FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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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 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) 285-2720
Mobile: (970) 778-2314

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 14788 Initial Form 27 Document #: 402257424

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
- [x] Other Inorganic Delineation Plan

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: SPILL OR RELEASE Facility ID: 469290 API #: County Name: MESA
Facility Name: C16OU Flowline Release Latitude: 39.355417 Longitude: -108.114461
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NENW Sec: 16 Twp: 8S Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM
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:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [x] 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	TBD	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 402241770, 402248117, 402257424, 402272354, 402276335, and 402280205 for work completed prior to 12/30/2019.

On 12/30/2019, available water sources depicted on Figures 2 and 3 were monitored for presence of water. Out of the seven locations monitored, five samples were collected. No water was present at the other two locations. Analytical results from those samples are summarized in Table 2 and analytical reports are attached.

As reported in the two previous Form 27s (COGCC Document ID 402276335 and 402280205) for this project, soil sample 20191220-C16OU (NBOTTOM)@21' (see Figure 1) exhibited EC, SAR, and TPH exceedances. On 1/8/2020, additional impacted soil was removed from the area represented by soil sample 20191220-C16OU(NBOTTOM)@21' to a depth of 29 feet below pad surface. Once all impacted soil was removed, soil samples (20200108-C16OU (N BOTTOM)@29', 20200108-C16OU (N WALL)@28', 20200108-C16OU (E WALL)@27', and 20200108-C16OU (W WALL)@27') were collected from soil adjacent to the impacted soil. All samples were submitted for a reduced analyte suite (TPH, BTEX, EC, SAR, and pH) approved by the COGCC via the Initial Form 27 (COGCC Document ID 402257424) associated with this project. Laboratory analytical results indicate that all four samples complied with the Concentration Levels listed for TPH and BTEX, but each exhibited either EC, SAR, and/or pH exceedances. Table 1 summarizes analytical results and analytical reports are attached. Figure 1 depicts sampling locations and other pertinent site 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):

Five soil borings will be advanced around the project area as depicted on Figure 1 to a total depth of 50 feet below pad surface (bps). From these soil borings, samples will be collected approximately every five feet beginning at 10 feet bps and ending at 50 feet bps. Caerus requests a reduced analyte suite for all future soil samples. This reduced analyte suite would include all analytes that confirmation soil samples collected on 1/8/2020 exhibited exceedances for including EC, pH, and SAR. Analytical reports for samples collected on 1/8/2020 are attached and summarized in Table 1 and depicted on Figure 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: 4

Number of soil samples exceeeding 910-1: 4

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): 11.45

-- Highest concentration of SAR: 53.3

BTEX > 910-1: No

Vertical Extent > 910-1 (in feet): 29

Groundwater

Number of groundwater samples collected: 2

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): 270`

Number of groundwater monitoring wells installed: 0

Number of groundwater samples exceeding 910-1: 0

ND Highest concentration of Benzene (µg/l):

ND Highest concentration of Toluene (µg/l):

ND Highest concentration of Ethylbenzene (µg/l):

ND Highest concentration of Xylene (µg/l):

ND Highest concentration of Methane (mg/l):

Surface Water

3 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?

☐ 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 borings will need to be advanced in order to further delineate inorganic impacts.

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 is a failed portion of dumpline which was removed.

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.

Following the delineation of inorganic impacts, a 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.

Groundwater was not encountered during excavation activities associated with this project. However, domestic water wells north and down gradient of the project site were sampled. Please see the "Initial Action Summary" section of this form for more information on these wells.

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? 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 846

E&P waste (solid) description Soil impacted by E&P Waste - Manifests Attached

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Greenleaf Environmental Services

Volume of E&P Waste (liquid) in barrels 70

E&P waste (liquid) description Mixture of impacted soil and 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?

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.

Excavation will be backfilled to match pad 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. 11/18/2019

Actual Spill or Release date, if known.

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/15/2019

Date of commencement of Site Investigation. 11/15/2019

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation. 11/15/2019

Date of completion of Remediation. 01/08/2020

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

In order to complete delineation of the inorganic impacts to soil beneath the point of release (POR), the excavation needs to be backfilled. Once the excavation has been backfilled, an environmental drill rig will be mobilized to the site to advance soil borings around the project area as depicted on Figure 1. Therefore, Caerus requests approval to backfill the excavation with fill material imported from the Una Pit operated by Elam Construction.

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:` 01/29/2020 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: 02/03/2020

Remediation Project Number: 14788

COA Type	Description
	The operator shall notify the COGCC and comply with Rule 910.b.(4) if groundwater is encountered during cleanup operations.
	Submit complete documentation of soil boring sampling event (analytical summary table, soil boring logs, site diagram, and complete laboratory reports) via a Supplemental eForm 27.
	Under Proposed Soil Sampling plan, Operator requests a reduced analyte suite of EC, pH, and SAR for soil boring samples. The COGCC approves of the operator's request under the following condition: the operator shall analyze samples for TPH and BTEX if hydrocarbon odors or staining are observed, per Rule 910.b.(3).

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
402297038	FORM 27-SUPPLEMENTAL-SUBMITTED
402297068	ANALYTICAL RESULTS
402297071	ANALYTICAL RESULTS
402297072	ANALYTICAL RESULTS
402297808	DISPOSAL MANIFESTS
402298211	AERIAL IMAGE
402298253	AERIAL IMAGE
402298254	AERIAL IMAGE
402298269	ANALYTICAL RESULTS

Total Attach: 9 Files

General Comments

User Group	Comment	Comment Date
Environmental	Based on the analytical results provided for confirmation samples collected from the base of the excavation, the COGCC approves of operator's request to backfill the excavation.	02/03/2020

Total: 1 comment(s)