

State of Colorado  
Oil and Gas Conservation Commission

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402228776  
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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) 285-2720
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 #: 14616 Initial Form 27 Document #: 402228776

PURPOSE INFORMATION

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

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE	Facility ID: 468366	API #: _____	County Name: GARFIELD
Facility Name: K10-596 Gas Lift Flowline Release	Latitude: 39.627333	Longitude: -108.156009	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESW	Sec: 10	Twp: 5S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GM 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

# 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	Unknown	Laboratory Analytical

## 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 see COGCC Documents 402192139 and 402197624 for initial emergency response activities prior to 10/9/2019.

On 9/27/2019, a soil sample (20190927-K10-596-POR@7') was collected from soil beneath the failed piece of flowline. This sample was submitted for laboratory analysis of all analytes listed on COGCC Table 910-1. Laboratory analytical results indicate that this sample exhibited TPH, benzene, toluene, and total xylenes exceedances. On 10/9/2019, impacted soil was removed via hydrovac equipment. At the end of the day, a total of five soil samples (20191009-K10 (N Wall)@11', 20191009-K10 (S Wall)@9', 20191009-K10 (E Wall)@10', 20191009-K10 (W Wall)@9', and 20191009-K10 (Bottom)@13') were collected from each wall of the excavation and one soil sample from the bottom. Laboratory analytical results indicate that all five samples exhibited TPH, benzene, toluene, and/or total xylene concentrations that exceeded COGCC Table 910-1 Concentration Levels.

## 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 ):

Impacted soil will be removed via hydrovac equipment. Once impacted soil is removed, confirmation soil samples will be collected from soil adjacent to the impacted soil. All soil samples will be submitted for laboratory analysis of all analytes listed in COGCC Table 910-1.

### 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 ):

### 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 6

Number of soil samples exceeding 910-1 6

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

Approximate areal extent (square feet) 100

### NA / ND

--          Highest concentration of TPH (mg/kg) 18300

--          Highest concentration of SAR 1.1

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 13

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

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

         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?

Delineation of vertical and horizontal impacts is currently underway. Due to the volume of subsurface flowlines on location, delineation will first be attempted with hydrovac equipment. If full delineation is not achieved through this process, other methods will be explored.

# REMEDIAL ACTION PLAN

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The source was a failed subsurface flowline which has been removed.

## REMEDICATION 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.

Impacted soil will be removed via hydrovac equipment.

## Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 30

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

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_ 426582

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

No \_\_\_\_\_ 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:

None

Volume of E&P Waste (solid) in cubic yards 12

E&P waste (solid) description Soil impacted by hydrocarbons

COGCC Disposal Facility ID #, if applicable: 426582

Non-COGCC 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.

The excavation will be backfilled to match the pad surface elevation.

Is the described reclamation complete? No

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). 09/27/2019

Date of commencement of Site Investigation. 09/27/2019

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

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 10/09/2019

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

### SITE RECLAMATION DATES

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

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

**OPERATOR COMMENT**

Per a COA on a Field Inspection Form (COGCC Document ID 698100084), Figure 1 depicts soil stockpiles of clean overburden currently staged on location near the excavation associated with this remediation project. All stockpiles are being staged on site in order to be used as backfill material and are considered clean. The stockpile depicted in Photo #4 attached to the above mentioned Field Inspection Form is clean overburden that was removed from the excavation associated with this remediation project.

Surface water from West Fork of Parachute Creek is sampled quarterly in close proximity to the K10-596 pad location. The quarterly sampling event associated with the last quarter of 2019 is currently being coordinated.

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 Specialist \_\_\_\_\_

Submit Date: 11/07/2019 \_\_\_\_\_

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: 11/19/2019 \_\_\_\_\_

Remediation Project Number: 14616 \_\_\_\_\_

**COA Type****Description**

	Operator Comment section indicates that the quarterly West Fork of Parachute Creek sampling event for Q4 2019 is currently being coordinated.  Operator shall provide analytical results from the Q4 2019 surface water sampling results along with an update of the status of delineation of soil impacts via a Supplemental eForm 27 within 45 days of the Q4 2019 sampling event.
	Operator shall include the location of soil sample ID 20190927-K10-596-POR@7' on the next soil sample location diagram.
	Assess nature and extent of contamination with confirmation soil samples. The operator shall comply with Rule 910.b.(3) for collection of soil samples. The operator shall notify the COGCC and comply with Rule 910.b.(4) if groundwater is encountered during remediation operations.
	Submit Supplemental eForm 19 to request closure of Spill/Release ID #468366. Supplemental report shall comply with outstanding COAs, indicate that work is proceeding under an approved eForm 27 and shall reference the Remediation Project number assigned upon approval of this report.

**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**

402228776	FORM 27-INITIAL-SUBMITTED
402228783	AERIAL IMAGE
402230571	ANALYTICAL RESULTS
402230572	ANALYTICAL RESULTS
402230573	ANALYTICAL RESULTS
402230574	ANALYTICAL RESULTS
402233057	AERIAL IMAGE

Total Attach: 7 Files

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

Environmental	Attached analytical results document Table 910-1 exceedances in all samples for arsenic, TPH, benzene, toluene, and total xylenes concentrations.	11/19/2019
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Total: 1 comment(s)