

State of Colorado
Energy & Carbon Management Commission

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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
Address: 1001 17TH STREET #1600		Phone: (970) 902-3596
City: DENVER State: CO Zip: 80202		Mobile: (970) 902-3596
Contact Person: Andrew Verbonitz	Email: averbonitz@caerusoilandgas.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 30040 Initial Form 27 Document #: 403414146

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: 484199	API #: _____	County Name: GARFIELD
Facility Name: K25 #WF04BK25596	Latitude: 39.584165	Longitude: -108.118991	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: nesw	Sec: 25	Twp: 5s	Range: 96w Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Riparian
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

West Fork Parachute Creek is located approximately 270 feet north of the Location. Several groundwater monitoring wells are within 0.25 miles of the Location, but none are domestic groundwater wells.

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	30 feet, by 35 feet, by 15 feet 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 April 9, 2023, the operator identified a flowline leak at the Location. An unknown volume of produced water and condensate was released from the flowline. The release was reported via Energy & Carbon Management Commission (ECMC) Form 19 Document 403368719 to open Spill/Release Point ID 484199. Form 27 Document 403414146 was later submitted to open Remediation Project 30040. See the Report of Work Completed (ROWC) associated with Document 403606747 for release 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):

Once impacted soil is removed, Caerus will collect soil samples from the resulting excavation to confirm compliance with ECMC Table 915-1 Residential Soil Screening Levels (RSSLs). Soil samples will be submitted for analysis of the approved reduced analyte list of total petroleum hydrocarbons (TPH), xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, and sodium adsorption ratio (SAR).

Proposed Groundwater Sampling

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

Groundwater is not expected to be encountered. If groundwater is encountered, Caerus will attempt to collect a representative groundwater sample for laboratory analysis.

Proposed Surface Water Sampling

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

[Empty text box for surface water sampling details]

Additional Investigative Actions

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

[Empty text box for additional investigative actions]

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 14

Number of soil samples exceeding 915-1 14

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

Approximate areal extent (square feet) 1000

NA / ND

-- Highest concentration of TPH (mg/kg) 4503

-- Highest concentration of SAR 14.4

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 15

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

 Highest concentration of Benzene (µg/l)

 Highest concentration of Toluene (µg/l)

 Highest concentration of Ethylbenzene (µg/l)

 Highest concentration of Xylene (µg/l)

 Highest concentration of Methane (mg/l)

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.

OTHER INVESTIGATION INFORMATION

Were impacts to adjacent property or offsite impacts identified?

Were background samples collected as part of this site investigation?

On October 17 and 19, 2023, five background samples were collected from nearby, non-impacted, comparable soil. See the ROWC associated with Document 403606747 for details.

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 Sampling section and the ROWC associated with Document 403606747 for details.

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 proposes to excavate source material within the release area. Impacted soil will be excavated and transported to a licensed disposal facility.

REMEDICATION 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 April 17, 2023, initial sampling was performed to characterize the point of release (POR). Six soil samples were collected from the excavation: one from the base of the excavation directly beneath the POR at 6 feet below ground surface (bgs), one from each sidewall at 4 feet bgs, and one composite sample from associated stockpiles on site. Analytical results of excavation samples indicate compliance with ECMC Table 915-1 RSSLs except for TPH, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene, SAR, pH, arsenic, and hexavalent chromium.

On August 11, 2023, additional delineation samples were collected. Using a hydrovacuum truck, four potholes were advanced: one at the POR to 10 feet bgs and one to the south, east, and north of the POR to 6 feet bgs. One soil sample was collected from the terminus of each pothole. Analytical results of delineation soil samples were within ECMC Table 915-1 RSSLs for all analyzed constituents of concern except for SAR and hexavalent chromium.

From October 16 through 19, 2023, additional delineation soil samples and background soil samples were collected. Using a hydrovacuum truck, four potholes were advanced: one at the POR to 15 feet bgs and one to the south, east, and north of the POR to 6.5 feet bgs. One soil sample was collected from the terminus of each pothole; analytical results are within ECMC Table 915-1 RSSLs for all analyzed constituents. Additionally, five soil samples were collected from nearby, non-impacted, comparable soil around the Location using hand tools; analytical results are within ECMC Table 915-1 RSSLs for all analyzed constituents. See the ROWC associated with Document 403606747 for details.

Soil Remediation Summary

In Situ

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 is not anticipated to be encountered. If groundwater is encountered during site investigation activities, Caerus will attempt to collect a sample for characterization.

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 Q1 2024 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: \$ 60000

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? _____

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.

Any disturbance will be returned to the active working surface of the well pad for continued operation. When the site is decommissioned at a later date, it will be reclaimed in accordance with 1000 Series Rules.

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. 04/09/2023

Actual Spill or Release date, or date of discovery. 04/09/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/17/2023

Proposed site investigation commencement. 04/17/2023

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/17/2023

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 1st Quarter 2024 Status Update and to request a semi-annual reporting schedule for Remediation Project 30040. No work was conducted during this quarter. Additional site assessment is anticipated to resume Q2 2024.

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: 03/29/2024

Email: averbonitz@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: 04/04/2024

Remediation Project Number: 30040

COA Type**Description**

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**

403716905	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403742705	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 2 Files

General Comments**User Group****Comment****Comment Date**

Environmental	Comply with outstanding COAs.	04/04/2024
Environmental	The Operator's request for a semi-annual reporting schedule is approved.	04/04/2024

Total: 2 comment(s)