

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404395433

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: <u>QB ENERGY OPERATING LLC</u>	Operator No: <u>10844</u>	Phone Numbers
Address: <u>1001 17TH STREET SUITE 1600</u>		Phone: <u>(720) 830-7549</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>(720) 830-7549</u>
Contact Person: <u>Derek Horn</u>	Email: <u>dhorn@qb-energy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 19518 Initial Form 27 Document #: 402658889

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: <u>SPILL OR RELEASE</u>	Facility ID: <u>479279</u>	API #: _____	County Name: <u>RIO BLANCO</u>
Facility Name: <u>J14 496 Drilling Mud Release</u>	Latitude: <u>39.700947</u>	Longitude: <u>-108.137218</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u>	Sec: <u>14</u>	Twp: <u>4S</u>	Range: <u>96W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

SITE CONDITIONS

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

Groundwater monitoring well MH-56839 is located 0.12 miles northeast of the wellhead.

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	65 feet x 50 feet x 2 feet	Soil sampling and 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.

During drilling activities on January 28, 2021, a gas kick caused the release of approximately 4 barrels (bbls) of drilling mud on the pad surface. The spill was reported using Colorado Energy & Carbon Management Commission (ECMC) Form 19 Document 402586515, and Spill ID 479279 was assigned to the release. Due to health and safety concerns associated with the active drill rig, remedial investigation activities could not take place immediately. ECMC Form 27 Document 402658889 was later submitted to open Remediation Project 19518. See the Report of Work Completed (ROWC) attached to this document for details of site investigation.

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):

[Empty text box for soil sampling details]

Proposed Groundwater Sampling

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

[Empty text box for groundwater sampling details]

Proposed Surface Water Sampling

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

[Empty text box for surface water sampling details]

Additional Investigative Actions

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

[Empty text box for additional investigative actions]

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 17
Number of soil samples exceeding 915-1 5
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 3250

NA / ND

-- Highest concentration of TPH (mg/kg) 304.4
-- Highest concentration of SAR 5.57
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 2

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
 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?

Four background samples were collected from the Location on June 20, 2022. Additionally, historic background samples collected from the area have been evaluated and included within a statistical analysis. Refer to Form 27 Document 403229061, as well as the attached ROWC and Statistical Analysis for additional details.

Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 180 Volume of liquid waste (barrels) 23

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.

Approximately 180 cubic yards of impacted soil was excavated and properly disposed of at Greenleaf Environmental Services, LLC, in De Beque Colorado due to exceeding boron levels. With confirmation of compliance in both the excavation base and the lateral extent defined by the July sampling, all constituents of concern have been fully addressed. Based on these results, QB requests closure of Remediation Project 19518 with an no further action (NFA) determination. See the attached ROWC for details

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.

Remediation was accomplished through targeted excavation of impacted soil, confirmation sampling, and proper disposal based on characterization results. In June 2025, drilling-mud-impacted soils were excavated from the release area. Confirmation sampling identified exceedances of pH and boron remaining. In July 2025, shallow potholes were advanced to define the lateral extent of residual impacts. These samples demonstrated full horizontal delineation of all constituents of concern. In August 2025, excavation was extended to approximately 65 feet by 50 feet by 2 feet below ground surface (bgs). Confirmation samples from the final excavation base were compliant with Table 915-1 allowable limits.

Approximately 180 cubic yards of soil exceeding boron limits was transported to Greenleaf Environmental Services for disposal. Statistical analysis of background values using the upper outlier limit (UOL) and lower outlier limit (LOL) indicates that pH values from 7.765 to 9.325 occur with 100% probability. All pH results observed within the project area fall within this natural range. Based on this data analysis, QB requests consideration under Table 915-1 Footnote 1 to remove pH as a constituent of concern.

All remedial activities were completed between June and August 2025. Laboratory data confirmed compliance within the final excavation footprint, and no additional active remediation was required. Plans and specifications included shallow excavation using standard equipment, field screening using a PID, laboratory analysis of TPH, SAR, pH, boron, and barium.

With removal of all constituents of concern and compliance confirmed in the excavation base and lateral extent, the site has been fully remediated. QB requests closure of Remediation Project 19518 with an NFA determination. See the attached ROWC for details.

Soil Remediation Summary

<input checked="" type="checkbox"/> In Situ	<input checked="" type="checkbox"/> Ex Situ
_____ Bioremediation (or enhanced bioremediation)	Yes _____ Excavate and offsite disposal
_____ Chemical oxidation	_____ If Yes: Estimated Volume (Cubic Yards) _____ 180
_____ Air sparge / Soil vapor extraction	_____ Name of Licensed Disposal Facility or ECMC Facility ID # _____
Yes _____ 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.

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 Annual Status Report and NFA Request

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: \$ 0

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:

None

Volume of E&P Waste (solid) in cubic yards 180

E&P waste (solid) description Drill mud impacted soils

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Greenleaf Environmental Services, LLC

Volume of E&P Waste (liquid) in barrels 23

E&P waste (liquid) description hydrovac rinseate mixed with impacted soils

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Greenleaf Environmental Services, LLC

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 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? _____

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. 01/28/2021

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/14/2021

Proposed site investigation commencement. 09/29/2022

Proposed completion of site investigation. 08/29/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/06/2025

Proposed date of completion of Remediation. 08/29/2025

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

Exceedances of pH remained within the investigation area following the June excavation. To evaluate whether these pH values were naturally occurring, background samples collected from the immediate vicinity of the Location were reviewed. The Natural Resources Conservation Service (NRCS) identifies the site area as Starman-Vandamore Complex with 5–40% slopes. Background samples were collected from this same soil series or from Irigul-Starman Channery Loam, which features 5–30% slopes. These soil classifications are scientifically comparable due to shared parent material, sedimentary bedrock including shale, sandstone, and mudstone, loamy textures, rock fragment content, drainage characteristics, and geomorphic development. Both soil types occur on steep slopes that promote erosion, shallow soil development, and reduced water-holding capacity, resulting in similar chemical and physical soil properties. Background samples were collected at elevations ranging from 7,930 to 8,130 feet AMSL, while the release area is situated at approximately 7,930 feet AMSL. All samples were collected along the same southeast–northwest ridgeline. This ridgeline is a continuous landform formed under uniform geologic and weathering processes, which supports the scientific validity of using this data as representative natural background conditions for the site.

Statistical analysis of background values using the upper outlier limit (UOL) and lower outlier limit (LOL) indicates that pH values from 7.765 to 9.325 occur with 100% probability, and no outliers were identified. All pH results observed within the project area fall within this natural range. Based on this data analysis, QB requests consideration under Table 915-1 Footnote 1 to remove pH as a constituent of concern.

Assuming the above request is approved, the July potholing event provided full horizontal delineation of remaining exceedances. The August excavation extending to the lateral limits defined by the July potholes, the July delineation samples effectively represent the sidewall confirmation samples for the final excavation extent. The August excavation advanced to these limits and achieved removal of impacted soil. Confirmation samples collected from the excavation base in August were compliant with applicable Table 915-1 allowable limits.

Field screening during both July and August did not identify any additional impacts beyond the delineated extent, and all analytical results were within allowable limits. Approximately 180 cubic yards of impacted soil was excavated and properly disposed of at Greenleaf Environmental Services, LLC, in De Beque Colorado due to exceeding boron levels. With confirmation of compliance in both the excavation base and the lateral extent defined by the July sampling, all constituents of concern have been fully addressed. Based on these results, QB requests closure of Remediation Project 19518 with an NFA determination.

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

Signed: Derek Horn

Title: EHS Specialist

Submit Date: _____

Email: dhorn@qb-energy.com

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

ECMC Approved: _____

Date: _____

Remediation Project Number: 19518

COA Type

Description

0 COA	
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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
404395508	LABORATORY ANALYTICAL REPORT
404395511	LABORATORY ANALYTICAL REPORT
404395517	LABORATORY ANALYTICAL REPORT
404395518	LABORATORY ANALYTICAL REPORT
404395519	LABORATORY ANALYTICAL REPORT
404395521	LABORATORY ANALYTICAL REPORT
404395523	LABORATORY ANALYTICAL REPORT
404396327	LABORATORY ANALYTICAL REPORT
404396329	SITE INVESTIGATION REPORT

Total Attach: 9 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)