

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

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
 Phone: (303) 894-2100 Fax: (303) 894-2109



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402094835

Receive Date:

07/12/2019

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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

### OPERATOR INFORMATION

Name of Operator: CAERUS PICEANCE LLC		Operator No: 10456	<b>Phone Numbers</b>	
Address: 1001 17TH STREET #1600		Phone: (970) 285-2823		
City: DENVER	State: CO	Zip: 80202		Mobile: (970) 640-6919
Contact Person: Blair Rollins		Email: brollins@caerusoilandgas.com		

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 12690

Initial Form 27 Document #: 401835704

#### PURPOSE INFORMATION

- |  |  |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination                                       | <input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water                   |
| <input type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure                             | <input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b. |
| <input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation                 | <input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project                                  |
| <input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste                      | <input type="checkbox"/> Rule 906.c.: Director request   |
| <input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure | <input type="checkbox"/> Other _____   |

#### SITE INFORMATION

N Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: SPILL OR RELEASE	Facility ID: 457575	API #: _____	County Name: GARFIELD
Facility Name: K22 596 3C-27 well flowline release		Latitude: 39.599025	Longitude: -108.159530
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: NESW	Sec: 22	Twp: 5S	Range: 96W Meridian: 6 Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications SM

Most Sensitive Adjacent Land Use Non-Crop Land:  
Shrub and Brush

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? Yes

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	Undetermined	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 401835704 for this information.

### 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 ):

#### 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 ):

Monitoring of the West Fork of Parachute Creek will occur through the continued collection of quaterly water samples at North Parachute Ranch (NPR) Baseline locations NPR2SP and NPR6ST.

### Additional Investigative Actions

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

Caerus plans to utilize an environmental drilling contractor to install soil borings within the area of the point of release to delineate the horizontal and vertical extent of contamination associated with the spill.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 7

Number of soil samples exceeding 910-1 6

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

Approximate areal extent (square feet) 25

### NA / ND

-- Highest concentration of TPH (mg/kg) 38720

-- Highest concentration of SAR 2.12

BTEX > 910-1 Yes

Vertical Extent > 910-1 (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 910-1   

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

0 Number of surface water samples exceeding 910-1

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?

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

Volume of solid waste (cubic yards) 36

Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

Caerus plans to utilize an environmental drilling contractor to install soil borings within the area of the point of release to delineate the horizontal and vertical extent of contamination associated with the spill.

Soil samples from the point of release identified concentrations of TPH, BTEX, benzo(A)pyrene, and naphthalene to be above COGCC Table 910-1 soil standards. Based on the elevated concentrations of TPH, BTEX, benzo(A)pyrene, and naphthalene found at the point of release, Caerus requests to analyze all future soil samples for only the analytes found above COGCC Table 910-1 standard at the point of release.

# 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.

Caerus has contracted an environmental contractor to install soil borings in the area of the point of release. These soil borings will be utilized to delineate the extent of contamination associated with this spill. Caerus will convert the soil borings to remediation wells using slotted screen PVC and solid stem PVC.

Soil samples from the point of release identified concentrations of TPH, BTEX, benzo(A)pyrene, and naphthalene to be above COGCC Table 910-1 soil standards. Based on the elevated concentrations of TPH, BTEX, benzo(A)pyrene, and naphthalene found at the point of release, Caerus requests to analyze all future soil samples for only the analytes found above COGCC Table 910-1 standard at the point of release.

## 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.

Caerus plans on completing a SVE pilot test of the above mentioned remediation wells to determine the effectiveness of SVE for remediation of the release. Caerus will provide soil boring logs, laboratory analytical data for the remediation wells, and results of the SVE pilot test when completed under a Supplemental eForm 27.

## Soil Remediation Summary

☒ In Situ

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

\_\_\_\_\_ Chemical oxidation

Yes \_\_\_\_\_ 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.

If groundwater is encountered during the installation of the proposed soil borings, Caerus will complete the boring as a monitoring well and collect a groundwater sample for analysis of COGCC Table 910-1 analytes.

## REMEDATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:** ☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other \_\_\_\_\_

**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? Yes \_\_\_\_\_

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

All E&P waste derived from this remediation project was taken to RNI. Please refer to COGCC Document number 401835704 for this information.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 36

E&P waste (solid) description E&P impacted soils from the flowline release \_\_\_\_\_

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

Non-COGCC Disposal Facility: RNI - Piceance Creek Commercial Disposal Facility \_\_\_\_\_

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

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

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

Non-COGCC Disposal Facility: \_\_\_\_\_

## REMEDATION COMPLETION REPORT

### REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No \_\_\_\_\_

Do all soils meet Table 910-1 standards? \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? \_\_\_\_\_

Does Groundwater meet Table 910-1 standards? \_\_\_\_\_

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

## 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 were backfilled to match the preexisting grade of the working pad surface.

Is the described reclamation complete? Yes \_\_\_\_\_

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☒ Interim? ☐ Final?

Did the Surface Owner approve the seed mix? \_\_\_\_\_

If NO, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, if known. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/18/2018

Date of commencement of Site Investigation. 07/08/2019

Date of completion of Site Investigation. 07/12/2019

### REMEDIAL ACTION DATES

Date of commencement of Remediation. \_\_\_\_\_

Date of completion of Remediation. \_\_\_\_\_

### SITE RECLAMATION DATES

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

### OPERATOR COMMENT

This Supplemental eForm 27 is for Steven Arauza.

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

Signed: Blair Rollins

Title: EHS Specialist

Submit Date: 07/12/2019

Email: brollins@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: Steven Arauza

Date: 08/02/2019

Remediation Project Number: 12690

### COA Type

### Description

	Comply with Rule 910.b.(3) for soil sample collection.
	Comply with Supplemental eForm 19 and eForm 27 reporting COAs listed on doc #401835704.

### 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

402094835	FORM 27-SUPPLEMENTAL-SUBMITTED
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Total Attach: 1 Files

### General Comments

### User Group

### Comment

### Comment Date

Environmental	The COGCC approves of the operator's request for a reduced analyte suite (TPH, BTEX, benzo(a)pyrene, naphthalene) based on analytical results for 9/21/2018 excavation samples and 11/8/2018 soil boring samples (doc #401903864).	08/02/2019
Environmental	Submit results of SVE pilot test via a Supplemental eForm 27, as indicated in Remediation Summary section of this report.	08/02/2019

Total: 2 comment(s)