

State of Colorado Oil and Gas Conservation Commission

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Receive Date:

Report taken by:

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15947 Initial Form 27 Document #: 402475596

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: 477096	API #: _____	County Name: GARFIELD
Facility Name: Unocal 4 K04 dupleline release	Latitude: 39.555477	Longitude: -108.114527	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 4	Twp: 6S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GP 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

Parachute Creek is located 0.18 miles to the west.

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	TBD	Laboratory analytical 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.

Upon discovery of the spill, Caerus shut in the wells to stop the release. Caerus utilized manual excavation to determine if the extents of contamination could be identified for the release. Soil samples were collected to verify compliance with COGCC Table 910-1 standards for the project.

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):

Additional sampling activities will be grab samples to determine spill compliance, and composite samples for spoils pile characterization.

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):

If groundwater is encountered during the drilling process, Caerus will collect attempt to collect a sample for analysis of COGCC Table 910-1 groundwater analytes.

SITE INVESTIGATION REPORT**SAMPLE SUMMARY**

Soil

NA / ND

Number of soil samples collected 18

Number of soil samples exceeding 915-1 5

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

Approximate areal extent (square feet) 1800

-- Highest concentration of TPH (mg/kg) 5540

-- Highest concentration of SAR 37.7

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 60

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 100'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

NA Highest concentration of Benzene (µg/l)

NA Highest concentration of Toluene (µg/l)

NA Highest concentration of Ethylbenzene (µg/l)

NA Highest concentration of Xylene (µg/l)

NA Highest concentration of Methane (mg/l)

Surface Water

0 Number of surface water samples collected

0 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?

☐ 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?

Caerus will install at least one soil boring at a later date to determine remediation effectiveness and demonstrate compliance with COGCC Table 915-1.

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.

Attached please find the report of work completed demonstrating vertical and horizontal delineation of the spill area. Based on 1) the localized impacts found in the 30 - 55 foot depth of the point of release (SB01), and 2) the adequate radius of influence and communication between the soil borings installed at the site; Caerus plans to utilize soil vapor extraction (SVE) to complete remediation of the site. Caerus proposes to utilize a solar powered SVE trailer with gasoline powered trailer SVE events on a quarterly basis to augment remediation of the site. Caerus will monitor the exhaust coming from the SVE wells to indicate remediation progress. Once SVE exhaust demonstrates reduction of hydrocarbons in the exhaust, Caerus will install a soil boring in the area of the spill to demonstrate compliance with all exceedances found within SB01 of the attached report.

REMEDIAL 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.

Attached please find the report of work completed demonstrating vertical and horizontal delineation of the spill area. Based on 1. the localized impacts found in the 30 - 55 foot depth of the point of release (SB01), and 2. the adequate radius of influence and communication between the soil borings installed at the site; Caerus plans to utilize soil vapor extraction (SVE) to complete remediation of the site. Caerus proposes to utilize a solar powered SVE trailer with gasoline powered trailer SVE events on a quarterly basis to augment remediation of the site. Caerus will monitor the exhaust coming from the SVE wells to indicate remediation progress. Once SVE exhaust demonstrates reduction of hydrocarbons in the exhaust, Caerus will install a soil boring in the area of the spill to demonstrate compliance with all exceedances found within SB01 of the attached report.

Soil Remediation Summary

☒ In Situ

☐ Ex Situ

☐ Yes Bioremediation (or enhanced bioremediation)

☐ No Chemical oxidation

☐ Yes Air sparge / Soil vapor extraction

☐ Yes Natural Attenuation

☐ No Other _____

Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____

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

☐ No Bioremediation (or enhanced bioremediation)

☐ No Chemical oxidation

☐ No Air sparge / Soil vapor extraction

☐ No Natural Attenuation

☐ No 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 soil boring installation at the site.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☒ Quarterly☐ Semi-Annually☐ Annually☐ Other

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☐ **Request Alternative Reporting Schedule:**☐ Semi-Annually☐ Annually☐ Other

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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

X O&M Report

☒ Other Q4 2021 REM update

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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

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? 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 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.

Caerus anticipates the extent of contamination will be contained to the active well pad surface. Caerus plans to backfill the excavation to the active working surface of the well pad for continued operation.

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? Yes _____

If YES, does the seed mix comply with local soil conservation district recommendations? Yes _____

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). 07/15/2020 _____

Proposed site investigation commencement. 07/20/2020 _____

Proposed completion of site investigation. 12/16/2020 _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 01/12/2021 _____

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

Based on the favorable results outlined in the attached SVE remediation monitoring table, Caerus plans to continue remediation of the project through SVE.

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

Signed: Blair Rollins

Title: EHS Specialist

Submit Date: _____

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: _____

Date: _____

Remediation Project Number: 15947

COA Type**Description**

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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**

402932242	REMEDIATION PROGRESS REPORT
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)