

State of Colorado Oil and Gas Conservation Commission

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401700963

Receive Date:

07/18/2018

Report taken by:

Stan Spencer

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) 285-9606
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 #: 10793

Initial Form 27 Document #: 401479264

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 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 type="checkbox"/> Other _____ |

SITE INFORMATION

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

Facility Type: SPILL OR RELEASE	Facility ID: 452867	API #: _____	County Name: GARFIELD
Facility Name: H2-797 Flowline Release	Latitude: 39.475830	Longitude: -108.180000	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: 66	Sec: 2	Twp: 7S	Range: 97W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GW

Most Sensitive Adjacent Land Use Non-crop land
rangeland

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? No

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	70' by 60' by 5'	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 refer to the documents identified by COGCC Document ID 401512215, 401447682, 401455189, and 401479264 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):

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 9

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 420

NA / ND

-- Highest concentration of TPH (mg/kg) 10600

-- Highest concentration of SAR 35

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 5

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 50'

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

1 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) 500

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 refer to the documents identified by COGCC Document ID 401512215 and 401479264 for this information.

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.

Please refer to the documents identified by COGCC Document ID 401512215 and 401479264 for this information.

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 # _____
Yes _____ Excavate and onsite remediation
Yes _____ Land Treatment
Yes _____ Bioremediation (or enhanced bioremediation)
No _____ Chemical oxidation
No _____ 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.

This form submittal should satisfy all Conditions of Approval (COA) associated with this remediation project including our commitment to sampling available water sources during the summer of 2018. Analytical results from a June 2018 sampling event of available water sources are attached. For reference, analytical results from a sampling event conducted on December 10, 2014 are also attached. Both events' sampling results are summarized in an attached table. The location of the available water source is depicted on an attached Water Source Location Map.

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:

Laboratory analytical verified compliance with Table 910-1 Concentration Levels and spoils will be utilized as beneficial reuse during the interim reclamation process. Spoils will be positioned in the cut slope 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 programs will be utilized for weed prevention.

Volume of E&P Waste (solid) in cubic yards 500

E&P waste (solid) description NA

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: NA

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

E&P waste (liquid) description NA

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: NA

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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? Yes

Is additional groundwater monitoring to be conducted? No

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 excavation was backfilled to the previous elevation of the active working surface of the well pad for current and future use and laboratory analytical verified compliance with Table 910-1 Concentration Levels. The spoils will be utilized as beneficial reuse during the interim reclamation process by positioning them in the cut slope under three feet of clean material, replacing segregated soil horizons to their original relative positions, recontouring fill and cut slopes to achieve erosion control/long-term stability, and tilling top soil 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 programs 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? _____

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). 10/31/2017

Date of commencement of Site Investigation. 10/31/2017

Date of completion of Site Investigation. 11/09/2017

REMEDIAL ACTION DATES

Date of commencement of Remediation. 11/01/2017

Date of completion of Remediation. 06/19/2018

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

This form submittal should satisfy all Conditions of Approval (COA) associated with this remediation project including our commitment to sampling available water sources during the summer of 2018. One COA from the Supplemental Form 27 (COGCC Document ID 401512215) involves re-sampling the removed soil for benzo(a)pyrene and dibenzo(A,H)anthracene due to the sample collected on 12-6-2017 (ALS workorder 1712426) having reporting limits that were above the COGCC Table 910-1 Concentration Levels. The laboratory re-issued that report with revised reporting limits therefore making this sample compliant with the above mentioned Concentration Levels. Analytical results are attached to this form and also summarized in an attached table. Also attached is the requested pipeline failure analysis concerning the root cause of the spill.

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 Lead

Submit Date: 07/18/2018

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: 08/13/2018

Remediation Project Number: 10793

COA Type

Description

	<p>Supplemental eForm 27, doc #401512215, included COA with specific land treatment requirements based on analytical results provided to COGCC. "1) Land treated soil shall be protected with a compacted berm for storm water management purposes; 2) Thickness of the treated material shall be less or equal to 18 inches; 3) Land farming requires frequent tilling and moisture Dry soil will not bio-remediate (volatile HC may volatilize but bacteria need moisture); Apply water and till the treated soil every other week (not once a month)."</p> <p>Operator's Remedial Action Plan, doc #401512239, indicated that water would not be applied during land treatment.</p> <p>Provide description of how land treatment was performed including soil sampling procedures and a site location diagram.</p>
	<p>Supplemental eForm 27, doc #401512215, included COA to sample land-treated material for PAHs benzo(A)pyrene and dibenzo(A,H)anthracene with specific method detection/reporting limit requirements. Operator shall comply with this COA.</p>

	<p>Per Operator's Remedial Action Plan, doc #401512239, "Caerus will continue to assess and sample available water sources within the immediate area of the well pad through the second quarter of 2018. Caerus plans to extend these assessment and sampling activities through the third quarter of 2018 to demonstrate no impacts to groundwater were encountered during landfarm activities. After third quarter water sampling is complete and the water analysis indicates no impacts to groundwater or surface water, Caerus will submit a Form 27 to close the remediation project."</p> <p>Provide a description of surface water feature assessment in the vicinity of the subject well pad as well as groundwater assessment for impacts. Why was the decision made to forego third quarter 2018 water sampling and assessment?</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.

<u>Att Doc Num</u>	<u>Name</u>
401700963	FORM 27-SUPPLEMENTAL-SUBMITTED
401702305	ANALYTICAL RESULTS
401702308	ANALYTICAL RESULTS
401702309	ANALYTICAL RESULTS
401702311	ANALYTICAL RESULTS
401702314	ANALYTICAL RESULTS
401702315	ANALYTICAL RESULTS
401702318	ANALYTICAL RESULTS
401702322	OTHER
401707054	MAP

Total Attach: 10 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	PAH reporting limits for excavated material exceeded COGCC Table 910-1, resulting in a COA requirement for operator to include PAHs in subsequent sampling events. Operator instead indicates that lab had provided revised initial laboratory report with reduced reporting limit for benzo(a)pyrene and dibenzo(a,h) anthracene. Revised laboratory report provided does not address reporting limit issue, it only changes units from ug/Kg-dry to mg/Kg-dry.	08/13/2018
Environmental	<p>Conditional approval of this eForm 27 (doc #401700963) does not constitute COGCC approval of Operator's request for no further action. Additional Operator action is required.</p> <p>Updated Purpose Information section to remove 'Closure of Remediation Project' request and to add 'Spill/Release Remediation' AND 'Land Treatment' purposes for this form.</p> <p>Updated Remediation Completion Summary to answer 'No' to 'Is this a Final Closure Request for this Remediation Project?'</p>	08/13/2018
Environmental	<p>Attached report from Baker Hughes, document #401702322, includes recommendations for operator to prevent or minimize pipeline corrosion by changing fluid/pipeline treatment.</p> <p>Operator does not indicate whether or not this recommendation will be implemented in eForm 27.</p>	08/13/2018

Total: 3 comment(s)