

State of Colorado
Oil and Gas Conservation Commission

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402577375
Receive Date:
01/19/2021

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 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 #: 15878 Initial Form 27 Document #: 402433873

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 checked="" 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 Cuttings Remediation

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

Facility Type: LOCATION	Facility ID: 335928	API #:	County Name: GARFIELD
Facility Name: SG E34 496	Latitude: 39.660280	Longitude: -108.160547	
	** correct Lat/Long if needed: Latitude: 39.658465	Longitude: -108.161605	
QtrQtr: SWNW	Sec: 34	Twp: 4S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications CL 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:

- 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	9000 cubic yards	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 Document 402433873 for a description of activities completed prior to 9/1/2020.

Please see the attached document which details remediation and sampling activities completed from 9/1/2020 through 12/15/2020.

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):

Please see the "Remediation Summary" section of this form.

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 32
Number of soil samples exceeding 910-1 23
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 20000
0

NA / ND

-- 853 Highest concentration of TPH (mg/kg)
NA Highest concentration of SAR
BTEX > 910-1 Yes
Vertical Extent > 910-1 (in feet) 0

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?

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.

No source removal is necessary.

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.

All cuttings currently staged in the auxiliary pad southwest of the main E34-496 well pad that have been deemed compliant via confirmation sampling will be relocated to the eastern cut slope of the auxiliary pad. This will be done in order to create room to spread out the cuttings represented by soil samples 20201215-E34-496 (CUT02) and 20201215-E34-496 (CUT05) into a thinner landfarm which will promote additional volatilization. The cuttings represented by these soil samples are the last two sections of the cuttings landfarms that require additional remediation. Please see Figure 7 of the attached document which details these sections.

Once these two sections of the cuttings landfarms have been spread out, two five-point composite samples will be collected from them. Pending COGCC approval, these samples will be submitted for the laboratory analysis of analytes (benzene) that soil samples collected on 12/15/2020 exhibited exceedances for. If these samples are not compliant with the COGCC Table 910-1 Concentration Level for benzene, then the cuttings will continue to be remediated through agitation and volatalization followed by confirmation sampling.

Soil Remediation Summary

In Situ

- _____ Bioremediation (or enhanced bioremediation)
- _____ Chemical oxidation
- _____ Air sparge / Soil vapor extraction
- _____ Natural Attenuation
- _____ Other _____

Ex Situ

- No Excavate and offsite disposal
- _____ If Yes: Estimated Volume (Cubic Yards) _____
- _____ Name of Licensed Disposal Facility or COGCC Facility ID # _____
- Yes Excavate and onsite remediation
- Yes 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 _____

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: _____

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.

Once an NFA status has been granted for this project, a Cuttings Beneficial Reuse Plan will be submitted via a Form 4 which will include contour drawings and include specifics of the interim reclaim plan including the burial of drill cuttings. In general, all disturbed areas will be reclaimed except for the working pad surface which includes the areas near the wellheads, separators, tank batteries, and areas reasonably needed for production and/or subsequent drilling operations. Per FAQ 32, which addresses materials with elevated pH, SAR, and EC, the cuttings will be positioned in the cut slope of the auxillary pad to the southwest of the main pad under three feet of clean material, segregated soil horizons replaced to their original relative positions, fill and cut slopes recontoured to achieve erosion control/long-term stability, and top soil tilled adequately to establish a proper seedbed. A seed mix approved by the landowner will be used to re-seed all disturbed non-working surface areas during the next favorable season. Bare ground and noxious weed spraying will be utilized for weed prevention.

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). 05/20/2020

Date of commencement of Site Investigation. 05/20/2020

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 05/20/2020

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Only samples collected from 9/1/2020 through 12/15/2020 are summarized in the "Sample Summary" section of this form.

There have been two landfarms created to remediate the drill cuttings produced on the E34-496 from 11/18/2018 through 5/10/2019. The GPS coordinates for the approximate center of the landfarms are 39.659449/-108.161597 and 39.658465/-108.161605.

Per recently enacted COGCC Rule 915.f., Caerus requests that the remaining remediation associated with this project be verified using the Concentration Levels for TPH (total volatile and extractable (C6-C28)) (500 mg/kg) and benzene (0.17 mg/kg) that were listed in the previous version of COGCC Table 915-1 which was COGCC Table 910-1. The remediation project associated with this form was created on 8/25/2020. Caerus anticipates completion of this project by August 2021.

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: 01/19/2021

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: 01/26/2021

Remediation Project Number: 15878

COA Type

Description

	<p>Operator shall address documented Table 910-1 exceedances for arsenic, EC, pH, and SAR in 5/20/2020 baseline cuttings samples (doc #402433881).</p> <p>If the Operator intends to reuse cuttings with exceedances for EC, pH, and SAR, the Operator shall submit a detailed Reclamation Plan via a Supplemental eForm 27, as described in Rule 915.b for COGCC approval.</p> <p>Additional sampling--including background sampling--may be required to address arsenic and inorganics exceedances.</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

402577375	FORM 27-SUPPLEMENTAL-SUBMITTED
402577997	ANALYTICAL RESULTS

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Updated Correct Lat/Long based on information provided by the Operator.	01/26/2021
Environmental	Operator's request to proceed under Table 910-1 per Rule 915.f is conditionally approved based on the anticipated project completion timeframe provided (August 2021).	01/25/2021
Environmental	<p>Under Reclamation Planning, Operator indicates that a Cuttings Beneficial Reuse Plan will be submitted via a Form 4 once NFA Status is granted for this project. This Beneficial Reuse Plan had been previously required to address Table 910-1 exceedances for arsenic, SAR, pH, and EC as a condition of approval on doc #402433873. Operator also references plans to address elevated SAR, pH, and EC under FAQ 32 (2008).</p> <p>The COGCC Mission Change Rulemaking, with Rules effective 1/15/2021, discontinued the practice of addressing inorganics exceedances by FAQ 32. The current Rule 915.b outlines a procedure for Operators to submit requests to the COGCC for leaving material with inorganics exceedances in situ.</p> <p>COGCC Rule 915.b. supercedes the outstanding COA for the Operator to address inorganics exceedances via a Beneficial Reuse Sundry. The Operator will address documented inorganics exceedances (EC, SAR, and pH) as well as arsenic exceedances documented in 5/20/2020 baseline cuttings samples (doc #402433881) via additional sampling and remediation. The Operator may also submit a Reclamation Plan via a Supplemental eForm 27 as described in Rule 915.b to request COGCC approval to leave the exceedances in place. See COAs above.</p> <p>Note: This remediation project will not be eligible for a NFA determination until inorganics and arsenic exceedances of Table 910-1 are addressed.</p>	01/25/2021
Environmental	Based on the analytical results provided, the Operator's request for a reduced analyte suite of benzene only is approved under the condition that the Operator addresses Table 910-1 exceedances for arsenic, EC, pH, and SAR per COAs above.	01/25/2021

Total: 4 comment(s)