

State of Colorado Oil and Gas Conservation Commission

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Document Number:

402475596

Receive Date:

09/10/2020

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 INFORMATION

Name of Operator: CAERUS PICEANCE LLC	Operator No: 10456	Phone Numbers
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 #: 15947

Initial Form 27 Document #: 402475596

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: 477096	API #: _____	County Name: GARFIELD
Facility Name: Unocal 4 K04 dumlaine release	Latitude: 39.555477	Longitude: -108.114527	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 4	Twp: 6S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GP

Most Sensitive Adjacent Land Use Non-crop land

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

Parachute Creek is located 0.18 miles to the west.

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	TBD	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.

Upon discovery of the spill, Caerus shut in the wells to stop the release. Caerus utilized manual excavation to determine if the extents of contamination could be identified for the release. Soil samples were collected to verify compliance with COGCC Table 910-1 standards for the project.

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):

Additional sampling activities will be grab samples to determine spill compliance, and composite samples for spoils pile characterization.

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):

If groundwater is encountered during the drilling process, Caerus will collect attempt to collect a sample for analysis of COGCC Table 910-1 groundwater analytes.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 9
Number of soil samples exceeding 910-1 5
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 1800

NA / ND

-- Highest concentration of TPH (mg/kg) 7030
-- Highest concentration of SAR 39.9
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 40

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 100'
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 910-1 0

NA Highest concentration of Benzene (µg/l)
NA Highest concentration of Toluene (µg/l)
NA Highest concentration of Ethylbenzene (µg/l)
NA 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?

Background samples were utilized from the E09 well pad (Location ID 335856) to determine background arsenic concentrations found within the area.

☒ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 100 Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

The vertical limits of safe excavation and characterization have been reached. Caerus proposes to backfill the excavation and install three soil borings to determine the extent of contamination associated with the spill. The proposed soil boring locations are outlined on the attached Unocal 4 Proposed Soil Boring Map. Caerus will collect soil samples in five foot intervals to delineate the extent of contamination. Based on the results from samples collected on the attached laboratory analytical spreadsheet, Caerus requests a reduced analyte suite for the project to include TPH (GRO and DRO), BTEX, EC, and SAR.

Approximately 100 cubic yards of impacted soil was transported to Greenleaf Environmental Services for offsite disposal, see attached manifests. This volume of soil will be replaced with native clean backfill to allow for the proposed installation of soil borings and continued operation of the well pad.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Caerus proposes to install soil borings to determine the extent of contamination associated with this project, see the attached Proposed Soil Boring Location Map. Once results from the soil borings are reviewed, Caerus will propose a remediation strategy to remove the source of impacted soil.

Based on the laboratory analytical results for the project to date, Caerus requests a reduced analyte suite to include TPH, BTEX, EC, and SAR.

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.

Caerus proposes to install soil borings to determine the extent of contamination associated with this project, see the attached Proposed Soil Boring Location Map. Once results from the soil borings are reviewed, Caerus will propose a remediation strategy to remove the source of impacted soil.

Based on the laboratory analytical results for the project to date, Caerus requests a reduced analyte suite to include TPH, BTEX, EC, and SAR.

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

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

No Air sparge / Soil vapor extraction

No Natural Attenuation

No 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.

Groundwater has not been encountered at the site during investigation activities. If groundwater is encountered, Caerus will attempt to collect a representative sample for COGCC Table 910-1 analysis.

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? _____

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: _____

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.

Caerus anticipates the extent of contamination will be contained to the active well pad surface. Caerus plans to backfill the excavation to the active working surface of the well pad for continued operation.

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? ☐ Yes _____

If NO, does the seed mix comply with local soil conservation district recommendations? ☐ Yes _____

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). 07/15/2020

Date of commencement of Site Investigation. 07/20/2020

Date of completion of Site Investigation. _____

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: Blair Rollins

Title: EHS Specialist

Submit Date: 09/10/2020

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: 09/14/2020

Remediation Project Number: 15947

COA Type**Description**

	<p>Submit Supplemental eForm 19 to request closure of Spill/Release ID #477096. 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.</p> <p>Operator's Supplemental Spill Report shall also indicate the estimated volume of fluid(s) released and shall address representative fluids sampling COA listed on doc #402432937.</p>
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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**

402475596	FORM 27-INITIAL-SUBMITTED
402475914	ANALYTICAL RESULTS
402475915	ANALYTICAL RESULTS
402475916	ANALYTICAL RESULTS
402475918	ANALYTICAL RESULTS
402475919	ANALYTICAL RESULTS
402475920	SOIL SAMPLE LOCATION MAP
402475921	SOIL SAMPLE LOCATION MAP
402476069	DISPOSAL MANIFESTS
402483959	ANALYTICAL RESULTS
402484070	SITE INVESTIGATION PLAN
402485404	ANALYTICAL RESULTS

Total Attach: 12 Files

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

Environmental	Arsenic background location is ~1.1 miles SSW of reported spill location. Based on the analytical results provided, the Operator's request for consideration of background arsenic concentrations (doc #402475919) exceeding Table 910-1 is conditionally approved.	09/09/2020
Environmental	Based on the information provided for confirmation soil samples, the Operator's request for a reduced analyte suite (TPH-DRO, TPH-GRO, BTEX, EC, and SAR) is conditionally approved.	09/07/2020
Environmental	Complete laboratory reports are attached for soil confirmation samples, but not for the representative source fluids sample required as a COA on eForm 19 doc #402432937.	09/07/2020
Environmental	COGCC GIS Online topographic map indicates that reported Spill/Release location is approximately 0.06 miles (312 feet) east of Parachute Creek.	09/07/2020

Total: 4 comment(s)