

State of Colorado Oil and Gas Conservation Commission

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402891494

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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 INFORMATION

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 7167 Initial Form 27 Document #: 2229808

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: PIT	Facility ID: 285021	API #: _____	County Name: GARFIELD
Facility Name: NP EF07B N30 595	Latitude: 39.581253	Longitude: -108.098522	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 30	Twp: 5S	Range: 95W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications MH

Most Sensitive Adjacent Land Use RANGELAND

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

According to COGCC GIS Online mapping, there is one stream and one groundwater monitoring water well within 1/4 mile.

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	GROUNDWATER	40' by 50'	Laboratory analytical results
Yes	SOILS	40' by 100' by 30'	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.

Please refer to COGCC Document number 400786267.

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):

Caerus does not plan to conduct soil boring and sampling as part of the hydrovac fluid recovery pilot test and continued solar-powered oil skimmer pilot test. Please see attached narrative.

Proposed Groundwater Sampling

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

During previous conversations and COAs assigned by the COGCC in Document # 401297665, Caerus was in direct conversations that requested continued groundwater monitoring at the site was meant to monitor fluid levels in the monitoring wells and to visually monitor for the presence of hydrocarbons per COGCC Table 910-1. Because of the absence of BTEX in the groundwater samples from around the site and the demonstration that the plume was stable, no additional BTEX analysis was requested. After recent conversations with the COGCC an additional BTEX analysis was requested to confirm previous analysis. The attached 2020 laboratory analytical data and summary table demonstrates the absence of BTEX and the stability of the plume found at the site. Based on the previous COA outlined in Doc #401297665 and the attached results demonstrating a stable plume with no BTEX present, Caerus intends to continue to monitor depth to groundwater at the site during each quarterly dewatering event.

Proposed Surface Water Sampling

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

Surface water samples are collected down gradient from this location on a quarterly basis for Caerus' North Parachute Ranch water sampling program.

Additional Investigative Actions

☐ Additional alternative investigative actions described in attached Site Investigation Plan (summary):

Please see the attached narrative. Caerus plans to continue solar-powered oil skimmer pilot test activities. Caerus proposes to conduct EFR activities using a hydrovac on a quarterly basis. Caerus will provide fluid recovery data, depth to groundwater/free product, free product thickness, and free product recovery data to the COGCC on a quarterly basis under a Supplemental eForm 27.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 0

Number of soil samples exceeding 915-1 0

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

Approximate areal extent (square feet) 12500

NA / ND

Highest concentration of TPH (mg/kg)

Highest concentration of SAR

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 52

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 36'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 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?

☐ 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) 0

Volume of liquid waste (barrels) 7

☒ Is further site investigation required?

Vertical and horizontal delineation of impacts to soil will be completed as part of further site investigation activities.

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.

Current remediation strategies are focused on removal of free-phase hydrocarbon from the groundwater at the site. Following source removal of free-phase hydrocarbon at the site, Caerus will focus efforts to remediate soil impacts associated with the project.

REMEDATION 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.

Currently Caerus conducts quarterly dewatering efforts from select monitoring wells throughout the site to remove free-phase hydrocarbon from the groundwater. Caerus completes this by utilizing a transport truck by attaching a PVC stinger inserted into each well and generating a vacuum to remove groundwater from each well. Depth to groundwater and free-phase oil gauging immediately before and after the dewatering event has proven to be a successful strategy to continue hydrocarbon collection from throughout the site.

In the first quarter of 2020 Caerus collected water samples from a select number of monitoring wells onsite, see attached 'N30 HAB Bacteria Map'. Heterotrophic bacteria (HAB) population analysis was completed on each of the wells tested which identified a strong population of HAB bacteria within the site. Caerus is providing this figure as it does not appear to be on file for this project although it was provided to the COGCC.

Previously submitted within prior Form 27 documents Caerus requested to pilot a skimmer system to remove free-phase oil from the site. This system was unsuccessful due to faulty and/or broken equipment which did not provide the desired free-phase oil removal at the site.

Caerus will continue to conduct quarterly monitoring and dewatering activities at the site and provide quarterly updates to track the progress and migration of free-phase oil to recoverable monitoring wells. Caerus is in the process of determining potentially successful remediation strategies to remediate the soil within the project area. Caerus will provide updates to the COGCC when remediation strategies have been identified to remediate soil within the project area.

Soil Remediation Summary

☒ **In Situ**

Yes Bioremediation (or enhanced bioremediation)

No Chemical oxidation

Yes Air sparge / Soil vapor extraction

Yes Natural Attenuation

No Other _____

☐ **Ex Situ**

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

Yes Bioremediation (or enhanced bioremediation)

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

Yes Other Transport truck EFR with pre
and post-event depth to water
monitoring _____

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.

Please see attached narrative.

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 Q2 2021 REM update

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Dewatering activities from the project monitoring well network removed approximately 7 barrels of impacted groundwater. The waste was transported to the NPR Solidification Facility (Location ID 426582) for handling and offsite disposal.

Volume of E&P Waste (solid) in cubic yards 0

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels 7

E&P waste (liquid) description Hydrocarbon impacted groundwater

COGCC Disposal Facility ID #, if applicable: 426582

Non-COGCC Disposal Facility: NPR Solidification 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.

The footprint for the backfill pit occurs within the pad boundary for this location. During reclamation the backfill pit may be part of the pad's working surface and/or covered by recontoured and reseeded sloped installed to meet reclamation objectives. Interim and final reclamation activities will be carried out in accordance with COGCC 1000 Series requirements, and will be documented accordingly.

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). 09/04/2019

Proposed site investigation commencement. _____

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/08/2012

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 providing the 'N30-Site Map (05-09-2013)' figure and the 'N30 Pit Soil Samples 2021' to demonstrate compliance with COA #1 on Supplemental Form 27 Doc # 402571235.

Caerus is in the process of prioritizing and scheduling project workload and will conduct the vertical and horizontal delineation to COGCC Table 915-1 standards, and will provide project update reports in supplemental documentation.

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: 12/07/2021

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: 12/29/2021

Remediation Project Number: 7167

Condition of Approval**COA Type****Description**

	Operator shall comply with Rule 915.e.(2).B by collecting samples from areas most likely to have been impacted and determining the horizontal and vertical extent(s) of contamination.
	Per Rule 913.b.(2), the Operator will conduct sampling and analysis of soil, and groundwater--if encountered, to determine the horizontal and vertical extent of any contamination in excess of the cleanup concentrations in Table 915-1 for soil and groundwater. The Operator shall analyze samples for the complete Table 915-1 list and shall delineate the extent of impacts using the Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.
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**

402891494	FORM 27-SUPPLEMENTAL-SUBMITTED
402891721	ANALYTICAL RESULTS
402891723	REMEDIATION PROGRESS REPORT
402891728	SOIL SAMPLE LOCATION MAP

Total Attach: 4 Files

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

Environmental	Attached analytical summary table (doc #402891721) illustrates extensive data gaps in historical data. Additional site investigation is required to delineate the extent of impacts exceeding Table 915-1 Protection of Groundwater SSLs. See COAs above.	12/29/2021
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Total: 1 comment(s)