

July 10, 2024

Blair Rollins
Environmental Specialist
Caerus Oil and Gas LLC (Operator: 10456)
brollins@caerusoilandgas.com

Report of Work Completed – Tank Valve Release

ECMC Location Name (ID)	SHIDELER FEDERAL-67S93W/26SESE (334232)
Client Location Name	P26W
ECMC Remediation Project	23856
Legal Description	SESE Sec. 26 T7S-R93W
Coordinates (Lat/Long)	39.410515 / -107.734642
County	Garfield County, Colorado

Mr. Rollins,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil and Gas LLC (Caerus) to document findings of investigation activities of the tank valve release at the P26W well pad (Location). The Location is 8.7 miles south of Rifle, Colorado, in Garfield County, as illustrated in the attached Topographic Location Map. Additional information on the Location and associated release is provided in the title block above, attached Site Diagrams, and laboratory analytical report. This ROWC provides background on the Location, methods used to complete the investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On February 21, 2022, an unknown volume of comingled fluid was released into secondary containment due to a valve failure during transport truck offloading operations. The release was reported via Energy & Carbon Management Commission (ECMC) Form 19 Document 402963034 to open Spill/Release Point ID 481668. Form 27 Document 403056775 was later submitted to open Remediation Project 23856.

Methodology

On June 20, 2024, Confluence was onsite to conduct an initial site investigation to determine if impacts from the release were present within the soil beneath the liner. Three potholes were advanced around the southeast corner of the tank battery containment wall. Three potholes were advanced at an angle on the southeast corner of the tank battery containment to depths of 4 to 5 feet below ground surface (bgs). Hand tools were used to collect soil from the terminus of each pothole beneath the tank containment liner. One soil sample was collected from each pothole.

Soil samples were collected in laboratory provided jars, immediately placed on ice, shipped under a completed chain-of-custody form to Pace Analytical Services (Pace), and analyzed for ECMC Table 915-1 soil constituents of concern.

Results

These results summarize observations from onsite investigation efforts and associated laboratory analytical results. For organizational and presentation purposes, the results summary is divided between general observations of lithology and hydrogeology for the entire Location and site investigation activities. Collected spatial data are depicted in the attached Site Diagrams. The laboratory analytical report is attached and summarized in the Soil Analytical Results Table.

Lithology and Hydrogeology

The lithology at the Location is made up of clayey gravel and the soil classification is characterized by the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) as Morval - Tridell complex. Groundwater is expected to flow east towards an intermittent tributary of Middle Mamm Creek and ultimately to the Colorado River, located 8.3 miles north of the Location. Precise measurements for groundwater depth at the Location do not exist, and there are no applicable groundwater wells or springs within the immediate area. However, the Location is at an approximate elevation of 7,040 feet above mean sea level (AMSL) while the nearest surface water is at approximately 6,760 feet AMSL, a difference of approximately 280 feet. Therefore, it can be assumed that depth to groundwater is greater than 100 feet bgs.

Initial Characterization Results

Field screening of characterization samples registered PID measurements ranging from 1,319 parts per million (ppm) in SB03@4 to 2,428 ppm in SB02@5. Analytical results of the soil samples indicate compliance with Table 915-1 Residential Soil Screening Levels (RSSLs) except for total petroleum hydrocarbons (TPH), sodium adsorption ratio (SAR), pH, and arsenic. A TPH exceedance of 606.44 milligrams per kilogram (mg/kg) was noted in SB03. Exceedances of SAR and pH were observed in SB02 with values of 7.173 and 9.45, respectively. Arsenic exceedances were observed in all three samples and range from 2.046 to 2.495 mg/kg.

Recommendations and Analysis

Due to the estimated depth to groundwater of greater than 100 feet bgs, Confluence recommends that Caerus request to compare analytical results of site investigation to Table 915-1 RSSLs as no reasonable pathway to groundwater appears to exist.

Assuming the proposed screening levels are approved, levels of TPH, SAR, pH, and arsenic exceeding allowable limits remain undelineated vertically and horizontally in the investigation area. Based on these results, Confluence recommends additional site investigation to delineate soil impacts. Prior to additional investigation, Confluence recommends removal of the tanks, liner, and containment to complete delineation and subsequent excavation of impacted soil. Additionally, Confluence recommends collecting site-specific background soil samples to assess naturally occurring levels of inorganic constituents.



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

Regards,

Andrew Smith

Andrew Smith
Project Manager
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John Axelson

John Axelson
Program Manager
(720) 233-2927
john.axelson@confluence-cc.com

Attachments

- Topographic Location Map
- Site Diagram – Initial Site Investigation
- Photographic Log
- Soil Analytical Results Table
- Laboratory Report



Topographic Location Map

Caerus Oil and Gas LLC

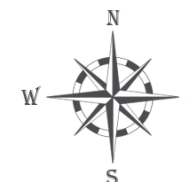
P26W

(SHIDELER FEDERAL-67S93W/26SESE)

ECMC Location ID: 334232

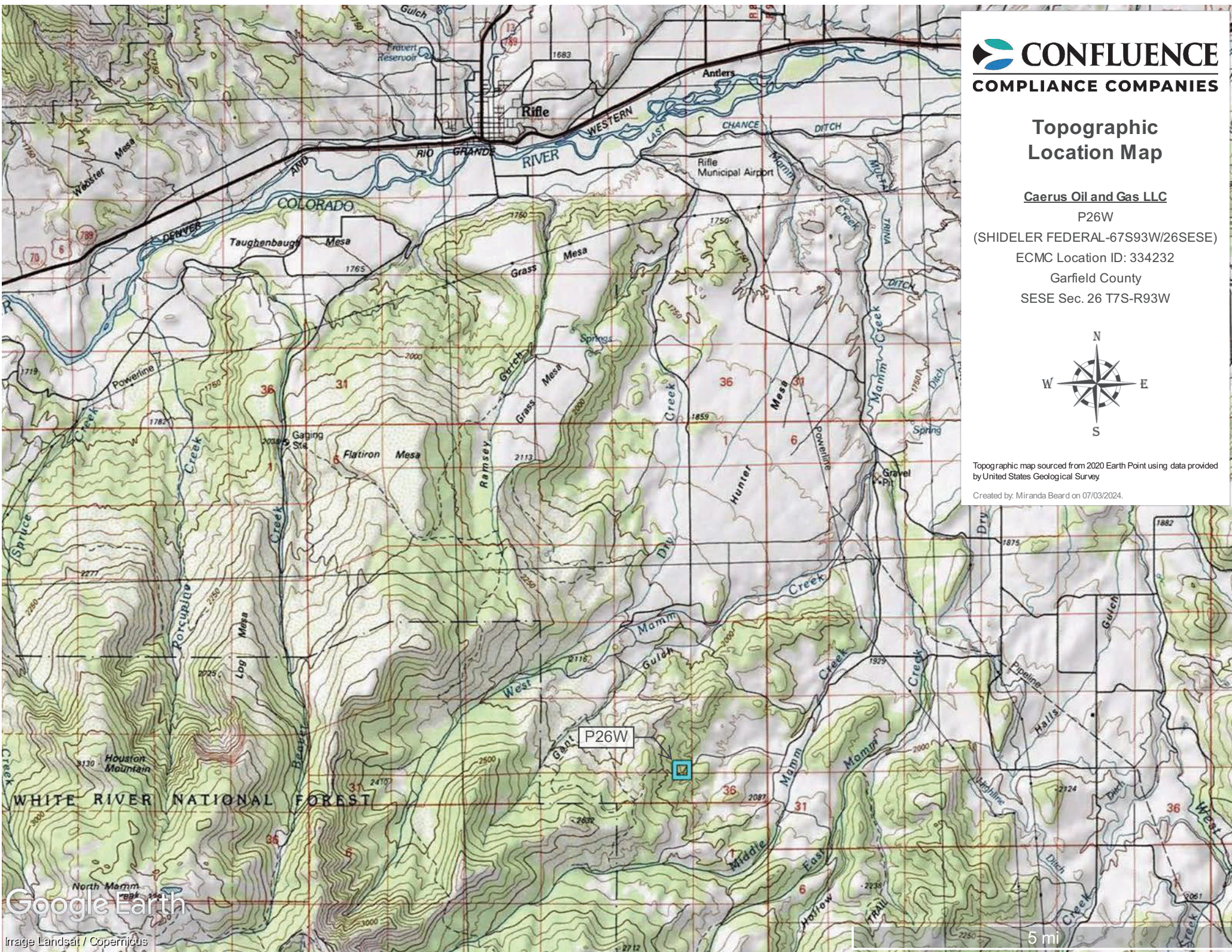
Garfield County

SESE Sec. 26 T7S-R93W



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

Created by: Miranda Beard on 07/03/2024.



Site Diagram Initial Site Investigation

Caerus Oil and Gas LLC

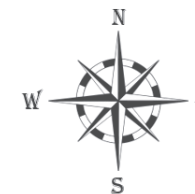
P26W

(SHIDELER FEDERAL-67S93W/26SESE)

ECMC Location ID: 334232

Garfield County

SESE Sec. 26 T7S-R93W



Legend

 Soil Sample

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: Miranda Beard on 07/11/2024.

20240620-P26W-(SB03)@4

20240620-P26W-(SB02)@5

20240620-P26W-(SB01)@5



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

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Investigation Area (SB01 - SB03): View Northwest



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

Page 2 of 7



SB01 Location: View Northwest



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

Page 3 of 7



SB01 Sample Location

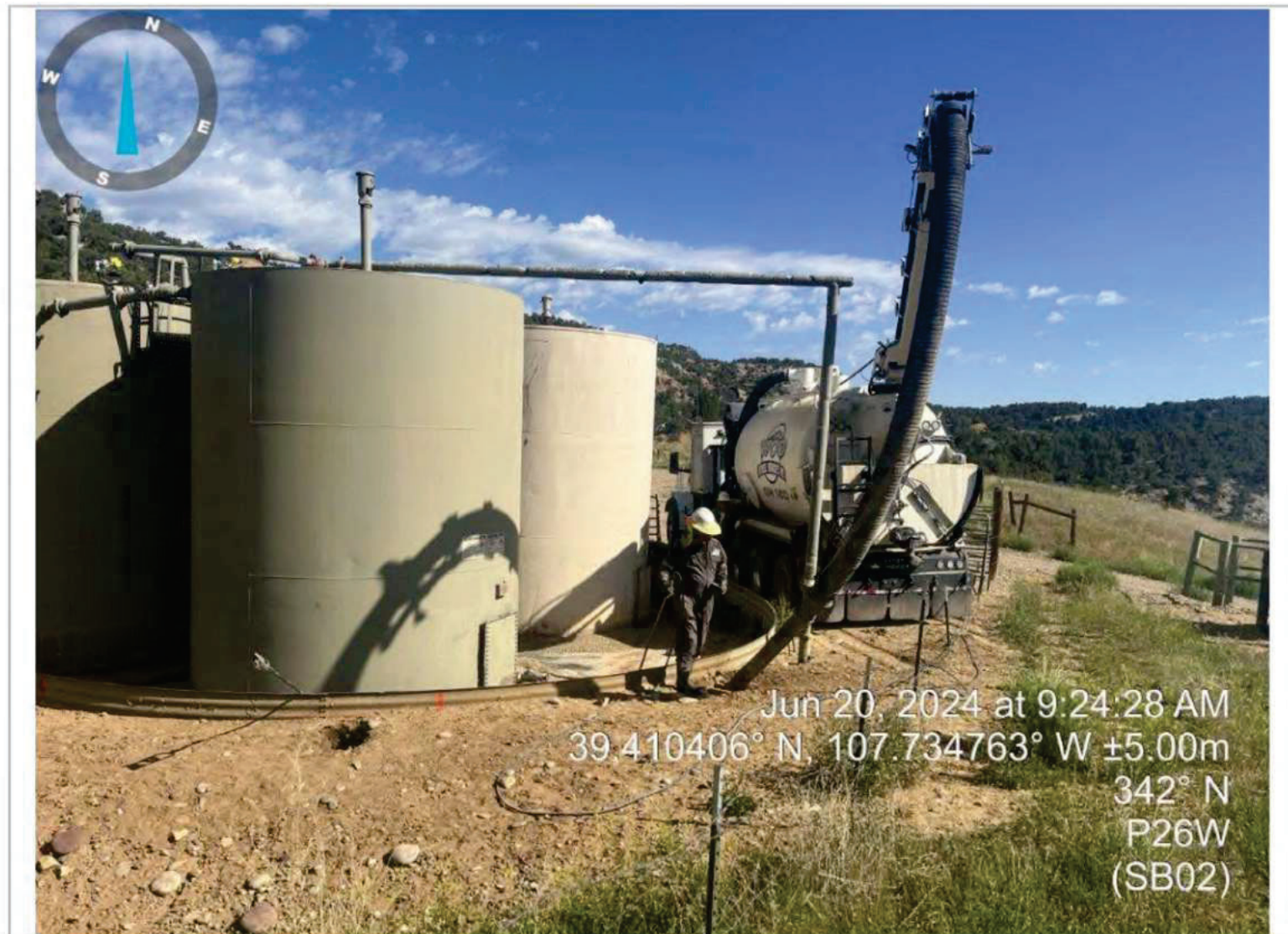


Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

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SB02 Location: View North



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

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SB01 Sample Location



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

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SB03 Location: View Northwest



Photographic Log

Remedial Investigation

P26W Tank Valve Release (ECMC Location ID: 334232)

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SB03 Sample Location



SOIL ANALYTICAL RESULTS TABLE
P26W

Analyte				TOTAL TPH	GRO	DRO	ORO	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,2,4-TMB	1,3,5-TMB	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracen	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyre	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Pyrene
915-1 PROTECTION OF GW					500			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.55	5.8	0.011	0.3	2.9	0.24	9	0.096	5.9	0.54	0.98	0.006	0.019	0.0038	1.3
915-1 RESIDENTIAL SOIL					500			1.2	490	5.8	58	30	27	360	1800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	2	180
Units				mg/kg				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample	Sample	Lab Report																									
20240620-P26W-(SB01)@5	Soil Boring	06/20/2024	AA09282	< 344.36	109.46244	134.9	< 100	0.169	0.919	0.394	5.238	1.315	1.451	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01654	0.01679	< 0.01
20240620-P26W-(SB02)@5	Soil Boring	06/20/2024	AA09283	< 203.35	3.35076	< 100	< 100	< 0.00242	0.526	0.214	2.875	0.641	0.707	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	0.07249	0.03107	< 0.01
20240620-P26W-(SB03)@4	Soil Boring	06/20/2024	AA09284	< 706.44	414.74176	191.7	< 100	0.01289	0.01591	1.002	17.229	3.368	3.689	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04745	0.16965	0.06108	< 0.01

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



SOIL ANALYTICAL RESULTS TABLE
P26W

Analyte				EC	SAR	pH	Boron	Arsenic	Barium	Cadmium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc
915-1 PROTECTION OF GW				4	6	8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
915-1 RESIDENTIAL SOIL				4	6	8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Units				mmhos/cm	No Unit	SU	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Type	Sample Date	Lab Report														
20240620-P26W-(SB01)@5	Soil Boring	06/20/2024	AA09282	0.614	1.483	8.17	0.336	2.046	186.29	0.554	< 0.08	11.131	8.342	15.09	1.743	< 0.25	47.747
20240620-P26W-(SB02)@5	Soil Boring	06/20/2024	AA09283	0.835	7.173	9.45	0.405	2.127	149.562	0.418	< 0.08	9.969	7.841	17.174	1.758	< 0.25	44.616
20240620-P26W-(SB03)@4	Soil Boring	06/20/2024	AA09284	0.691	1.564	8	0.216	2.495	136.667	0.561	< 0.08	11.336	10.395	14.33	1.403	< 0.25	44.322

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



Division of Environmental Testing

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

July 02, 2024

143 Diamond Ave
Parachute, CO 81635
970-285-2600

Project Manager : Blair Rollins
Project Name : Tank Valve Failure
Project Number : N/A

Attached are the analytical results for Tank Valve Failure N/A received by Elevation Diagnostics, Division of Environmental Testing on June 21, 2024. This is associated with Elevation's number AA09282 .

The results were analyzed under the guidelines of various methods. These methods are identified in the report as follows: "SW" is referring to the EPA's SW-846 Compendium; "EPA" is referring to 40 CFR part 136; "HACH" is referring to a method which was validated by HACH®; "SM" is referring to a revision of the Standard Methods For the Examination of Water and Wastewater; and "ASTM" is referring to the standard test method set forth by ASTM International.

The analytical results in this report apply specifically to the samples listed in the attached Chain of Custody. This report may only be duplicated in full.

Any deviations to sample integrity, method specifications, or Elevation Diagnostics's standard operating procedures are documented in the report below.

Please contact us for any questions or comments concerning the content of this report.

Thank you,

Elevation Diagnostics, Division of Environmental Testing

Kristen Reichel
Laboratory Director
CSO,CCO




Chain of Custody Form


Client: Caerus Oil and Gas LLC
 Address: 143 Diamond Avenue
 City/State/ZIP: Parachute/ Colorado/ 81635
 Phone: (970) 640-6919
 Project Contact: Blair Rollins

Elevation Diagnostics

2115 North Scranton Street Suite 3040A Aurora, CO 80045
 800.440.5184

Project Name/Number: Tank Valve Failure
 Project Location: P26W
 Collector Name: Alex Slorby

Sample ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Interim report requested	
					HCl	HNO ₃	None	Other	Water	Soil	Other	Table 915-1 VOC's	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	CR6IC	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Notes
1	20240620-P26W-(SB01)@5	6/20/2024	0905				✓			✓		✓	✓	✓	✓	✓	✓			
2	20240620-P26W-(SB02)@5	6/20/2024	0940				✓			✓		✓	✓	✓	✓	✓	✓			
3	20240620-P26W-(SB03)@4	6/20/2024	1010				✓			✓		✓	✓	✓	✓	✓	✓			
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Relinquished By: <u>Alex Slorby</u> Date/Time: <u>6/20/2024 1600</u>	Relinquished By: _____ Date/Time: _____	Relinquished By: _____ Date/Time: _____	Scan to Deliver Samples  EFOR-008.005
Lab Use Only Observed Temperature Upon Receipt: <u>6.2°C</u> Corrected Temperature Upon Receipt: <u>7.5°C</u> Thermometer #: <u>EDXEQ238</u> Correction Factor: <u>+1.3°C</u>	Samples Intact: <u>Yes</u> No pH Checked: Yes <u>No</u> pH Adjusted: Yes <u>No</u> PFAS rec'd on ice: Yes No <u>N/A</u> Name/Lot Number of Adjustment: _____	2024-06-21-001 Lot/EQM Number: _____	

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A

Sample ID	Customer ID	Collected		Dilution	Result	Units	RL	Method Ref.
Analyte Name		Analysis Start						Recovery
AA09282-1	20240620-P26W-(SB01)@5	Collected : 06/20/2024		09:05				
SAR - Calcium		06/28/2024	11:08	10.00	2.705	mEq/L	0.000	EPA 6020B
SAR - Magnesium		06/28/2024	11:08	10.00	1.457	mEq/L	0.000	EPA 6020B
SAR - Sodium		06/28/2024	11:08	10.00	2.139	mEq/L	0.000	EPA 6020B
SAR - Sodium Adsorption Ratio		06/28/2024	11:08	10.00	1.483		0.000	EPA 6020B
Soil Conductivity		06/25/2024	12:26		0.614	mmhos/cm		USDA 60
AA09282-2	20240620-P26W-(SB01)@5	Collected : 06/20/2024		09:05				
Chromium VI, Soil		06/26/2024	13:43		<0.0800	mg/kg	0.080	EPA 7199
Hot Water Soluble Boron		06/25/2024	14:10		0.336	mg/kg	0.050	Boron Hot Water Extraction
pH, Soils Temperature		06/21/2024	11:46		21.8	°C		
pH, Soils		06/21/2024	11:46		8.17	S.U.	0.01	EPA 9045D
Total Metals, Soils - Arsenic		06/26/2024	11:07	10.00	2.046	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Barium		06/26/2024	11:07	10.00	186.290	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Cadmium		06/26/2024	11:07	10.00	0.554	mg/kg	0.001	EPA 6020B
Total Metals, Soils - Copper		06/26/2024	11:07	10.00	11.131	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Lead		06/26/2024	11:07	10.00	8.342	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Nickel		06/26/2024	11:07	10.00	15.090	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Selenium		06/26/2024	11:07	10.00	1.743	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Silver		06/26/2024	11:07	10.00	<0.250 - RL1	mg/kg	0.250	EPA 6020B
Total Metals, Soils - Zinc		06/26/2024	11:07	10.00	47.747	mg/kg	0.025	EPA 6020B
AA09282-3	20240620-P26W-(SB01)@5	Collected : 06/20/2024		09:05				
DRO & ORO, Soil - DRO		06/27/2024	09:35		134.90	mg/kg	100.00	EPA 8015D
DRO & ORO, Soil - ORO		06/27/2024	09:35		Not Detected	mg/kg	100.00	EPA 8015D
Gasoline Range Organics, Soil		06/26/2024	14:59	100.00	109.46244	mg/kg	0.26827	EPA 8260
SVOC, Soils - 1-methylnaphthalene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - 2-methylnaphthalene		07/01/2024	00:00		0.01654	mg/kg	0.010	EPA 8270
SVOC, Soils - Acenaphthene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Anthracene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Benz(a)anthracene		07/01/2024	00:00		<0.010	mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(a)pyrene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(b)fluoranthene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(k)fluoranthene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Chrysene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Dibenzo(a,h)anthracene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Fluoranthene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Fluorene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Indeno(1,2,3-cd)pyrene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
SVOC, Soils - Naphthalene		07/01/2024	00:00		0.01679	mg/kg	0.010	EPA 8270
SVOC, Soils - Pyrene		07/01/2024	00:00		Not Detected	mg/kg	0.010	EPA 8270
VOC, Soils - 1,2,4-trimethylbenzene		06/26/2024	00:00	100.00	1.315	mg/kg	0.00245	EPA 8260
VOC, Soils - 1,3,5-trimethylbenzene		06/26/2024	00:00	100.00	1.451	mg/kg	0.00500	EPA 8260
VOC, Soils - Benzene		06/26/2024	00:00		0.169	mg/kg	0.00242	EPA 8260
VOC, Soils - Ethylbenzene		06/26/2024	00:00	100.00	0.394	mg/kg	0.00500	EPA 8260
VOC, Soils - m&p- xylene		06/26/2024	00:00	100.00	4.365	mg/kg	0.00427	EPA 8260

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A

Sample ID	Customer ID	Collected	Dilution	Result	Units	RL	Method Ref.
Analyte Name		Analysis Start					Recovery
VOC, Soils - o-xylene		06/26/2024	00:00	100.00	0.873	mg/kg	0.00227 EPA 8260
VOC, Soils - Toluene		06/26/2024	00:00	100.00	0.919	mg/kg	0.00263 EPA 8260
VOC, Soils - Xylenes, total		06/26/2024	00:00	100.00	5.238	mg/kg	0.00654 EPA 8260
AA09283-1	20240620-P26W-(SB02)@5	Collected : 06/20/2024 09:40					
SAR - Calcium		06/28/2024	11:08	10.00	1.003	mEq/L	0.000 EPA 6020B
SAR - Magnesium		06/28/2024	11:08	10.00	0.328	mEq/L	0.000 EPA 6020B
SAR - Sodium		06/28/2024	11:08	10.00	5.852	mEq/L	0.000 EPA 6020B
SAR - Sodium Adsorption Ratio		06/28/2024	11:08	10.00	7.173		0.000 EPA 6020B
Soil Conductivity		06/25/2024	12:26		0.835	mmhos/cm	USDA 60
AA09283-2	20240620-P26W-(SB02)@5	Collected : 06/20/2024 09:40					
Chromium VI, Soil		06/26/2024	13:43		<0.0800	mg/kg	0.080 EPA 7199
Hot Water Soluble Boron		06/25/2024	14:10		0.405	mg/kg	0.050 Boron Hot Water Extraction
pH, Soils Temperature		06/21/2024	12:23		22.6	°C	
pH, Soils		06/21/2024	12:23		9.45	S.U.	0.01 EPA 9045D
Total Metals, Soils - Arsenic		06/26/2024	11:07	10.00	2.127	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Barium		06/26/2024	11:07	10.00	149.562	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Cadmium		06/26/2024	11:07	10.00	0.418	mg/kg	0.001 EPA 6020B
Total Metals, Soils - Copper		06/26/2024	11:07	10.00	9.969	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Lead		06/26/2024	11:07	10.00	7.841	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Nickel		06/26/2024	11:07	10.00	17.174	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Selenium		06/26/2024	11:07	10.00	1.758	mg/kg	0.025 EPA 6020B
Total Metals, Soils - Silver		06/26/2024	11:07	10.00	<0.250 - RL1	mg/kg	0.250 EPA 6020B
Total Metals, Soils - Zinc		06/26/2024	11:07	10.00	44.616	mg/kg	0.025 EPA 6020B
AA09283-3	20240620-P26W-(SB02)@5	Collected : 06/20/2024 09:40					
DRO & ORO, Soil - DRO		06/27/2024	09:35		Not Detected	mg/kg	100.00 EPA 8015D
DRO & ORO, Soil - ORO		06/27/2024	09:35		Not Detected	mg/kg	100.00 EPA 8015D
Gasoline Range Organics, Soil		06/25/2024	17:25		3.35076	mg/kg	0.26827 EPA 8260
SVOC, Soils - 1-methylnaphthalene		07/01/2024	11:06		<0.010	mg/kg	0.010 EPA 8270
SVOC, Soils - 2-methylnaphthalene		07/01/2024	11:06		0.07249	mg/kg	0.010 EPA 8270
SVOC, Soils - Acenaphthene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Anthracene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Benz(a)anthracene		07/01/2024	11:06		<0.010	mg/kg	0.010 EPA 8270
SVOC, Soils - Benzo(a)pyrene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Benzo(b)fluoranthene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Benzo(k)fluoranthene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Chrysene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Dibenzo(a,h)anthracene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Fluoranthene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Fluorene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Indeno(1,2,3-cd)pyrene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
SVOC, Soils - Naphthalene		07/01/2024	11:06		0.03107	mg/kg	0.010 EPA 8270
SVOC, Soils - Pyrene		07/01/2024	11:06		Not Detected	mg/kg	0.010 EPA 8270
VOC, Soils - 1,2,4-trimethylbenzene		06/26/2024	00:00	100.00	0.641	mg/kg	0.00245 EPA 8260
VOC, Soils - 1,3,5-trimethylbenzene		06/26/2024	00:00	100.00	0.707	mg/kg	0.00500 EPA 8260

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A

Sample ID	Customer ID	Collected	Dilution	Result	Units	RL	Method Ref.
Analyte Name		Analysis Start					Recovery
VOC, Soils - Benzene		06/26/2024	00:00	Not Detected	mg/kg	0.00242	EPA 8260
VOC, Soils - Ethylbenzene		06/26/2024	00:00	100.00	mg/kg	0.00500	EPA 8260
VOC, Soils - m&p- xylene		06/26/2024	00:00	100.00	mg/kg	0.00427	EPA 8260
VOC, Soils - o-xylene		06/26/2024	00:00	100.00	mg/kg	0.00227	EPA 8260
VOC, Soils - Toluene		06/26/2024	00:00	100.00	mg/kg	0.00263	EPA 8260
VOC, Soils - Xylenes, total		06/26/2024	00:00	100.00	mg/kg	0.00654	EPA 8260
AA09284-1	20240620-P26W-(SB03)@4	Collected : 06/20/2024 10:10					
SAR - Calcium		06/28/2024	11:08	10.00	mEq/L	0.000	EPA 6020B
SAR - Magnesium		06/28/2024	11:08	10.00	mEq/L	0.000	EPA 6020B
SAR - Sodium		06/28/2024	11:08	10.00	mEq/L	0.000	EPA 6020B
SAR - Sodium Adsorption Ratio		06/28/2024	11:08	10.00		0.000	EPA 6020B
Soil Conductivity		06/25/2024	12:26		mmhos/cm		USDA 60
AA09284-2	20240620-P26W-(SB03)@4	Collected : 06/20/2024 10:10					
Chromium VI, Soil		06/26/2024	13:43		mg/kg	0.080	EPA 7199
Hot Water Soluble Boron		06/25/2024	14:10		mg/kg	0.050	Boron Hot Water Extraction
pH, Soils Temperature		06/21/2024	11:46		°C		
pH, Soils		06/21/2024	11:46		S.U.	0.01	EPA 9045D
Total Metals, Soils - Arsenic		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Barium		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Cadmium		06/26/2024	11:07	10.00	mg/kg	0.001	EPA 6020B
Total Metals, Soils - Copper		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Lead		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Nickel		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Selenium		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
Total Metals, Soils - Silver		06/26/2024	11:07	10.00	mg/kg	0.250	EPA 6020B
Total Metals, Soils - Zinc		06/26/2024	11:07	10.00	mg/kg	0.025	EPA 6020B
AA09284-3	20240620-P26W-(SB03)@4	Collected : 06/20/2024 10:10					
DRO & ORO, Soil - DRO		06/27/2024	09:35		mg/kg	100.00	EPA 8015D
DRO & ORO, Soil - ORO		06/27/2024	09:35		mg/kg	100.00	EPA 8015D
Gasoline Range Organics, Soil		06/26/2024	15:03	100.00	mg/kg	0.26827	EPA 8260
SVOC, Soils - 1-methylnaphthalene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - 2-methylnaphthalene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Acenaphthene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Anthracene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Benz(a)anthracene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(a)pyrene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(b)fluoranthene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Benzo(k)fluoranthene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Chrysene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Dibenzo(a,h)anthracene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Fluoranthene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Fluorene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Indeno(1,2,3-cd)pyrene		07/01/2024	11:13		mg/kg	0.010	EPA 8270
SVOC, Soils - Naphthalene		07/01/2024	11:13		mg/kg	0.010	EPA 8270

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

Report Date : 7/2/2024**Report Time :** 15:20**FINAL RESULTS REPORT****Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A

Sample ID	Customer ID	Collected	Dilution	Result	Units	RL	Method Ref.
Analyte Name		Analysis Start					Recovery
SVOC, Soils - Pyrene		07/01/2024	11:13	Not Detected	mg/kg	0.010	EPA 8270
VOC, Soils - 1,2,4-trimethylbenzene		06/26/2024	00:00	100.00	mg/kg	0.00245	EPA 8260
VOC, Soils - 1,3,5-trimethylbenzene		06/26/2024	00:00	100.00	mg/kg	0.00500	EPA 8260
VOC, Soils - Benzene		06/26/2024	00:00	0.01289	mg/kg	0.00242	EPA 8260
VOC, Soils - Ethylbenzene		06/26/2024	00:00	100.00	mg/kg	0.00500	EPA 8260
VOC, Soils - m&p- xylene		06/26/2024	00:00	100.00	mg/kg	0.00427	EPA 8260
VOC, Soils - o-xylene		06/26/2024	00:00	100.00	mg/kg	0.00227	EPA 8260
VOC, Soils - Toluene		06/26/2024	00:00	0.01591	mg/kg	0.00263	EPA 8260
VOC, Soils - Xylenes, total		06/26/2024	00:00	100.00	mg/kg	0.00654	EPA 8260

QC Report

BORON-3581			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09282	0.376		0.050	mg/kg		0.336			11.236	-15 - 15
MB AA09326	0.005			mg/kg						
LCS AA09327	0.983			mg/kg	1.000		98.3	80 - 120		
LCS AA09328	8.658			mg/kg	9.000		96.2	80 - 120		

CHROM_VI_SOIL-3569			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09282	<0.0800		0.080	mg/kg		<0.0800				
MB AA09306	0.0020			mg/kg						
LCS AA09308	0.0433			mg/kg	0.0400		108			
LCS AA09309	0.0444			mg/kg	0.0400		111			

ECISOIL_MMHOS-3573			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09282	0.596			mmhos/cm		0.614			2.9752	
LCS AA09312	9.98			mmhos/cm	10.0		99.8			
LCS AA09313	10.04			mmhos/cm	10.0		100			

GRO_SOIL-3520			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09060	1.08269		0.26827	mg/kg		<0.26827			7.4670	
Matrix Spike AA09060	1.16667			mg/kg	2.150	<0.26827	54.3			
MB AA09207	<0.26827			mg/kg						
LCS AA09208	1.84330			mg/kg	2.150		85.7			
LCS AA09209	1.86339			mg/kg	2.150		86.7			

GRO_SOIL-3640			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09352	1.14968		0.26827	mg/kg		0.43150			1.3098	
Matrix Spike AA09352	1.13472			mg/kg	2.150	0.43150	32.7			
MB AA09389	<0.26827			mg/kg						
LCS AA09390	1.84612			mg/kg	2.150		85.9			
LCS AA09391	2.18914			mg/kg	2.150		102			

PH_S-3563			Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Analyte	Result									
DUP AA09282	8.13		0.01	S.U.		8.17			0.4907975460	-5 - 5
LCS AA09292	6.88		0.01	S.U.	6.86		100	95 - 105		
LCS AA09293	6.86		0.01	S.U.	6.86		100	95 - 105		

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A**QC Report**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
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DRO_ORO_SOIL-3643**AA09283****DUP**

DRO	382.25				Not Detected			10.1	
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ORO	505.10				Not Detected			2.25	
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Matrix Spike

DRO	422.99		mg/kg	350	Not Detected	121			
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ORO	493.88		mg/kg	350	Not Detected	141			
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AA09395**MB**

DRO	Not Detected		mg/kg						
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ORO	Not Detected		mg/kg						
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AA09396**LCS**

DRO	355.66		mg/kg			102			
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ORO	422.95		mg/kg			121			
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AA09397

DRO	367.00		mg/kg			105			
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ORO	425.24		mg/kg			121			
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METALS_S-3603**AA09337****MB**

Arsenic	0.001		mg/kg						
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Barium	0.003		mg/kg						
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Cadmium	0.000		mg/kg						
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Copper	0.013		mg/kg						
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Lead	0.001		mg/kg						
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Nickel	0.001		mg/kg						
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Selenium	0.001		mg/kg						
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Silver	0.001		mg/kg						
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Zinc	0.060		mg/kg						
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AA09339**LCS**

Arsenic	0.088		mg/kg			97.8	80 - 120		
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Barium	0.092		mg/kg			102	80 - 120		
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Cadmium	0.093		mg/kg			103	80 - 120		
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Copper	0.092		mg/kg			102	80 - 120		
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Lead	0.092		mg/kg			102	80 - 120		
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Nickel	0.094		mg/kg			104	80 - 120		
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Selenium	0.087		mg/kg			96.7	80 - 120		
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Silver	0.098		mg/kg			109	80 - 120		
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Zinc	0.093		mg/kg			103	80 - 120		
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AA09340

Arsenic	0.090		mg/kg			100	80 - 120		
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**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A**QC Report**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
Barium	0.092		mg/kg			102	80 - 120		
Cadmium	0.093		mg/kg			103	80 - 120		
Copper	0.092		mg/kg			102	80 - 120		
Lead	0.092		mg/kg			102	80 - 120		
Nickel	0.093		mg/kg			103	80 - 120		
Selenium	0.091		mg/kg			101	80 - 120		
Silver	0.100		mg/kg			111	80 - 120		
Zinc	0.093		mg/kg			103	80 - 120		

SAR-3604**AA09341****MB**

Calcium	0.002	mEq/L
Magnesium	0.004	mEq/L
Sodium	-0.005	mEq/L
Sodium Adsorption Ratio	NA	

AA09342**LCS**

Calcium	9.288	ppm	92.9
Magnesium	9.095	ppm	91.0
Sodium	9.030	ppm	90.3

AA09343

Calcium	472.236	ppm	118
Magnesium	476.747	ppm	119
Sodium	474.009	ppm	119

SVOC_SOIL-3695**AA09560****MB**

1-methylnaphthalene	Not Detected	mg/kg
2-methylnaphthalene	Not Detected	mg/kg
Acenaphthene	Not Detected	mg/kg
Anthracene	Not Detected	mg/kg
Benz(a)anthracene	Not Detected	mg/kg
Benzo(a)pyrene	Not Detected	mg/kg
Benzo(b)fluoranthene	Not Detected	mg/kg
Benzo(k)fluoranthene	Not Detected	mg/kg
Chrysene	Not Detected	mg/kg
Dibenzo(a,h)anthracene	Not Detected	mg/kg
Fluoranthene	Not Detected	mg/kg
Fluorene	Not Detected	mg/kg
Indeno(1,2,3-cd)pyrene	Not Detected	mg/kg
Naphthalene	Not Detected	mg/kg
Pyrene	Not Detected	mg/kg

AA09561**LCS**

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A**QC Report**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
1-methylnaphthalene	0.29106		mg/kg			97.0			
2-methylnaphthalene	0.29372		mg/kg			97.9			
Acenaphthene	0.29661		mg/kg			98.9			
Anthracene	0.29873		mg/kg			99.6			
Benz(a)anthracene	0.26625		mg/kg			88.8			
Benzo(a)pyrene	0.38205		mg/kg			127			
Benzo(b)fluoranthene	0.29261		mg/kg			97.5			
Benzo(k)fluoranthene	0.28256		mg/kg			94.2			
Chrysene	0.33699		mg/kg			112			
Dibenzo(a,h)anthracene	0.32650		mg/kg			109			
Fluoranthene	0.37885		mg/kg			126			
Fluorene	0.30184		mg/kg			101			
Indeno(1,2,3-cd)pyrene	0.33109		mg/kg			110			
Naphthalene	0.28776		mg/kg			95.9			
Pyrene	0.37549		mg/kg			125			

AA09562

1-methylnaphthalene	0.29490		mg/kg			98.3			
2-methylnaphthalene	0.30992		mg/kg			103			
Acenaphthene	0.28911		mg/kg			96.4			
Anthracene	0.30422		mg/kg			101			
Benz(a)anthracene	0.31533		mg/kg			105			
Benzo(a)pyrene	0.32367		mg/kg			108			
Benzo(b)fluoranthene	0.33039		mg/kg			110			
Benzo(k)fluoranthene	0.30728		mg/kg			102			
Chrysene	0.32481		mg/kg			108			
Dibenzo(a,h)anthracene	0.33101		mg/kg			110			
Fluoranthene	0.32880		mg/kg			110			
Fluorene	0.29593		mg/kg			98.6			
Indeno(1,2,3-cd)pyrene	0.34504		mg/kg			115			
Naphthalene	0.30354		mg/kg			101			
Pyrene	0.32974		mg/kg			110			

VOC_S-3641**AA09392****MB**

1,2,4-trimethylbenzene	<0.00245		mg/kg						
1,3,5-trimethylbenzene	<0.005		mg/kg						
Benzene	<0.00242		mg/kg						
Ethylbenzene	<0.005		mg/kg						
m&p- xylene	<0.00427		mg/kg						
Naphthalene	<0.00507		mg/kg						
o-xylene	<0.00227		mg/kg						
Toluene	<0.00263		mg/kg						
Xylenes, total	<0.00654		mg/kg						

AA09393

**Division of Environmental Testing**

2115 N Scranton St Suite 3040A

Aurora, CO 80045

800-440-5184

FINAL RESULTS REPORT**Report Date :** 7/2/2024**Report Time :** 15:20**Project Manager:** Blair Rollins**Project Name:** Tank Valve Failure**Project Number:** N/A**QC Report**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%Rec	% REC Limits	RPD	RPD Limit
LCS									
1,2,4-trimethylbenzene	0.06421		mg/kg			128			
1,3,5-trimethylbenzene	0.05317		mg/kg			106			
Benzene	0.05434		mg/kg			109			
Ethylbenzene	0.05773		mg/kg			115			
m&p- xylene	0.10232		mg/kg			102			
Naphthalene									
Napthalene	0.06460		mg/kg						
o-xylene	0.05470		mg/kg			109			
Toluene	0.05402		mg/kg			108			
Xylenes, total	0.15702		mg/kg			105			

AA09394

1,2,4-trimethylbenzene	0.06449		mg/kg			129			
1,3,5-trimethylbenzene	0.04865		mg/kg			97.3			
Benzene	0.05494		mg/kg			110			
Ethylbenzene	0.05973		mg/kg			119			
m&p- xylene	0.10630		mg/kg			106			
Naphthalene									
Napthalene	0.05919		mg/kg						
o-xylene	0.05637		mg/kg			113			
Toluene	0.05561		mg/kg			111			
Xylenes, total	0.16267		mg/kg			108			

Qualifier**Explanation**

H1	Sample received outside of regulatory holding time.
H2	Sample analyzed outside of regulatory holding time due to a laboratory error.
P1	Sample received outside temperature requirements, 0-6°C.
P2	Sample received unpreserved.
P3	Broken or leaking sample container.
P4	Sample improperly collected
P5	Sample incorrectly preserved
B1	Blank failed high, indicating possible high bias in sample results.
B2	Blank failed low, indicating possible low bias in sample results.
MS	Matrix Spike / Matrix Spike Duplicate recovery and/or RPD limit exceeded, indicating potential matrix interference.
D1	Duplicate RPD limit exceeded due to low sample concentration.
D2	Duplicate RPD limit exceeded due to matrix interference.
S	Surrogate recovery failed, indicating potential matrix interference.
RL1	Reporting limits raised due to matrix interference.
RL2	Reporting limits raised due to limited sample.
U	Sample result less than method detection limit.
J	Sample result less than reporting limit but higher than method detection limit.
E	Electronic loss or corruption of data.
I	Subcontracted sample