

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
403839905

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>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 4  
Number of soil samples exceeding 915-1 4  
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.

### **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.

# 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 \_\_\_\_\_

## 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: \_\_\_\_\_

## 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.

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**

Bison collected three (3) additional background samples in 2Q2024 to characterize the background concentration levels of arsenic and pH for this area. At the time of this submittal the analysis is being performed. An updated soil sample location map has been attached.

As per the approval on the previous Form 27 Supplemental (DOC ID 403730986), soil samples will be tested for pH and arsenic.

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

Signed: Bryce Maifeld \_\_\_\_\_

Title: Regulatory Analyst \_\_\_\_\_

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

Email: bmaifeld@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: \_\_\_\_\_

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

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**

403840451	SOIL SAMPLE LOCATION MAP
403840452	MAP
403840453	ANALYTICAL RESULTS
403840454	ANALYTICAL RESULTS

Total Attach: 4 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)