

State of Colorado
Oil and Gas Conservation Commission

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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		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 #: 19562 Initial Form 27 Document #: 402761274

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: Assessment Report/Closure Request of REM #19562

SITE INFORMATION

No Multiple Facilities

Facility Type: LOCATION	Facility ID: 324201	API #:	County Name: GARFIELD
Facility Name: PUCKETT-66S97W 25SWSW	Latitude: 39.487908	Longitude: -108.175858	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SWSW	Sec: 25	Twp: 6S	Range: 97W 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? No
Is groundwater less than 20 feet below ground surface? No

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	0	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.

All fluids were evacuated from the partially buried vault (PBV) upon failure of annual hydrotesting. Please reference the attached Report of Work Completed (ROWC) which details initial soil sampling/screening activities (COGCC Document Number 402761274).

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):

If field screenings indicate hydrocarbon impacts to the soil, additional excavation will be performed to remove the identified impacts. Four (4) sidewall samples and one (1) base sample will be collected from the excavated area. These samples will be collected from the final excavation area once field screening indicates the removal of identified impacts in accordance with Rule 915.e(2). Soil samples will be submitted for COGCC Table 915-1 analytes.

Additionally, per COA in initial Form 19 Document Number 402753342, four (4) background samples will be collected in each cardinal direction off the location from comparable, nearby non-impacted native soil for purposes for establishing background soils conditions for pH, EC, boron, and SAR per Rule 915.e.(2).D.

Please reference the attached Report of Work Completed (ROWC) which details soil sampling/screening activities (COGCC Document Number 402761274).

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 14

Number of soil samples exceeding 915-1 0

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

Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 91.23
19

-- Highest concentration of SAR 1.66

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 0

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

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 the attached Report of Work Completed (ROWC) which details the background soil sampling activities (COGCC Document Number 402761274).

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?

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.

The source was a partially buried vault which has been permanently removed.

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 remediation is necessary.

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.

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 _____

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? 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? _____

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.

Following the PBV tank removal and any additional excavation deemed necessary, the excavation will be backfilled with clean imported fill to match preexisting grade.

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. 07/20/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/16/2021

Proposed site investigation commencement. 08/10/2021

Proposed completion of site investigation. 09/30/2021

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

In order to address a COA concerning assessing potential pathways to groundwater, a discussion of Caerus' assessment of potential pathways to groundwater is detailed below. Caerus believes that a pathway to groundwater from soil found along the excavation base and sidewalls along the existing excavation does not exist due to the following reasons:

- 1) The vertical distance between the base of the existing excavation and the anticipated static water table depth. The static water table depth is estimated to be 126 feet below pad surface based on documents associated with a domestic water well approximately 1,652 feet to the east and identified by DWR Permit # 125487. The vertical distance between the assumed static water level and the bottom of the existing excavation is approximately 120 feet associated with this remediation project.
- 2) No groundwater was/has been observed infiltrating the existing excavation.
- 3) The nearest sensitive receptor (42 feet east) is an unnamed tributary to Haystack Mountain drainage whose 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 characterised as ephemeral, as it rarely receives water flow 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 unnamed drainage or the excavation associated with this remediation project.

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

Per a COA issued in initial Form 27 Document Number 402761274 the POR location is at a latitude: 39.487605° and Longitude: -108.175866°.

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

Signed: Dustin Held

Title: Environmental Geologist

Submit Date: 09/16/2021

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: 09/28/2021

Remediation Project Number: 19562

Condition of Approval

COA Type

Description

1 COA	Based on review of information presented it appears that no further action is necessary at this time, and COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if surface and/or ground water is found to be impacted, then further investigation and/or remediation activities will be required at the site. In addition, the non-working surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules including the establishment of vegetative cover on non-cropland and successful growth on cropland. Landowner must approve reclamation of cropland.
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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.

<u>Att Doc Num</u>	<u>Name</u>
402810945	FORM 27-SUPPLEMENTAL-SUBMITTED
402813997	ANALYTICAL RESULTS

Total Attach: 2 Files

General Comments

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

Total: 0 comment(s)