FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Document Number: 402585991
Receive Date: 01/29/2021
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
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Blair Rollins

Phone Numbers
Phone: (970) 285-2925
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Email: brollins@caerusoilandgas.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 16594 Initial Form 27 Document #: 402585991

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 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: 478403 API #: County Name: GARFIELD
Facility Name: N23 water tranfer system Latitude: 39.502900 Longitude: -108.187407
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: sesw Sec: 23 Twp: 6S Range: 97W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: GC
Most Sensitive Adjacent Land Use: Non-cropland rangeland
Is domestic water well within 1/4 mile? No
Is surface water within 1/4 mile? No
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

An unnamed spring is located approximately 0.3 miles south of the spill location.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	To be determined	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.

Please refer to COGCC Document Numbers 402519107 and 402525660 for this information.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Caerus will determine the extent of contamination associated with the release by installation of soil borings witin the area of the release, see proposed soi boring location map.

Proposed Groundwater Sampling

- [ ] Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

In the event that groundwater is encountered, Caerus will attempt to collect a representative groundwater sample for COGCC Table 915-1 analysis.

Proposed Surface Water Sampling

- [x] Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Caerus will continue to monitor the unnamed spring located approximately 0.3 miles south of the location. In the event that fluid is identified coming from the spring, Caerus willl collect a representative sample for COGCC Table 915-1 analysis.

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: 14
Number of soil samples exceeeding 910-1: 7
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet): 15000

NA / ND

-- Highest concentration of TPH (mg/kg): 4733
-- Highest concentration of SAR: 36
BTEX > 910-1: No
Vertical Extent > 910-1 (in feet): 8

Groundwater

Number of groundwater samples collected: 0
Was extent of groundwater contaminated delineated? Yes
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?

Caerus utilized background soil samples from the Mesa 16 (COGCC Location ID 335519). Please refer to the tabulated data and lab report for this information.

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

Volume of solid waste (cubic yards): 48
Volume of liquid waste (barrels): 0

☒ Is further site investigation required?

Caerus will determine the extent of contamination associated with the release by installation of soil borings witin the area of the release, see proposed soi boring location map.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Caerus will determine a path forward for removal of remaining impacts once delineation is complete.

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.

Caerus will determine a path forward for removal of remaining impacts once delineation is complete.

Soil Remediation Summary

In Situ

No	Bioremediation (or enhanced bioremediation)
No	Chemical oxidation
No	Air sparge / Soil vapor extraction
No	Natural Attenuation
Yes	Other To be determined

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.

In the event groundwater is encountered at the site and determined to be impacted, Caerus will prepare a remediation strategy for the site and provide this information to the COGCC under a Supplemental eForm 27.

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? _____

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 will return the well pad to the active working surface of the location for continued use.

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). 10/29/2020

Date of commencement of Site Investigation. _____

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

Caerus collected soil samples along the spill path to delineate surficial impacts associated with the project. The SW DITCH sample was collected to demonstrate fluids did not leave the well pad location, as requested by COA on COGCC Document Number 402519107. Fluid staining or indications of fluid traveling to the SW Ditch were not present during the investigation or sampling activities. Based on the field investigation and sample results of the spill path and SW Ditch, Caerus believes that fluids associated with this spill did not leave the location.

Due to equipment around the spill area and the site soils containing a majority of large boulders and bedrock, Caerus decided to backfill the POR excavation. Caerus proposes to complete delineation of impacts associated with the spill by

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:` 01/29/2021 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: 02/08/2021

Remediation Project Number: 16594

COA Type	Description
	Under Source Removal Summary, Operator indicates that "Caerus will determine a path forward for removal of remaining impacts once delineation is complete." Operator shall submit a Supplemental eForm 27 with a revised remediation workplan for COGCC approval prior to implementation.
	Submit Supplemental eForm 19 to request closure of Spill/Release ID #478403. 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.
	Per Rule 915.f, if remediation is not complete by 1/15/2022, the Operator shall comply with the current Table 915-1.

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
402585991	FORM 27-INITIAL-SUBMITTED
402586210	ANALYTICAL RESULTS
402586217	ANALYTICAL RESULTS
402586257	ANALYTICAL RESULTS
402586259	ANALYTICAL RESULTS
402586260	ANALYTICAL RESULTS
402586261	ANALYTICAL RESULTS
402586279	DISPOSAL MANIFESTS
402586281	DISPOSAL MANIFESTS
402586370	SOIL SAMPLE LOCATION MAP
402586371	SITE INVESTIGATION PLAN
402586375	MONITORING REPORT

Total Attach: 12 Files

General Comments

User Group	Comment	Comment Date
Environmental	Based on analytical results provided for background samples (docs #402586217 and #402586210) the Operator's request (doc #402586375) for consideration of background arsenic concentrations (23-44 mg/kg) in exceedance of Table 910-1 is conditionally approved.	02/05/2021

Environmental	Attached analytical summary table (doc #402586217) indicates a Table 910-1 exceedance for pH (9.89) for Sample ID #20201211-N23 E Wall (8'), corresponding laboratory report (doc #402586261) indicates that the actual pH value is 8.98.	02/05/2021

Total: 2 comment(s)