

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 COGCC 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>FUNDARE RESOURCES OPERATING COMPANY LLC</u>	Operator No: <u>10773</u>	Phone Numbers Phone: <u>(303) 910-4511</u> Mobile: <u>()</u>
Address: <u>5251 DTC PKWY STE 950</u>		
City: <u>GREENWOOD VILLAGE</u> State: <u>CO</u> Zip: <u>80111</u>		
Contact Person: <u>Sydney Smith</u> Email: <u>ssmith@fundareresources.com</u>		

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28776 Initial Form 27 Document #: 403297074

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>482767</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Wildhorse 16-13H</u>	Latitude: <u>40.748350</u>	Longitude: <u>-103.990660</u>	
** correct Lat/Long if needed: Latitude: _____ Longitude: _____			
QtrQtr: <u>NWSW</u>	Sec: <u>16</u>	Twp: <u>9N</u>	Range: <u>59W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

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

There are no residence or habitable structures within a quarter mile of the release site. There are no domestic water wells within a quarter mile of the release site, there is a groundwater monitoring well 150' Northeast of the release. There are no marked surface water within a quarter mile of the release, however, there appears to be a dry drainage 1304' to the East of the release. There are no marked county roads within a quarter mile of the release location, however there is a lease road 553' West of the location. This site is within the Mule Deer Severe winter range buffer, and CPW has been notified of the release.

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**
- Other (as described by EPA)** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	1740 SQFT	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.

Upon discovery of the release from the produced water tank, crews were immediately dispatched to the location to isolate and repair the tank, and vac the tank out to eliminate further impacts. Crews then began immediate remedial excavation to eliminate impacts from traveling across site.

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):

Fundare contracted Marcom LLC to conduct a site visit and initial soil sampling on July 29, 2022. Samples were collected in accordance with COGCC 915 guidance, and were analyzed for full table 915-1 constituents. Analytical results indicated that inorganic exceedance remain and additional excavation was necessary. After Multiple excavation events, and multiple Confirmation sampling events, final confirmation samples were collected on March 15, 2023, in accordance with COGCC 915 guidance and analyzed for full Table 915-1 constituents. Analytical results indicated that all impacts had been removed COGCC Table 915-1 or site specific background, except for Arsenic in SW-18, and PH in BH-4, and SW-16. SW-18 was scraped further and resampled (SW-21) for its only exceedance arsenic. Analytical results determined arsenic was removed. PH Exceedances are below the 4' reclamation root zone, and Fundare is requesting conditional closure, leaving PH in place following an approved reclamation plan.

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 35
Number of soil samples exceeding 915-1 35
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 1740

NA / ND

-- Highest concentration of TPH (mg/kg) 18
-- Highest concentration of SAR 13.4
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 7

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 _____

____ 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 backgrounds were collected for a site specific analytical comparison.

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.

Upon discovery of the release from the produced water tank, crews were immediately dispatched to the location to isolate and repair the tank, and vac the tank out to eliminate further impacts. Crews then began immediate remedial excavation to eliminate impacts from traveling across site.

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.

Following multiple excavation, and confirmation sampling events, Final confirmation soil samples were collected in accordance with the COGCC 915 guidance, and analyzed for full table 915-1 constituents. Analytical results indicated all impacts had been removed and were below COGCC Table 915-1 residential, or site specific background limits, except for PH in BH-4, and SW-16, which were both below the 4' reclamation root zone. Although PH in these locations exceed the background they are still low and are consistent with the background. Fundare is requesting backfill, and conditional closure of the site following the attached interim reclamation plan, required for leaving inorganics related to reclamation in place below the 4' reclamation root zone. The extent of PH requesting to be left in-situ is mapped and attached. Background samples and surrounding Confirmation samples have allowed us to identify the vertical (8') and horizontal extent of the in-situ PH and map its extents.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 451

_____ Air sparge / Soil vapor extraction

_____ Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Natural Attenuation

No _____ 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.

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the COGCC 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.

Following backfill, the site will be reclaimed following the attached interim reclamation plan, and the 1003 series reclamation rules.

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. 08/14/2023

Proposed date of completion of Reclamation. 08/31/2023

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. 07/20/2022

Actual Spill or Release date, or date of discovery. 07/19/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/19/2022

Proposed site investigation commencement. 07/29/2022

Proposed completion of site investigation. 01/24/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/08/2022

Proposed date of completion of Remediation. 03/30/2023

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

In order to request closure leaving PH in place below the reclamation root zone, a reclamation plan has been attached, along with the map showing the extents of the PH remaining in-situ. Following approval of the closure request the site will be backfilled and reclaimed in accordance with 1003 series reclamation rules.

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: 07/07/2023

Email: ssmith@fundareresources.com

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

COGCC Approved: Krystal Heibel

Date: 08/30/2023

Remediation Project Number: 28776

COA Type**Description**

	Operator shall submit reports of site investigation including all laboratory analytical results for all samples collected, per Rule 913.h.(4).A.. Per the 900 Series rules 915.e "... Analyses of samples will be performed by laboratories that maintain state or national accreditation programs.." The main accreditation programs are National Environmental Laboratory Accreditation Program (NELAP) and National Environmental Laboratories Accreditation Conference (NELAC). Not only is this accreditation required the lab has to be accredited for each specific analyte.
	Closure request removed. If Operator proposes background soil sampling, background sampling locations should be sufficiently away from the impacted area to reflect conditions not impacted by oil and gas activity, and should be obtained from similar depths and soil horizons or lithologic materials for comparison to confirmation soil samples. It appears that background samples collected and analyzed were on pad material and not representative of native soil.
	Operator shall submit a revised "Soil Sampling Location Map" that includes at minimum: an aerial image with a scale that depicts all soil sample(s) location(s) and background sample(s), in efforts to see what impacted soil has been delineated. The Soil Sample Location Map attached doesn't include all the side wall sampling locations (SW-6).
3 COAs	

Attachment Check 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**

403371547	FORM 27-SUPPLEMENTAL-SUBMITTED
403371629	REMEDATION PROGRESS REPORT
403371683	ANALYTICAL RESULTS
403371685	ANALYTICAL RESULTS
403371686	ANALYTICAL RESULTS
403371687	ANALYTICAL RESULTS
403371688	ANALYTICAL RESULTS
403371690	ANALYTICAL RESULTS
403371695	SOIL SAMPLE LOCATION MAP
403371697	SOIL SAMPLE LOCATION MAP
403371698	SITE MAP
403371699	SITE MAP
403400387	SITE MAP
403400460	RECLAMATION FIGURE

403400461	RECLAMATION PLAN
403456433	ANALYTICAL RESULTS

Total Attach: 16 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)