

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
403850253  
Receive Date:  
07/10/2024  
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: FUNDARE RESOURCES OPERATING COMPANY LLC Operator No: 10773 Phone Numbers  
Address: 5251 DTC PKWY STE 950 Phone: (303) 910-4511  
City: GREENWOOD VILLAGE State: CO Zip: 80111 Mobile: ( )  
Contact Person: Sydney Smith Email: ssmith@fundareresources.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 34263 Initial Form 27 Document #: 403687132

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: 480947 API #: County Name: WELD  
Facility Name: Horsetail 07F-0639 Latitude: 40.853609 Longitude: -103.795952  
\*\* correct Lat/Long if needed: Latitude: Longitude:  
QtrQtr: SENW Sec: 7 Twp: 10N Range: 57W Meridian: 6 Sensitive Area? Yes

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? Yes  
Is groundwater less than 20 feet below ground surface? No

**Other Potential Receptors within 1/4 mile**

There are no residence or habitable structures within a quarter mile. There are no County Roads within a quarter mile. There are no domestic wells within a quarter mile. There is a dry stormwater drainage 704 ft North East of the release location that only contains water during 100 year flood events. There are no mapped wetlands within a quarter mile. There are no High Priority Habitats within a quarter mile of the release location.

**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	17x12	Screening/Sampling

**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 10/19/2021 under the previous operator a release occurred at the horsetail 07F well pad. Less then 1 bbl was released from a needle valve on the wellhead. The mist covered a 50x 35 area and left the location. The release was not closed out under the previous operator and additional remediation was recently conducted.

**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 ):

Initial investigation samples were collected on 8/28/2023 on the surface where the misting occurred. Initial analytical results indicated no organics were present however, SAR and PH exceeded table 915 limits and site specific backgrounds. Additional scraping was completed removing exceedances in SS-3. All constituents are in compliance across the mist zone accept for SS-1 near the wellhead. On 1/16/2024 remedial excavation was conducted and excavation samples were collected near the wellhead. SW-1 through SW-3, and Bottom Hole 1 contained exceedances of SAR and PH . Additional excavation has been completed and along with sampling, and we are awaiting sampling results. Initial investigation samples determined no presence of SAR 1' bgs, and confirmation sample and soil boring analytical identified elevated SAR. See operator comments for more details.

**Proposed Groundwater Sampling**

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

Based on DWR info from the Horsetail 07 West site groundwater is at a depth of 200' in this area. Due to groundwater being at this depth, and the area containing consolidated siltstone, the pathway to groundwater has been eliminated, defaulting the analytical comparison to residential soil screening limits.

**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 56  
Number of soil samples exceeding 915-1 32  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 204

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 19.1  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 3

### 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?

A total of 9 background soil samples were collected in accordance with the 915 guidance. All backgrounds were collected at a sufficient distance from the release location, on and off pad to most accurately reflect the same soil horizon confirmation soil samples were collected in.

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.

The release occurred under the previous operator. Following Fundare investigation and discovery of existing impacts remedial excavation was completed to remove impacts. No free product was present during Fundare investigation or signs of impacts.

### REMEDIATION 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.

Initial investigation samples were collected on 8/28/2023 on the surface where the misting occurred. Initial analytical results indicated no organics were present however, SAR and PH exceeded table 915 limits and site specific backgrounds. Additional scraping was completed removing exceedances in SS-3. All constituents are in compliance across the mist zone except for SS-1 near the wellhead. On 1/16/2024 remedial excavation was conducted and excavation samples were collected near the wellhead. SW-1 through SW-3, and Bottom Hole 1 contained exceedances of SAR and PH. Initial investigation samples determined no presence of SAR 1' bgs, and confirmation sample and soil boring analytical identified elevated SAR. See operator comments for more details.

### Soil Remediation Summary

**In Situ**

- Bioremediation ( or enhanced bioremediation )
- Chemical oxidation
- Air sparge / Soil vapor extraction
- Natural Attenuation
- Other \_\_\_\_\_

**Ex Situ**

- Yes Excavate and offsite disposal
- If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 30
- Name of Licensed Disposal Facility or ECMC Facility ID # \_\_\_\_\_
- Excavate and onsite remediation
- 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.

Fundare has the required sufficient insurance to fully address the anticipated costs of Remediation, including the remaining estimated costs for this project. Fundare has general liability insurance and financial assurance as required by COGCC rules.

Operator anticipates the remaining cost for this project to be: \$ 7000 \_\_\_\_\_

## 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:

There is no beneficial use of the E&P waste generated.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 30

E&P waste (solid) description Hydrocarbon Impacted soil

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

Non-ECMC Disposal Facility: Pawnee Landfill

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? No

Does the previous reply indicate consideration of background concentrations? \_\_\_\_\_

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.

Once remedial excavation is complete and impacts have been removed, interim reclamation will be completed following the 1000 series reclamation rules, and the site will be returned to pad material.

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. 08/19/2024

Proposed date of completion of Reclamation. 08/23/2024

## 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. 10/19/2021

Actual Spill or Release date, or date of discovery. 10/19/2021

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/28/2023

Proposed site investigation commencement. 08/28/2023

Proposed completion of site investigation. 09/28/2023

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/02/2023

Proposed date of completion of Remediation. 03/21/2024

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

This form 27 is being submitted to close out a historical release. Initial investigation and remediation occurred under the previous operator, however, no evidence of sampling was able to be found. The release occurred from a pinhole in the wellhead line and the impacts were caused by the wind carrying the misting product across the site. The site assessment and sampling and area of impact was determined by release photos of where the mist had impacted the surface. This release did not travel across the surface or underground, but was carried by the wind.

Samples were collected in accordance with the 915 guidance, and were analyzed for full table 915. DWR data indicates groundwater in this area is right around 200' bgs, and because of this depth and the known lithology of consolidated siltstone the pathway to groundwater has been eliminated. With the pathway to groundwater eliminated, concentrations have been compared to residential soil limits. Backgrounds were collected at a sufficient distance from the release within the same soil horizon and material make up as the confirmation samples, however no Backgrounds were collected on the South Side of the site due to the fact this is the direction of the surface spray.

Analytical results indicated that all impacts were removed via remedial excavation except for SAR. Initial investigation sampling SS-1 @ 1', SS-2@1', SS-3@1.5', SS-6@1', and SS-7@1', were all below table 915-1 except for SS-1, which had an exceedance of PH. Additional excavation occurred to remove the PH, and SAR levels began to increase. Boring samples conducted to the south at depths of 3' and 6' identified exceedances of SAR beneath what was clean at 1' bgs. Impacts migrated to the south via Misting, which means they would have traveled from the surface down into the soil. Soil immediately below where impacts were present did not exceed table 915. Additionally the composition of the material released was crude oil, and analytical has not identified any exceedances other than SAR. We have determined that exceeding SAR at this location is naturally occurring along the south side of the pad, and is not indicative of the release.

Fundare is requesting closure and NFA.

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

Signed: Sydney Smith

Title: Director EHSR

Submit Date: 07/10/2024

Email: ssmith@fundareresources.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: 09/09/2024

Remediation Project Number: 34263

## COA Type

## Description

	Soil confirmation sample data indicate that SAR at the site exceeds the Table 915-1 soil suitability levels for reclamation. Therefore the remediation project cannot be closed at this time. ECMC removed the closure request. If the Operator proposes to leave material with elevated levels of SAR in situ, the Operator shall define the vertical and lateral extent of impacts and provide a detailed Reclamation plan that includes, but is not limited to, soil analysis from adjacent undisturbed lands, revegetation techniques, site stabilization, and details of seeded species. Operator will submit the Reclamation plan pursuant to Rule 915.b. on a Form 27 Supplemental Report for Director review.
	Closure request removed. Operator shall provide confirmation soil samples at similar locations of previously-impacted soil to demonstrate that remediation is complete at that particular area.
2 COAs	

## 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

403850253	FORM 27-SUPPLEMENTAL-SUBMITTED
403850327	SOIL SAMPLE LOCATION MAP
403850328	SOIL SAMPLE LOCATION MAP
403850331	SOIL SAMPLE LOCATION MAP
403850348	ANALYTICAL RESULTS
403850351	ANALYTICAL RESULTS
403850357	ANALYTICAL RESULTS

Total Attach: 7 Files

## General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Per Doc# 403687132, ECMC approves Operator's request for use of Residential SSLs based on the depth to groundwater and the local lithology suggesting a pathway to groundwater at this location is not likely.	09/09/2024
Environmental	Based on the Operator's assessment of background conditions at the subject location, arsenic results for confirmation soil samples appear to be representative of background as opposed to E&P activities. Therefore, the Operator's demonstration of background will be accepted as an alternative to the default standard in ECMC's Table 915-1.	09/09/2024

Total: 2 comment(s)