

# State of Colorado Oil and Gas Conservation Commission

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403181177

Receive Date:

09/28/2022

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	<b>Phone Numbers</b> Phone: (970) 285-2925 Mobile: (970) 640-6919
Address: 1001 17TH STREET #1600		
City: DENVER	State: CO Zip: 80202	
Contact Person: Blair Rollins	Email: brollins@caerusoilandgas.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 7966 Initial Form 27 Document #: 2146043

#### 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: LINED EARTHEN PIT CLOSURE

#### SITE INFORMATION

No Multiple Facilities

Facility Type: PIT	Facility ID: 433716	API #: _____	County Name: GARFIELD
Facility Name: H29A 433716	Latitude: 39.588380	Longitude: -108.070600	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENE	Sec: 29	Twp: 5S	Range: 95W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications OH 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**

THERE ARE TWO STREAMS, AND ONE MONITORING WELL WITHIN 1/4 MILE OF THE WELL PAD.

**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	IMPACTS DETAILED IN FORM 19	IMPACTS DETAILED IN FORM 19

**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 # 402583267 for initial actions taken in support of this 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 ):

Caerus will complete investigation and sampling activities in support of this project as outlined in COGCC Document # 402876779.

**Proposed Groundwater Sampling**

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

Groundwater has not been encountered during any activities conducted in support of this project.

**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 ):

Caerus will complete investigation and sampling activities in support of this project as outlined in COGCC Document # 402876779.

**SITE INVESTIGATION REPORT****SAMPLE SUMMARY**

Soil

NA / ND

Number of soil samples collected 76

Number of soil samples exceeding 915-1 76

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

Approximate areal extent (square feet) 10000

-- Highest concentration of TPH (mg/kg) 8574

-- Highest concentration of SAR 89.5

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 67

#### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 0

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?

Full delineation of the cuttings area is needed to characterize the Remediation Project.

### 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.

An initial sample was collected below the pit liner, that identified TPH at 20,000mg/kg, site investigation at that time included below pit liner sampling selected from areas where the highest probable impacts would occur, this was done by identifying soil staining, visual observations, and with the use of a PID. According to Encana's initial Form 27 in 2012, "Any impacted material identified below the liner would be evaluated upon discovery and depending upon severity would be removed using heavy equipment and remediated onsite, or disposed of offsite at a permitted disposal facility." The single point sample with unusually high TPH concentration has never replicated in the 120 soil sample collected from the pit area. So one could expect those highly impacted soil were removed and disposed offsite at a commercial landfill.

#### 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.

Caerus has installed bio-vent wells with augmented quarterly powered SVE events at the site to remediate existing impacts associated with the previously existing pit. Caerus is proposing a comprehensive site assessment and sampling plan to compare with COGCC Table 915-1. Upon completion of the site assessment and data review Caerus will submit a supplemental Form 27 identifying proposed next steps for the historic pit closure.

#### Soil Remediation Summary

☒ In Situ

☐ Ex Situ

No Bioremediation ( or enhanced bioremediation )

Excavate and offsite disposal

No ☐ Chemical oxidation  
No ☐ Air sparge / Soil vapor extraction  
No ☐ Natural Attenuation  
Yes ☐ Other ☐ A plan will be submitted after site assessment data review is completed

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_  
Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_  
Excavate and onsite remediation  
No ☐ Land Treatment  
No ☐ Bioremediation (or enhanced bioremediation)  
No ☐ Chemical oxidation  
No ☐ 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.

In the event that impacts to groundwater are identified, a vertical and lateral extent would be determined by a third party contractor and an appropriate insitu remediation and monitoring plan would be prepared and submitted to the COGCC for prior approval.

## 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 2022 REM update

### 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: \$ 150000

### 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.

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). 02/04/2013

Proposed site investigation commencement. 06/01/2022

Proposed completion of site investigation. 09/28/2022

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/04/2013

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 requests to utilize COGCC 915-1 Residential Soil Screening Level Concentrations for the project. This request is based on the following:  
1) Depth of observed groundwater within the monitoring well is approximately 50' below ground surface. Monitoring well surface elevation = 6,060', depth to groundwater = 6,010'  
2) Pad elevation = 6,242'

Based on this information, the approximate depth to groundwater at the project area is 230' below ground surface.

Based on the field investigation and sample results outlined in the attached report of work completed, Caerus requests a reduced analyte suite to include the following: TPH, benzo(A)anthracene, benzo(a)pyrene, benzo(B)fluoranthene, dibenzo(A,H)anthracene, EC, SAR, pH, hot water soluble boron, and arsenic for future sampling activities.

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: 09/28/2022

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: 11/02/2022

Remediation Project Number: 7966

**COA Type****Description**

	Attached report (doc #403181204), under Analysis and Recommendations, states "Confluence recommends additional site investigation to delineate the vertical and horizontal extents of organic impacts in all directions and the collection of background soil samples to establish native concentrations of inorganic constituents of concern."  In addition to collection of background soil samples to establish native concentrations of Soil Suitability for Reclamation analytes (EC, SAR, pH, hot water soluble boron) and arsenic, the Operator will continue to delineate the vertical and horizontal extents of impacts exceeding Table 915-1 for these analytes.
1 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**

403181177	FORM 27-SUPPLEMENTAL-SUBMITTED
403181204	SITE INVESTIGATION REPORT
403181209	AERIAL IMAGE
403181229	REMEDIATION PROGRESS REPORT

Total Attach: 4 Files

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

Environmental	Based on the information provided, the Operator's request for a reduced analyte suite of TPH, benzo(A)anthracene, benzo(a)pyrene, benzo(B)fluoranthene, dibenzo (A,H)anthracene, EC, SAR, pH, hot water soluble boron, and arsenic using the Table 915-1 Residential Soil Screening Levels is conditionally approved.	11/02/2022
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Total: 1 comment(s)