

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
403498320

Receive Date:

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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	<b>Phone Numbers</b>
Address: 1001 17TH STREET #1600		Phone: (970) 778-2314
City: DENVER State: CO Zip: 80202		Mobile: (970) 778-2314
Contact Person: Jake Janicek	Email: jjanicek@caerusoilandgas.com	

**PROJECT, PURPOSE & SITE INFORMATION**

**PROJECT INFORMATION**

Remediation Project #: 26222 Initial Form 27 Document #: 403178569

**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: No Further Action Request to Remediation Project Number (RPN) 26222 - Facility Decommissioning

**SITE INFORMATION**

Yes  Multiple Facilities

Facility Type: WELL	Facility ID:	API #: 103-10550	County Name: RIO BLANCO
Facility Name: YELLOW CREEK FEDERAL 27-13-1	Latitude: 40.024390	Longitude: -108.385380	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWSW	Sec: 27	Twp: 1N	Range: 98W Meridian: 6 Sensitive Area? Yes
Facility Type: UIC DISPOSAL	Facility ID: 159254	API #:	County Name: RIO BLANCO
Facility Name: YELLOW CREEK UNIT	Latitude: 40.024390	Longitude: -108.385380	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWSW	Sec: 27	Twp: 1N	Range: 98W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION Facility ID: 316449 API #: County Name: RIO BLANCO  
Facility Name: YELLOW CREEK FEDERAL-61N98W Latitude: 40.024390 Longitude: -108.385380  
27NWSW  
\*\* correct Lat/Long if needed: Latitude: Longitude:  
QtrQtr: NWSW Sec: 27 Twp: 1N Range: 98W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Rangeland-BLM  
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**

NA

# 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
No	SOILS	70x50x14	Soil Sampling/Laboratory Analytical

## 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 reference the initial Form 27 Document Number (DN) 403178569 for information regarding previous assessment activities completed to date.

Through multiple Site visits during 2Q and 3Q 2023, a total of 15 confirmation soil samples were collected to confirm removal of impacted soil from the base and sidewalls of the decommissioned production well YELLOW CREEK FEDERAL 27-13-1 (API 103-10550) per Colorado Oil and Gas Conservation Commission (COGCC) Rule 913.c.(9). Confirmation soil samples were collected from the base and along all sidewalls of the excavation footprint as the excavation was advanced and observed impacts to soils were removed. All confirmation soil samples were collected using an excavator and were analyzed for the constituents listed under COGCC Table 915-1. Additionally, soil samples were collected post source removal to address previous exceedances of boron and/or sodium adsorption ratio (SAR) represented by soil samples 20220817-YCF 27-13-1 (METER SKID), 20220817-YCF 27-13-1 (PAD VAULT), and 20220817-YCF 27-13-1 (ACCESS RD. VAULT).

Please see the attached report of work completed (ROWC) that details the subsequent decommissioning activities completed at the YELLOW CREEK FEDERAL-61N98W 27NWSW (Location ID: 316449) during the second quarter (2Q) 2023.

## 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 ):

### 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 ):

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

**Soil**

Number of soil samples collected 19  
Number of soil samples exceeding 915-1 19  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 3600

**NA / ND**

-- Highest concentration of TPH (mg/kg) 1328  
-- Highest concentration of SAR 9.32  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

**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?

Please reference DN 403178569 for site-specific backgrounds previously collected and reported.  
A total of 21 site-specific background soil samples were collected from native undisturbed soils within the immediate vicinity of the pad location for the purpose of further establishing background soil concentrations for Table 915-1 analytes per COGCC Rule 915.e.(2).D. All site-specific background were collected within the same soil horizon as the pad location (Rentsac charnery loam).

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?

The following details do not pertain to additional site investigation but rather a detail of the final disposition of soil removed during remediation. Due to lack of space within the form, it had to be placed within this section.  
All impacted soil has been or will be transported to Rio Blanco County's Wray Gulch Landfill for disposal under Waste Identification Code 230621. The total volume of transported soil is still being determined as approximately 75% of the material removed was impermeable competent bedrock. The total volume of removed material is currently being sorted onsite via the use of a soil screen with plans for the competent rock portion to be used as backfill. All other material, estimated to be approximately 400 cubic yards, will be transported to the above mentioned landfill.  
If any of the competent bedrock portion of the removed soil is found to be stained by released fluids or exhibits a hydrocarbon odor, it will be transported to the above mentioned landfill.

**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.

Since the impacts are considered historical, no source can be identified.

**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.

No further remediation is necessary associated with RPN 26222.

Per COGCC Rule 915.e.(2).C Caerus requests relief of pH as a contaminant of concern (COC). Although documented as an exceedance in all 19 closure confirmation soil samples [ranging from 8.34 standard unit (SU) to 9.61 SU] these concentrations are within the pH range (7.98-9.78 SU) of site-specific background soil samples collected between 8/17/2022 and 7/10/2023.

Per COGCC Rule 915.e.(2).C Caerus requests relief of SAR as a COC. Although documented as an exceedance in four of the 19 closure confirmation soil samples [ranging from 7.44 to 9.32] these concentrations are within the SAR range (0.0787-10.5 SU) of site-specific background soil samples collected between 8/17/2022 and 7/10/2023.

Per COGCC Rule 915.e.(2).C. (site-specific waste characterization) Caerus requests the director relief of arsenic as a COC. Although documented as an exceedance in all 19 closure confirmation soil samples [ranging from 2.59 milligrams per kilogram (mg/kg) to 9.40 mg/kg] this concentration range is greater than the produced water sample 20230411-YCFSOURCE-(YCF35-33-1-T) collected from nearby pad location YELLOW CREEK FEDERAL UNIT-61N98W 35NWSE (Facility ID: 316660) (YCF 35-33-1) on April 11, 2023 with a reported result of <0.100 mg/kg. The YCF 27-13-1 and YCF 35-33-1 locations are located approximately 1.83 miles distance from one another and both produced from the WILLIAMS FORK geologic formations. As these locations previously received fluids from the same geologic formations, the produced water sample from the YCF 35-33-1 location should be considered representative of the produced water at the YCF 27-13-1 location.

**Soil Remediation Summary**

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 400

\_\_\_\_\_ 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.

[Empty rectangular box for monitoring plan details]

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly    Semi-Annually    Annually    Other

Closure of RPN 26222 Decommissioned Wellhead, Location, and associated On and Off-Location Flowline

### 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 \_\_\_\_\_

## 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: \$ 0 \_\_\_\_\_

## 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:

None

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 \_\_\_\_\_ 15

E&P waste (liquid) description impacted soil mixed with hydrovac rinsate \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: Greenleaf Environmental Services \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? Yes

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 wellhead excavation area will be returned to grade with suitable material in preparation for final reclamation activities pursuant to the COGCC 1000 Series rules.

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? No

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? No

### 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). 08/17/2022

Proposed site investigation commencement. 08/17/2022

Proposed completion of site investigation. 08/02/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/13/2023

Proposed date of completion of Remediation. 08/02/2023

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**

Confirmation soil sample 20220817-YCF 27-13-1(PH03)@6' (SAR 14.9) is not associated with any equipment or infrastructure of the YCF 27-13-1 decommissioning project. Although this sample was initially reported under RPN 26222, the sample was collected beneath a right of way riser that runs parallel to the Site and is currently in service. Caerus requests the Director to consider this when reviewing the NFA request.

Caerus believes that a pathway to groundwater from soil identified at the pad location during facility decommissioning activities does not exist and requests concerning this subject per COGCC Table 915-1 Footnote 7 and due to the following reasons.

- 1) The vertical distance between the base of the wellhead excavation and the anticipated static water table depth. The static water table depth is estimated to be 493 feet below pad surface based on documents associated with a permitted water well (never drilled) approximately 3.15 miles to the southwest and identified by DWR Permit# 245811-. The vertical distance between the assumed static water level and the base of the wellhead location is approximately 479 feet associated with this remediation project.
- 2) No groundwater was/has been observed infiltrating, pooling, or standing within the existing excavation during site investigation or potholing activities. Although, stormwater was observed pooling within the wellhead excavation post snow melt, the stormwater observed was not groundwater or a perched aquifer.
- 3) The nearest sensitive receptor (200 feet northwest) is an unnamed tributary to Pinto Creek which the United States Geological Survey (USGS) map symbol detailed on the topo map provided on COGCC GISOnline indicates it is an intermittent stream. However, based on local knowledge and field observations, this tributary is better characterized as ephemeral, as it rarely flows except in extreme weather events, exceptional groundwater elevation increases manifested through natural springs, and/or rain/snow melt events. There is no observable standing water within the immediate area and any resulting appreciable groundwater elevation increase would have been observed in the excavation and/or pothole location associated with this remediation project. Any impacts to groundwater would have been observed through the multiple excavations completed at the location.
- 4) There are no known springs or headwater tributaries flowing/seeping from the unnamed tributary downgradient of the location.

Given these observations and facts concerning groundwater in the immediate vicinity of the project site, Caerus requests that the Director make a determination to evaluate the remediation success of this project using the Residential Soil Screening Level Concentrations listed in Table 915-1.

Caerus requests that the Director assign a "No Further Action" designation to RPN 26222 which is associated with the decommissioned wellhead YELLOW CREEK FEDERAL 27-13-1(Facility ID: 159254) (API # 103-10550), location YELLOW CREEK FEDERAL-61N98W27NWS (Facility ID: 316449),and associated production infrastructure (on and off location flowline).

All soil represented by the previously collected decommissioning compliance soil samples with elevated concentrations with respect to COGCC Table 915-1 RSSLCs and CCs have either been removed and await transported for offsite disposal to the Wray Gulch Landfill in Rio Blanco County under Special Waste Identification Number 230621 or the concentrations are within respective background concentrations per COGCC Rule 915.e.(2)C.

It has been proven through site specific E&P Waste profiling that the arsenic concentrations observed in decommissioning compliance soil samples are not a result of a spill of E&P waste and the soil represented by these samples should remain in situ.

Based on COGCC Rule 915.e.(2)C, Caerus requests that pH, SAR, and arsenic be removed from the COCs used to evaluate the successful closure of this remediation project.

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

Signed: Jake Janicek

Title: EHS Specialist

Submit Date: \_\_\_\_\_

Email: jjanicek@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: 26222

**COA Type**

**Description**

0 COA	
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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**

403513025	SITE INVESTIGATION PLAN
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Total Attach: 1 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
		Stamp Upon Approval

Total: 0 comment(s)