

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) 788-2314
City: DENVER State: CO Zip: 80202		Mobile: (970) 788-2314
Contact Person: Jake Janicek	Email: jjanicek@caerusoilandgas.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 25302 Initial Form 27 Document #: 403112417

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: Q4 Status to Administrative Closure of Historic Pit and Facility Decommissioning

SITE INFORMATION

Yes Multiple Facilities

Facility Type: PIT	Facility ID: 104876	API #: _____	County Name: RIO BLANCO
Facility Name: SAGEBRUSH HILLS 4504	Latitude: 39.896750	Longitude: -108.530633	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 8	Twp: 2S	Range: 99W Meridian: 6 Sensitive Area? No
Facility Type: WELL	Facility ID: _____	API #: 103-07527	County Name: RIO BLANCO
Facility Name: SAGEBRUSH HILLS II UNIT A 4504	Latitude: 39.896976	Longitude: -108.530441	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 8	Twp: 2S	Range: 99W Meridian: 6 Sensitive Area? No

Facility Type: LOCATION Facility ID: 314907 API #: County Name: RIO BLANCO
Facility Name: SAGEBRUSH HILLS II UNIT A- Latitude: 39.896740 Longitude: -108.530613
62S99W 8NENW
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NENW Sec: 8 Twp: 2S Range: 99W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications SW 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

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	Site Investigation/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 Remediation Project Number (RPN) 25302 for all investigative decommissioning activities completed up to October 10, 2022 associated with the facility decommissioning activities of production well (API# 103-07527), pit (Facility ID: 104876), and location (Facility ID: 314907).

On October 10, 2022, five confirmation soil samples were collected and field screened from the wellhead excavation footprint. One confirmation soil sample was collected at the base of the excavation footprint immediately adjacent to the wellhead at a depth of 7 feet below ground surface (bgs) and four confirmation soil samples were collected along each sidewall of the excavation at depths of 6 feet bgs. Prior to the collection of all wellhead decommissioning confirmation soil samples, at least 6 inches of soil was removed from each sampling surface. All confirmation soil samples were screened using a photoionization detector (PID).

The attached report of work completed (ROWC) details subsequent wellhead investigative sampling activities and associated results along with the path towards closure of the decommissioned wellhead.

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):

The identified total petroleum hydrocarbon (TPH) and chromium (VI) impacts surrounding the decommissioned wellhead will be removed using a excavator. Impacted soils from the decommissioned wellhead base and along the north, south, and west sidewalls will be excavated. Soil will be field screened using a PID as previously identified impacted soil is removed. Once impact soils are determined to be removed through field screening subsequent confirmation soil samples will be collected.

Caerus request the COGGC Director to sample under a reduced analytical suite for all future samples associated with the decommissioned wellhead only to include chromium (VI) and TPH.

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 reference the "Proposed Soil Sampling" section for additional investigative actions.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 5

Number of soil samples exceeding 915-1 5

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

Approximate areal extent (square feet) 300

NA / ND

-- Highest concentration of TPH (mg/kg) 1360.89

-- Highest concentration of SAR 1.57

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 7

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?

See Document Numbers 403112417 and 403198591 for references to previously collected site-specific background and boring soil samples.

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 refer to the "Proposed Soil Sampling" section for additional investigative actions.

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.

Once the impacts are fully delineated a plan to remove the source will be addressed.

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.

A remediation plan will be submitted once all historic pit impacts are delineated.

Per COGCC Table 915-1 footnote 11, Caerus requests that the Director consider all five subsequent decommissioned confirmation soil samples be considered within site-specific background concentrations observed in site-specific background soil sample 20220810-4504(SB-BG01)@20-22'. The arsenic concentration of site-specific background soil sample 20220810-4504(SB-BG01)@20-22' (8.71 mg/kg) is within 1.25X of all five decommissioned wellhead subsequent confirmation soil samples collected at the Site.

Please see the attached ROWC for more specific investigative sampling details.

To address the elevated SAR concentrations observed in previously collected pit and facility decommissioning soil samples and to further establish site-specific background concentrations additional site-specific backgrounds will be collected per COGCC Rule 915.e.(2)D. All previous collected pit and facility decommissioning soil sampling analytical data can be reference in Document Numbers 403112417 and 403198591. All backgrounds will be submitted for COGCC Table 915-1 metal, EC, SAR, and pH. The proposed site-specific background locations which are located within the same mapped soils unit as the Site are depicted on Figure 4 of the attached ROWC.

See "Operator Comments" addressing the elevated pH concentrations to be evaluated as naturally occurring.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ 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.

Groundwater is not anticipated, if encountered, representative grab samples will be collected and analyzed under COGCC Table 915-1 for water.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other

Q4 Status to Administrative Closure of Historic Pit and Facility Decommissioning

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: \$ 50000 _____

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 _____ 10

E&P waste (liquid) description hydro-vac rinsate mixed with impacted soils

COGCC Disposal Facility ID #, if applicable: _____ 426582

Non-COGCC Disposal Facility: Greenleaf Environmental Services

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.

All disturbances within the interim reclaim will be reclaimed to match existing grade. When the site is decommissioned at a later date, it will be reclaimed in accordance with 1000 Series regulation.

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. 06/24/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/24/2022

Proposed site investigation commencement. 08/10/2022

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/24/2022

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

Carry over from "Remediation Summary" section below.

In order to address the elevated pH concentrations in four of the five subsequent confirmation soil samples collected on October 10, 2022, from the base and along the sidewalls of the decommissioned well excavation footprint, Caerus request the Director to consider the elevated pH values in four of the five subsequent confirmation soil samples collected from the base and along the sidewalls of the decommissioned wellhead excavation footprint and be evaluated as naturally occurring. Although these pH values range from 8.33 standard unit (SU) to 9.67 SU and are elevated with respect to the COGCC Table 915-1 CC maximum range of 8.3 SU, these elevated values should not be considered elevated as a result of oil and gas production activities associated with decommissioning of well SAGEBRUSH HILLS II UNIT A 4504 at the SAGEBRUSH HILLS 4504 location. Based on the site-specific background soil samples (SB-BG01 and SB-BG02) collected to the west and northeast cardinal directions off the pad location, the four elevated subsequent confirmation soil samples are the same value or within the background pH value of site-specific background soil sample 20220810-4504(SB-BG02)@5-7'. The pH values of the site-specific background soil samples collected to the west and northeast cardinal directions off the pad location range from 8.77 SU in site-specific background soil sample 20220810-4504(SB-BG01)@20-22' to 9.67 SU in site-specific background soil sample 20220810-4504(SB-BG02)@5-7'. Based on the pH values of the site-specific background soil samples collected to the west and northeast cardinal directions off the pad location in native ground, Caerus believes the elevated pH values in the four decommissioned well excavation footprint confirmation soil samples collected are not associated with the historic production at the SAGEBRUSH HILLS 4504 location but are rather naturally occurring background concentrations within the area.

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: 12/14/2022

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: 01/05/2023

Remediation Project Number: 25302

COA Type**Description**

	<p>Based on the information provided, the Operator's request for a reduced analyte suite of chromium VI and TPH is conditionally approved for samples associated with the Wellhead samples only..</p> <p>Per approved F27 doc #403198591, soil samples associated with the former pit location will be sampled for TPH, chromium VI, boron, EC, and SAR</p>
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**

403251695	FORM 27-SUPPLEMENTAL-SUBMITTED
403259908	SITE INVESTIGATION REPORT

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)