

State of Colorado  
Energy & Carbon Management 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 ECMC 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) 902-3598
City: DENVER State: CO Zip: 80202		Mobile: ( )
Contact Person: Andy Verbonitz	Email: averbonitz@caerusoilandgas.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 32171 Initial Form 27 Document #: 403538366

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

Yes Multiple Facilities

Facility Type: SPILL OR RELEASE	Facility ID: 484742	API #: _____	County Name: GARFIELD
Facility Name: PN25 tank release	Latitude: 39.403533	Longitude: -108.058751	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 25	Twp: 7S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SP Most Sensitive Adjacent Land Use non-cropland, 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**

ephemeral dry unnamed tributary 315' S, aquatic sportfish management waters HPH, elk winter concentration area HPH, mule deer severe winter range HPH, mule deer winter concentration area HPH

# 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	undetermined	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.

Please refer to document number 403466150 (Form 19 Initial) and document number 403466150 (Form 19 Supplemental) for initial actions taken in support of this project. As described in the attached Site Investigation Report, on August 30, 2023, one soil sample was collected at the point of release (POR) at a depth of approximately 2 feet bgs. Additionally, horizontal delineation was conducted in two (2) of the four cardinal directions around the POR. Two (2) samples were collected to the north and south of the POR at a depth of approximately 2 feet bgs. The samples were submitted to Pace Analytical for the ECMC full list 915-1 standards with a standard turnaround request. As part of the initial assessment three (3) background samples were also collected at a depth of approximately 2 feet bgs. All three (3) soil samples were submitted to Pace Analytical for 915-1 metals and soil suitability with a standard turnaround request. Based on the initial sampling results, site assessments and depth to groundwater ECMC approved a reduced analyte list of Xylenes, TPH-GRO, TPH-DRO, and TPH-RRO, pH, SAR, and Arsenic along with approved use of RSSL standards, as documented in Form 27, Document Number 403538366. On November 15, 2024, additional soil assessment was completed to determine the extent of impacts vertically and laterally at the site. One soil sample was collected under the POR at a depth of approximately 20 feet bgs and three (3) soil samples were collected from three of the four cardinal directions to delineate impacts laterally. All soil samples were submitted to Pace analytical for a reduced analyte suite to include Xylenes, TPH-GRO, TPH-DRO, and TPH-RRO, pH, SAR, and Arsenic.

## 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 ):

Additional soil assessment is also necessary to determine the extent of impacts. It is proposed that two soil borings be completed, one in the vicinity of PN25-SB09@18 and one to the west of the POR to fully delineate impacts laterally and vertically. Soil borings will be completed to a depth of 20 feet or greater to assess soil impacts. Additional remediation activities will be proposed based on the additional assessment data and following delineation of soil impacts.

### 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 ):

On January 11, 2024, Ensolum personnel returned to the Site to collect a source water sample from the adjacent PK25 Pad for comparison to pH and arsenic at the Site. The sample was submitted to Pace for pH and arsenic only on a standard turnaround request. All sample locations are included as Figure 3.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 15  
Number of soil samples exceeding 915-1 12  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) 2

### NA / ND

-- Highest concentration of TPH (mg/kg) 725  
-- Highest concentration of SAR 60.5  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 20

### 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?

Three (3) background samples were collected on at a depth of approximately 2 feet bgs from native material around the pad. All three (3) soil samples were submitted to Pace for 915-1 metals and soil suitability with a standard turnaround request. Analytical results from the background soil samples are presented in Tables 4 -5.

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 2 Volume of liquid waste (barrels) 0

Is further site investigation required?

Additional assessment activities will be completed to determine the vertical and horizontal extent of impacts. Delineation will be accomplished using a hollow stem auger rig to collect soil samples.

## 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.

Produced water tank will be repaired.

### 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.

Following additional assessment activities and determination of the horizontal and vertical extent of impacts a remedial approach will be designed. The remedial approach may involve in situ and/or ex-situ remedial approaches to address impacts at this site.

### Soil Remediation Summary

In Situ

Ex Situ

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

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

\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 2  
Name of Licensed Disposal Facility or ECMC 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 \_\_\_\_\_

## 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:

Volume of E&P Waste (solid) in cubic yards 2

E&P waste (solid) description hydrocarbon impacted soil

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

Non-ECMC Disposal Facility: Green Leaf Environmental

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description \_\_\_\_\_

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

Non-ECMC Disposal Facility: \_\_\_\_\_

# 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 ECMC 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.

Once remediation is complete, Caerus proposes to return the excavation to the active working surface grade for continued operation.

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. 07/08/2023

Actual Spill or Release date, or date of discovery. 07/08/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/08/2023

Proposed site investigation commencement. 08/30/2023

Proposed completion of site investigation. 02/29/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/30/2023

Proposed date of completion of Remediation. 03/31/2024

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

Caerus requests a reduced analytical suite to include xylenes, TPH-GRO, TPH-DRO, TPH-RRO, and SAR only, based on all assessment data described below:

A) From the January 11, 2024, source water sampling, the released fluid has a pH of 6.10 and an arsenic reading of <1.00. Therefore, all pH and arsenic exceedances in soil samples, PN25-SB08@20, PN25-SB09@18, PN25-SB10@18, and PN25-SB11@18 do not appear to be associated with the July 4, 2023, release.

Additional soil assessment has been scheduled to determine the extent of impacts. Two soil borings will be completed, one in the vicinity of PN25-SB09@18 and one to the west of the POR to fully delineate impacts laterally and vertically. Soil borings will be completed to a depth of 20 feet or greater to assess soil impacts. Additional remediation activities will be proposed based on the additional assessment data and following delineation of soil impacts.

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

Signed: Andy Verbonitz

Title: EHS Specialist

Submit Date: 06/12/2024

Email: averbonitz@caerusoilandgas.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECOMC Rules and applicable orders and is hereby approved.

ECMC Approved: Steven Arauza

Date: 07/17/2024

Remediation Project Number: 32171

## COA Type

## Description

<u>COA Type</u>	<u>Description</u>
0 COA	

## ATTACHMENT 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>
403783369	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403822713	REMEDATION PROGRESS REPORT
403857233	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Comply with outstanding COAs.	07/17/2024
Environmental	Based on the information provided, the Operator's request for a reduced analyte suite of total xylenes, TPH (GRO, DRO, ORO), and SAR-only is conditionally approved.	07/17/2024

Total: 2 comment(s)