

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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403601422

Receive Date:

01/30/2024

Report taken by:

Steven Arauza

## Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

## OPERATOR INFORMATION

Name of Operator: CAERUS PICEANCE LLC	Operator No: 10456	Phone Numbers Phone: (970) 902-3598 Mobile: (970) 902-3598
Address: 1001 17TH STREET #1600		
City: DENVER State: CO Zip: 80202		
Contact Person: Andrew Verbonitz	Email: averbonitz@caerusoilandgas.com	

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 23864 Initial Form 27 Document #: 403074715

## PURPOSE INFORMATION

- ☐ Rule 913.c.(1): Pit or Cuttings Trench closure.
- ☐ Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- ☒ Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- ☐ Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- ☐ Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- ☐ Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- ☐ Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- ☐ Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- ☐ Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- ☐ Rule 913.g: Changes of Operator.
- ☐ Rule 915.b: Request to leave elevated inorganics in situ.
- ☐ Other: \_\_\_\_\_

## SITE INFORMATION

No Multiple Facilities

Facility Type: SPILL OR RELEASE	Facility ID: 481663	API #: _____	County Name: GARFIELD
Facility Name: A03 Vault valve release	Latitude: 39.643139	Longitude: -108.148575	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESE	Sec: 3	Twp: 5S	Range: 96W Meridian: 6 Sensitive Area? No

## SITE CONDITIONS

General soil type - USCS Classifications GM Most Sensitive Adjacent Land Use Rangeland

Is domestic water well within 1/4 mile? No Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

**Other Potential Receptors within 1/4 mile**

None

**SITE INVESTIGATION PLAN****TYPE OF WASTE:**☒ **E&P Waste**☐ **Other E&P Waste**☒ **Non-E&P Waste**☒ **Produced Water**☐ **Workover Fluids**

Fesh water from river mixed with produced water

☐ **Oil**☐ **Tank Bottoms**☐ **Condensate**☐ **Pigging Waste**☐ **Drilling Fluids**☐ **Rig Wash**☐ **Drill Cuttings**☐ **Spent Filters**☐ **Pit Bottoms**☐ **Other (as described by EPA)****DESCRIPTION OF IMPACT**

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	Approx. 17' by 17' by 15' bgs	Soil sampling and laboratory analysis

**INITIAL ACTION SUMMARY**

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

On February 18, 2022, the plug on a blind flange was found to be missing, releasing produced water into the valve can. The release was stopped, and the missing plug was replaced. Standing fluids were recovered using a vacuum truck. The release was reported in Energy & Carbon Management Commission (ECMC) Form 19 Document 402960724 to open Spill/Release Point ID 481663. ECMC Form 27 Document 403074715 was later submitted to open Remediation Project Number 23864. See the Report of Work Completed (ROWC) associated with Document 403260849 for site investigation details.

**PROPOSED SAMPLING PLAN****Proposed Soil Sampling**

☐ Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

No additional soil sampling is proposed.

**Proposed Groundwater Sampling**

☐ Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

Groundwater was not encountered during site investigation activities.

**Proposed Surface Water Sampling**

☐ Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

**Additional Investigative Actions**

☐ Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

See Other Investigation Information section for details.

**SITE INVESTIGATION REPORT****SAMPLE SUMMARY**

**Soil**

Number of soil samples collected 3

Number of soil samples exceeding 915-1 3

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 200

**Groundwater**

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

**Surface Water**

0 Number of surface water samples collected

Number of surface water samples exceeding 915-1

If surface water is impacted, other agency notification may be required.

**NA / ND**

-- Highest concentration of TPH (mg/kg) 219.7

-- Highest concentration of SAR 18

BTEX &gt; 915-1 No

Vertical Extent &gt; 915-1 (in feet) 15

NA Highest concentration of Benzene (µg/l)

NA Highest concentration of Toluene (µg/l)

NA Highest concentration of Ethylbenzene (µg/l)

NA Highest concentration of Xylene (µg/l)

NA Highest concentration of Methane (mg/l)

**OTHER INVESTIGATION INFORMATION**☐ Were impacts to adjacent property or offsite impacts identified?☐ Were background samples collected as part of this site investigation?☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards)

Volume of liquid waste (barrels)

☒ Is further site investigation required?

Caerus plans to conduct a vegetative survey in Q2 2024 to characterize the native plant community at the Location. All SAR impacts are confined to rangeland, which is not designated for agricultural or residential purposes. A desktop review comparing the site investigation area to Natural Resources Conservation Service (NRCS) ecological classifications indicates the area is designated as Mountain Loam. Plant species within this classification and anticipated to be identified during the survey have shallow root structures of less than 8 feet below ground surface (bgs); therefore, elevated SAR values are confined to depths beyond the relevant root zone as the release occurred inside the vault at a depth of 12 feet bgs. Pending results of the vegetative survey, Caerus plans to request consideration of ECMC Table 915-1 Footnote 3 to modify the allowable limit for SAR to 15.4 and subsequently, request closure for Remediation Project 23864.

**REMEDIAL ACTION PLAN**

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

**SOURCE REMOVAL SUMMARY**

Describe how source is to be removed.

No additional source removal is proposed.

**REMEDIAL ACTION SUMMARY**

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

On March 9, 2022, initial site investigation activities were performed. One soil sample was collected from the floor of the vault at 12 feet bgs to characterize potential soil impacts beneath the POR. Analytical results of point of release (POR) characterization exceeded ECMC Table 915-1 Residential Soil Screening Levels (RSSLs) for SAR and arsenic. On May 10, 2022, additional release investigation was performed. Impacted soil was removed from the base of the vault to approximately 13 feet bgs. A soil sample was collected from the base. Analytical results of the soil sample exceeded Table 915-1 RSSLs for SAR, pH, and arsenic.

Additional delineation efforts were performed November 17, 2022. The excavation was advanced to a total depth of 3 feet below the vault floor, or 15 feet bgs. One soil sample was collected from the newly excavated base to characterize the vertical extent of soil impacts. Analytical results indicate compliance with Table 915-1 RSSLs except for SAR and pH. See the ROWC associated with Form 27 Document 403260849 for more details.

Although elevated levels of pH remain in the release area, analytical results of POR characterization are compliant with the Table 915-1 RSSL for pH. Based on this source characterization data, Caerus requests consideration of Rule 915.e.(2).C. to remove pH as a constituent of concern for Remediation Project 23864.

**Soil Remediation Summary**

<input type="checkbox"/> In Situ	<input type="checkbox"/> Ex Situ
_____ Bioremediation ( or enhanced bioremediation )	_____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____
_____ Natural Attenuation	_____ Excavate and onsite remediation
_____ Other _____	_____ Land Treatment
	_____ Bioremediation (or enhanced bioremediation)
	_____ Chemical oxidation
	_____ Other _____

**Groundwater Remediation Summary**

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Other \_\_\_\_\_

**GROUNDWATER MONITORING**

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Groundwater was not encountered during site investigation activities.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

#### Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

#### ☐ Request Alternative Reporting Schedule:

☐ Semi-Annually☐ Annually☐ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

#### Report Type:

☐ Groundwater Monitoring☐ Land Treatment Progress Report☐ O&M Report☒ Other Q4 2023 Status Update

### Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Per Rule 705.b, and in line with guidance laid out in the SBAP, Caerus has general liability insurance in the amount of \$1M, and Caerus has umbrella insurance, which sits over the general liability insurance in the amount of \$75M. The umbrella and general liability insurance covers property damage, bodily injury to third parties, and sudden or accidental pollution under a combined \$76M.

Operator anticipates the remaining cost for this project to be: \$ 1000

### WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

If YES:

☐ Compliant with Rule 913.h.(1).☐ Compliant with Rule 913.h.(2).☐ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards?

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards?

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

The area will be returned to its active working surface elevation for continued operation. Final reclamation will be completed in accordance with 1000 Series regulations.

Is the described reclamation complete? No

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☐ Interim

☐ Final

Did the Surface Owner provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

### SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. 02/18/2022

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/09/2022

Proposed site investigation commencement. 03/09/2022

Proposed completion of site investigation. 06/30/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/09/2022

Proposed date of completion of Remediation. 11/17/2022

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

## OPERATOR COMMENT

This form has been submitted to provide a 4th Quarter 2023 Status Update and to request consideration of Rule 915.e.(2).C. to remove pH as a constituent of concern based on POR characterization data. Additional site investigation is tentatively scheduled for Q2 2024 to characterize the native plant community at the Location to pursue project closure via Table 915-1 Footnote 3 and related alternative allowable limit for SAR.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Andrew Verbonitz

Title: EHS Rem. Specialist

Submit Date: 01/30/2024

Email: averbonitz@caerusoilandgas.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Steven Arauza

Date: 02/23/2024

Remediation Project Number: 23864

### COA Type

### Description

	<p>The Operator's request for relief from pH as a contaminant of concern per Rule 915.e.(2).C is NOT approved at this time because background concentrations of pH have not been established.</p> <p>Operator shall collect sample(s) from comparable, nearby non-impacted native soil for purposes of establishing background soil conditions including pH, electrical conductivity (EC) and sodium adsorption ratio (SAR), per Rule 915.e.(2).D.</p>
1 COA	

## Attachment Check List

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

### Att Doc Num

### Name

403601422	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403652819	ANALYTICAL RESULTS
403652821	SOIL SAMPLE LOCATION MAP
403696296	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 4 Files

## General Comments

### User Group

### Comment

### Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)