

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 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 #: 15367 Initial Form 27 Document #: 402348831

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: PIT	Facility ID: 425557	API #: _____	County Name: GARFIELD
Facility Name: C28 696	Latitude: 39.501460	Longitude: -108.117100	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 28	Twp: 6S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GM Most Sensitive Adjacent Land Use Agricultural field

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

The surface water identified above is an isolated stormwater pond located immediately adjacent to CR 215 approximately 0.25 miles from the C28MF well pad.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	Delineated, see below.	Drilling and 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 reference COGCC Document Number 2232902 for initial actions taken associated with this project. Please reference COGCC Document Numbers 400829082 and 400829080 for initiation of remediation of TPH, PAH, and other impacts associated with former Pit #425557.

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):

Caerus proposes to conduct an SVE assessment sampling event in the vicinity of the four SVE wells outlined in the attached report of work completed. Caerus proposes to collect soil boring samples in five-foot intervals to delineate impacts still present in the area of the SVE wells. Caerus will provide the results of these SVE assessment sampling event on a Supplemental Form 27.

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 19

Number of soil samples exceeding 910-1 15

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 7000

NA / ND

-- Highest concentration of TPH (mg/kg) 289.1
29

-- Highest concentration of SAR 42.1

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 30

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 80'

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?

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?

Caerus will continue to maintain the bio-vent wells with augmented quarterly powered-trailer SVE events at the site to continue remediation of the site. In the future Caerus will assess the effectiveness of the site remediation following COGCC Table 915-1 standards.

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.

Caerus conducted a drilling assessment to determine the effectiveness of the remediation strategy for the project. Overall there continues to be a measureable reduction of hydrocarbons from the site by continuing to maintain the passive bio-vent wells with quarterly powered SVE events. Caerus plans to continue to conduct the quarterly powered-trailer SVE events and will provide results to the COGCC on a quarterly basis.

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 conducted a drilling assessment to determine the effectiveness of the remediation strategy for the project. Overall there continues to be a measureable reduction of hydrocarbons from the site by continuing to maintain the passive bio-vent wells with quarterly powered SVE events. Caerus plans to continue to conduct the quarterly powered-trailer SVE events and will provide results to the COGCC on a quarterly basis.

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.

No groundwater has been identified to date regarding this project. Caerus does not anticipate encountering groundwater associated with this project.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other Approved as annual under old rules, will move to quarterly in future

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report Other 2020 SVE Drilling Assessment and 2020 SVE event tracking log

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.

Caerus will reclaim all portions of this project following applicable COGCC rules at the time of project closure.

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). _____

Date of commencement of Site Investigation. 11/12/2012

Date of completion of Site Investigation. 04/21/2015

REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/21/2015

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Caerus conducted a drilling assessment to determine the effectiveness of the remediation strategy for the project. Overall there continues to be a measureable reduction of hydrocarbons from the site by continuing to maintain the passive bio-vent wells with quarterly powered SVE events. Caerus plans to continue to conduct the quarterly powered-trailer SVE events and will provide results to the COGCC on a quarterly basis.

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: 01/27/2021 _____

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: 02/25/2021 _____

Remediation Project Number: 15367 _____

COA Type**Description**

	Operator shall submit a Supplemental eForm 27 to present a comprehensive assessment of horizontal and vertical delineation of soil impacts for contaminants of concern listed on Table 915-1. The Operator's comprehensive report shall also address the potential for groundwater impacts and shall include as attachments a soil analytical summary table, groundwater sample analytical summary table (if groundwater has been sampled), and site diagram depicting soil and groundwater sample locations. Operator's analytical summary tables shall include comparisons of sample analytical results to Table 915-1.
	Reduced analyte suite (TPH-DRO, TPH-GRO, BTEX, PAHs, EC, SAR, and pH) was approved previously on doc #402348831. COGCC Cleanup Concentrations for these contaminants can be found on Table 915-1 under TPH, Soil Suitability for Reclamation, and Organic Compounds in Soils. In addition to previously approved sampling suite, Operator shall include all analytes listed under Table 915-1 for Organic Compounds in Soils and boron (hot water soluble soil extract) for future soil sampling events.

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**

402584063	FORM 27-SUPPLEMENTAL-SUBMITTED
402584186	ANALYTICAL RESULTS
402584626	ANALYTICAL RESULTS
402584631	ANALYTICAL RESULTS
402584710	SOIL SAMPLE LOCATION MAP

Total Attach: 5 Files

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

Environmental	Did previous operator provide a Spill Report for these impacts upon discovery?	02/25/2021
Environmental	Under Periodic Reporting, Operator indicates that this project will proceed to quarterly reporting.	02/25/2021
Environmental	Comply with COAs listed on doc #402348831.	02/25/2021

Total: 3 comment(s)