

State of Colorado  
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
404052481

Receive Date:  
\_\_\_\_\_

Report taken by:  
\_\_\_\_\_

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 ECOM 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	<b>Phone Numbers</b>
Address: 1001 17TH STREET #1600		Phone: (970) 640-6919
City: DENVER State: CO Zip: 80202		Mobile: (970) 640-6919
Contact Person: Blair Rollins	Email: brollins@qb-energy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15947 Initial Form 27 Document #: 402475596

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: \_\_\_\_\_

SITE INFORMATION

No Multiple Facilities

Facility Type: SPILL OR RELEASE	Facility ID: 477096	API #: _____	County Name: GARFIELD
Facility Name: Unocal 4 K04 dumpline release	Latitude: 39.555477	Longitude: -108.114527	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 4	Twps: 6S	Range: 96W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications GP Most Sensitive Adjacent Land Use Non-crop land

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**

Parachute Creek is located 0.18 miles to the west.

**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	TBD	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 ECMC Document Numbers 402432937 and 402475596 for initial actions taken in support of this project.

**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 ):

No additional soil sampling is proposed at this time. Additional soil samples will be required to demonstrate success remediation of impacts was completed.

**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 ):

Groundwater is not expected to be encountered. If groundwater is encountered, QB Energy will notify the ECMC and attempt to collect a representative groundwater sample for laboratory analysis.

**SITE INVESTIGATION REPORT**

**SAMPLE SUMMARY**

Soil

NA / ND

Number of soil samples collected 0

Highest concentration of TPH (mg/kg) \_\_\_\_\_

Number of soil samples exceeding 915-1 \_\_\_\_\_

Highest concentration of SAR \_\_\_\_\_

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

BTEX > 915-1 Yes

Approximate areal extent (square feet) 1800

Vertical Extent > 915-1 (in feet) 80

**Groundwater**

Number of groundwater samples collected 0

NA Highest concentration of Benzene (µg/l) \_\_\_\_\_

Was extent of groundwater contaminated delineated? Yes

NA Highest concentration of Toluene (µg/l) \_\_\_\_\_

Depth to groundwater (below ground surface, in feet) 100

NA Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_

Number of groundwater monitoring wells installed 0

NA Highest concentration of Xylene (µg/l) \_\_\_\_\_

Number of groundwater samples exceeding 915-1 0

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?

Following successful remediation of organic impacts (TPH) associated with the project are completed, QB Energy plans to delineate the vertical and horizontal extent of SAR impacts associated with the project and will prepare a 915.b. reclamation plan for the project.

**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.

Based on the localized impacts found between 30 and 55 feet below the point of release (SB01), and the adequate radius of influence and communication between the soil borings installed at the site, QB Energy plans to continue soil vapor extraction (SVE) remediate hydrocarbons in the project area. QB Energy will monitor the exhaust coming from the SVE wells to indicate remediation progress. Once SVE exhaust demonstrates reduction of hydrocarbons, QB Energy will collect soil samples within the spill area to demonstrate compliance with organic impacts associated with the project. Following successful remediation of organic impacts (TPH) associated with the project are completed, QB Energy plans to delineate the vertical and horizontal extent of SAR impacts associated with the project and will prepare a 915.b. reclamation plan for the project.

**REMEDATION 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.

In June 2020, a remedial excavation was initiated to determine vertical and horizontal extents of soil impacts associated with the dumlaine release. Horizontal extents of soil impacts were delineated, however, due to safety concerns surrounding the depth and instability of the excavation, it was not possible to complete vertical delineation. Excavation activities were abandoned, the excavation was backfilled, and a plan to complete vertical delineation via environmental drill rig was proposed.

Between November 9 and 16, 2020, soil boring efforts were completed to evaluate the vertical extent of soil impacts. Three soil borings were advanced to a total depth of 61 feet below ground surface (bgs). The soil boring locations were selected to attempt vertical delineation of soil impacts within the former excavation footprint. Samples were collected every 10 vertical feet beginning at 15 feet bgs. Samples were analyzed for the approved suite of total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, and toluene (BTEX), electrical conductivity (EC), and sodium adsorption ratio (SAR). Additionally, each well was completed as a soil vapor extraction (SVE) well to support monitoring and remediation of subsurface impacts.

Remediation of impacts associated with this project were not completed by January 15, 2022; therefore, as per Rule 915.f, QB Energy will comply with the current version of ECMC Table 915-1.

On January 17 and 18, 2024, drilling activities to vertically delineate SAR impacts were completed. Using a track mounted solid stem drill rig, one soil boring was advanced directly above the original POR to a total depth of 80 feet bgs. A total of 5 soil samples were collected, one for every 10 feet of vertical depth beginning at 40 feet bgs. Analytical results indicate concentrations of TPH, SAR, and pH exceeding Table 915-1 RSSLs.

See attached remediation progress report for Q4 2024 SVE results.

### **Soil Remediation Summary**

In Situ

Ex Situ

Yes Bioremediation ( or enhanced bioremediation )

Excavate and offsite disposal

No Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

Yes Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_

Yes Natural Attenuation

Excavate and onsite remediation

No Other \_\_\_\_\_

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.

QB Energy does not anticipate encountering groundwater during site investigation activities. If groundwater is encountered, QB Energy will notify the ECMC and attempt to collect a representative sample for analysis.

# 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 Q4 2024 REM update

## 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.

Per Rule 705.b, and in line with guidance laid out in the SBAP, QB Energy has general liability insurance in the amount of \$5M, and QB Energy has umbrella insurance, which sits over the general liability insurance in the amount of \$65M. The umbrella and general liability insurance covers property damage, bodily injury to third parties, and sudden or accidental pollution under a combined \$70M.

Operator anticipates the remaining cost for this project to be: \$ 35000

## 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 \_\_\_\_\_

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_

E&P waste (liquid) description \_\_\_\_\_

ECMC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-ECMC 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 ECMC 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 disturbance will be returned to the active working surface of the well pad for continued operation. When the site is decommissioned at a later date, it will be reclaimed in accordance with 1000 Series regulations.

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? Yes

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

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). 07/15/2020

Proposed site investigation commencement. 07/20/2020

Proposed completion of site investigation. 06/01/2024

### **REMEDIAL ACTION DATES**

Proposed start date of Remediation. 01/12/2021

Proposed date of completion of Remediation. 08/01/2027

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**

QB Energy will continue to conduct SVE events at the site to complete remediation of impacts. Results from SVE exhaust will be monitored to determine remediation success, and confirmation soil samples will be provided to the ECMC for review. Following successful remediation of organic impacts (TPH) associated with the project are completed, QB Energy plans to delineate the vertical and horizontal extent of SAR impacts associated with the project and will prepare a 915.b. reclamation plan for the project.

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

Signed: Blair Rollins

Title: Environmental Specialist

Submit Date: \_\_\_\_\_

Email: brollins@qb-energy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 15947

**COA Type**

**Description**

0 COA	

**ATTACHMENT 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**

404052484	REMEDIATION PROGRESS REPORT
-----------	-----------------------------

Total Attach: 1 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)