

State of Colorado
Energy & Carbon Management Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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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 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: FULCRUM ENERGY OPERATING LLC	Operator No: 10805	Phone Numbers
Address: 240 SAINT PAUL STREET SUITE 502		
City: DENVER	State: CO	Zip: 80206
Contact Person: Annalee Penner	Email: annalee.penner@fulcrumeo.com	
		Phone: (417) 773-2341
		Mobile: (417) 773-2341

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 28964 Initial Form 27 Document #: 403379389

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: LOCATION	Facility ID: 416625	API #: _____	County Name: JACKSON
Facility Name: Surprise-Damfino S6 Pad	Latitude: 40.512758	Longitude: -106.417277	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: Lot 11	Sec: 6	Twp: 6N	Range: 80W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications GC Most Sensitive Adjacent Land Use Non-Crop Land

Is domestic water well within 1/4 mile? Yes 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

The Damfino Ditch is located adjacent to the pad and is no longer used for seasonal irrigation. Grizzly Creek is 1,608 feet to the west, but is topographically separated from the Surprise-Damfino Pad. One well, permit number 97290, receipt number 9118981, is located 2056 feet to the north. The well permit identified water at 110 feet BGS.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> E&P Waste | <input checked="" type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input checked="" type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input checked="" type="checkbox"/> Other (as described by EPA) | Flowback Fluids _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	Undetermined	Site observations

INITIAL ACTION SUMMARY

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

D90 drilling operations were on location from 8/30 – 10/15/2022. On 10/18/2022 the COGCC completed an inspection of the location (Doc# 694500525) and discovered indications of poor housekeeping within the drilling area and potential petroleum contamination on the pad surface as result of exploration operations for the 3 recently drilled oil and gas wells. Completion operations were planned to be on location 10/27/2022. On 10/19/2022 clean-up of the location was immediately pursued by removing the top 6 inches of material from the drilling area. On 10/21/2022, remaining horizontal impacts were delineated by sampling in locations to characterize contamination where soil staining was observed. BMPs were installed to prevent discharge from the pad in anticipation of seasonal conditions. Completions began on 10/29/2022 and continued through 1/15/2023. During installation of flowlines to the 3 new wells, the excavated trench was sampled on 12/15/2022 to determine existing impacts at a depth of 7 feet below ground surface. Seasonal weather caused frozen soil and snow cover conditions during completions and limited the possibility for access/clean-up on the location through 4/1/2023. On 4/7/2023 the COGCC completed an inspection of the location (Doc# 694500567) and discovered poor housekeeping, pooling of free fluid, and a stockpile of contaminated soil. The COGCC requested a Form 19 & 27 be submitted and requested removal of free fluid, removal of stockpiled contaminated soil and routinely monitoring of the sediment trap. Impacted fluids being generated were/are routinely removed from the location via vac-truck as access allowed. A Form 19 (Doc #403372343) & 27 (Doc # 403379389) initial reports were simultaneously submitted and approved for the location on 4/21/2023. Further but limited delineation of the pad was attempted/completed on 4/27/2023, though much of the pad was inaccessible due to muddy site conditions.

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):

The extent of the impacted area will be delineated using a soil auger, electrical conductivity (EC) soil probe and photoionization detector (PID). Focus will be given to locations where there is stained soil or where impacted soil has been stockpiled. Soil samples will be collected as needed to characterize and/or demonstrate confirmation of impacts or absence thereof. All soil samples will be analyzed for all COGCC Table 915-1 parameters to determine regulatory compliance. At least 1 background sample will also be collected in the adjacent undisturbed landscape to the approximate soil depth as site samples.

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):

Further investigation and delineation will be completed during excavation dig and haul activities. Focus of investigation and concurrent remediation with be given to previously evaluated areas with impacts and new areas with where evidence of impacts is observed or known from site personnel.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 70

Number of soil samples exceeding 915-1 32

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

Approximate areal extent (square feet) 5000

NA / ND

 Highest concentration of TPH (mg/kg)

 Highest concentration of SAR

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 120

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?

Several background samples have been collected adjacent to the location at varying depths to evaluate existing soil conditions in the native soil below the pad engineered surface, below the pad liner. Four (4) samples were collected on 8/15/2022 at 1 location at 1-foot intervals down to 4 feet below grounds surface (bgs), south of the pad. All samples were analyzed for soil suitability parameters and indicated exceedance for SAR. Two (2) samples were collected on 4/27/2023 east and north of the pad down to 5 feet bgs and analyzed for soil suitability parameters and indicated exceedance for SAR and pH.

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.

Impacted materials were excavated and hauled via trucks to the Twin Enviro Landfill in Milner, CO. Waste manifests are provided in Attachment E.

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.

Remediation activities involved removal of site equipment, delineation based upon field screening and observations, excavation of impacted soils and transport of impacted materials to an approved disposal facility. Grab samples were collected to confirm successful remediation. If confirmation samples indicated impacts, the area was further screened and resampled until no impacts remained. Excavated areas were backfilled with clean soil.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 500

_____ 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.

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:

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

E&P waste (solid) description

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

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?

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 facility is presently in use and reclamation activities are not warranted at this time onsite.

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. _____

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. 04/20/2023

Actual Spill or Release date, or date of discovery. 10/18/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/19/2022

Proposed site investigation commencement. 10/21/2022

Proposed completion of site investigation. 05/31/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/15/2023

Proposed date of completion of Remediation. 08/23/2023

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

The previous Form 27 Supplemental Report (Doc# 403559001) was approved by the ECMC but with the closure request removed and COA to implement a reclamation plan for soil impacts remaining onsite. Sample location SD_WH5_SW @ 60" indicated slight elevated EC impacts being left in place with a concentration of 4.45 mmhos/cm. The location was initially excavated and sampled at a 48" depth but failed for elevated SAR. The 48" depth sample did not indicate elevated EC. The 60" depth sample had an SAR of 0.933 and indicates that SAR impacts were removed. The slightly elevated EC indicated at the sample location is currently on the operational area of the pad and does not pose a risk for future reclamation due the absence of elevated SAR or presence of any other constituent of concern, depth of the potential impact being beyond the expected root zone and insignificant concentration of salts contributing to the EC exceedance. Also, upon pad decommissioning the sample location will be excavated again for the removal of infrastructure, given the close proximity to the wellhead, and any impacts discovered at that time will be remediated with confirmation sampling for verification. Fulcrum Energy Operating respectfully requests closure of Remediation Project #28964.

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

Signed: Joel Mason

Title: Agent

Submit Date: _____

Email: joel.mason@absarokasolutions.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: 28964

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**

403785668	SITE MAP
403785669	MONITORING REPORT
403785679	DISPOSAL MANIFESTS
403785910	ANALYTICAL RESULTS
403785993	ANALYTICAL RESULTS

Total Attach: 5 Files

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

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)