

# State of Colorado Oil and Gas Conservation Commission

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Document Number:

403178569

Receive Date:

11/07/2022

Report taken by:

Steven Arauza

## Site Investigation and Remediation Workplan (Initial 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: 3Q Status Update - Site Decommissioning Activities

#### 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 27NWSW		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

### **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
Yes	SOILS	TBD	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.

On August 17, 2022, 12 confirmation soil samples were collected from below or in the footprints of various former production equipment as a result of planned facility decommissioning the YELLOW CREEK FEDERAL-61N98W location and associated production well and infrastructure. The confirmation soil samples were collected at depths ranging from surface to 6 feet below ground surface (bgs). During sampling and potholing activities, the soil was characterized by visually inspecting the confirmation soil samples for the presence or absence of any odors and/or staining and by field screening the soil using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors.

Please see the attached report of work completed (ROWC) for additional information in regards to the initial actions completed.

### 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 ):

Following the cut and capping of the decommissioned wellhead, Yellow Creek Federal 27-13-1, confirmation soil samples from the base and sidewalls of the wellhead footprint will be screened and collected to confirm the removal of impacted soil. When completing future confirmation soil sampling all samples will be inspected for the presence or absence of petroleum hydrocarbon odor/staining and field screening soils using a PID to monitor for the presence or absence of volatile organic compounds.

Caerus requests the COGCC Directors permission to sample under a reduced analytical suite for all future samples collected in association with former production equipment of arsenic, boron, pH, and SAR. This requested suite does not include the soil samples associated with the initial decommissioned wellhead sampling. All initial samples associated with the decommissioned wellhead will be submitted for COGCC Full Table 915-1.

#### 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 ):

Please see "Proposed Soil Sampling" section of the form for details.

## 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? No

Approximate areal extent (square feet) 2000

**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

**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.

**NA / ND**

-- Highest concentration of TPH (mg/kg) 169

-- Highest concentration of SAR 14.9

BTEX &gt; 915-1 No

Vertical Extent &gt; 915-1 (in feet) 6

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)

**OTHER INVESTIGATION INFORMATION**☐ Were impacts to adjacent property or offsite impacts identified?☒ Were background samples collected as part of this site investigation?

Five site-specific background soil samples were collected from two locations west and east of the location from non-impacted native soil for the purpose of establishing background soil concentrations for Table 915-1 analytes per COGCC Rule 915.e.(2).D.

☐ 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?

Please see "Proposed Soil Sampling" section of the form for details.

**REMEDIAL ACTION PLAN****SOURCE REMOVAL SUMMARY**

Describe how source is to be removed.

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

**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.

Once the impacts are delineated, a remediation plan will be presented to the COGCC.

In order to address the elevated arsenic and pH concentrations observed in all facility decommissioning samples a produced water sample from nearby location YELLOW CREEK FEDERAL UNIT-61N98W 35NWSE (Location ID:316660) will be collected for Operator's Knowledge.

Additional site-specific background soil samples will be collected to address the elevated boron concentrations observed in facility decommissioning 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).

In order to address the elevated SAR concentrations observed in facility decommissioning soil samples 20220817-YCF 27-13-1 (ACCESS RD. VAULT) and 20220817-YCF 27-13-1 (PH03) @ 6' additional site-specific background soil samples will be collected.

If the elevated boron and SAR concentrations are not able to be addressed through site-specific background concentrations then the exceedances will be addressed through source removal. A representative number so soil samples will collected from each excavated footprint to confirm the removal of the elevated boron and SAR concentrations.

Please see the attached ROWC for additional investigative sampling details.

## **Soil Remediation Summary**

☐ In Situ

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

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

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ 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**

\_\_\_\_\_ 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.

If groundwater is observed during investigation activities, a representative sample will be collected and submitted for COGCC Table 915-1.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

**Approved Reporting Schedule:**

☐ Quarterly

☐ Semi-Annually

☐ Annually

☒ Other

3Q 2022 Status Update

☐ **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 Oil and Gas Facility Decommissioning Notification per  
COGCC Rule 911.a.(4) and 913.c.(9).

### 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: \$ 10000

### WASTE DISPOSAL INFORMATION

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

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: \_\_\_\_\_

# 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.

Any disturbances associated with the facility decommissioning 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? \_\_\_\_\_

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). 08/17/2022

Proposed site investigation commencement. 08/17/2022

Proposed completion of site investigation. \_\_\_\_\_

## REMEDIAL ACTION DATES

Proposed start date of Remediation. \_\_\_\_\_

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**

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

Signed: Dustin Held

Title: Sr. Consultant, Geologist

Submit Date: 11/07/2022

Email: dustin.held@wsp.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: 11/30/2022

Remediation Project Number: 26222

**COA Type****Description**

	Operator shall collect soil samples from areas most likely to be impacted and shall collect an appropriate number of representative soil samples to delineate the horizontal and vertical extents of contamination, per Rule 915.e.(2).B.
	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 approved analyte suite and shall compare analytical results for site investigation samples to the Table 915-1 Residential Soil Screening Level Concentrations.
	Operator will analyze decommissioned wellhead samples for the complete Table 915-1 list.
	Comply with Rule 912 for any historical impacts that are discovered.
4 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**

403178569	FORM 27-INITIAL-SUBMITTED
403207872	SITE INVESTIGATION REPORT

Total Attach: 2 Files

**General Comments**

<b>User Group</b>	<b>Comment</b>	<b>Comment Date</b>
Environmental	<p>This Form 27 and the attached report (doc #403207872) repeatedly reference "Operator Knowledge" with regard to site-specific waste characterization described under Rule 915.e.(2).C.</p> <p>Note to Operator: Rule 915.e.(2).C references "process knowledge" and site-specific E&amp;P Waste profile characterization, not Operator Knowledge.</p>	11/30/2022
Environmental	<p>Under Remediation Summary, Operator states "If the elevated boron and SAR concentrations are not able to be addressed through site-specific background concentrations then the exceedances will be addressed through source removal."</p> <p>This statement assumes that arsenic and pH exceedances will be addressed by produced water sampling (site-specific waste characterization per Rule 915.e.2.(C).)</p> <p>If produced water sampling is not sufficient to address arsenic and pH exceedances, then additional remediation and sampling will be required for these analytes.</p>	11/30/2022



Environmental	Based on the information provided for confirmation samples, the Operator's request for a reduced analyte suite of arsenic, boron, pH, and SAR for all future samples associated with former production equipment is conditionally approved.	11/30/2022
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Total: 3 comment(s)