FORM 27 Rev 5/22

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 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 INFORMATON

Name of Operator: CAERUS PICEANCE LLC Operator No: 10456
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Blair Rollins Email: brollins@caerusoilandgas.com

Phone Numbers
Phone: (970) 285-2925
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PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25814 Initial Form 27 Document #: 403209457

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.
- [X] 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: WELL Facility ID: API #: 045-06953 County Name: GARFIELD
Facility Name: ROLES 13-10 (J13W) Latitude: 39.444210 Longitude: -107.721360
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWSE Sec: 13 Twp: 7S Range: 93W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM
Most Sensitive Adjacent Land Use Non-Crop Land
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 Mamm Creek is 0.11 miles south-southeast of the Location, and an unnamed surface water is 0.05 miles northeast of the Location.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [X] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	16' x 10' x 8' deep	Laboratory analysis of soil samples

INITIAL ACTION SUMMARY

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

Form 27 Document 403209457 was submitted to comply with Energy & Carbon Management Commission (ECMC) Rule 911.a.(4). The form served as the initial notification to abandon the ROLES #13-10 (J13W) (API# 05-045-06953) well and associated infrastructure. Equipment removed includes a wellhead and associated on-site flowline which will be abandoned in place. See the Report of Work Completed (ROWC) associated with Document 403241280 for additional 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 15

Number of soil samples exceeeding 915-1: 15

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet): 250

NA / ND

-- Highest concentration of TPH (mg/kg): 148

-- Highest concentration of SAR: 7.89

BTEX > 915-1: No

Vertical Extent > 915-1 (in feet): 10

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?

Background samples were collected at the Location on November 27, 2012.

☐ 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?

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.

Soil impacts exceeding ECMC Table 915-1 Residential Soil Screening Levels were removed and transported to a licensed disposal facility. No additional source removal is necessary.

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.

On October 6, 2022, initial sampling was conducted to characterize soil beneath the plugged and abandoned equipment in accordance with ECMC Rule 911.a. Following cut and cap operations, soil around the wellhead had been removed to a depth of 8 feet below ground surface (bgs), and soil beneath the separator inlet had been removed to a depth of 5 feet bgs. One base sample was collected from the wellhead excavation at 8 feet bgs. One soil sample was collected from the base of the flowline excavation at 5 feet bgs.

On July 11, 2023, Confluence returned to the location to resample the wellhead and separator excavations. Using hand tools, 10 soil samples were collected: one from the base of the wellhead excavation immediately adjacent to the wellhead, one from the base of the separator excavation, and 4 from all corresponding sidewalls in each excavation. Samples were characterized using visual and olfactory observations and field-screened with a PID.

On July 24, 2023, Confluence returned to the location with a hydro vacuum truck to continue remedial excavation of the south sidewall of the separator excavation. The sidewall was advanced approximately 4 feet. Final excavation extents were approximately 16 feet long, by 10 feet wide, by 8 feet bgs. One soil sample was collected from the south sidewall and was characterized using visual and olfactory observations and field-screened with a PID.

Values of pH and arsenic exceeding ECMC Table 915-1 Residential Soil Screening Levels still exist within the project area. Produced water data collected from the Location indicates a pH value of 6.65 while arsenic concentrations were not detected above laboratory detection limits. Caerus requests consideration of Rule 915.e.(2).C to remove pH and arsenic as constituents of concern for this remediation project based on analytical results of the produced water characterization. See attached ROWC for details.

Soil Remediation Summary

☐ **In Situ**

- ____ Bioremediation (or enhanced bioremediation)
- ____ Chemical oxidation
- ____ Air sparge / Soil vapor extraction
- ____ Natural Attenuation
- ____ Other _____

☒ **Ex Situ**

- Yes Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) 5
  - 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.

Groundwater was not encountered during site investigation activities.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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

[X] Other Q3 2023 Remediation Status Update and NFA Request

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: $ 0

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:

None

Volume of E&P Waste (solid) in cubic yards 5

E&P waste (solid) description Produced water impacted soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Greenleaf Environmental Services

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? Yes

If YES:

[X] 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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? Yes

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.

All disturbance areas will be returned to grade with suitable material in preparation for final reclamation activities pursuant to the ECMC 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.

Actual Spill or Release date, or date of discovery. 10/06/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/06/2022

Proposed site investigation commencement. 10/06/2022

Proposed completion of site investigation. 07/24/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/29/2023

Proposed date of completion of Remediation. 07/24/2023

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

Based on the approximate depth to groundwater being between 30 and 70 feet bgs, Caerus requests to compare analytical results for site investigation to CECMC Table 915-1 Residential Soil Screening Levels as no reasonable pathway to groundwater appears to exist.

Assuming the alternative screening levels are approved, values of pH and arsenic exceeding CECMC Table 915-1 Residential Soil Screening Levels still exist within the project area. Produced water data collected from the tanks on Location indicates a pH value of 6.65 while arsenic concentrations were not detected above laboratory detection limits. Caerus requests consideration of Rule 915.e.(2).C to remove pH and arsenic as constituents of concern for this remediation project based on analytical results of the produced water characterization.

Assuming the proposed alternative allowable limits and process knowledge are accepted, all constituents of concern are within CECMC Table 915-1 Residential Screening Levels or within their respective alternative allowable limits. Based on these results, Caerus requests closure with a no further action (NFA) determination for Remediation Project Number 25814.

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: 08/31/2023 Email: brollins@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: 09/25/2023

Remediation Project Number: 25814

COA Type	Description
	Based on review of information presented it appears that no further action is necessary at this time, and ECMC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding ECMC standards or if surface and/or ground water is found to be impacted, then further investigation and/or remediation activities will be required at the site. In addition, the non-working surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules including the establishment of vegetative cover on non-cropland and successful growth on cropland. Landowner must approve reclamation of cropland.
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
403487237	INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL)
403516589	REMEDIATION PROGRESS REPORT
403539827	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)