FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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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.
Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATON

Name of Operator: CAERUS PICEANCE LLC Operator No: 10456
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Jake Janicek Email: jjanicek@caerusoilandgas.com

Phone Numbers
Phone: (970) 778-2314
Mobile: (970) 778-2314

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 33301 Initial Form 27 Document #: 403615029

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [ ] Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- [X] Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- [ ] Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- [ ] Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- [ ] Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- [ ] Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- [ ] Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- [ ] Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- [ ] Rule 913.g: Changes of Operator.
- [ ] Rule 915.b: Request to leave elevated inorganics in situ.
- [ ] Other:

SITE INFORMATION

No Multiple Facilities

Facility Type: SPILL OR RELEASE Facility ID: 485207 API #: County Name: GARFIELD
Facility Name: NPR solidification facility Latitude: 39.587130 Longitude: -108.077520
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: swne Sec: 29 Twp: 5s Range: 95w Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GC
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

East Fork Parachute Creek is located 0.16 miles south. A monitoring well is located 630 feet southeast (DWR Permit #327469).

SITE INVESTIGATION PLAN

TYPE OF WASTE:

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

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	Undetermined	Soil sampling and laboratory 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.

On September 29, 2023, while off-loading hydro-vacuum truck contents into a containment at the Location, operator error caused an overflow onto the pad surface. Approximately 15 barrels (bbls) of production tank bottom materials were released and approximately 12 bbls were recovered. On September 30, 2023, the spill was reported using Energy & Carbon Management Commission (ECMC) Form 19 Document 403546648 and Spill ID 485207 was assigned to the release. On October 6, 2023, ECMC Form 19 Document 403552806 was submitted to provide updated supplemental details of the release.

On November 6, 2023, initial investigation and remedial activities were completed. Using a hydro-vacuum truck, an area measuring approx. 20 feet, by 10 feet, by 0.5 feet deep was removed and a soil sample was collected at the point of release (POR). Additionally, four potholes were advanced along the spill path to depths ranging from 1 foot below ground surface (bgs) to 2 feet bgs and soil samples were collected at the terminus of each pothole. Soil samples were characterized using visual and olfactory observations, field screened using a photoionization detector (PID), and submitted for laboratory analysis of ECMC Table 915-1 soil constituents. Field screening did not indicate impacts with no staining or odor observed and PID measurements ranging from 1.9 to 20.6 parts per million (ppm). Analytical results of soil samples are compliant with ECMC Table 915-1 Residential Soil Screening Levels (RSSLs) except for total petroleum hydrocarbons (TPH), pH, and arsenic. TPH exceeds in three samples ranging from 608 milligrams per kilogram (mg/kg) to 1,398 mg/kg, pH exceeds in two samples with values of 8.35 and 8.49, and arsenic exceeds in all samples with concentrations ranging from 7.56 mg/kg to 17.6 mg/kg.

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):

Please the "Remediation Summary" Section of this form for these details.

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: 5
Number of soil samples exceeeding 915-1: 5
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet): 200

NA / ND

-- Highest concentration of TPH (mg/kg): 1398
-- Highest concentration of SAR: 3.8
BTEX > 915-1: No
Vertical Extent > 915-1 (in feet): 2

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 915-1:

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 915-1
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?

As part of this investigation, background soil data from the G29 595 well pad (Location ID 335573) was referenced to establish native levels of pH and arsenic. The G29 595 well pad is located 0.16 miles southeast of the Location within similar lithology. Analytical results for background samples indicate a pH level of 9.11 and arsenic concentrations ranging from 17.4 mg/kg to 20.0 mg/kg.

☐ 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?

See Proposed Sampling section for details.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The source was a hydro-vacuum truck off-loading contents and the release occurred due to operator error. The vendor was reminded of Caerus expectations and of the consequences of environmental incidents.

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.

Impacted soil will be removed from the areas represented by soil samples 20231106-NSF-(BASE01)@1, 20231106-NSF-(BASE02)@1.5, 20231106-NSF-(BASE03)@2, 20231106-NSF-(BASE04)@2, and 20231106-NSF-(POR)@0.5. Please see the Site Diagram included with the report attached to this form for detail on these sampling locations.

Once it is confirmed that all impacted soil has been removed, additional soil samples will be collected to confirm the successful removal of the impacted soil. Caerus requests that all future soil samples be analyzed for only those analytes (TPH) that the soil samples listed above exhibited exceedances for. Plans for how Caerus plans to address arsenic and pH exceedances are detailed below.

Based on an estimated depth to groundwater of 100 feet below ground surface, an estimated three barrels of released fluid remaining in situ, and due to the nature of this release being a known surface release, Caerus requests to compare analytical results for this project to ECMC Table 915-1 RSSLs as no pathway to groundwater appears to exist.

As part of this investigation, background soil data from the G29 595 well pad (Location ID 335573) was referenced to establish native levels of pH and arsenic. The G29 595 well pad is located 0.17 miles southeast of the Location and is within similar lithology. Analytical results for background samples indicate a pH level of 9.11 and arsenic concentrations ranging from 17.4 mg/kg to 20.0 mg/kg.

Assuming the proposed request to compare analytical results to ECMC Table 915-1 RSSLs is approved, only elevated concentrations of TPH, pH, and arsenic remain within the release area. Based on background analytical results listed above, Caerus request alternative allowable limits for pH and arsenic of 9.11 and 20.0 mg/kg, respectively, per ECMC Table 915-1 Footnote 1.

Assuming the request for alternative allowable limits is approved, TPH is the only constituent of concern within the release area exceeding cleanup concentrations.

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
  - _____ 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

Approved Reporting Schedule:

☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other

☐ **Request Alternative Reporting Schedule:**

☐ Semi-Annually ☐ Annually ☐ Other

Rule 913.e:
After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Open Remediation Project and Initial Investigation Update

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).
If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Per Rule 705.b, and in line with guidance laid out in the SBAP, Caerus has general liability insurance in the amount of $1M, and Caerus has umbrella insurance, which sits over the general liability insurance in the amount of $75M. The umbrella and general liability insurance covers property damage, bodily injury to third parties, and sudden or accidental pollution under a combined $76M.

Operator anticipates the remaining cost for this project to be: $ 10000

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 12

E&P waste (liquid) description tank bottoms

COGCC Disposal Facility ID #, if applicable: 426582

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.

Excavations will be backfilled with suitable material to pre-existing grade and will be reclaimed in accordance with 1000 Series regulations.

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 provide the seed mix?

If YES, does the seed mix comply with local soil conservation district recommendations?

Did the local soil conservation district provide the seed mix?

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation.

Proposed date of completion of Reclamation.

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required.

Actual Spill or Release date, or date of discovery. 09/29/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/06/2023

Proposed site investigation commencement. 11/06/2023

Proposed completion of site investigation.

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/06/2023

Proposed date of completion of Remediation.

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

This form is being submitted to report results of the initial investigation associated with Spill ID 485207, open a Remediation Project, request comparison to Table 915-1 Residential Soil Screening Levels, request alternative allowable limits for pH and arsenic, and to request a reduced suite of TPH. See attached ROWC for additional details.

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: 12/11/2023 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: 12/21/2023

Remediation Project Number: 33301

COA Type	Description
	Submit Supplemental eForm 19 to request closure of Spill/Release ID #485207. 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.
	Operator shall collect soil samples from areas most likely to be impacted and shall collect an appropriate number of representative soil samples to delineate the horizontal and vertical extents of contamination, per Rule 915.e.(2).B.
	Per Rule 913.b.(2), the Operator will conduct sampling and analysis of soil, and groundwater--if encountered, to determine the horizontal and vertical extent of any contamination in excess of the cleanup concentrations in Table 915-1 for soil and groundwater. The Operator shall analyze samples for the approved analyte list and shall compare analytical results for site investigation samples to the Table 915-1 Residential Soil Screening Level Concentrations.
3 COAs	

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
403615029	FORM 27-INITIAL-SUBMITTED
403621183	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
Environmental	Based on the information provided for confirmation soil samples (doc #403621183), the Operator's request for a reduced analyte suite of TPH-only is conditionally approved.	12/21/2023

Total: 1 comment(s)