

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

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Document Number:  
401835704

Receive Date:  
01/21/2019

Report taken by:  
Steven Arauza

**Site Investigation and Remediation Workplan (Initial 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 INFORMATON**

Name of Operator: CAERUS PICEANCE LLC	Operator No: 10456	<b>Phone Numbers</b>
Address: 1001 17TH STREET #1600		Phone: (970) 285-9606
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 #: 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 Facilites ( 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:

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste      | <input type="checkbox"/> Other E&P Waste             | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids             | _____                                  |
| <input type="checkbox"/> Oil                       | <input type="checkbox"/> Tank Bottoms                |  |
| <input checked="" 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 type="checkbox"/> Pit Bottoms                 |  |
|  | <input type="checkbox"/> 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 the narrative attached to this Initial Form 27.

## 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 ):

Groundwater monitoring will occur through the continued collection of quarterly groundwater samples at North Parachute Ranch (NPR) Baseline location NPR2MW. Please see attached sample location diagram (Figure 3).

### 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 quarterly water samples at North Parachute Ranch (NPR) Baseline locations NPR2SP and NPR6ST. Please see attached sample location diagram (Figure 3).

## Additional Investigative Actions

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

\_\_\_\_\_

# 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?

Background samples were included from the County Road 215 area. Laboratory analytical results are attached and summarized in Table 1.

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?

# REMEDIAL ACTION PLAN

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Please refer to the narrative attached to this Initial Form 27.

## 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 refer to the narrative attached to this Initial Form 27.

## Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

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

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

\_\_\_\_\_ 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

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 see attached disposal manifest for more detail.

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: \_\_\_\_\_

## 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. 09/18/2018

Date of completion of Site Investigation. 12/04/2018

### 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

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

Signed: Jake Janicek

Title: EHS Lead

Submit Date: 01/21/2019

Email: jjanicek@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: 03/08/2019

Remediation Project Number: 12690

### COA Type

### Description

	Operator shall submit a Supplemental eForm 27 to provide a plan and documentation to assess the effectiveness of in-situ remediation of impacted soil. This Supplemental eForm 27 shall include plans for horizontal and vertical delineation of the remaining extent of impacted soil.
	Operator shall delineate horizontal and vertical extent of soil impacts by 9/13/2019.
	Submit soil location diagram for excavation samples collected 9/21/2018 via eForm 27 Supplemental.
	In addition to described quarterly surface water sampling, operator shall conduct visual monitoring of downgradient section of Light Gulch for potential impacts on a monthly basis.
	Submit Supplemental eForm 19 Spill/Release Report to describe measures taken to prevent the problem(s) from recurring, per COA listed on 9/18/2018 Initial Spill Report (doc #401767076).  This Supplemental eForm 19 shall also include a narrative report of the previous spill at the subject facility, per COA listed on 9/28/2018 Spill Report doc #401776215.

### **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**

401835704	FORM 27-INITIAL-SUBMITTED
401903864	ANALYTICAL RESULTS

401903865	SOIL SAMPLE LOCATION MAP
401903866	SITE MAP
401903867	ANALYTICAL RESULTS
401903868	ANALYTICAL RESULTS
401903869	ANALYTICAL RESULTS
401903870	DISPOSAL MANIFESTS
401903873	OTHER
401903874	OTHER
401911647	OTHER
401912149	SITE MAP

Total Attach: 12 Files

### General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Subsurface impacts have not yet been delineated by operator. Operator cites high concentration of flowlines in the area as logistical and safety issues preventing subsurface soil delineation (see attached Figure 2, doc #401903866). Analytical results indicate TPH concentrations of 14,030 to 38,720 at 5' depth along sidewalls and bottom of initial excavation (9/21/2018 samples) as well as TPH exceedances for soil boring sample collected between 19-20' depth (11/8/2018 sample).	12/03/2018
Environmental	Operator indicated that decision was made not to advance soil boring to groundwater based on field screening results. Analytical results for 9/21/2018 excavation samples indicate TPH concentrations of 14,030 to 38,720 at 5' depth. Additional delineation of impacts to soil and potential impacts to groundwater and surface water required due to elevated TPH concentrations at depth in a sensitive area.	12/03/2018
Environmental	NRCS Web Soil Survey indicates soil type is GC (Nihill channery loam).	12/03/2018

Total: 3 comment(s)