

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Krystal Heibel

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 ECMC 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>BISON IV OPERATING LLC</u>	Operator No: <u>10670</u>	Phone Numbers Phone: <u>(303) 882-5868</u> Mobile: <u>()</u>
Address: <u>518 17TH STREET SUITE 1800</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Paul Buck</u>	Email: <u>pbuck@bisonog.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 32697 Initial Form 27 Document #: 403491462

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: Analysis returned with exceedance in As. Need to collect background and resample for As.

SITE INFORMATION

No Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>470933</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Koloa Pad</u>	Latitude: <u>40.667786</u>	Longitude: <u>-104.191469</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENW</u>	Sec: <u>15</u>	Twp: <u>8N</u>	Range: <u>61W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications GP Most Sensitive Adjacent Land Use Livestock Grazing
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? Yes

Other Potential Receptors within 1/4 mile

Surface water is present in the area in the form of ephemeral streams and small reservoirs. The closest surface water feature to the Site is an unnamed ephemeral drainage to an unnamed ephemeral reservoir. The ephemeral drainage is approximately 1,377 feet to the west of the Site. This Site is located within the extent of the Colorado Parks and Wildlife (CPW) High Priority Habitat (HPH) designated for Pronghorn Winter Concentration area. A review of Colorado's DWR Well Permit Resource data identified one (1) geophysical log well approximately 0.18 miles east of the Site. This well was drilled in 2016 with a static groundwater level of 159 feet.

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	To be determine	Field Review

INITIAL ACTION SUMMARY

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

Bison IV Operating, LLC immediately removed all fluid and visually impacted soils from the spill location on 5/12/23. The release occurred on CR 89, which is a gravel road, and the impacted soils were scraped from the road surface until all visually impacted soils were removed. Soil samples were collected at the release location on 6/14/23. The soil sampling activity and results are reported in the Form 19, Document Number 403491354

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):

Once the removal of impacted soils is complete, two (2) grab samples will be collected to confirm cleanup activities were successful. These grab samples will only be collected if it is determined that impacts are still present at the release location, following background sampling.

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):

Background sampling is needed to verify that the elevated levels of pH and arsenic found in the samples collected at the release location are a result of the release or if they are consistent with the concentration levels in the surrounding soils.

Two (2) background samples were collected and analyzed but more background samples will be needed for a valid characterization of background analyte concentration levels for this area. Additional background samples are needed.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 9

Number of soil samples exceeding 915-1 7

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

Approximate areal extent (square feet) 50

NA / ND

ND Highest concentration of TPH (mg/kg) _____

-- Highest concentration of SAR 0.555

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

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

Number of groundwater monitoring wells installed _____

Number of groundwater samples exceeding 915-1 _____

ND Highest concentration of Benzene (µg/l) _____

ND Highest concentration of Toluene (µg/l) _____

ND 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?

Two (2) background soil samples were collected on the roadbed outside of the release location. The background samples contained analyte concentration levels that exceeded Table 915-1 cleanup concentrations and more background samples are proposed to verify that these elevated levels are a true representation of the background soil characterization for this area. A minimum of two (2) more background samples will be collected.

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?

Further site investigation is needed to adequately verify the impacts have been cleaned up, which will include: background sampling to verify if the elevated contaminant levels that remain are consistent with background levels in the surrounding area, and ex situ remediation of impacted soils with follow-up confirmation sampling if it is determined that impacts are still present at the release site.

The impacted soils were removed almost immediately following the release via scraping the road surface and two (2) soil samples were collected once the visually impacted soils were removed. Lab analysis from the collected samples showed elevated levels of pH and arsenic but all other Table 915-1 Contaminants of Concern were within the allowable concentration levels. Background sampling is needed to determine if the elevated levels of pH and arsenic are caused by the release or if those concentrations are consistent with the surrounding area. Two (2) background samples will be collected from the surface of the roadbed, approximately 50 feet in each direction from the release location.

All proposed and future samples collected at the site (background and confirmation) will only be tested for pH and arsenic because those are the only contaminants of concern with elevated concentration levels found in soil samples collected from the release location. ECMC Table 915-1 cleanup concentration limits will be used for soil samples during confirmation and background sampling.

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.

Visually impacted soils were immediately excavated and removed from the release location. Further delineation of impacted soils will occur as background and confirmation sampling is completed. Impacted soils will be excavated and transported for disposal at an approved disposal facility.

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.

Impacted soils will be excavated and transported for disposal at an approved disposal facility, if needed. Initial soil analytical results indicated sample SS1 and SS2 had a pH level above the ECMC allowable level at 8.63 and 9.28, respectively. Verification samples, SS1V and SS2V, were collected from the same locations on June 23, 2024 based on pH variability in soils. pH levels in the verification samples remained below ECMC criteria at 7.93 and 8.08 respectively.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 1

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or ECMC 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.

REMEDATION 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 _____

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.

Bison intends to directly address the costs of remediation at the locations as part of our asset retirement obligation process and operations. Bison has general liability insurance (policy 660-3W957213) and financial assurance in compliance with ECMC rules. Records are available on the ECMC's website.

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

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:

All E&P waste generated thus far has been disposed at Pawnee Waste LLC. Removal and disposal activities will continue if additional impacted soils are discovered during background and confirmation sampling.

Volume of E&P Waste (solid) in cubic yards _____ 1

E&P waste (solid) description Soil impacted by liquids associated with drill cuttings

ECMC Disposal Facility ID #, if applicable: _____ 0

Non-ECMC Disposal Facility: _____

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

REMEDATION COMPLETION REPORT

REMEDATION 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.

The horizontal extent of the spill was contained within the county road. The area was scraped to remove visually impacted soils. The release area will be graded to match the surrounding gravel road surface.

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. 05/12/2023

Proposed date of completion of Reclamation. 05/12/2023

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. 05/12/2023

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/12/2023

Proposed site investigation commencement. 05/12/2023

Proposed completion of site investigation. 04/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/08/2023

Proposed date of completion of Remediation. 12/15/2023

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

Initial soil analytical results indicated sample SS1 and SS2 had a pH level above the ECMC allowable level at 8.63 and 9.28, respectively. Verification samples, SS1V and SS2V, were collected from the same locations on June 23, 2024 based on pH variability in soils. pH levels in the verification samples remained below ECMC criteria at 7.93 and 8.08 respectively. As a result, Bison is requesting a No Further Action determination, which is consistent with the determination our our third party contractor

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

Signed: Paul Buck

Title: EH&S Manager

Submit Date: 08/22/2024

Email: pbuck@bisonog.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: Krystal Heibel

Date: 10/17/2024

Remediation Project Number: 32697

COA Type**Description**

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**

403898232	FORM 27-SUPPLEMENTAL-SUBMITTED
403898308	ANALYTICAL RESULTS

Total Attach: 2 Files

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

Environmental	Based on the information presented, it appears the elevated pH samples appear to be de minimis in quantity or within the range of background pH; therefore, elevated pH may not be associated with E&P activities. It appears that no further remedial action is necessary at this time and the ECMC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding ECMC standards or background levels or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.	10/17/2024
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Total: 1 comment(s)