

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. 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) 285-2925
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 #: 7742 Initial Form 27 Document #: 2232896

**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 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 checked="" type="checkbox"/> Other LINED EARTHEN PIT CLOSURE

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

Facility Type: PIT	Facility ID: 425547	API #: _____	County Name: GARFIELD
Facility Name: A28 595	Latitude: 39.590860	Longitude: -108.053800	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENE	Sec: 28	Twp: 5S	Range: 95W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications MH Most Sensitive Adjacent Land Use RANGELAND

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

THERE ARE 2 SURFACE WATER RECEPTORS, AND NO WATER WELLS WITHIN 1/4 MILE OF THE WELL PAD.

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> E&P Waste       | <input checked="" type="checkbox"/> Other E&P Waste  | <input type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water  | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input type="checkbox"/> Oil             | <input type="checkbox"/> Tank Bottoms                |  |
| <input type="checkbox"/> Condensate      | <input type="checkbox"/> Pigging Waste               |  |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash                    |  |
| <input type="checkbox"/> Drill Cuttings  | <input type="checkbox"/> Spent Filters               |  |
|  | <input checked="" type="checkbox"/> Pit Bottoms      |  |
|  | <input type="checkbox"/> Other (as described by EPA) | _____                                  |

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
	SOILS	IMPACTS WILL BE DETAILED IN FORM 19	IMPACTS WILL BE DETAILED IN FORM 19

## 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 activities conducted in support of this pit closure project were carried out in accordance with COGCC Rules 905, 907, and 909 for conducting a site investigation in support of pit closures. The following activities have, or will be carried out in support of pit closure activities conducted in support of this project: 905.b(2) & 905.b(4) ? All above-liner fluids and solids will be removed from the pit and will be

reused or disposed of at a permitted disposal facility under manifest. 905.b(3) ? Liners will be removed, and reused/recycled or disposed of at a permitted disposal facility under manifest. 905.b(4) ? Representative samples will be collected from the pit bottom following removal of the pit liner and will be analyzed for compliance with COGCC Table 910-1. Sample results will be provided to the COGCC in supplementary submission(s) for this remediation project. 905.c ? In the event that levels of the constituents of concern found below the liner are in excess of Table 910-1 allowable concentrations and above background concentrations, a Form 19

(Spill/Release Report) will be submitted to document the failure of the pit liner and subsequent release of fluids. If below-liner concentrations are above Table 910-1 allowable concentrations, but below

background no Form 19 will be submitted. However, a Form 4 (Sundry Notice) will be

submitted to document the onsite disposal of material in excess of the allowable

concentrations identified in Table 910-1.

## 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 ):

see attached

### Proposed Groundwater Sampling

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

Ground water is not expected to be found.

### 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 ):

see attached

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 69

Number of soil samples exceeding 910-1 49

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

Approximate areal extent (square feet) 1600

### NA / ND

--          Highest concentration of TPH (mg/kg) 15746

--          Highest concentration of SAR 79.2

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 25

### 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)         

Volume of liquid waste (barrels)         

Is further site investigation required?

The site investigation for this project will be carried out as described above. All analytical data collected in support of this remediation project will be provided to the COGCC in a Form 19, if applicable, and/or in a Form 4 (Sundry Notice or Notification of Completion). A site diagram showing the location of collected samples will also be provided.

# REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes \_\_\_\_\_

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Based on the overall reduction of hydrocarbons from the A28 remediation system over time, the increase in available air-flow (SCFM on attached table) in the remediation system, and continued PID readings from the SVE trailer exhaust, Caerus plans to continue passive SVE remediation with bio-vent wells augmented with powered-trailer SVE events on a quarterly basis.

## 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.

Based on the overall reduction of hydrocarbons from the A28 remediation system over time, the increase in available air-flow (SCFM on attached table) in the remediation system, and continued PID readings from the SVE trailer exhaust, Caerus plans to continue passive SVE remediation with bio-vent wells augmented with powered-trailer SVE events on a quarterly basis.

## Soil Remediation Summary

**In Situ**

Yes \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
No \_\_\_\_\_ Chemical oxidation  
Yes \_\_\_\_\_ Air sparge / Soil vapor extraction  
Yes \_\_\_\_\_ Natural Attenuation  
Yes \_\_\_\_\_ Other \_\_\_\_\_ Bio Vent wells \_\_\_\_\_

**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  
No \_\_\_\_\_ Land Treatment  
No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
No \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
No \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Air sparge / Soil vapor extraction  
No \_\_\_\_\_ Natural Attenuation  
No \_\_\_\_\_ 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.

In the event that impacts to groundwater are identified, a vertical and lateral extent would be determined and an appropriate insitu remediation and monitoring plan would be prepared and submitted to the COGCC for prior approval.

# REMEDATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other A28 Annual report approved under old rules, will now submit quarterly

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? 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: \_\_\_\_\_

## 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.

The footprint for the backfilled pit occurs within the boundary for this location. During reclamation the backfilled pit may be part of the pad's working surface and/or covered by recontoured and reseeded slopes installed to meet reclamation objectives. The Form 4 (Notification of Completion) submitted for this project will identify the reclamation status of the location at the time of pit closure. Interim and final reclamation activities will be carried out in accordance with COGCC 1000 Series (Reclamation Regulations).

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 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). \_\_\_\_\_

Date of commencement of Site Investigation. 06/09/2009

Date of completion of Site Investigation. 11/05/2009

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 06/09/2009

Date of completion of Remediation. 11/05/2009

## **SITE RECLAMATION DATES**

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

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

**OPERATOR COMMENT**

Based on the overall reduction of hydrocarbons from the A28 remediation system over time, the increase in available air-flow (SCFM on attached table) in the remediation system, and continued PID readings from the SVE trailer exhaust, Caerus plans to continue passive SVE remediation with bio-vent wells augmented with powered-trailer SVE events on a quarterly basis.

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: 01/27/2021 \_\_\_\_\_

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: 02/25/2021 \_\_\_\_\_

Remediation Project Number: 7742 \_\_\_\_\_

**COA Type****Description**

	<p>F27 dated 2/15/2018, doc #401546955 indicates that "REM #7742 was submitted in 2012 to close a group of pits. Therefore REM #7742 must remain open until all pits on the list are closed."</p> <p>Operator shall submit an update on the status of all pits and related Spill/Release records associated with REM #7742 via a Supplemental eForm 27.</p>
	<p>COGCC GIS Online Topographic map depicts that the pit/remediation project are located within 500' of a confluence between East Fork Parachute Creek and a mapped, unnamed tributary drainage feature. Rule Report dated 2/15/2018 (doc #401546959) documents TPH exceedances in multiple soil borings at various intervals between 5' and 27' depth</p> <p>Operator shall collect soil samples for the complete Table 915-1 list using the Protection of Groundwater Soil Screening Level Concentrations. The Operator may request a modified list of contaminants concern through a Supplemental eForm 27, per Rule 915.e.(2).C.</p>
	<p>Operator shall submit a Supplemental eForm 27 to present a comprehensive assessment of horizontal and vertical delineation of soil impacts for contaminants of concern listed on Table 915-1. The Operator's comprehensive report shall also address the potential for groundwater impacts and shall include as attachments a soil analytical summary table, groundwater sample analytical summary table (if groundwater has been sampled), and site diagram depicting soil and groundwater sample locations. Operator's analytical summary tables shall include comparisons of sample analytical results to Table 915-1 using the Protection of Groundwater Screening Level Concentrations.</p>
	<p>Delineate horizontal and vertical extent of impacted area and remediate impacts to Table 915-1 standards.</p>

**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**

402584829	FORM 27-SUPPLEMENTAL-SUBMITTED
402584866	MONITORING REPORT

Total Attach: 2 Files

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

Environmental	Under Periodic Reporting, Operator indicates that updates will now be submitted quarterly.	02/25/2021
Environmental	Under Proposed Soil Sampling and Additional Investigative Actions, Operator indicates "see attached."	02/25/2021
	The only attachment (doc #402584866) does not include a Site Investigation and Remediation Workplan. See COAs above.	

Total: 2 comment(s)