

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
Address: 1001 17TH STREET #1600		Phone: (970) 778-2314
City: DENVER	State: CO	Zip: 80202
Contact Person: Jake Janicek	Email: jjanicek@caerusoilandgas.com	Mobile: (970) 778-2314

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 35662 Initial Form 27 Document #: 403781564

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

Yes Multiple Facilities

Facility Type: PRODUCED WATER TRANSFER SYSTEM	Facility ID: 470699	API #: _____	County Name: GARFIELD
Facility Name: Parachute Water System	Latitude: 39.579677	Longitude: -108.105880	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSW	Sec: 30	Twp: 5S	Range: 95W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

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

Is domestic water well within 1/4 mile? Yes 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

An unnamed ephemeral drainage is located along the southwestern edge of the O36B well pad, and Parachute Creek is located approximately 0.20 miles to the east of the O36B well pad.

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	Laboratory Results and Field Observations

INITIAL ACTION SUMMARY

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

Please see ECMC Document 403781564 for a summary of activities completed prior to the second quarter of 2024.

On May 14th, 2024, the consultant returned to the assessment area following the excavation of a trench to access the pipeline that crosses an oil and gas access road to the immediate southeast of the O36B-596 well pad. The excavation was oriented from northwest to southeast. During the visit, the consultant collected four total soil samples. One discrete sample (20240514-NPR-(O36-PIPELINE02) @ 11) was collected from the base of the northwest end of the trench. Two discrete samples (20240514-NPR-(O36-PIPELINE01) @ 10, 20240514-NPR-(O36-PIPELINE03) @ 11) were collected from the base of the middle of the trench. One discrete sample (20240514-NPR-(O36-PIPELINE04) @ 10) was collected from the base of the southeast end of the trench. Laboratory analytical results indicate that all excavation samples contain values of arsenic exceeding RSSL standards, with a maximum value of 21.2 mg/kg. Samples "20240514-NPR-(O36-PIPELINE03) @ 11" and "20240514-NPR-(O36-PIPELINE04) @ 10" contain pH values exceeding RSSL standards, with a maximum pH value of 8.46. Sample "20240514-NPR-(O36-PIPELINE01) @ 10" contained values of SAR and EC exceeding RSSL standards.

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):

In order to address exceedances of Table 915-1 RSSL limits for EC and SAR observed in samples "20231220-O36-(FC-PIPELINE04)@7", "20231220-O36-(FC-PIPELINE05)@6", "20231220-O36-(STOCK03)" and "20240514-NPR-(O36-PIPELINE01) @ 10", Caerus plans to initiate a delineation of impacts. Maps included in the appendix of the attached report show the proposed delineation sampling locations for each sample that exhibits exceedances. As sample "20231220-O36-(STOCK03)" was composed of material removed from the excavation represented by sample "20231220-O36-(FC-PIPELINE04)@7" and the stockpiled material was used to backfill the excavation, delineation analytical results will be representative of both sample locations.

Please see the "Operator Comments" Section of this form for a continuance of this section.

Proposed Groundwater Sampling

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

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 31

Number of soil samples exceeding 915-1 31

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

Approximate areal extent (square feet) 675

NA / ND

-- Highest concentration of TPH (mg/kg) 260

-- Highest concentration of SAR 11.9

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 11

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

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?

Twelve background samples were collected from undisturbed areas north, south, west, and east of the assessment area.

☐ 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?

Yes, a delineation of impacted areas identified during the site assessment will be performed. Figures showing proposed delineation sampling locations are included as an appendix to the report attached to this form.

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.

The source is considered historical. Therefore, a source cannot be identified.

REMEDIATION 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.

Once the delineation of impacts has been completed, a remediation plan will be designed and presented in a future Form 27.

In order to address hexavalent chromium exceedances, Caerus requests use of ECMC Table 915-1 Footnote 9 to substitute the analytical laboratory's Reported Detection Limit (RDL) of 1.0 mg/kg as an alternative screening level for hexavalent chromium. Although hexavalent chromium concentrations exceeding ECMC Table 915-1 RSSLs may be present in the investigation area, they are below the laboratory RDL.

In order to address arsenic exceedances, Caerus requests the application of Table 915-1, Footnote 11 to modify the acceptable arsenic concentration used to evaluate project success to 1.25 times the upper range of arsenic concentration in background soil, or 22 mg/kg.

In order to address pH exceedances, Caerus requests an alternative allowable limit of 8.55 for pH per Table 915-1, Footnote 1. Analytical results of background samples collected as part of this project indicate a range of 7.3 to 8.55.

Assuming that these requests are approved, the only exceedances remaining in the project area are EC and SAR. Please see the "Proposed Soil Sampling" Section of this form for how Caerus plans to begin addressing these exceedances.

Soil Remediation Summary

☐ In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☐ Ex Situ

_____ Excavate and offsite disposal

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ Name of Licensed Disposal Facility or ECMC 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.

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 2Q 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: \$ 30000

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.

Any disturbance will be returned to the active working surface of the well pad for continued operation. For sites outside of an engineered working pad surface, disturbance will be returned to the natural contour of the landscape. When the site is decommissioned at a later date, it will be reclaimed 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. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/20/2023

Proposed site investigation commencement. 10/01/2024

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

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

The "Site Information" Section of this form has been updated to list the actual water system that this waterline was a part of. It was originally listed under ECMC Location # 335583 (O36A-596) and ECMC Location # 335658 (O36B-596).

Depth to Groundwater Determination:

Given the substantial depth to groundwater in the assessment area, as detailed in the attached report, and the absence of water encountered in excavations, Caerus requests approval to apply Table 915-1 RSSLs to all future soil samples and to the evaluation of project success, as no path to groundwater appears to exist.

Continued from "Proposed Soil Sampling" Section:

At each of the locations mentioned in the Proposed Soil Sampling section, Caerus requests that all future soil samples be analyzed for only those analytes (EC and SAR) that the above mentioned samples exhibited exceedances for. Please see the "Remediation Summary" Section for how Caerus plans to address pH, arsenic, and hexavalent chromium exceedances.

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

Signed: William Harmon

Title: Environmental Specialist

Submit Date: 08/21/2024

Email: will.harmon@kljeng.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: 09/19/2024

Remediation Project Number: 35662

COA Type

Description

0 COA	

ATTACHMENT 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

403861712	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403863537	SITE INVESTIGATION REPORT
403927277	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

Environmental	Comply with outstanding COAs.	09/19/2024
Environmental	Based on the information provided for potential pathways to groundwater, the Operator's request to use the Table 915-1 Residential Soil Screening Levels is conditionally approved.	09/19/2024
Environmental	Based on the information provided, the Operator's request for a reduced analyte suite of EC and SAR-only is conditionally approved.	09/17/2024

Total: 3 comment(s)