

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:
402619378

Receive Date:

Report taken by:

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	Phone Numbers
Address: 1001 17TH STREET #1600		Phone: (970) 778-2314
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 #: 17035 Initial Form 27 Document #: 402582867

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 Site Assessment Proposal

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

Facility Type: LOCATION	Facility ID: 334872	API #: _____	County Name: GARFIELD
Facility Name: SAMPLE-67S92W 17SENW	Latitude: 39.444880	Longitude: -107.686440	
	** correct Lat/Long if needed: Latitude: 39.444597	Longitude: -107.686826	
QtrQtr: NWSE	Sec: 17	Twp: 7S	Range: 92W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications OH 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

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 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	See attached	Lab 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 see COGCC Document 402582867 for a description of activities completed prior to 2/4/2021.

Please see the attached document for a summary of activities completed from 2/4/2021 through 2/19/2021.

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):

Discreet soil samples will be used to 1) Delineate the impacts associated with the dumlaine release (Spill/Release Point ID 478578), 2) Confirm the successful removal of the impacts described above, and 3) Establish background soil sample concentrations. All future soil samples will be submitted for laboratory analysis of all analytes (arsenic, barium, cadmium, chromium VI, pH, SAR, TPH, BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, flourene, and naphthalene) that samples collected from 2/4/2021 through 2/19/2021 exhibited exceedances for.

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 15

Number of soil samples exceeding 910-1 15

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

Approximate areal extent (square feet) 2500

NA / ND

-- Highest concentration of TPH (mg/kg) 6237

-- Highest concentration of SAR 38.3

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 31

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?

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?

Soil impacts below the tank battery need to be delineated. This will be completed through using a environmental drilling rig to install boreholes within and outside of the impacted area. This expanded site assessment is currently being coordinated with a third party consultant.

In order to determine if there is a pathway to groundwater and propose relief from Protection of Groundwater Soil Screening Level Concentrations and, pending landowner approval, establish background soil concentrations, two soil borings will be advanced in the area within the former tank battery seen in the aerial on Figure 2 of the attached document and one soil boring will be advanced in an up-gradient undisturbed area southeast of the location. Soil from these soil borings will be field-screened for hydrocarbons and any samples collected will be submitted for laboratory analysis of analytes listed in the "Proposed Soil Sampling" section of this form. This work is scheduled for 3/30/2021 and 3/31/2021.

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.

The source was a failed dumpline which was replaced.

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.

Once full delineation has been determined, a complete remediation plan will be presented to the COGCC.

Soil Remediation Summary

In Situ

- _____ Bioremediation (or enhanced bioremediation)
- _____ Chemical oxidation
- _____ Air sparge / Soil vapor extraction
- _____ Natural Attenuation
- _____ 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
- _____ No Land Treatment
- _____ No Bioremediation (or enhanced bioremediation)
- _____ No Chemical oxidation
- _____ No 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 Soil Assessment Proposal _____

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 _____ 744

E&P waste (solid) description Impacted soil _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Greenleaf Environmental Services _____

Volume of E&P Waste (liquid) in barrels _____ 40

E&P waste (liquid) description impacted soil mixed with hydrovac
rinsate _____

COGCC Disposal Facility ID #, if applicable: _____ 426582

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? No _____

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? No _____

Does Groundwater meet Table 910-1 standards? Yes _____

Is additional groundwater monitoring to be conducted? No _____

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.

Once delineation is completed, a reclamation plan will be presented to the COGCC.

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. 11/17/2020

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/17/2020

Date of commencement of Site Investigation. 11/17/2020

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 01/07/2021

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

The "Sample Summary" section of this form only includes data from samples collected from 2/4/2021 through 2/19/2021.

Waste manifests associated with the 744 cubic yards of impacted material disposed of at Greenleaf Environmental Services will be provided upon request.

Per COA#2 listed on the Initial Form 27 (COGCC Document ID 402582867) associated with project, a Form 42 (COGCC Document ID 402624951) was submitted in order to notify the COGCC of a relocated flowline.

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: _____

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: _____

Date: _____

Remediation Project Number: 17035

COA Type

Description

	<p>COGCC GIS Online map system indicates that this project area is located within approximately 400' of Middle Mamm Creek, domestic water well (DWR Permit 168248, Receipt 0347792) located approximately 950' south-southwest of the project area indicates a static water level of approximately 63 feet bgs.</p> <p>Based on the proximity to surface water (Waters of the State) and the potential for shallow groundwater, the Operator shall comply with the Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.</p>
	<p>Under Remediation Summary, Operator proposes mixing of impacted soil stockpile with clean overburden and imported fill material and the use of the resulting mixed material to backfill the open excavation. This proposed method may qualify as land treatment per the COGCC 100-Series definitions.</p> <p>COGCC does not approve of this mixture without analytical results to demonstrate compliance with Table 915-1.</p>

The Operator's request for a reduced analyte suite (arsenic; pH; SAR; TPH; benzene; ethylbenzene; total xylenes; 1,3,5-trimethylbenzene; and naphthalene) is NOT approved at this time, based on a comparison of analytical results to Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.

The Operator shall continue to analyze future soil samples for contaminants that have exceeded Table 915-1 Protection of Groundwater Soil Screening Level Concentrations. For future submittals, Operators shall include comparisons of soil analytical results to Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.

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**

402632755	ANALYTICAL RESULTS
-----------	--------------------

Total Attach: 1 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Attached laboratory reports indicate that method detection limits and report detection limits for analysis of hexavalent chromium exceed Table 915-1 Protection of Groundwater Soil Screening Level Concentration (0.00067 mg/kg).	03/08/2021
Environmental	COA #1 on doc #402582867 instructed the Operator to "delineate the horizontal and vertical extent of impacts using Table 915-1 Protection of Groundwater Soil Screening Level Concentrations." Attached report (doc #402619380) Table 2 includes comparisons of soil sample analytical results to Table 915-1 Residential Soil Screening Level Concentrations. Comparison of soil sample analytical results to the Protection of Groundwater Soil Screening Level Concentrations reveals additional contaminants of concern beyond the Operator's requested reduced analyte suite. See COAs above.	03/08/2021
Environmental	Comply with COAs listed on doc #402582867.	03/08/2021

Total: 3 comment(s)