

**State of Colorado**  
**Oil and Gas Conservation Commission**

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Document Number:  
403104348

Receive Date:

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Report taken by:

**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	<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 #: 20584 Initial Form 27 Document #: 402845415

**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: Responses to COAs issued to Remediation Project Number (RPN) 20584 in Document Number 403023769.

**SITE INFORMATION**

No Multiple Facilities

Facility Type: SPILL OR RELEASE	Facility ID: 480751	API #: _____	County Name: GARFIELD
Facility Name: KRK 7-7A Dumpline	Latitude: 39.463069	Longitude: -107.702139	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENE	Sec: 7	Twp: 7S	Range: 92W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use Agriculture/Rangeland

Is domestic water well within 1/4 mile? Yes 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**

Well Permit # 64199- for Domestic, Live Stock use.

**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	Soil Sampling

**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 initial spill characterization and results can be referenced in Initial Site Investigation and Remediation Workplan Form 27 Document Number 402845415.

**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 ):

Caerus plans to complete source removal via excavation of the previously delineated hydrocarbon and inorganic impacts associated with the KRK 7-7A Dumpline Release which are located immediately below and west of the separator production equipment following the Directors approval for relief of the COA issued in COGCC Document Number (DN) 403023769 in regards to the site-specific backgrounds for comparison for Table 915-1 Soil Suitability for Reclamation parameters. The number of excavation confirmation soil samples will be based on Table 1 referenced in the COGCC Rule 915.e.(2) - Soil Sampling and Analysis Guidance Document. All soil removed during excavation activities will be characterized through visual and olfactory observations and field screening soil samples for volatile organic compounds using a PID. Prior to any remediation, Caerus requests that all future soil samples be analyzed under a further reduced suite of TPH, BTEX, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.

**Proposed Groundwater Sampling**

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

[Empty text box for groundwater sampling details]

**Proposed Surface Water Sampling**

Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

[Empty text box for surface water sampling details]

**Additional Investigative Actions**

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

[Empty text box for additional investigative actions]

**SITE INVESTIGATION REPORT**

## **SAMPLE SUMMARY**

### **Soil**

Number of soil samples collected 14

Number of soil samples exceeding 915-1 14

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

Approximate areal extent (square feet) 600

### **NA / ND**

NA Highest concentration of TPH (mg/kg) \_\_\_\_\_

-- Highest concentration of SAR 10.8

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 23

### **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?

Two site-specific background soil borings were advanced within close proximity to the Site in undisturbed, non-impacted native soil for the purpose of establishing background soil conditions per COGCC Rule 915.e.(2).D. A total of 14 site-specific background soil samples were collected from the two borings. Please reference COGCC Document Number 403104348 and the attached report of work completed (ROWC) for more details associated with the site-specific background sampling summary/results.

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 is a dumpline which was replaced.

### **REMEDATION 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.

All impacted material associated with RPN #20584 will be removed through excavation. In the spring of 2023 Caerus plans to excavate and landfarm all hydrocarbon impacted material onsite. In order to confirm all impacted soil has been removed, all sidewalls and floors of the excavation will be confirmed compliant through laboratory analytical results of samples collected from them. All excavated soil removed from the subsurface will be spread out on the working pad surface in a bermed secondary containment to be landfarmed. Since the main hydrocarbon contaminants of concern are TPH, BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, this remediation strategy should allow for the hydrocarbons which are entrained into the native soil to volatilize thus remediating the soil to compliance with COGCC RSSLCs. All impacted soil will be remediated as stated above until laboratory analysis of the soil contained within the landfarm indicates compliance. Prior to any remediation, Caerus requests that all future soil samples be analyzed under a further reduced suite of TPH, BTEX, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. Please see the "Operator Comments" Section of this form for an explanation of why Caerus believes the analysis of soil samples for pH and SAR should be removed from the required sampling suite.

This section is continued in the "Operator Comments" Section of this form.

**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

Yes \_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

Yes \_\_\_\_\_ Land Treatment

No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

No \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ 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 Reponses to COAs issued to RPN 20584 in DN 403090402 and Q2 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 \_\_\_\_\_

## 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: \$ 75000

## 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 40

E&P waste (liquid) description hydrovac rinsate mixed with impacted soil

COGCC Disposal Facility ID #, if applicable: 426582

Non-COGCC 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 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.

There is currently nothing to reclaim.

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. 09/07/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/05/2021

Proposed site investigation commencement. 11/03/2021

Proposed completion of site investigation. 01/06/2022

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/02/2022

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**

CONTINUED FROM "REMEDIATION SUMMARY" SECTION:

The negligible impacts of the inorganic exceedances, specifically pH should be considered by the Director. Per COGCC Rule 915.e.2(C), Caerus requests that the elevated pH values in all soil samples associated with the delineation and remediation of this release be considered representative, and evaluated and considered as naturally occurring at the Site. Caerus feels as if this request is legitimate because the initial point of release (POR) confirmation soil sample [20211005- H7(POR)@7.5'] collected immediately below the POR exhibited a pH value of 8.38 which is an exceedance of the COGCC Table 915-1 CC for pH, but is within the range of pH measurements (7.46 to 8.48) exhibited in background soil borings recently collected near the site.

Lab data from recently advanced background soil borings into undisturbed native soil near the H7 pad indicate the soils exhibiting elevated SAR concentrations above background concentrations are isolated to the area immediately adjacent to the point of release. These soils are represented by soil samples 20211005-H7(POR)@7.5' and 20211104-H7(POR)@9' which exhibited SAR concentrations of 18.3 and 21.9, respectively. All other soil samples collected in an effort to delineate the impacted area exhibited SAR concentrations ranging from 1.08 to 10.7 which are within the range of background concentrations of the above-mentioned background soil borings which are between 4.45 and 10.8.

Based on this data, Caerus considers the remediation of soils with SAR concentrations above background concentrations complete since these soils were removed via hydrovac and disposed of at Caerus' NSF (COGCC Facility ID 426582).

Caerus requests that the sampling of soils for SAR and pH be removed from the sampling suite and that all future soil samples be analyzed for TPH, BTEX, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene only.

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: \_\_\_\_\_

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: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 20584

**COA Type**

**Description**

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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.

**Att Doc Num**

**Name**

403107254	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)