

State of Colorado
Energy & Carbon Management Commission

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Document Number:
403580898
Receive Date:
11/22/2023

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 INFORMATION

| | | |
|--------------------------------------------------------|--------------------------------------------|-------------------------------|
| Name of Operator: <u>CAERUS PICEANCE LLC</u> | Operator No: <u>10456</u> | Phone Numbers |
| Address: <u>1001 17TH STREET #1600</u> | | Phone: <u>(970) 285-2925</u> |
| City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u> | | Mobile: <u>(970) 640-6919</u> |
| Contact Person: <u>Blair Rollins</u> | Email: <u>brollins@caerusoilandgas.com</u> | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 19864 Initial Form 27 Document #: 402631546

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: <u>LOCATION</u> | Facility ID: <u>415180</u> | API #: _____ | County Name: <u>GARFIELD</u> |
| Facility Name: <u>Story Gulch Unit 8505A-36 B36496</u> | Latitude: <u>39.664206</u> | Longitude: <u>-108.113367</u> | |
| ** correct Lat/Long if needed: Latitude: _____ | | Longitude: _____ | |
| QtrQtr: <u>Lot 2</u> | Sec: <u>36</u> | Twps: <u>4S</u> | Range: <u>96W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u> |

SITE CONDITIONS

General soil type - USCS Classifications CL Most Sensitive Adjacent Land Use Forest
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

An unnamed ephemeral tributary to Schutte Creek is located approximately 0.22 miles to the east.

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 |
|--------------|----------------|------------------|--------------------------------------|
| UNDETERMINED | SOILS | To be determined | Soil sampling and laboratory results |

INITIAL ACTION SUMMARY

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

Between March 12, 2010 and February 15, 2011, five separate releases occurred on the Location. All Spill/Release Point IDs have been closed under Colorado Energy and Carbon Management Commission (ECMC) Remediation Project Number 19864. Please refer to Form 19 Document numbers 2524363, 2524496, 2523460, 2607774, and 2523034 and the attached Report of Work Completed (ROWC) for details regarding the individual releases, immediate actions taken to abate, investigate, and remediate impacts associated with the historical spills.

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):

Remedial soil amendments are being proposed at the location. If approved, and approximately one month after treatment has been applied, soil samples will be collected within the investigation area from areas with observed pH exceedances. Soil samples will be submitted for the approved reduced analyte list of pH. See the attached ROWC for details.

Proposed Groundwater Sampling

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

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

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 53
 Number of soil samples exceeding 915-1 49
 Was the areal and vertical extent of soil contamination delineated? No
 Approximate areal extent (square feet) 90000

NA / ND

-- Highest concentration of TPH (mg/kg) 239
 -- Highest concentration of SAR 21.9
 BTEX > 915-1 No
 Vertical Extent > 915-1 (in feet) 5

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 soil samples were collected October 7, 2021 in support of this investigation. See the ROWC associated with Document 403369156 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 Soil Sampling section and the attached ROWC for details.

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.

Caerus proposes a chemical treatment to remediate the pH exceedances within the release area. A mild concentration of citric acid and molasses should be applied over top of the impacted area and allowed to naturally permeate through the shallow shale and into areas where pH exceedances remain. The additional acids developed within the soil will result in a decrease in pH levels. Following treatment, Caerus will confirm the extent of impacts are defined and the treatment was successful in reducing the pH concentration to within CECMC Table 915-1 RSSL concentration levels.

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.

See the attached ROWC for details of several investigations regarding the historical spills at the Location.

Based on the October 20, 2022, investigation, Caerus submitted Form 27 Document 403369156 to request a reduced analyte list of pH and to request an alternative allowable limit for arsenic of 7.14 mg/kg. The ECMC approved document 403369156 and the associated requests on May 23, 2023.

On July 18, 2023, Confluence coordinated and oversaw the advancement of potholes to delineate pH impacts vertically, as well as to the west, south, and north of the PH05 excavation. Four potholes were advanced via hydrovacuum truck to depths of 2.5 to 4 feet bgs. Analytical results of the PH05 pothole samples indicate pH values exceeding ECMC Table 915-1 RSSLs within three of the potholes. See the attached ROWC for investigation details.

Soil Remediation Summary

In Situ

Ex Situ

Yes 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.

If groundwater is encountered during site investigation activities, Caerus will attempt to collect a representative sample for characterization.

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.

Any disturbance of the pad surface will be returned to the active working surface of the location for continued operation. 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. 06/29/2010

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/26/2021

Proposed site investigation commencement. 09/08/2021

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 09/08/2021

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 Q3 2023 status update and to propose in situ treatment of elevated pH values. See the attached ROWC for additional details.

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: 11/22/2023

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: 12/18/2023

Remediation Project Number: 19864

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**

| | |
|-----------|--------------------------------------------------|
| 403580898 | INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL) |
| 403604343 | SITE INVESTIGATION REPORT |
| 403627388 | FORM 27-SUPPLEMENTAL-SUBMITTED |

Total Attach: 3 Files

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

| | | |
|---------------|-------------------------------|------------|
| Environmental | Comply with outstanding COAs. | 12/18/2023 |
|---------------|-------------------------------|------------|

Total: 1 comment(s)