

State of Colorado Energy & Carbon Management Commission

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28628 Initial Form 27 Document #: 403337126

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: _____

SITE INFORMATION

No Multiple Facilities

Facility Type: WELL	Facility ID: _____	API #: 045-07041	County Name: GARFIELD
Facility Name: DUNN 4-16	Latitude: 39.469700	Longitude: -107.663200	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESE	Sec: 4	Twp: 7S	Range: 92W
Meridian: 6	Sensitive Area? No		

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

Other Potential Receptors within 1/4 mile

Adjacent rangeland includes multiple livestock pastures and irrigation ditches

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) No impacts associated with this project have been identified.

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	No impacts identified	Soil sampling and laboratory analysis

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

In March 2023, Caerus submitted Initial Form 27 Document 403337126 to open Remediation Project ID 28628 in compliance with COGCC Rules 911.a. (4), 913.a., 913.b.(1), 913.b.(2), and 913.c.(9), and to serve as the initial notification to abandon the Dunn 4-16 (API# 045-07041) well and associated production equipment.

On May 9, 2023, following the decommissioning and removal of production equipment, an initial site investigation was completed. Soil samples were collected from the base of each flowline and dumphine excavation at 4 to 5 ft below ground surface (bgs) and from the footprint of the removed separator at 1 ft bgs. The soil samples were characterized using visual and olfactory observations and field screened using a photoionization detector (PID). All samples were submitted for laboratory analysis of all constituents listed on ECMC Table 915-1. Analytical results indicate compliance with Table 915-1 Residential Soil Screening Levels (RSSLs) for all soil constituents of concern except for arsenic in all samples. Additionally, four background soil samples were collected from native, undisturbed, non-impacted areas near the Location and submitted for Table 915-1 inorganic constituents of concern. Analytical results indicate arsenic concentrations in the background greater than exceedances at the Location. See attached ROWC dated 10/26/2023 for additional details.

On July 24, 2023, following cut and cap operations for the Dunn 4-16 well, post-P&A site investigation was completed. One soil sample was collected from the base of the excavation adjacent to the capped well at 8.5 feet bgs. The soil sample was characterized using visual and olfactory observations and field screened using a PID. The sample was submitted for all Table 915-1 soil constituents of concern. Analytical results indicate compliance with all Table 915-1 RSSLs except for pH at a value of 8.32 and arsenic at 5.24 mg/kg. See attached ROWC dated 10/19/2023 for additional details.

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):

No additional sampling is proposed.

Proposed Groundwater Sampling

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

Groundwater was not encountered during any phase 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):

As part of the investigation, produced water characterization was completed by referencing pH levels in source samples collected from two sites within 1 mile of the Location that produce from the same formation (Williams Fork). Produced water samples were collected from wellheads at the P34NE (Location ID 334620) and B9E (Location ID 334833) well pads. Analytical results for produced water samples 045-12986-WMFK (P34NE) and 045-07805-WMFK (B9E) indicate pH levels of 7.54 and 7.70, respectively. See attached ROWC dated 10/26/2023 for additional details.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 10

Number of soil samples exceeding 915-1 10

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) 282

-- Highest concentration of SAR 1.33

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?

Four background soil samples were collected from nearby, undisturbed, non-impacted areas and submitted for laboratory analysis of Table 915-1 inorganic constituents of concern.

☐ 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.

No impacts were identified. Therefore, no source removal is warranted.

REMEDIATION 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.

Based on the estimated depth to groundwater greater than 50 ft, Caerus requests comparison of analytical results to Table 915-1 RSSLs as no reasonable pathway to groundwater appears to exist. Assuming the proposed request to use Table 915-1 RSSLs is approved, pH and arsenic are the only constituents of concern detected at the Dunn 4-16 wellhead and associated production equipment exceeding Table 915-1 RSSLs. Based on analytical results for background samples indicating native levels of arsenic ranging from 3.98 mg/kg to 5.89 mg/kg, Caerus requests an alternative allowable limit of 5.89 mg/kg for arsenic per Table 915-1 Footnote 1. Based on analytical results of produced water characterization indicating pH levels ranging from 7.54 to 7.70, Caerus concludes the pH exceedance present at the Location is not attributed to oil and gas operations and requests to remove pH as a constituent of concern per Rule 915.e.(2).C.

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.

Groundwater was not encountered during any phase of this project.

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 and Q3 2023 Update and Project Closure Request

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? 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? 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.

Any disturbance will be returned to the active working surface of the well pad for continued operation. When the site is decommissioned at a later date, it will be reclaimed in accordance with 1000 Series regulations.

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? _____

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). 05/09/2023

Proposed site investigation commencement. 05/09/2023

Proposed completion of site investigation. 07/24/2023

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

Based on all investigative results, and assuming all requests are approved, Caerus concludes impacts are not present at the Dunn 4-16 wellhead or associated equipment and requests closure of Remediation Project Number 28628 with a no further action determination.

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: 28628

COA Type**Description**

0 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**

403510501	SITE INVESTIGATION REPORT
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)