

State of Colorado Oil and Gas Conservation Commission

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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.

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

OPERATOR INFORMATION

Name of Operator: CAERUS PICEANCE LLC	Operator No: 10456	Phone Numbers
Address: 1001 17TH STREET #1600		Phone: (970) 285.2739
City: DENVER State: CO Zip: 80202		Mobile: (970) 987.4650
Contact Person: Brett Middleton	Email: bmiddleton@caerusoilandgas.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 7966 Initial Form 27 Document #: 2146043

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.
- ☒ 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: LINED EARTHEN PIT CLOSURE

SITE INFORMATION

No Multiple Facilities

Facility Type: PIT	Facility ID: 433716	API #:	County Name: GARFIELD
Facility Name: H29A 433716	Latitude: 39.588380	Longitude: -108.070600	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SENE	Sec: 29	Twp: 5S	Range: 95W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications OH 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

THERE ARE TWO STREAMS, AND ONE MONITORING WELL WITHIN 1/4 MILE OF THE WELL PAD.

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	IMPACTS DETAILED IN FORM 19	IMPACTS DETAILED IN FORM 19

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

All activities conducted in support of this pit closure project will be carried out in accordance with COGCC Rules 905, 907, and 909 for conducting a site investigation in support of this pit closure. The following discussion was prepared to present general procedures for Encana's approach to pit closures and any associated remediation and documentation. All subsequent data gathered in support of this project will be submitted to the COGCC as required in a Form 19(Spill/Release Report), Notification of Completion and Form 4 (Sundry Notice), and will reference the COGCC assigned Remediation Project number. The following activities have, or will be carried out in support of pit closure activities conducted in support of this project: 905.b(2) & 905.b(4) ? All above-liner fluids and solids will be removed from the pit and will be reused or disposed of at a permitted disposal facility under manifest. 905.b(3) ? Liner will be removed, and reused/recycled or disposed of at a permitted disposal facility under manifest. 905.b(4) ? Representative samples will be collected from the pit bottom following removal of the pit liner and will be analyzed for compliance with COGCC Table 910-1. Sample results will be provided to the COGCC in supplementary submission(s) for this

remediation project. 905.c ? In the event of the constituents of concern found below the liner are in excess of Table 910-1

allowable concentrations and above background concentrations, Form 19(Spill/Release Report) will be submitted to document the failure of the pit liner and subsequent release of fluids. If below-liner concentrations identified in Table 910-1 allowable concentrations, but below

background no Form 19 will be submitted. However, a Form 4(Sundry Notice) and Notification of Completion will be submitted to document the onsite disposal of material in excess of the allowable concentrations identified in Table 910-1.

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 attached

Proposed Groundwater Sampling

☐ Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

ground water was not encountered

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):

please see attached

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 120

Number of soil samples exceeding 915-1 0

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 10000

NA / ND

NA Highest concentration of TPH (mg/kg) 2712

NA Highest concentration of SAR 3.4

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 67

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 0'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 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 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?

☐ 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?

Confirmation soil samples will be collected to demonstrate remediation and compliance with COGCC Table 915-1.

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

An initial sample was collected below the pit liner, that identified TPH at 20,000mg/kg, site investigation at that time included below pit liner sampling selected from areas where the highest probable impacts would occur, this was done by identifying soil staining, visual observations, and with the use of a PID. According to Encana's initial Form 27 in 2012, "Any impacted material identified below the liner would be evaluated upon discovery and depending upon severity would be removed using heavy equipment and remediated onsite, or disposed of offsite at a permitted disposal facility." The single point sample with unusually high TPH concentration has never replicated in the 120 soil sample collected from the pit area. So one could expect those highly impacted soil were removed and disposed offsite at a commercial landfill.

REMEDIAL ACTION 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 bio-vent wells with augmented quarterly powered SVE events at the site to remediate existing impacts associated with the previously existing pit. Caerus is proposing a comprehensive site assessment and sampling plan to compare with COGCC Table 915-1. Upon completion of the site assessment and data review Caerus will submit a supplemental Form 27 identifying proposed next steps for the historic pit closure.

X In Situ

Yes _____ Other _____ A plan will be submitted after site assessment data review is completed

☐ **Ex Situ**

No Land Treatment

No	Other

No Other

In the event that impacts to groundwater are identified, a vertical and lateral extent would be determined by a third party contractor and an appropriate insitu remediation and monitoring plan would be prepared and submitted to the COGCC for prior approval.

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 Site assessment plan

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

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

If YES:

☐ Compliant with Rule 913.h.(1).

☐ Compliant with Rule 913.h.(2).

☐ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards?

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards?

Is additional groundwater monitoring to be conducted?

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

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.

The footprint for the backfill pit occurs within the pad boundary for this location. During reclamation the backfill pit may be part of the pad's working surface and/or covered by recontoured and reseeded sloped installed to meet reclamation objectives. Interim and final reclamation activities will be carried out in accordance with COGCC 1000 Series requirements, and will be documented accordingly.

Is the described reclamation complete? _____

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. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/04/2013

Proposed site investigation commencement. 10/22/2012

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/04/2013

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

A sampling plan has been attached proposing soil boring locations to achieve full site delineation both horizontally and vertically. please site site maps and text for plan details.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: Brett Middleton

Title: Environmental Lead

Submit Date:

Email: bmiddleton@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:

Date:

Remediation Project Number: 7966

COA Type**Description**

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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**

402876786	SITE INVESTIGATION REPORT
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Total Attach: 1 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)