

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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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 ECOM 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) 285-2925 Mobile: (970) 640-6919
Address: 1001 17TH STREET #1600		
City: DENVER State: CO Zip: 80202		
Contact Person: Blair Rollins	Email: brollins@caerusoilandgas.com	

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 9448 Initial Form 27 Document #: 2144788

## 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: HISTORIC PIT CLOSURE

## SITE INFORMATION

No Multiple Facilities

Facility Type: PIT	Facility ID: 112428	API #:	County Name: MESA
Facility Name: FEDERAL 36-2	Latitude: 39.229112	Longitude: -108.164726	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWSE	Sec: 36	Twp: 9S	Range: 97W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

General soil type - USCS Classifications GC Most Sensitive Adjacent Land Use RANGELAND

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

Is groundwater less than 20 feet below ground surface? No

## Other Potential Receptors within 1/4 mile

A dry ephemeral drainage is located approximately 0.15 miles north of the Location.

## SITE INVESTIGATION PLAN

### TYPE OF WASTE:

- ☐ E&P Waste      ☒ Other E&P Waste      ☐ Non-E&P Waste
- ☐ Produced Water      ☐ Workover Fluids
- ☐ 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	To be determined	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.

In 2015, an open record for the produced water storage pit at the Location was discovered during the Location review in preparation for well plugging and abandonment (P&A) and final reclamation. Energy & Carbon Management Commission (ECMC) Form 27 Document 2144788 was submitted to document the pending pit investigation, and ECMC Remediation Project Number 9448 was assigned.

Using heavy equipment, an exploratory excavation was opened. Soil samples were collected from the base and sidewalls of the excavation and submitted for laboratory analysis to characterize potential hydrocarbon impacts in and around the location of the former produced water storage pit. Analytical results of initial soil sampling identified soil impacts exceeding ECMC Table 910 allowable limits. Lab results identified levels of organic and inorganic constituents elevated above allowable limits. Form 19 Document 400970492 was submitted to document those findings, and Spill/Release Point ID 444541 was assigned.

### 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 ):

Characterization and delineation of soil impacts associated with the historical pit in accordance with ECMC Table 915-1 constituents and standards has not been completed. Caerus proposes the advancement of soil borings to fully characterize and delineate soil impacts. Prior to additional sampling, Caerus requests a reduced analyte list of TPH, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, EC, SAR, pH, and boron. See the attached Report of Work Completed (ROWC) for additional details.

#### Proposed Groundwater Sampling

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

Caerus does not anticipate encountering groundwater during site investigation activities. If groundwater is encountered, Caerus will attempt to collect a representative sample for analysis.

#### 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 ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 55

Number of soil samples exceeding 915-1 40

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

Approximate areal extent (square feet) 900

### NA / ND

-- Highest concentration of TPH (mg/kg) 17150

-- Highest concentration of SAR 79.1

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 27

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 200

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

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)

### Surface Water

0 Number of surface water samples collected

0 Number of surface water samples exceeding 915-1

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

## OTHER INVESTIGATION INFORMATION

☐ Were impacts to adjacent property or offsite impacts identified?

☒ Were background samples collected as part of this site investigation?

Multiple background samples were collected at the Location to characterize native levels of inorganic constituents of concern. See the attached ROWC for additional details regarding sampling locations and results (Doc # 403699585).

☐ 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?

See the Proposed Soil Sampling section.

## REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Caerus is in the process of determining the extent of contamination associated with the project. Once the extent of contamination is defined, Caerus will prepare and submit a plan for source removal to the ECMC for review and approval.

## REMEDATION 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.

Analytical results of February 2015 exploratory excavation identified soil impacts exceeding allowable limits to depths greater than 12 feet below ground surface (bgs). Laboratory results identified organic, inorganic, and metal constituents of concern above Table 910-1 allowable limits. Additional site investigation was performed March 2015 using environmental drilling rigs to determine the vertical and horizontal extents of diesel range organics (DRO) soil impacts and to install soil vapor extraction (SVE) wells to accelerate natural attenuation of hydrocarbons, monitor subsurface conditions, and support future remediation efforts.

A subsequent site investigation was performed June 2021 using an environmental drilling rig to determine whether soil impacts remained after SVE remediation activities. Site investigation was performed under a Table 910-1 extension request per Rule 915.f. approved via Form 27 Document 402644700 in May 2021. Analytical results of site investigation exceeded Table 910-1 allowable limits for electrical conductivity (EC), sodium adsorption ratio (SAR), pH, and arsenic.

Remediation of impacts associated with this pit was not completed by January 15, 2022; therefore, as per Rule 915.f, Caerus will comply with the current version of Table 915-1.

On June 28, 2022, additional soil boring activities associated with pit delineation were completed. Two borings were advanced in nearby, native, non-impacted soil adjacent to the Location to further characterize native levels of inorganic constituents of concern. The remaining two soil borings were advanced near the location of the historical pit to recharacterize anomalously high arsenic results from the June 2021 investigation. Laboratory results of June 2022 pit characterization samples indicate compliance with Table 915-1 Residential Soil Screening Levels except for EC, SAR, and arsenic. See the attached ROWC for additional details.

## Soil Remediation Summary

☒ In Situ

☐ Ex Situ

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

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

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

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

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

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ 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.

In the event that groundwater is encountered during the proposed field activities, Caerus will attempt to collect a representative groundwater sample for analysis.

## 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 REM 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: \$ 25000

### 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

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

ECMC Disposal Facility ID #, if applicable:

Non-ECMC 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 ECMC 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 project area is currently in use by the landowner as a graveled driveway. Caerus plans to return the area to the current state of a graveled driveway once any remedial efforts are completed.

Is the described reclamation complete? Yes \_\_\_\_\_

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? Yes \_\_\_\_\_

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

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. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/19/2015

Proposed site investigation commencement. 06/20/2022

Proposed completion of site investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/19/2015

Proposed date of completion of Remediation. \_\_\_\_\_

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 Status Update for Remediation Project 9448. No work was conducted during the quarter. Characterization and delineation of soil impacts associated with the historical pit in accordance with Table 915-1 constituents and standards has not been completed.

Caerus requests to utilize CECMC Table 915-1 Footnote 11 to establish an alternative allowable limit for arsenic based on background soil samples collected in native material near the site. Details regarding the location and concentrations for background arsenic samples are found in the attached report of work completed for the site (Doc # 403699585).

Caerus requests to utilize CECMC Table 915-1 Footnote 9 to address chromium VI as the MDL for this analyte was greater than the threshold concentration listed in Table 915-1. Caerus requests under Footnote 9 to utilize the MDL for chromium VI in replacement for the threshold concentration listed in Table 915-1.

Caerus proposes the advancement of soil borings to fully characterize and delineate soil impacts associated with the project. Prior to additional sampling, Caerus requests a reduced analyte list of TPH, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, EC, SAR, pH, and hot water soluble boron.

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

Signed: Blair Rollins

Title: Environmental Specialist

Submit Date: 02/27/2024

Email: brollins@caerusoilandgas.com

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

ECMC Approved: Steven Arauza

Date: 03/15/2024

Remediation Project Number: 9448

## COA Type

## Description

0 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

403666487	FORM 27-SUPPLEMENTAL-SUBMITTED
403699585	REMEDATION PROGRESS REPORT

Total Attach: 2 Files

## General Comments

### User Group

### Comment

### Comment Date

Environmental	Comply with outstanding COAs.	03/15/2024
Environmental	Based on the information provided for soil samples (doc #403699585), the Operator's request for a reduced analyte suite of TPH, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, EC, SAR, pH, and boron is conditionally approved.	03/15/2024

Total: 2 comment(s)