

State of Colorado  
Oil and Gas Conservation Commission

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402288896  
Receive Date:  
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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 #: 7167 Initial Form 27 Document #: \_\_\_\_\_

**PURPOSE INFORMATION**

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input checked="" 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 type="checkbox"/> Other _____

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

Facility Type: PIT	Facility ID: 285021	API #: _____	County Name: GARFIELD
Facility Name: NP EF07B N30 595	Latitude: 39.581253	Longitude: -108.098522	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 30	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? 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**

According to COGCC GIS Online mapping, there is one stream and one groundwater monitoring water well within 1/4 mile.

# 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
Yes	GROUNDWATER	40' by 50'	Laboratory analytical results
Yes	SOILS	40' by 100' by 30'	Laboratory analytical results

## 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 COGCC Document number 400786267.

## 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 does not plan to conduct soil boring and sampling as part of the hydrovac fluid recovery pilot test and continued solar-powered oil skimmer pilot test. Please see attached narrative.

### Proposed Groundwater Sampling

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

During previous conversations and COAs assigned by the COGCC in Document # 401297665, Caerus was in direct conversations that requested continued groundwater monitoring at the site was meant to monitor fluid levels in the monitoring wells and to visually monitor for the presence of hydrocarbons per COGCC Table 910-1. Because of the absense of BTEX in the groundwater samples from around the site and the demonstration that the plume was stable, no additional BTEX analysis was requested. After recent conversations with the COGCC an additional BTEX analysis was requested to confirm previous analysis. The attached 2020 laboratory analytical data and summary table demonstrates the absence of BTEX and the stability of the plume found at the site. Based on the previous COA outlined in Doc #401297665 and the attached results demonstrating a stable plume with no BTEX present, Caerus intends to continue to monitor depth to groundwater at the site during each quarterly dewatering event.

### Proposed Surface Water Sampling

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

Surface water samples are collected down gradient from this location on a quarterly basis for Caerus' North Parachute Ranch water sampling program.

## Additional Investigative Actions

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

Please see the attached narrative. Caerus plans to continue solar-powered oil skimmer pilot test activities. Caerus proposes to conduct EFR activities using a hydrovac on a quarterly basis. Caerus will provide fluid recovery data, depth to groundwater/free product, free product thickness, and free product recovery data to the COGCC on a quarterly basis under a Supplemental eForm 27.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 82

Number of soil samples exceeding 910-1 31

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

Approximate areal extent (square feet) 12500

### NA / ND

--            Highest concentration of TPH (mg/kg) 13450

--            Highest concentration of SAR 46

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 52

### Groundwater

Number of groundwater samples collected 7

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 45

Number of groundwater monitoring wells installed 7

Number of groundwater samples exceeding 910-1 0

ND            Highest concentration of Benzene (µg/l)           

ND            Highest concentration of Toluene (µg/l)           

ND            Highest concentration of Ethylbenzene (µg/l)           

ND            Highest concentration of Xylene (µg/l)           

NA            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) 0

Volume of liquid waste (barrels) 90

Is further site investigation required?

Following results of the two pilot test strategies, Caerus plans to implement the two strategies to actively recover oil from the N30 remediation area.

# 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.

Please see attached narrative.

## 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.

Please see attached narrative.

## Soil Remediation Summary

**In Situ**

Yes Bioremediation ( or enhanced bioremediation )

No Chemical oxidation

Yes Air sparge / Soil vapor extraction

Yes Natural Attenuation

No 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

Yes Bioremediation ( or enhanced bioremediation )

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

Yes Other Mechanical removal using belt  
skimmer and hydrovac EFRs \_\_\_\_\_

## 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.

Please see attached narrative.

# REMEDIATION 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? \_\_\_\_\_

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? 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 backfill pit occurs within the pad boundary for this location. During reclamation the backfill pit may be part of the pad's working surface and/or covered by recontoured and reseeded sloped installed to meet reclamation objectives. Interim and final reclamation activities will be carried out in accordance with COGCC 1000 Series requirements, and will be documented accordingly.

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). 09/04/2019

Date of commencement of Site Investigation. \_\_\_\_\_

Date of completion of Site Investigation. \_\_\_\_\_

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 08/08/2012

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

## **SITE RECLAMATION DATES**

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

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

**OPERATOR COMMENT**

Caerus does not have previous quarterly groundwater flow direction maps prepared for the site from 2017 through 2019. Caerus has prepared the quarterly groundwater potentiometric map for the sampling event conducted in the first quarter of 2020.

Caerus will submit quarterly groundwater depth and product thickness data following each quarterly dewatering event to the COGCC under supplemental eForm 27 cover.

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: 05/27/2020

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: 07/03/2020

Remediation Project Number: 7167

**COA Type****Description**

	Provide 48-hour advance notice of future EFR operations to the COGCC area EPS.
	Operator shall provide quarterly project updates via a Supplemental eForm 27. Operator's updates shall include, as a minimum: depths to groundwater/free product, free product thickness, and free product recovery data. Quarterly updates shall also assess effectiveness of proposed remediation pilot activities.

**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**

402288896	FORM 27-SUPPLEMENTAL-SUBMITTED
402295983	ANALYTICAL RESULTS
402295985	MAP
402296014	ANALYTICAL RESULTS
402296015	ANALYTICAL RESULTS
402296016	ANALYTICAL RESULTS
402375324	ANALYTICAL RESULTS
402375325	GROUND WATER ELEVATION MAP
402375330	ANALYTICAL RESULTS
402376818	REMEDIAL ACTION PLAN
402376824	OTHER
402406184	MONITORING REPORT

Total Attach: 12 Files

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

Environmental	Remediation project file lacks laboratory reports dating back to 8/8/2012	01/31/2020
Environmental	Attached analytical summary table (doc #402295983) reports that groundwater samples for ENPR19MW, -22MW, -20MW, -21MW, -18MW, and -17MW were collected on 6/19/2017, corresponding laboratory report (doc #402296014) documents that these samples were actually collected on 6/07/2017.  Historical groundwater sampling data can be found in doc #401297799.  Laboratory reports not attached for samples collected on 3/14/2017.	01/31/2020

Total: 2 comment(s)