

State of Colorado Oil and Gas Conservation Commission

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Document Number:

402853829

Receive Date:

10/27/2021

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: 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 #: 5169 Initial Form 27 Document #: 2608642

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: LOCATION	Facility ID: 334900	API #: _____	County Name: GARFIELD
Facility Name: PITMAN-67S93W 13SWNW	Latitude: 39.448610	Longitude: -107.731460	
** correct Lat/Long if needed: Latitude: 39.450064		Longitude: -107.731053	
QtrQtr: SWNW	Sec: 13	Twp: 7S	Range: 93W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications GC Most Sensitive Adjacent Land Use RANGELAND

Is domestic water well within 1/4 mile? Yes 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

2 PERMITTED WATER WELLS WITHIN 1/4 MILE. 2 UNNAMED INTERMITTENT TRIBUTARIES TO MAMM CREEK.

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	1554 CU YDS	FIELD INSTRUMENTATION, LAB RESULTS
Yes	VEGETATION	1554 SQ YDS	VISUALLY

INITIAL ACTION SUMMARY

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

THIS REVISED FORM 27 IS BEING SUBMITTED WITH CHANGES AND ADDITIONS REQUESTED BY THE COGCC DURING A DISCUSSION WITH ENCANA OIL & GAS (USA) INC. (ENCANA) PERSONNEL ABOUT A PREVIOUS VERSION SUBMITTED FOR THIS INCIDENT IN AUGUST OF 2009. THIS REVISED VERSION INCLUDES THE ORIGINAL SITE INVESTIGATION, BUT INCLUDES MODIFICATIONS TO THE PROPOSED MONITORING AND REMEDIATION PLAN. THIS FORM 27 WAS PREPARED TO DOCUMENT A SITE INVESTIGATION CONDUCTED IN RESPONSE TO A LANDOWNER COMPLAINT FILED WITH THE COGCC. THE COMPLAINT ALLEGED A SPILL, BASED ON THE APPEARANCE OF STRESSED VEGETATION, OUTSIDE THE PAD FOOTPRINT NORTH AND EAST OF THE E13 WELL PAD. IN RESPONSE TO THE COMPLAINT, ENCANA SAMPLED THE IDENTIFIED AREA OF CONCERN. THOSE RESULTS WERE COMPARED TO BACKGROUND SAMPLES TAKEN IN THE AREA, AND CONFIRMED ELEVATED LEVELS OF SAR, EC, PH, ARSENIC AND BORON. ATTACHED IS A FIGURE ILLUSTRATING SAMPLE LOCATIONS. SUBSEQUENT SITE INVESTIGATIONS UTILIZED FIELD VERIFICATION TECHNIQUES TO CONFIRM ELEVATED LEVELS TO A DEPTH OF 3 FEET. THIS FORM 27 ALSO PROVIDES A SITE REMEDIATION WORKPLAN FOR RETURNING VEGETATION IN THE AREAS OF CONCERN TO COMPOSITION SIMILAR TO ADJACENT PLANT COMMUNITIES. A FORM 19 WAS ALSO SUBMITTED TO DOCUMENT A POTENTIAL RELEASE AT THIS LOCATION.

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 soil samples collected to document soils for inorganics. See attached diagram. Additional sampling will commence after pilot test to determine treatment of inorganics. Caerus requests continuation of previously approved reduced suite of pH, SAR, and EC for project. Caerus requests continuance of REM 5169 to remain under COGCC Table 910-1 per COGCC Rule 915.f.

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):

Inorganics present at site. Caerus and contractor are in the process of conducting a small scale pilot test off facility/site to introduce treatment options to determine if inorganics can be lowered without source removal. Pilot test data will be provided on supplemental Form 27 to determine effectiveness and strategy for remediation approach.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 17

Number of soil samples exceeding 915-1 17

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

Approximate areal extent (square feet) 13000

NA / ND

-- Highest concentration of TPH (mg/kg) 64.17

-- Highest concentration of SAR 42

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 8

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

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?

Release areas are approximately North east of pad (gps coordinates of main release: 39.450064 / -107.731053). Confined to dry drainage. The dry drainage is a historic drainage depression from irrigation activities on the adjacent agricultural field. The drainage depression does not have an ordinary high water mark.

☒ Were background samples collected as part of this site investigation?

Background soil samples were collected as part of this investigation, please refer to the attached report of work completed.

☐ 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 is in the process of developing a remediation strategy for the impacts outlined in the attached report of work completed. Caerus will provide future remediation strategies on a Supplemental eForm 27 for the Q4 2021 REM status update.

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.

Based on field investigation activities and results, Caerus is in the process of developing a remediation strategy to remove the source of impacted material.

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.

Based on field investigation activities and results, Caerus is in the process of developing a remediation strategy to remove the source of impacted material.

Soil Remediation Summary

☐ In Situ

☐ Ex Situ

 Bioremediation (or enhanced bioremediation)

 Excavate and offsite disposal

_____ Chemical oxidation
_____ Air sparge / Soil vapor extraction
_____ Natural Attenuation
_____ Other _____

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

_____ 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.

No groundwater impacts have been identified.

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 Q3 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: _____

REMEDATION COMPLETION REPORT

REMEDATION 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.

THE RECLAMATION PLAN WILL BE IDENTIFIED IN THE PROPOSED REMEDIATION PLAN TO BE SUBMITTED FOLLOWING COMPLETION OF SITE MONITORING AT THE END OF THE 2021 GROWING SEASON.

Is the described reclamation complete? _____

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). 07/06/2009

Proposed site investigation commencement. 07/06/2009

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/06/2009

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

Caerus is in the process of developing a remediation strategy for Remediation Number 5169 and will provide it to the COGCC within the Q4 2021 Form 27 REM update.

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: 10/27/2021

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: 11/23/2021

Remediation Project Number: 5169

Condition of Approval

COA Type

Description

	Based on the analytical results provided in the attached report (doc #402854106), the Operator's request to proceed under a reduced analyte suite (pH, SAR, and EC), is conditionally approved.
	Form 27 doc #402646392 included a specific deadline (July 12, 2021) for Operator to provide justification for the requested reduced analyte suite. COGCC records indicate that the Operator did not comply with the July 12, 2021 deadline. This project is subject to Table 915-1 using the Residential Soil Screening Levels, the Operator's request to proceed under Table 910-1 (as indicated under Proposed Soil Sampling) is not approved and was not approved under the previous Form 27, doc #402646392. The Operator shall remove the request to proceed under Table 910-1 from future Form 27 submittals.
2 COAs	

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

402853829	FORM 27-SUPPLEMENTAL-SUBMITTED
402854106	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>Attached report (doc #402854106) states that The SAR levels...exhibiting a steep decline with depth in boring NSS demonstrates vertical delineation of SAR..."</p> <p>The COGCC does not concur with this assessment. SAR at the depth of 10-12' in boring NSS (7.76) exceeds Table 915-1 and comparable background levels (0.564-2.85) collected at depth from background borings.</p> <p>It follows that COGCC does not concur with the statement that "[v]ertical delineation of the identified impact was demonstrated for all constituents analyzed."</p>	11/23/2021

Total: 1 comment(s)