/2022 15:03	<a href="#">WG1869077</a>
Pyrene	ND		0.00600	1	05/25/2022 15:03	<a href="#">WG1869077</a>
(S) p-Terphenyl-d14	62.4		23.0-120		05/25/2022 15:03	<a href="#">WG1869077</a>
(S) Nitrobenzene-d5	58.1		14.0-149		05/25/2022 15:03	<a href="#">WG1869077</a>
(S) 2-Fluorobiphenyl	50.3		34.0-125		05/25/2022 15:03	<a href="#">WG1869077</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3795946-1 05/25/22 08:36

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

L1495627-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1495627-05 05/25/22 11:14 • (DUP) R3795946-8 05/25/22 11:19

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

Laboratory Control Sample (LCS)

(LCS) R3795946-9 05/25/22 11:24

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.38	93.8	80.0-120	

L1495627-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495627-01 05/25/22 10:22 • (MS) R3795946-4 05/25/22 10:27 • (MSD) R3795946-5 05/25/22 10:43

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	14.7	14.5	73.7	72.3	1	75.0-125	J6	J6	1.86	20

L1495627-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1495627-01 05/25/22 10:22 • (MS) R3795946-6 05/25/22 10:48

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	652	ND	489	75.0	50	75.0-125	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1495423-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1495423-15 05/26/22 09:35 • (DUP) R3796257-3 05/26/22 09:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	7.63	7.63	1	0.000		1

Sample Narrative:

OS: 7.63 at 21.6C

DUP: 7.63 at 21.4C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1495627-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1495627-02 05/26/22 09:35 • (DUP) R3796257-4 05/26/22 09:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.25	8.30	1	0.604		1

Sample Narrative:

OS: 8.25 at 21.8C

DUP: 8.3 at 21.7C

Laboratory Control Sample (LCS)

(LCS) R3796257-1 05/26/22 09:35

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

Sample Narrative:

LCS: 9.93 at 21.8C

Method Blank (MB)

(MB) R3795787-1 05/25/22 11:36

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

Sample Narrative:

BLANK: at 25C

L1494727-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1494727-02 05/25/22 11:36 • (DUP) R3795787-3 05/25/22 11:36

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1530	1490	1	2.39		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1495627-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1495627-01 05/25/22 11:36 • (DUP) R3795787-4 05/25/22 11:36

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2140	2190	1	2.17		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3795787-2 05/25/22 11:36

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	285	106	85.0-115	

Sample Narrative:

LCS: at 25C

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

Method Blank (MB)

(MB) R3795565-1 05/24/22 15:31

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

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

Laboratory Control Sample (LCS)

(LCS) R3795565-2 05/24/22 15:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	99.7	99.7	80.0-120	
Cadmium	100	94.5	94.5	80.0-120	
Copper	100	95.7	95.7	80.0-120	
Lead	100	91.0	91.0	80.0-120	
Nickel	100	92.1	92.1	80.0-120	
Selenium	100	88.0	88.0	80.0-120	
Silver	20.0	17.7	88.7	80.0-120	
Zinc	100	94.6	94.6	80.0-120	

7  
Gl

8  
Al

9  
Sc

L1494730-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1494730-01 05/24/22 15:36 • (MS) R3795565-5 05/24/22 15:45 • (MSD) R3795565-6 05/24/22 15:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	341	366	271	25.2	0.000	1	75.0-125	J6	J3 J6	30.0	20
Cadmium	100	ND	102	92.0	101	91.6	1	75.0-125			9.83	20
Copper	100	20.2	123	112	103	91.4	1	75.0-125			9.55	20
Lead	100	10.3	107	95.6	96.6	85.3	1	75.0-125			11.2	20
Nickel	100	13.2	114	102	100	88.9	1	75.0-125			10.8	20
Selenium	100	ND	85.3	73.8	85.3	73.8	1	75.0-125		J6	14.5	20
Silver	20.0	ND	19.1	17.2	95.5	86.2	1	75.0-125			10.3	20
Zinc	100	52.9	151	138	97.9	85.4	1	75.0-125			8.61	20

Method Blank (MB)

(MB) R3796739-1 05/26/22 14:28

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

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

(LCS) R3796739-2 05/26/22 14:47 • (LCSD) R3796739-3 05/26/22 14:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.07	1.08	107	108	80.0-120			0.825	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3795829-1 05/25/22 12:13

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R3795829-2 05/25/22 12:16

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

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1494730-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1494730-01 05/25/22 12:20 • (MS) R3795829-5 05/25/22 12:30 • (MSD) R3795829-6 05/25/22 12:33

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	6.19	102	86.7	95.5	80.5	5	75.0-125			15.9	20

Method Blank (MB)

(MB) R3794818-2 05/21/22 07:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	112			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3794818-1 05/21/22 07:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.06	73.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			102	77.0-120	

L1494730-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1494730-01 05/21/22 10:07 • (MS) R3794818-3 05/21/22 15:41 • (MSD) R3794818-4 05/21/22 16:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.39	ND	2.34	2.52	42.1	45.0	1	10.0-151			7.41	28
(S) a,a,a-Trifluorotoluene(FID)					85.0	83.5		77.0-120				

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc



Method Blank (MB)

(MB) R3795764-3 05/21/22 21:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	101			75.0-131
(S) 4-Bromofluorobenzene	105			67.0-138
(S) 1,2-Dichloroethane-d4	106			70.0-130

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

(LCS) R3795764-1 05/21/22 20:00 • (LCSD) R3795764-2 05/21/22 20:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.110	0.114	88.0	91.2	70.0-123			3.57	20
Toluene	0.125	0.104	0.108	83.2	86.4	75.0-121			3.77	20
Ethylbenzene	0.125	0.104	0.112	83.2	89.6	74.0-126			7.41	20
Xylenes, Total	0.375	0.312	0.329	83.2	87.7	72.0-127			5.30	20
1,2,4-Trimethylbenzene	0.125	0.0963	0.0975	77.0	78.0	70.0-126			1.24	20
1,3,5-Trimethylbenzene	0.125	0.102	0.101	81.6	80.8	73.0-127			0.985	20
(S) Toluene-d8				100	100	75.0-131				
(S) 4-Bromofluorobenzene				101	102	67.0-138				
(S) 1,2-Dichloroethane-d4				111	109	70.0-130				

L1495537-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495537-01 05/21/22 21:35 • (MS) R3795764-4 05/22/22 03:57 • (MSD) R3795764-5 05/22/22 04:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.143	0.150	114	120	1	10.0-149			4.78	37
Toluene	0.125	ND	0.136	0.143	109	114	1	10.0-156			5.02	38
Ethylbenzene	0.125	ND	0.142	0.148	114	118	1	10.0-160			4.14	38
Xylenes, Total	0.375	ND	0.412	0.439	109	116	1	10.0-160			6.35	38
1,2,4-Trimethylbenzene	0.125	0.00918	0.130	0.141	96.7	105	1	10.0-160			8.12	36
1,3,5-Trimethylbenzene	0.125	0.00577	0.138	0.151	106	116	1	10.0-160			9.00	38
(S) Toluene-d8					98.9	99.4		75.0-131				
(S) 4-Bromofluorobenzene					105	102		67.0-138				
(S) 1,2-Dichloroethane-d4					113	109		70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3797393-1 05/29/22 03:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	59.2			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3797393-2 05/29/22 03:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	31.4	62.8	50.0-150	
(S) o-Terphenyl			68.6	18.0-148	

L1495627-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495627-03 05/29/22 04:09 • (MS) R3797393-3 05/29/22 04:22 • (MSD) R3797393-4 05/29/22 04:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	ND	37.1	33.2	74.2	66.4	1	50.0-150			11.1	20
(S) o-Terphenyl					72.8	63.5		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3796022-2 05/25/22 12:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	77.5			23.0-120
(S) Nitrobenzene-d5	67.0			14.0-149
(S) 2-Fluorobiphenyl	69.7			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3796022-1 05/25/22 12:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0546	68.3	50.0-120	
Anthracene	0.0800	0.0552	69.0	50.0-126	
Benzo(a)anthracene	0.0800	0.0536	67.0	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0539	67.4	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0534	66.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0417	52.1	42.0-120	
Chrysene	0.0800	0.0557	69.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0535	66.9	47.0-125	
Fluoranthene	0.0800	0.0555	69.4	49.0-129	
Fluorene	0.0800	0.0570	71.3	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0527	65.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0546	68.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0526	65.8	50.0-120	
Naphthalene	0.0800	0.0535	66.9	50.0-120	
Pyrene	0.0800	0.0552	69.0	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3796022-1 05/25/22 12:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			76.0	23.0-120	
(S) Nitrobenzene-d5			72.3	14.0-149	
(S) 2-Fluorobiphenyl			70.4	34.0-125	

L1495627-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1495627-13 05/25/22 18:02 • (MS) R3796022-3 05/25/22 18:19 • (MSD) R3796022-4 05/25/22 18:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0776	ND	0.0525	0.0527	67.7	67.9	1	14.0-127			0.380	27
Anthracene	0.0776	ND	0.0500	0.0501	64.4	64.6	1	10.0-145			0.200	30
Benzo(a)anthracene	0.0776	ND	0.0484	0.0493	62.4	63.5	1	10.0-139			1.84	30
Benzo(b)fluoranthene	0.0776	ND	0.0516	0.0526	66.5	67.8	1	10.0-140			1.92	36
Benzo(k)fluoranthene	0.0776	ND	0.0522	0.0524	67.3	67.5	1	10.0-137			0.382	31
Benzo(a)pyrene	0.0776	ND	0.0485	0.0487	62.5	62.8	1	10.0-141			0.412	31
Chrysene	0.0776	ND	0.0546	0.0543	70.4	70.0	1	10.0-145			0.551	30
Dibenz(a,h)anthracene	0.0776	ND	0.0517	0.0511	66.6	65.9	1	10.0-132			1.17	31
Fluoranthene	0.0776	ND	0.0507	0.0508	65.3	65.5	1	10.0-153			0.197	33
Fluorene	0.0776	ND	0.0548	0.0544	70.6	70.1	1	11.0-130			0.733	29
Indeno(1,2,3-cd)pyrene	0.0776	ND	0.0480	0.0485	61.9	62.5	1	10.0-137			1.04	32
1-Methylnaphthalene	0.0776	ND	0.0520	0.0521	67.0	67.1	1	10.0-142			0.192	28
2-Methylnaphthalene	0.0776	ND	0.0498	0.0495	64.2	63.8	1	10.0-137			0.604	28
Naphthalene	0.0776	ND	0.0514	0.0512	66.2	66.0	1	10.0-135			0.390	27
Pyrene	0.0776	ND	0.0521	0.0529	67.1	68.2	1	10.0-148			1.52	35
(S) p-Terphenyl-d14					75.8	74.2		23.0-120				
(S) Nitrobenzene-d5					71.6	71.6		14.0-149				
(S) 2-Fluorobiphenyl					70.0	69.5		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

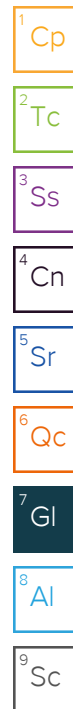
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

## Abbreviations and Definitions

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

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.



Comments:	DRAM 3.75 = 3.7
Trip Blank Received: Y <input checked="" type="radio"/> N <input type="radio"/>	
HCL MeOH TSP Other	
Non Conformance(s):	Page: _____



**Caerus Oil and Gas**

Sample Delivery Group: L1502379  
Samples Received: 06/08/2022  
Project Number:  
Description: Garden Gulch 8" Pipeline Release  
Site: LATHAM LAYDOWN YARD  
Report To: Blair Rollins  
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](http://www.pacenational.com)

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<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# SAMPLE SUMMARY

## 220603\_GG8"-SILT\_TRAP\_3@2' L1502379-01 Solid

Collected by  
Andrew Smith

Collected date/time  
06/03/22 11:00

Received date/time  
06/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1881322	1	06/20/22 12:06	06/20/22 12:06	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1878339	1	06/12/22 20:00	06/17/22 11:27	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1878021	1	06/14/22 08:38	06/14/22 15:05	NIJ	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1877892	1	06/11/22 07:11	06/11/22 12:00	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1879478	1	06/15/22 18:28	06/17/22 20:41	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1882339	1	06/23/22 00:28	06/26/22 20:32	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1879479	5	06/15/22 18:39	06/16/22 19:59	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1877337	1	06/09/22 16:45	06/10/22 22:57	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1878305	1	06/09/22 16:45	06/13/22 06:41	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1880044	2	06/17/22 08:36	06/21/22 10:27	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1879884	1	06/16/22 06:52	06/16/22 12:51	AMG	Mt. Juliet, TN

## 220603\_GG8"-SILT\_TRAP\_4@2' L1502379-02 Solid

Collected by  
Andrew Smith

Collected date/time  
06/03/22 11:15

Received date/time  
06/08/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1881322	1	06/20/22 12:09	06/20/22 12:09	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1878339	1	06/12/22 20:00	06/14/22 18:06	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1878021	1	06/14/22 08:38	06/14/22 15:05	NIJ	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1877892	1	06/11/22 07:11	06/11/22 12:00	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1879478	1	06/15/22 18:28	06/17/22 20:44	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1882339	1	06/23/22 00:28	06/26/22 20:35	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1879479	5	06/15/22 18:39	06/16/22 20:03	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1877337	1	06/09/22 16:45	06/10/22 23:19	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1878305	1	06/09/22 16:45	06/13/22 07:00	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1880044	1	06/17/22 08:36	06/18/22 18:07	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1879884	1	06/16/22 06:52	06/16/22 11:21	AMG	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

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



Chris Ward  
Project Manager



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	11.8		1	06/20/2022 12:06	WG1881322

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	1.64		1.00	1	06/17/2022 11:27	<a href="#">WG1878339</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	<a href="#">T8</a>	1	06/14/2022 15:05	<a href="#">WG1878021</a>

## Sample Narrative:

L1502379-01 WG1878021: 7.9 at 24.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	862		10.0	1	06/11/2022 12:00	<a href="#">WG1877892</a>

## Sample Narrative:

L1502379-01 WG1877892: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	876		0.500	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Cadmium	0.896		0.500	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Copper	55.0		2.00	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Lead	26.4		0.500	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Nickel	39.8		2.00	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Selenium	2.14		2.00	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Silver	ND		1.00	1	06/17/2022 20:41	<a href="#">WG1879478</a>
Zinc	56.2		5.00	1	06/17/2022 20:41	<a href="#">WG1879478</a>

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

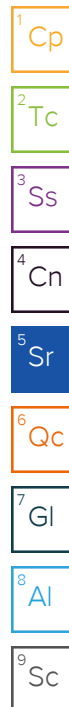
Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	ND		0.200	1	06/26/2022 20:32	<a href="#">WG1882339</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	69.9		1.00	5	06/16/2022 19:59	<a href="#">WG1879479</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/10/2022 22:57	<a href="#">WG1877337</a>
(S) a,a,a-Trifluorotoluene(FID)	108		77.0-120		06/10/2022 22:57	<a href="#">WG1877337</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/13/2022 06:41	<a href="#">WG1878305</a>
Toluene	ND		0.00500	1	06/13/2022 06:41	<a href="#">WG1878305</a>
Ethylbenzene	ND		0.00250	1	06/13/2022 06:41	<a href="#">WG1878305</a>
Xylenes, Total	0.0119		0.00650	1	06/13/2022 06:41	<a href="#">WG1878305</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	06/13/2022 06:41	<a href="#">WG1878305</a>
1,3,5-Trimethylbenzene	0.00775		0.00500	1	06/13/2022 06:41	<a href="#">WG1878305</a>
(S) Toluene-d8	108		75.0-131		06/13/2022 06:41	<a href="#">WG1878305</a>
(S) 4-Bromofluorobenzene	91.2		67.0-138		06/13/2022 06:41	<a href="#">WG1878305</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		06/13/2022 06:41	<a href="#">WG1878305</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	31.3		8.00	2	06/21/2022 10:27	<a href="#">WG1880044</a>
C28-C36 Motor Oil Range	242		8.00	2	06/21/2022 10:27	<a href="#">WG1880044</a>
(S) o-Terphenyl	34.4		18.0-148		06/21/2022 10:27	<a href="#">WG1880044</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Anthracene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Benzo(a)anthracene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Benzo(b)fluoranthene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Benzo(k)fluoranthene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Benzo(a)pyrene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Chrysene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Dibenz(a,h)anthracene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Fluoranthene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Fluorene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
1-Methylnaphthalene	ND		0.0200	1	06/16/2022 12:51	<a href="#">WG1879884</a>
2-Methylnaphthalene	ND		0.0200	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Naphthalene	ND		0.0200	1	06/16/2022 12:51	<a href="#">WG1879884</a>
Pyrene	ND		0.00600	1	06/16/2022 12:51	<a href="#">WG1879884</a>
(S) p-Terphenyl-d14	79.0		23.0-120		06/16/2022 12:51	<a href="#">WG1879884</a>
(S) Nitrobenzene-d5	64.9		14.0-149		06/16/2022 12:51	<a href="#">WG1879884</a>
(S) 2-Fluorobiphenyl	67.1		34.0-125		06/16/2022 12:51	<a href="#">WG1879884</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.58		1	06/20/2022 12:09	WG1881322

## Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	2.12		1.00	1	06/14/2022 18:06	<a href="#">WG1878339</a>

## Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.20	<a href="#">T8</a>	1	06/14/2022 15:05	<a href="#">WG1878021</a>

## Sample Narrative:

L1502379-02 WG1878021: 8.2 at 24.1C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	352		10.0	1	06/11/2022 12:00	<a href="#">WG1877892</a>

## Sample Narrative:

L1502379-02 WG1877892: at 25C

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	410		0.500	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Cadmium	0.527		0.500	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Copper	38.4		2.00	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Lead	25.6		0.500	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Nickel	24.8		2.00	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Selenium	ND		2.00	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Silver	ND		1.00	1	06/17/2022 20:44	<a href="#">WG1879478</a>
Zinc	75.7		5.00	1	06/17/2022 20:44	<a href="#">WG1879478</a>

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

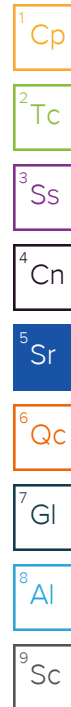
Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.363		0.200	1	06/26/2022 20:35	<a href="#">WG1882339</a>

## Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.11		1.00	5	06/16/2022 20:03	<a href="#">WG1879479</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	06/10/2022 23:19	<a href="#">WG1877337</a>
(S) a,a,a-Trifluorotoluene(FID)	110		77.0-120		06/10/2022 23:19	<a href="#">WG1877337</a>





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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/13/2022 07:00	<a href="#">WG1878305</a>
Toluene	0.00598		0.00500	1	06/13/2022 07:00	<a href="#">WG1878305</a>
Ethylbenzene	ND		0.00250	1	06/13/2022 07:00	<a href="#">WG1878305</a>
Xylenes, Total	0.00668		0.00650	1	06/13/2022 07:00	<a href="#">WG1878305</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	06/13/2022 07:00	<a href="#">WG1878305</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	06/13/2022 07:00	<a href="#">WG1878305</a>
(S) Toluene-d8	109		75.0-131		06/13/2022 07:00	<a href="#">WG1878305</a>
(S) 4-Bromofluorobenzene	91.3		67.0-138		06/13/2022 07:00	<a href="#">WG1878305</a>
(S) 1,2-Dichloroethane-d4	108		70.0-130		06/13/2022 07:00	<a href="#">WG1878305</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	45.9		4.00	1	06/18/2022 18:07	<a href="#">WG1880044</a>
C28-C36 Motor Oil Range	148		4.00	1	06/18/2022 18:07	<a href="#">WG1880044</a>
(S) o-Terphenyl	52.3		18.0-148		06/18/2022 18:07	<a href="#">WG1880044</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Anthracene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Benzo(a)anthracene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Benzo(b)fluoranthene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Benzo(k)fluoranthene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Benzo(a)pyrene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Chrysene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Dibenz(a,h)anthracene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Fluoranthene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Fluorene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
1-Methylnaphthalene	ND		0.0200	1	06/16/2022 11:21	<a href="#">WG1879884</a>
2-Methylnaphthalene	ND		0.0200	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Naphthalene	ND		0.0200	1	06/16/2022 11:21	<a href="#">WG1879884</a>
Pyrene	ND		0.00600	1	06/16/2022 11:21	<a href="#">WG1879884</a>
(S) p-Terphenyl-d14	81.7		23.0-120		06/16/2022 11:21	<a href="#">WG1879884</a>
(S) Nitrobenzene-d5	67.3		14.0-149		06/16/2022 11:21	<a href="#">WG1879884</a>
(S) 2-Fluorobiphenyl	69.5		34.0-125		06/16/2022 11:21	<a href="#">WG1879884</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3804176-1 06/14/22 15:31

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

L1500918-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1500918-06 06/14/22 16:12 • (DUP) R3804176-3 06/14/22 16:17

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

L1502379-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1502379-01 06/17/22 11:27 • (DUP) R3804620-5 06/17/22 11:32

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	1.64	1.67	1	1.84		20

Laboratory Control Sample (LCS)

(LCS) R3804176-2 06/14/22 15:36

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Hexavalent Chromium	10.0	9.80	98.0	80.0-120	

L1501949-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1501949-05 06/14/22 17:14 • (MS) R3804176-4 06/14/22 17:19 • (MSD) R3804176-5 06/14/22 17:25

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	20.0	ND	19.3	19.3	93.5	93.6	1	75.0-125			0.0777	20

L1501949-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1501949-05 06/14/22 17:14 • (MS) R3804176-6 06/14/22 17:30

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	638	ND	672	105	50	75.0-125	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

L1502387-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1502387-01 06/14/22 15:05 • (DUP) R3803139-2 06/14/22 15:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.81	7.78	1	0.385		1

Sample Narrative:

OS: 7.81 at 23.9C

DUP: 7.78 at 24C

L1503160-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1503160-05 06/14/22 15:05 • (DUP) R3803139-3 06/14/22 15:05

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.01	8.00	1	0.125		1

Sample Narrative:

OS: 8.01 at 23.7C

DUP: 8 at 23.8C

Laboratory Control Sample (LCS)

(LCS) R3803139-1 06/14/22 15:05

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

Sample Narrative:

LCS: 9.9 at 23.9C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

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

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

Sample Narrative:

BLANK: at 25C

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

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

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

Sample Narrative:

OS: at 25C

DUP: at 25C

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

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

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

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

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

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

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3804823-1 06/17/22 20:03

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

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3804823-2 06/17/22 20:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	105	105	80.0-120	
Cadmium	100	102	102	80.0-120	
Copper	100	104	104	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	105	105	80.0-120	
Selenium	100	105	105	80.0-120	
Silver	20.0	19.2	96.0	80.0-120	
Zinc	100	101	101	80.0-120	

L1500547-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1500547-01 06/17/22 20:09 • (MS) R3804823-5 06/17/22 20:17 • (MSD) R3804823-6 06/17/22 20:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	332	511	431	179	98.5	1	75.0-125	J5		17.0	20
Cadmium	100	ND	101	98.7	100	98.3	1	75.0-125			1.92	20
Copper	100	22.9	122	119	99.0	96.6	1	75.0-125			2.04	20
Lead	100	9.99	104	103	94.2	93.1	1	75.0-125			1.07	20
Nickel	100	16.0	111	110	95.3	93.5	1	75.0-125			1.57	20
Selenium	100	ND	103	99.4	103	99.4	1	75.0-125			3.16	20
Silver	20.0	ND	18.6	18.5	93.2	92.3	1	75.0-125			0.939	20
Zinc	100	56.8	143	140	85.7	83.1	1	75.0-125			1.89	20

Method Blank (MB)

(MB) R3807698-1 06/26/22 20:21

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

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

(LCS) R3807698-2 06/26/22 20:23 • (LCSD) R3807698-3 06/26/22 20:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.06	1.07	106	107	80.0-120			1.53	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3804118-1 06/16/22 19:02

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

Laboratory Control Sample (LCS)

(LCS) R3804118-2 06/16/22 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.4	97.4	80.0-120	

L1500547-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1500547-01 06/16/22 19:10 • (MS) R3804118-5 06/16/22 19:20 • (MSD) R3804118-6 06/16/22 19:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	7.62	103	105	95.0	97.5	5	75.0-125			2.45	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3802759-2 06/10/22 15:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	111			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3802759-1 06/10/22 14:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.07	110	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			99.6	77.0-120	

L1501503-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1501503-10 06/10/22 17:12 • (MS) R3802759-3 06/11/22 00:02 • (MSD) R3802759-4 06/11/22 00:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.39	ND	4.65	4.90	86.3	90.9	1	10.0-151			5.24	28
(S) a,a,a-Trifluorotoluene(FID)					99.3	101		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3802547-2 06/13/22 01:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	109			75.0-131
(S) 4-Bromofluorobenzene	89.7			67.0-138
(S) 1,2-Dichloroethane-d4	106			70.0-130

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

(LCS) R3802547-1 06/13/22 00:21 • (LCSD) R3802547-5 06/13/22 10:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.101	0.103	80.8	82.4	70.0-123			1.96	20
Toluene	0.125	0.113	0.113	90.4	90.4	75.0-121			0.000	20
Ethylbenzene	0.125	0.111	0.110	88.8	88.0	74.0-126			0.905	20
Xylenes, Total	0.375	0.320	0.326	85.3	86.9	72.0-127			1.86	20
1,2,4-Trimethylbenzene	0.125	0.112	0.114	89.6	91.2	70.0-126			1.77	20
1,3,5-Trimethylbenzene	0.125	0.118	0.117	94.4	93.6	73.0-127			0.851	20
(S) Toluene-d8				104	104	75.0-131				
(S) 4-Bromofluorobenzene				92.5	93.0	67.0-138				
(S) 1,2-Dichloroethane-d4				121	121	70.0-130				

L1502515-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1502515-02 06/13/22 03:49 • (MS) R3802547-3 06/13/22 09:14 • (MSD) R3802547-4 06/13/22 09:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.210	ND	0.176	0.156	91.7	81.3	1.53	10.0-149			12.0	37
Toluene	0.210	ND	0.250	0.220	128	113	1.53	10.0-156			12.8	38
Ethylbenzene	0.210	ND	0.201	0.173	105	90.1	1.53	10.0-160			15.0	38
Xylenes, Total	0.628	ND	0.548	0.507	95.5	88.3	1.53	10.0-160			7.77	38
1,2,4-Trimethylbenzene	0.210	ND	0.203	0.180	106	93.8	1.53	10.0-160			12.0	36
1,3,5-Trimethylbenzene	0.210	ND	0.211	0.187	110	97.4	1.53	10.0-160			12.1	38
(S) Toluene-d8					108	111		75.0-131				
(S) 4-Bromofluorobenzene					89.8	89.8		67.0-138				
(S) 1,2-Dichloroethane-d4					106	105		70.0-130				

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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

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Gl

8

Al

9

Sc

Method Blank (MB)

(MB) R3805355-1 06/18/22 13:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	52.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3805355-2 06/18/22 13:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	28.0	56.0	50.0-150	
(S) o-Terphenyl			44.3	18.0-148	

L1502467-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1502467-02 06/18/22 17:26 • (MS) R3805355-3 06/18/22 17:39 • (MSD) R3805355-4 06/18/22 17:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.6	ND	27.6	27.5	54.3	54.6	1	50.0-150			0.363	20
(S) o-Terphenyl					37.5	42.0		18.0-148				

1  
Cp

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Tc

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

Method Blank (MB)

(MB) R3803962-2 06/16/22 10:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	104			23.0-120
(S) Nitrobenzene-d5	76.3			14.0-149
(S) 2-Fluorobiphenyl	82.3			34.0-125

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3803962-1 06/16/22 10:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0633	79.1	50.0-120	
Anthracene	0.0800	0.0620	77.5	50.0-126	
Benzo(a)anthracene	0.0800	0.0619	77.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0657	82.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0653	81.6	49.0-125	
Benzo(a)pyrene	0.0800	0.0572	71.5	42.0-120	
Chrysene	0.0800	0.0651	81.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0650	81.3	47.0-125	
Fluoranthene	0.0800	0.0618	77.3	49.0-129	
Fluorene	0.0800	0.0649	81.1	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0659	82.4	46.0-125	
1-Methylnaphthalene	0.0800	0.0648	81.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0635	79.4	50.0-120	
Naphthalene	0.0800	0.0679	84.9	50.0-120	
Pyrene	0.0800	0.0673	84.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3803962-1 06/16/22 10:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			99.9	23.0-120	
(S) Nitrobenzene-d5			82.1	14.0-149	
(S) 2-Fluorobiphenyl			84.8	34.0-125	

L1503525-75 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1503525-75 06/16/22 13:08 • (MS) R3803962-3 06/16/22 13:26 • (MSD) R3803962-4 06/16/22 13:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0772	ND	0.0585	0.0584	75.8	74.5	1	14.0-127			0.171	27
Anthracene	0.0772	ND	0.0590	0.0577	76.4	73.6	1	10.0-145			2.23	30
Benzo(a)anthracene	0.0772	ND	0.0606	0.0593	78.5	75.6	1	10.0-139			2.17	30
Benzo(b)fluoranthene	0.0772	ND	0.0554	0.0575	71.8	73.3	1	10.0-140			3.72	36
Benzo(k)fluoranthene	0.0772	ND	0.0560	0.0564	72.5	71.9	1	10.0-137			0.712	31
Benzo(a)pyrene	0.0772	ND	0.0587	0.0583	76.0	74.4	1	10.0-141			0.684	31
Chrysene	0.0772	ND	0.0594	0.0600	76.9	76.5	1	10.0-145			1.01	30
Dibenz(a,h)anthracene	0.0772	ND	0.0593	0.0596	76.8	76.0	1	10.0-132			0.505	31
Fluoranthene	0.0772	ND	0.0580	0.0573	75.1	73.1	1	10.0-153			1.21	33
Fluorene	0.0772	ND	0.0603	0.0598	78.1	76.3	1	11.0-130			0.833	29
Indeno(1,2,3-cd)pyrene	0.0772	ND	0.0605	0.0607	78.4	77.4	1	10.0-137			0.330	32
1-Methylnaphthalene	0.0772	ND	0.0602	0.0599	78.0	76.4	1	10.0-142			0.500	28
2-Methylnaphthalene	0.0772	ND	0.0578	0.0572	74.9	73.0	1	10.0-137			1.04	28
Naphthalene	0.0772	ND	0.0602	0.0599	78.0	76.4	1	10.0-135			0.500	27
Pyrene	0.0772	ND	0.0612	0.0601	79.3	76.7	1	10.0-148			1.81	35
(S) p-Terphenyl-d14					95.9	92.2		23.0-120				
(S) Nitrobenzene-d5					82.2	79.1		14.0-149				
(S) 2-Fluorobiphenyl					79.4	78.8		34.0-125				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

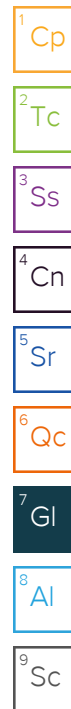
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

## Abbreviations and Definitions

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

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



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.





Tempo - PRA 1.5 + 0 = 1.5 TR# 0221 5755 8084 9559

## Caerus Oil and Gas

Sample Delivery Group: L1488348  
Samples Received: 04/30/2022  
Project Number:  
Description: Garden Gulch 8 Inch  
Site: GARDEN GULCH 8 INCH  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

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

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](http://www.pacenational.com)

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

# SAMPLE SUMMARY

## 20220428-GARDEN\_GULCH\_8"-BG\_1@0.5' L1488348-01 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 11:50

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857123	1	05/09/22 18:11	05/09/22 18:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859167	1	05/06/22 13:00	05/06/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857121	1	05/04/22 23:44	05/06/22 12:11	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 17:56	LD	Mt. Juliet, TN

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

## 20220428-GARDEN\_GULCH\_8"-BG\_1@0.5' L1488348-02 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 11:50

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857123	1	05/09/22 18:13	05/09/22 18:13	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:00	LD	Mt. Juliet, TN

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

## 20220428-GARDEN\_GULCH\_8"-BG\_1@0.5' L1488348-03 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 11:50

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857123	1	05/09/22 18:16	05/09/22 18:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:03	LD	Mt. Juliet, TN

<sup>9</sup> Sc

## 20220428-GARDEN\_GULCH\_8"-BG\_1@0.5' L1488348-04 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 11:50

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857123	1	05/09/22 18:19	05/09/22 18:19	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:06	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_1@0.5' L1488348-05 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 11:50

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:04	05/10/22 12:04	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859473	1	05/07/22 12:00	05/07/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:10	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_2@0.5' L1488348-06 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:00

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:07	05/10/22 12:07	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857121	1	05/04/22 23:44	05/06/22 12:14	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:13	LD	Mt. Juliet, TN

# SAMPLE SUMMARY

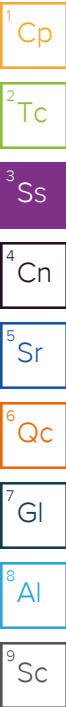
20220428-GARDEN\_GULCH\_8"-BG\_2@0.5' L1488348-07 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:00

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:10	05/10/22 12:10	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859173	1	05/05/22 10:00	05/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:16	LD	Mt. Juliet, TN



20220428-GARDEN\_GULCH\_8"-BG\_2@0.5' L1488348-08 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:00

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:13	05/10/22 12:13	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859173	1	05/05/22 10:00	05/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:19	LD	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-BG\_2@0.5' L1488348-09 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:00

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:15	05/10/22 12:15	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:23	LD	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-BG\_2@0.5' L1488348-10 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:00

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:18	05/10/22 12:18	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:26	LD	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-BG\_3@1' L1488348-11 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:20

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:00	05/09/22 17:00	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859167	1	05/06/22 13:00	05/06/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:35	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859144	5	05/07/22 08:37	05/08/22 18:43	LD	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-BG\_3@1' L1488348-12 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:20

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:26	05/10/22 12:26	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859173	1	05/05/22 10:00	05/05/22 12:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:37	LD	Mt. Juliet, TN



# SAMPLE SUMMARY

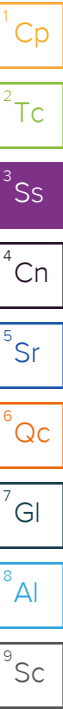
## 20220428-GARDEN\_GULCH\_8"-BG\_3@1' L1488348-13 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:20

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:29	05/10/22 12:29	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:40	LD	Mt. Juliet, TN



## 20220428-GARDEN\_GULCH\_8"-BG\_3@1' L1488348-14 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:20

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:31	05/10/22 12:31	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:43	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_3@1' L1488348-15 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:20

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:34	05/10/22 12:34	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:46	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_4@0.5' L1488348-16 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:40

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857736	1	05/09/22 17:03	05/09/22 17:03	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859098	1	05/06/22 12:00	05/06/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 00:38	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:50	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_4@0.5' L1488348-17 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:40

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:37	05/10/22 12:37	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859098	1	05/06/22 12:00	05/06/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1858662	5	05/04/22 16:47	05/05/22 18:53	LD	Mt. Juliet, TN

## 20220428-GARDEN\_GULCH\_8"-BG\_4@0.5' L1488348-18 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:40

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:39	05/10/22 12:39	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859098	1	05/06/22 12:00	05/06/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859144	5	05/07/22 08:37	05/08/22 18:47	LD	Mt. Juliet, TN

# SAMPLE SUMMARY

20220428-GARDEN\_GULCH\_8"-BG\_4@0.5' L1488348-19 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:40

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:42	05/10/22 12:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859098	1	05/06/22 12:00	05/06/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859144	5	05/07/22 08:37	05/08/22 18:50	LD	Mt. Juliet, TN

20220428-GARDEN\_GULCH\_8"-BG\_4@0.5' L1488348-20 Solid

Collected by  
Alex Slorby

Collected date/time  
04/28/22 12:40

Received date/time  
04/30/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1857737	1	05/10/22 12:45	05/10/22 12:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859167	1	05/06/22 13:00	05/06/22 15:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1858479	1	05/06/22 07:59	05/06/22 12:20	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859144	5	05/07/22 08:37	05/08/22 19:00	LD	Mt. Juliet, TN





# CASE NARRATIVE

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



Chris Ward  
Project Manager

## Report Revision History

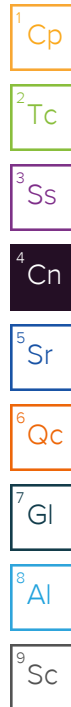
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Level II Report - Version 1: 05/10/22 17:10

## Project Narrative

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Rerun to update project info



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0731		1	05/09/2022 18:11	WG1857123

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.66	T8	1	05/06/2022 15:00	WG1859167

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-01 WG1859167: 7.66 at 20C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	85.5		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-01 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

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

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Hot Water Sol. Boron	0.111	<u>J</u>	0.0167	0.200	1	05/06/2022 12:11	<u>WG1857121</u>

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	15.9		0.100	1.00	5	05/05/2022 17:56	<a href="#">WG1858662</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0852		1	05/09/2022 18:13	WG1857123

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.93	T8	1	05/06/2022 17:00	WG1859463

Sample Narrative:  
L1488348-02 WG1859463: 7.93 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	86.6		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-02 WG1858479: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	19.0		0.100	1.00	5	05/05/2022 18:00	<a href="#">WG1858662</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0826		1	05/09/2022 18:16	WG1857123

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.63	T8	1	05/06/2022 17:00	WG1859463

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-03 WG1859463: 7.63 at 20.7C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	78.4		10.0	1	05/06/2022 12:20	WG1858479

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-03 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	23.8		0.100	1.00	5	05/05/2022 18:03	WG1858662

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0807		1	05/09/2022 18:19	WG1857123

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.73	T8	1	05/06/2022 17:00	WG1859463

Sample Narrative:  
L1488348-04 WG1859463: 7.73 at 20.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	<u>Qualifier</u>	RDL umhos/cm	Dilution	Analysis date / time	<u>Batch</u>
Specific Conductance	78.1		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-04 WG1858479: at 25C

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	18.1		0.100	1.00	5	05/05/2022 18:06	<a href="#">WG1858662</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0804		1	05/10/2022 12:04	WG1857737

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	05/07/2022 14:00	<a href="#">WG1859473</a>

3  
Ss

4  
Cn

Sample Narrative:  
L1488348-05 WG1859473: 8.01 at 21C

5  
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	79.9		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

6  
Qc

7  
Gl

Sample Narrative:  
L1488348-05 WG1858479: at 25C

8  
Al

9  
Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	18.1		0.100	1.00	5	05/05/2022 18:10	<a href="#">WG1858662</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0718		1	05/10/2022 12:07	WG1857737

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.79	T8	1	05/06/2022 17:00	WG1859463

Sample Narrative:  
L1488348-06 WG1859463: 7.79 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	<u>Qualifier</u>	RDL umhos/cm	Dilution	Analysis date / time	<u>Batch</u>
Specific Conductance	146		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-06 WG1858479: at 25C

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

Analyte	Result mg/l	<u>Qualifier</u>	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	<u>Batch</u>
Hot Water Sol. Boron	0.196	<u>J</u>	0.0167	0.200	1	05/06/2022 12:14	<u>WG1857121</u>

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	21.0		0.100	1.00	5	05/05/2022 18:13	<a href="#">WG1858662</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0718		1	05/10/2022 12:10	WG1857737

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	05/05/2022 12:00	<a href="#">WG1859173</a>

Sample Narrative:  
L1488348-07 WG1859173: 8.26 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	155		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-07 WG1858479: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.0		0.100	1.00	5	05/05/2022 18:16	<a href="#">WG1858662</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0701		1	05/10/2022 12:13	WG1857737

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.15	T8	1	05/05/2022 12:00	<a href="#">WG1859173</a>

Sample Narrative:  
L1488348-08 WG1859173: 8.15 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	144		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-08 WG1858479: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	17.2		0.100	1.00	5	05/05/2022 18:19	<a href="#">WG1858662</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0673		1	05/10/2022 12:15	WG1857737

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.80	T8	1	05/06/2022 17:00	<a href="#">WG1859463</a>

3  
Ss

4  
Cn

Sample Narrative:  
L1488348-09 WG1859463: 7.8 at 20.5C

5  
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	159		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

6  
Qc

7  
Gl

Sample Narrative:  
L1488348-09 WG1858479: at 25C

8  
Al

9  
Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	19.5		0.100	1.00	5	05/05/2022 18:23	<a href="#">WG1858662</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0635		1	05/10/2022 12:18	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.88	T8	1	05/06/2022 17:00	WG1859463

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-10 WG1859463: 7.88 at 20.6C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	154		10.0	1	05/06/2022 12:20	WG1858479

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-10 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	22.2		0.100	1.00	5	05/05/2022 18:26	WG1858662

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.91		1	05/09/2022 17:00	WG1857736

1  
Cp

2  
Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.36	T8	1	05/06/2022 15:00	WG1859167

3  
Ss

4  
Cn

Sample Narrative:  
L1488348-11 WG1859167: 8.36 at 20.3C

5  
Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	160		10.0	1	05/06/2022 12:20	WG1858479

6  
Qc

7  
Gl

Sample Narrative:  
L1488348-11 WG1858479: at 25C

8  
Al

9  
Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.0827	J	0.0167	0.200	1	05/10/2022 00:35	WG1857735

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	11.1		0.100	1.00	5	05/08/2022 18:43	WG1859144

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.92		1	05/10/2022 12:26	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	05/05/2022 12:00	<a href="#">WG1859173</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-12 WG1859173: 8.58 at 21.2C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	173		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-12 WG1858479: at 25C

<sup>8</sup>Al

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.48		0.100	1.00	5	05/05/2022 18:37	<a href="#">WG1858662</a>

<sup>9</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.11		1	05/10/2022 12:29	WG1857737

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.34	T8	1	05/06/2022 17:00	<a href="#">WG1859463</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

Sample Narrative:  
L1488348-13 WG1859463: 8.34 at 20.6C

<sup>5</sup> Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	173		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup> Qc

<sup>7</sup> Gl

Sample Narrative:  
L1488348-13 WG1858479: at 25C

<sup>8</sup> Al

<sup>9</sup> Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.97		0.100	1.00	5	05/05/2022 18:40	<a href="#">WG1858662</a>



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.93		1	05/10/2022 12:31	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.39	T8	1	05/06/2022 17:00	<a href="#">WG1859463</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-14 WG1859463: 8.39 at 20.4C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	171		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-14 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.90		0.100	1.00	5	05/05/2022 18:43	<a href="#">WG1858662</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.93		1	05/10/2022 12:34	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.44	T8	1	05/06/2022 17:00	<a href="#">WG1859463</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-15 WG1859463: 8.44 at 20.6C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	<u>Qualifier</u>	RDL umhos/cm	Dilution	Analysis date / time	<u>Batch</u>
Specific Conductance	167		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-15 WG1858479: at 25C

<sup>8</sup>Al

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	11.3		0.100	1.00	5	05/05/2022 18:46	<a href="#">WG1858662</a>

<sup>9</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0936		1	05/09/2022 17:03	WG1857736

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.92	T8	1	05/06/2022 14:00	WG1859098

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-16 WG1859098: 7.92 at 21C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	134		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-16 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.344		0.0167	0.200	1	05/10/2022 00:38	<a href="#">WG1857735</a>

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.36		0.100	1.00	5	05/05/2022 18:50	<a href="#">WG1858662</a>

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0899		1	05/10/2022 12:37	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.94	T8	1	05/06/2022 14:00	WG1859098

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-17 WG1859098: 7.94 at 20.8C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	143		10.0	1	05/06/2022 12:20	WG1858479

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-17 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.53		0.100	1.00	5	05/05/2022 18:53	WG1858662

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0823		1	05/10/2022 12:39	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	05/06/2022 14:00	WG1859098

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-18 WG1859098: 8.01 at 21.3C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	142		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-18 WG1858479: at 25C

<sup>8</sup>Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	20.4		mg/kg	mg/kg	5	05/08/2022 18:47	WG1859144

<sup>9</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0910		1	05/10/2022 12:42	WG1857737

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	05/06/2022 14:00	WG1859098

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:  
L1488348-19 WG1859098: 7.98 at 21C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	150		10.0	1	05/06/2022 12:20	WG1858479

<sup>6</sup>Qc

<sup>7</sup>Gl

Sample Narrative:  
L1488348-19 WG1858479: at 25C

<sup>8</sup>Al

<sup>9</sup>Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.22		0.100	1.00	5	05/08/2022 18:50	WG1859144

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0929		1	05/10/2022 12:45	WG1857737

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	05/06/2022 15:00	<a href="#">WG1859167</a>

Sample Narrative:  
L1488348-20 WG1859167: 7.98 at 20.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	139		10.0	1	05/06/2022 12:20	<a href="#">WG1858479</a>

Sample Narrative:  
L1488348-20 WG1858479: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.76		0.100	1.00	5	05/08/2022 19:00	<a href="#">WG1859144</a>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



L1488622-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1488622-05 05/06/22 14:00 • (DUP) R3789021-2 05/06/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.32	7.31	1	0.137		1

Sample Narrative:

OS: 7.32 at 21.1C

DUP: 7.31 at 21.1C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1488686-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1488686-02 05/06/22 14:00 • (DUP) R3789021-3 05/06/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	2.88	2.88	1	0.000		1

Sample Narrative:

OS: 2.88 at 20.7C

DUP: 2.88 at 20.7C

Laboratory Control Sample (LCS)

(LCS) R3789021-1 05/06/22 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 20C

L1488348-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-01 05/06/22 15:00 • (DUP) R3789061-2 05/06/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.66	7.71	1	0.651		1

Sample Narrative:

OS: 7.66 at 20C

DUP: 7.71 at 21C

L1488348-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-11 05/06/22 15:00 • (DUP) R3789061-3 05/06/22 15:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.36	8.40	1	0.477		1

Sample Narrative:

OS: 8.36 at 20.3C

DUP: 8.4 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R3789061-1 05/06/22 15:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 20.1C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1487959-98 Original Sample (OS) • Duplicate (DUP)

(OS) L1487959-98 05/05/22 12:00 • (DUP) R3788410-2 05/05/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.41	8.40	1	0.119		1

Sample Narrative:

OS: 8.41 at 21.8C

DUP: 8.4 at 21.8C

L1488352-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-02 05/05/22 12:00 • (DUP) R3788410-3 05/05/22 12:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.97	7.98	1	0.125		1

Sample Narrative:

OS: 7.97 at 21.3C

DUP: 7.98 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R3788410-1 05/05/22 12:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.93	99.3	99.0-101	

Sample Narrative:

LCS: 9.93 at 19.9C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1488352-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-01 05/06/22 17:00 • (DUP) R3789117-2 05/06/22 17:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	7.97	7.97	1	0.000		1

Sample Narrative:

OS: 7.97 at 20.7C

DUP: 7.97 at 20.7C

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1488805-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1488805-03 05/06/22 17:00 • (DUP) R3789117-3 05/06/22 17:00

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	su	su		%		%
pH	8.15	8.15	1	0.000		1

Sample Narrative:

OS: 8.15 at 20.5C

DUP: 8.15 at 20.5C

Laboratory Control Sample (LCS)

(LCS) R3789117-1 05/06/22 17:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 20.6C

L1488154-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1488154-04 05/07/22 14:00 • (DUP) R3789228-3 05/07/22 14:00

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.61	7.60	1	0.131		1

Sample Narrative:

OS: 7.61 at 21.2C

DUP: 7.6 at 20.7C

Laboratory Control Sample (LCS)

(LCS) R3789228-1 05/07/22 14:00

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 20.1C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3788925-1 05/06/22 12:20

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

Sample Narrative:

BLANK: at 25C

L1488348-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-02 05/06/22 12:20 • (DUP) R3788925-3 05/06/22 12:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	86.6	90.1	1	3.96		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1488348-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1488348-12 05/06/22 12:20 • (DUP) R3788925-4 05/06/22 12:20

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	173	167	1	3.54		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3788925-2 05/06/22 12:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	279	104	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3788989-1 05/06/22 11:22

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

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

(LCS) R3788989-2 05/06/22 11:25 • (LCSD) R3788989-3 05/06/22 11:27

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Hot Water Sol. Boron	1.00	1.06	1.01	106	101	80.0-120			5.44	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc



Method Blank (MB)

(MB) R3789929-1 05/10/22 00:27

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

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

(LCS) R3789929-2 05/10/22 00:29 • (LCSD) R3789929-3 05/10/22 00:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	1.02	100	102	80.0-120			1.95	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3788691-1 05/05/22 17:00

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

Laboratory Control Sample (LCS)

(LCS) R3788691-2 05/05/22 17:03

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	95.3	95.3	80.0-120	

L1487969-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1487969-02 05/05/22 17:06 • (MS) R3788691-5 05/05/22 17:16 • (MSD) R3788691-6 05/05/22 17:20

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	99.7	2.70	90.6	88.0	87.9	85.3	5	75.0-125			2.97	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3789417-1 05/08/22 18:20

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

Laboratory Control Sample (LCS)

(LCS) R3789417-2 05/08/22 18:24

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Arsenic	100	86.0	86.0	80.0-120	

L1488561-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488561-08 05/08/22 18:27 • (MS) R3789417-5 05/08/22 18:37 • (MSD) R3789417-6 05/08/22 18:40

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	100	64.0	172	151	108	87.3	5	75.0-125			12.9	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

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

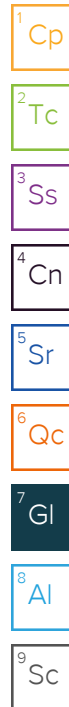
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

## Abbreviations and Definitions

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

## Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.



# ACCREDITATIONS & LOCATIONS

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

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	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 <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.





