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 ECMC 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: Andrew Verbonitz Email: averbonitz@qb-energy.com

Phone Numbers
Phone: (970) 902-3598
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PROJECT, PURPOSE & 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.
- [X] 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:

- [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)
- [X] **Non-E&P Waste**

  Fesh water from river mixed with produced water

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	NA	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 and fresh 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. Form 27 Document 403074715 was later submitted to open Remediation Project 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 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 3

Number of soil samples exceeeding 915-1 3

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

Approximate areal extent (square feet) 0

NA / ND

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

-- Highest concentration of SAR 18

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 0

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 May 22, 2024, four background soil samples were collected to characterize native values of inorganic constituents of concern. See the attached ROWC 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?

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.

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.

See the ROWC associated with Document 403260849 for site investigation details prior to 2024.

On May 22, 2024, background sampling was conducted to characterize native values of inorganic constituents of concern and a Quantitative Vegetation Survey (QVS) was completed to characterize the vegetation community and determine the relevant root depth of plant species at the Location. Analytical results of the background soil samples indicate native values of arsenic ranging from 2.45 to 4.36 milligrams per kilogram (mg/kg). 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, including those identified during the vegetative 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. Based on this knowledge, Caerus request consideration of Table 915-1 Footnote 3 to modify the allowable limit for SAR to 15.4

SAR and pH values exceeding Table 915-1 RSSLs remain undelineated in the release area. However, analytical results of the most impacted POR characterization are compliant with the Table 915-1 RSSL for pH. Additionally, produced water collected from the Middle Fork Water Treatment Facility, which is representative of the fluid released at the Location, indicates a near neutral pH value of 6.98. Based on this information, it is reasonable to conclude that the elevated pH values are not attributed to oil and gas operations at the Location. For these reasons, Caerus requests consideration of ECMC Rule 915.e.(2).C. to remove pH as a constituent of concern and subsequently, requests closure of Remediation Project 23864. See the attached ROWC for additional 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) 32
  - 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.

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 Closure 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? 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? Yes

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? 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 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 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. 05/22/2024

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 request closure of ECMC Remediation Project 23864. All constituents of concern are within ECMC Table 915-1 Residential Soil Screening Levels or proposed alternative allowable limits and/or considerations. See the attached ROWC for site investigation details.

Regarding elevated SAR values; 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, including those identified during the vegetative survey, have shallow root structures of less than 8 feet bgs. The release occurred inside the vault at a depth of 12 feet bgs; therefore, elevated SAR values are confined to depths beyond the relevant root zone. The plant community includes several salt-tolerant species, particularly in the grasses (Western and Thickspike Wheatgrass) and shrubs (Rubber Rabbitbrush), with moderate salt tolerance seen in species like Curlycup Gumweed, Broom Snakeweed, and Bluestem Penstemon. While some species have low salt tolerance, the presence of many salt-adapted plants suggests that the area is well-suited to withstand saline soil conditions. Following a QVS conducted two years after the release, no signs of distressed vegetation or surface impacts from elevated SAR were observed, suggesting that the SAR levels have not caused any observable harm to the plant community. Based on knowledge of the land use, depth of impacts, and characteristics of the vegetative community, Caerus requests consideration of Table 915-1 Footnote 3 to modify the allowable limit for SAR to 15.4.

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: 10/16/2024 Email: averbonitz@qb-energy.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: 12/18/2024

Remediation Project Number: 23864

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 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
403886294	INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL)
403942666	ANALYTICAL RESULTS
403942708	ANALYTICAL RESULTS
403958784	SITE INVESTIGATION REPORT
404033176	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)