

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:
John Heil

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) 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 #: 25280 Initial Form 27 Document #: 403127398

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: Closure request of historic pit locations (ID:117150 and ID:117128) and well (ID:229884)

SITE INFORMATION

Yes Multiple Facilities

Facility Type: PIT	Facility ID: 117128	API #: _____	County Name: RIO BLANCO
Facility Name: PICEANCE CREEK UNIT F24-6G	Latitude: 39.900692	Longitude: -108.212034	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 6	Twp: 2S	Range: 96W Meridian: 6 Sensitive Area? No

Facility Type: PIT	Facility ID: 117150	API #: _____	County Name: RIO BLANCO
Facility Name: PICEANCE CREEK UNIT 24-6	Latitude: 39.900692	Longitude: -108.212034	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 6	Twp: 2S	Range: 96W Meridian: 6 Sensitive Area? No

Facility Type: WELL Facility ID: API #: 103-07542 County Name: RIO BLANCO
Facility Name: U S A-PICEANCE CREEK F24-6G Latitude: 39.901460 Longitude: -108.212810
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SESW Sec: 6 Twp: 2S Range: 96W Meridian: 6 Sensitive Area? No

Facility Type: OFF-LOCATION FLOWLINE Facility ID: 464749 API #: County Name: RIO BLANCO
Facility Name: Production Line 6SESW Latitude: 39.901638 Longitude: -108.212247
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SESW Sec: 6 Twp: 2S Range: 96W Meridian: 6 Sensitive Area? No

Facility Type: OFF-LOCATION FLOWLINE Facility ID: 465039 API #: County Name: RIO BLANCO
Facility Name: Production Line 6SESW Latitude: 39.901612 Longitude: -108.212305
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SESW Sec: 6 Twp: 2S Range: 96W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Rangeland-BLM
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

NA

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) No waste was identified during closure work

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
No	SOILS	NA	Site Investigation/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.

On August 23, 2022, two pothole samples were collected as a result of planned decommissioning of two former production pits associated with the U S A-PICEANCE CREEK F24-6G production well at this location. Pothole location [20220823-F24-6G (POC-Pit117150)] was advanced to 6 feet below ground surface (bgs) inside the former Pit 117150 footprint. The second pothole [20220823-F24-6G (POC-Pit 117128)] was advanced to 6 feet bgs inside the former Pit 117128 footprint. In addition, three samples were collected [20220823-F24-6G (POC-Vault1), 20220823-F24-6G (POC-Vault2), and 20220823-F24-6G (POC-Vault3)] from beneath the valves of each of the three off location flowline vaults located to the east of the U S A-PICEANCE CREEK F24-6G pad at depths ranging from 6 to 7 feet bgs using a hand auger. On October 10, 2022, soil field screening was conducted at and around the decommissioned wellhead (Facility ID: 229884) to confirm the presence or absence of hydrocarbon impacts via photoionization detector (PID), and visual and olfactory senses. Soil was then screened at the base and along each each wall of the decommissioned wellhead excavation. No hydrocarbon impacts were observed at any time during this investigative site visit.

The attached report of work completed (ROWC) details the soil characterization activities and results associated with the administrative closure of the two earthen pits and decommissioned wellhead at the U S A-PICEANCE CREEK-62S96W/6SESW (U S A-PICEANCE CREEK F24-6G) (Location ID: 314914) along with pre-decommissioning investigative sampling of the off-location flowlines.

Details on all other work associated with decommissioning this location can be reviewed on the Initial Form 27 (COGCC Document 403127398) associated with this project. The work detailed in that document includes information on the closure sampling associated with the production separator and wellhead prior to initiation of plugging and abandoning activities.

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 5
Number of soil samples exceeding 915-1 5
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 200

NA / ND

ND Highest concentration of TPH (mg/kg) _____
ND Highest concentration of SAR _____
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) _____
Number of groundwater monitoring wells installed _____
Number of groundwater samples exceeding 915-1 _____

_____ 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
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?

Two additional site-specific background samples were collected from the southeast and southwest of the pad location at a depth of 12 feet bgs. Please see attached ROWC for additional site-specific background sampling details.

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.

There is no source. The purpose of this form submittal is to present sampling data associated with the decommissioning of the U S A-PICEANCE CREEK F24-6G well, historic pits, and off-location flowlines. Soil samples were collected to comply with 913.c.(9). Soil samples were collected on June 30 and August 23, 2022 prior to activities associated with the facility decommissioning and plugging and abandonment. Soil field screening was completed on October 10, 2022 post facility decommissioning which confirmed no source present associated with the decommissioning of the U S A-PICEANCE CREEK F24-6G well.

Please see attached ROWC for additional details.

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.

Remediation associated with the closure request of pit locations (Pit IDs: 117150 and 117128), the decommissioned well U S A-PICEANCE CREEK F24-6G (Facility ID: 229884), and associated pre-decommissioning off-location flowlines (Facility IDs: 464749 and 465039) is not necessary.

All soils associated with the two historic earthen pit locations, decommissioned well, and decommissioned off location flowlines were confirmed to be within background concentrations of site-specific soil samples collected at the U S A-PICEANCE CREEK-62S96W/6SESW (U S A-PICEANCE CREEK F24-6G) (Location ID: 314914) pad location (Site). This was confirmed via confirmation soil sampling. The elevated pH and arsenic concentrations are addressed below.

Per COGCC Table 915-1 footnote 11, WSP Caerus requests the Director to consider the arsenic exceedances to be within site-specific background soil sample 20220823-F24-6G (BG-SE) @ 12' collected at the Site. The arsenic concentrations observed in all confirmation soil samples are within site-specific background soil sample 20220823-F24-6G (BG-SE) @ 12' (5.91 mg/kg). Arsenic concentrations of confirmation soil samples collected ranged from 3.91 mg/kg to 5.42 mg/kg. Caerus requests that these elevated values be considered naturally occurring and representative of site-specific background concentrations.

Reference to previous COGCC Table 915-1 footnote 11 considerations for wellhead arsenic concentrations associated with sample 20220630-F24-6G (POC-WH)@10' can be reference in Site Investigation and Remediation Workplan (Initial Form) Document Number 403127398.

Please see the "Operator Comments" Section of this form for remaining parts of this section.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____

_____ 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/observed during decommissioning investigation activities of the U S A-PICEANCE CREEK F24-6G well, pits, and associated off-locations flowlines.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other Closure request of historic pit locations (ID:117150 and ID:117128) and well (ID:229884) RN (25280)

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 Closure request of historic pit locations (ID:117150 and ID:117128) and well (ID:229884)

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).
If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

No further work is needed on this facility closure project.

Operator anticipates the remaining cost for this project to be: \$ 0

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? Yes

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? Yes

Does the previous reply indicate consideration of background concentrations? Yes

Does Groundwater meet Table 915-1 standards? Yes

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.

Any disturbances associated with the facility decommissioning will be returned to grade with suitable material pursuant to the 1000 Series Rules.

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 provide the seed mix? No

If YES, does the seed mix comply with local soil conservation district recommendations? _____

Did the local soil conservation district provide the seed mix? No

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). 06/30/2022

Proposed site investigation commencement. 06/30/2022

Proposed completion of site investigation. 08/23/2022

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

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

In order to address the elevated pH concentrations in four of the five investigative soil samples collected from the two earthen pit bottoms and the soil beneath the three off-location flowlines, Caerus request the Director to consider the elevated pH values in the USA-PICEANCE CREEK F24-6G pits and associated off-location flowline vault confirmation soil samples [20220823-F24-6G (POC-PIT 117128) @ 6', 20220823-F24-6G (POC-PIT 117150) @ 6', 20220823-F24-6G (POC-VAULT1) @ 7', and 20220823-F24-6G (POC-VAULT2) @ 7'] as naturally occurring. Although these four pH values range from 8.36 to 9.53 and are elevated with respect to the COGCC Table 915-1 CC criteria of 8.3, these elevated values should not be considered elevated as a result of the byproduct of oil and gas production activities. Based on produced water quality data collected from the USA-PICEANCE CREEK F24-6G well, the soil pH value is greater than the produced water pH value generated at the Site. The pH value of produced water sample collected from the USA-PICEANCE CREEK F24-6G well on November 9, 1981 was 8.3. The pH value collected from produced water at the Site would indicate that a spill of produced water at the wellhead would not effectively increase the pH above the COGCC Table 915-1 CC of 8.3. No organic impacts were observed when completing confirmation soil sampling and the pH value collected from produced water at the well would indicate that a prolonged produced water drip into these pits from former production equipment would not effectively increase the pH above the COGCC Table 915-1 CC of 8.3. Based on the pH value of the produced water sample, WSP and Caerus believe the elevated pH values in the confirmation soils samples are not associated with the former USA-PICEANCE CREEK F24-6G well and are not a result of oil and gas production activities but are rather naturally occurring background concentrations within the area.

Caerus requests that the Director assign a "No Further Action" designation to Remediation # 25280 which is associated with the decommissioning of the two historic earthen pit locations (Pit IDs: 117150 and 117128) and the cut and capped well U S A-PICEANCE CREEK F24-6G (Facility ID: 229884) (API Number 05-103-07542) [COGCC Site Investigation and Remediation Work Plan (Supplemental Form) Document Number 403172024] (COGCC Remediation Number 25280) at the U S A-PICEANCE CREEK-62S96W/6SESW (Location ID: 314914).

The off-location flowline vault designations (Facility IDs: 464749 and 465039) will be closed under a separate Form 27 submittal once the flowlines are properly abandoned and additional screening occurs at each flowline terminus to confirm for the absence of impacts to soil. This work will not start until the approval of this form. Since preliminary sampling indicates that there are currently no impacts to soil at these locations, no further soil samples will be collected for laboratory analysis unless impacts are observed during the physical decommissioning of these flowlines.

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

Signed: Dustin Held

Title: Sr. Consultant, Geologist

Submit Date: 10/14/2022

Email: dustin.held@wsp.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: John Heil

Date: 10/14/2022

Remediation Project Number: 25280

COA Type

Description

	Operator shall comply with Rule 911.a.(1) and obtain the Director's approval of the Form 27 prior to conducting any investigation or closure operations related to the off-location flowline vaults Facility IDs: 464749 and 465039.
	Based on a review of the information provided, it appears that no further action is necessary at this time for Pit IDs: 117150 and 117128 and the cut and capped well U S A-PICEANCE CREEK F24-6G (Facility ID: 229884) (API Number 05-103-07542) and COGCC approves the closure request. Should conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards, or, if groundwater is found to be significantly impacted, further investigation and/or remediation activities may be required at the site.
	Operator states "Caerus requests the COGCC Director for approval to sample under a reduced analytical suite for all future decommissioning confirmation soil samples for BTEX and TPH only." COGCC denies Caerus's request for the reduced analytical suite for all future samples to only include BTEX and TPH. Operator shall thoroughly delineate the vertical and horizontal impacts using the Full Table 915-1 list of contaminants of concerns before a reduced analyte suite is approved.
3 COAs	

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**

403172024	FORM 27-SUPPLEMENTAL-SUBMITTED
403197318	SITE INVESTIGATION REPORT

Total Attach: 2 Files

General Comments

User Group **Comment**

Comment Date

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)