

# State of Colorado Oil and Gas Conservation Commission

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402241942

Receive Date:

11/21/2019

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) 285-2720
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

- |  |  |
|--|--|
| <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: 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:

☒ 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	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, 402197624, and 402228776 for activities prior to 11/12/2019.

On 11/12/2019 and 11/13/2019, impacted soil was removed via hydrovac. After impacted soil was removed, soil samples (20191113-K10(Base)@14', 20191112-K10(W.Wall)@9', 20191112-K10(S.Wall)@9', and 20191113-K10(E.Wall)@10') were collected from soil adjacent to the impacted soil. All samples were submitted for laboratory analysis of all analytes listed in COGCC Table 910-1. Laboratory analytical results indicate that all samples were compliant with COGCC Table 910-1 Concentration Levels or below background arsenic concentrations. Analytical results are summarized in Table 1 and reports are attached to this form. Figure 1 details all sample locations and other pertinent site information. Figure 2 details background sampling location 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 ):

Once all impacted soil is removed from the northern wall depicted on Figure 1, a soil sample will be collected from soil adjacent to the impacted soil. This sample 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 10

Number of soil samples exceeding 910-1 10

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

Approximate areal extent (square feet) 400

### NA / ND

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

-- Highest concentration of SAR 1.6

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 14

### 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

   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 collected on 5/17/2011 at an adjacent pad location were used for arsenic concentration comparison. Background analytical data is summarized in Table 1 and reports are attached to this form. Figure 2 depicts background soil sample locations.

☐ 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?

# 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.

No further source removal is necessary. Please see "Remediation Summary" section for planned remediation activities to address remaining impacts.

## 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.

Soil has not been removed from the northern portion of the impacted area due to safety concerns. In order to safely remove this soil, the southern portion of the excavation where all impacted soil has been removed will need to be backfilled. Once this area is backfilled, impacted soil from the northern portion of the project site will be removed via hydrovac equipment. Please see "Operator Comments" section for more detail on this approach.

In order to address the arsenic exceedances exhibited in the soil samples, Caerus is requesting consideration for the COGCC Table 910-1 Concentration Level for arsenic under guidelines set forth under FAQ 31. Caerus believes the request for FAQ 31 consideration is acceptable as arsenic results for all 10 samples were below background concentrations observed at an adjacent pad (A15-596, COGCC Location ID 440582). Background analytical data is summarized in Table 1 and reports are attached to this form. Figure 2 depicts background soil sample locations.

## Soil Remediation Summary

☐ In Situ

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

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

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

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

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

☒ Ex Situ

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

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 100

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

No \_\_\_\_\_ 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.

## 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:

None

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 0

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

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

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

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 210

E&P waste (liquid) description Mixture of impacted soil and hydrovac  
rinsate \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_ 426582

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 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**

Based on analytical data presented in this form, Caerus requests approval to backfill all portions of the excavation represented by the compliant samples listed in the "Initial Action Summary" section of this form. This will allow remediation of impacts to safely occur on the northern side of the existing excavation. Please see Figure 1 which depicts the existing excavation extents and the areas still needing remediation.

Per COA#1 listed on the Initial Form 27 (COGCC Document ID 402228776) associated with this remediation project, analytical results from the NPR quarterly water sample (20191107-NPR1ST) collected near the project site are attached. Figure 2 depicts the sampling location.

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: ` 11/21/2019

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: 11/22/2019

Remediation Project Number: 14616

**COA Type****Description**

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**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**

402241942	FORM 27-SUPPLEMENTAL-SUBMITTED
402245526	ANALYTICAL RESULTS
402245527	AERIAL IMAGE
402245530	ANALYTICAL RESULTS
402245985	ANALYTICAL RESULTS
402245989	ANALYTICAL RESULTS
402246055	ANALYTICAL RESULTS
402246060	AERIAL IMAGE
402246082	ANALYTICAL RESULTS

Total Attach: 9 Files

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

Environmental	Based on the information provided, COGCC approves of the operator's request "to backfill all portions of the excavation represented by the compliant samples," to facilitate delineation and remediation on the northern side of the excavation.  Operator's request for consideration background arsenic concentrations under FAQ 31 is conditionally approved based on the provided background soil sample concentrations.	11/22/2019
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Total: 1 comment(s)