

State of Colorado
Oil and Gas Conservation Commission

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402137602
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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	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 #: 12690 Initial Form 27 Document #: 401835704

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 Facilites (in accordance with Rule 909.c.)

Facility Type: SPILL OR RELEASE	Facility ID: 457575	API #: _____	County Name: GARFIELD
Facility Name: K22 596 3C-27 well flowline release	Latitude: 39.599025	Longitude: -108.159530	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESW	Sec: 22	Twp: 5S	Range: 96W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Non-Crop Land: Shrub and Brush

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:

- | | | |
|--|--|--|
| <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	Soil Borings	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.

Please refer to document number 401835704 for this information.

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):

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):

Monitoring of the West Fork of Parachute Creek will occur through the continued collection of quaterly water samples at North Parachute Ranch (NPR) Baseline locations NPR2SP and NPR6ST.

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

None at this time. Based on soil borings determining extent of contamination defined, Caerus requests to end the visual monitoring of Light Gulch Creek.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 35
Number of soil samples exceeding 910-1 7
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 25

NA / ND

-- Highest concentration of TPH (mg/kg) 38720
-- Highest concentration of SAR 2.12
 BTEX > 910-1 Yes
 Vertical Extent > 910-1 (in feet) 20

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 150'
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 910-1 0

 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
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) 36 Volume of liquid waste (barrels) 0

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.

Please see the attached Report of Work Completed prepared by Entrada Consulting Group. Based on soil sample results from the additional SVE wells and initial SVE measurements of SVE-POR, Caerus plans on testing the effectiveness of SVE as a remediation strategy for source removal.

REMEDICATION 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 has installed a solar powered SVE trailer on the SVE-POR well to begin active remediation of the release. Initial SVE PID and air flow measurements at the SVE-POR well indicate positive removal of hydrocarbons from the soil column. Caerus is in the process of completing the SVE pilot test of the above mentioned remediation wells to determine the area of influence and effectiveness of SVE for remediation of the release. Based on limited sunlight and power sources in the canyon, Caerus requests to implement remediation by solar SVE for six months through the summer. During the winter months the solar SVE trailer will be utilized on other projects more suitable for winter sunlight patterns. During solar SVE remediation, Caerus will conduct monthly monitoring events to document the vacuum from the SVE-POR well and VOC concentrations coming from the exhaust of the trailer and provide this information to the COGCC under annual remediation progress reports.

Soil Remediation Summary

In Situ

Ex Situ

Yes _____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

Yes _____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ 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.

Groundwater was not encountered during the installation of the five soil borings. No groundwater impacts have been encountered as a result of this spill.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other _____
Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other Additional investigation report _____

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:

All E&P waste derived from this remediation project was taken to RNI for offsite disposal. Please refer to COGCC Document number 401835704 for this information.

Volume of E&P Waste (solid) in cubic yards _____ 36

E&P waste (solid) description E&P impacted soils from the flowline release _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: RNI - Piceance Creek Commercial Disposal Facility _____

Volume of E&P Waste (liquid) in barrels _____ 0

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.

All disturbances were backfilled to match the preexisting grade of the working pad surface.

Is the described reclamation complete? Yes _____

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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 09/18/2018

Date of commencement of Site Investigation. 07/08/2019

Date of completion of Site Investigation. 07/12/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/31/2019

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Attached please find the K22 Site Diagram_20180921 (Soil sample location map) to comply with COA #3 on the Initial Form 27 (COGCC Document # 401835704).

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: 08/09/2019 _____

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: 09/05/2019 _____

Remediation Project Number: 12690 _____

COA Type**Description**

	The operator shall provide an update of the SVE system installation, operation, results of monthly monitoring events, and implementation schedule via a Supplemental eForm 27 by 11/15/2019. This update shall include a means for periodic assessment of the extent of hydrocarbon impacts remaining in the subsurface.
	Under Remediation Summary, operator states that "Caerus will conduct monthly monitoring events to document the vacuum from the SVE-POR well and VOC concentrations coming from the exhaust of the trailer and provide this information to the COGCC under annual remediation progress reports." The COGCC does not approve of the operator's request to provide remediation progress on an annual basis. For the planned 2019 field season, the operator shall provide project updates to the COGCC via Supplemental eForm 27s on a semi-annual basis. This reporting frequency is subject to change based on remediation progress.

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**

402137602	FORM 27-SUPPLEMENTAL-SUBMITTED
402139262	SITE INVESTIGATION REPORT
402139264	SOIL SAMPLE LOCATION MAP
402139267	ANALYTICAL RESULTS

Total Attach: 4 Files

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

Environmental	Operator confirmed that SVE system has been installed and is currently operating during a meeting with the COGCC on 9/5/2019.	09/05/2019
Environmental	The COGCC approves of the operator's request to cease visual monitoring of Light Gulch Creek, based on horizontal delineation of impacts.	09/03/2019
Environmental	Under Conclusions and Recommendations, the attached report states that: "[a]ny residual shallow impacts beneath the flow line trench should be addressed during and after final plugging and abandonment (P&A) activities and final pad reclamation." COGCC approval of this Supplemental eForm 27 does not constitute agreement with this assertion. Operator shall continue to provide project status updates to the COGCC, including regular assessments of remediation progress and the effectiveness of the SVE system. See COAs above.	09/03/2019

Total: 3 comment(s)