

State of Colorado
Oil and Gas Conservation Commission

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Document Number:
402723689
Receive Date:
06/23/2021
Report taken by:
KRIS NEIDEL

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>FOUNDATION ENERGY MANAGEMENT LLC</u>	Operator No: <u>10112</u>	Phone Numbers Phone: <u>(303) 244-8114</u> Mobile: <u>()</u>
Address: <u>5057 KELLER SPRINGS RD STE 650</u>		
City: <u>ADDISON</u>	State: <u>TX</u>	Zip: <u>75001</u>
Contact Person: <u>Alyssa Beard</u>	Email: <u>abeard@foundationenergy.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15761 Initial Form 27 Document #: 402417844

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: Investigation and Remedial Workplan

SITE INFORMATION

No Multiple Facilities

Facility Type: <u>PIT</u>	Facility ID: <u>111692</u>	API #: _____	County Name: <u>JACKSON</u>
Facility Name: <u>TITANIUM 26-10-7</u>	Latitude: <u>40.547189</u>	Longitude: <u>-106.449038</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSE</u>	Sec: <u>26</u>	Twp: <u>7N</u>	Range: <u>81W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications OL Most Sensitive Adjacent Land Use Non-crop federal 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? Yes

Other Potential Receptors within 1/4 mile

There is a pond approximately 0.11 miles from the pit.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" 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 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 type="checkbox"/> Other (as described by EPA) | _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	See Figure 2	Field screening and Lab Analysis

INITIAL ACTION SUMMARY

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

Initial actions and completed remedial measures have previously been submitted to the COGCC in the Form 19 Initial and Supplemental documents and in the Form 27 Initial (Document# 402417844). The COGCC assigned spill tracking facility ID #111692 and remediation number #15761 for the Site. Initial investigative activities were completed on December 2, 2020 and details were provided to COGCC in the March 30, 2021 approved Form 27S document #402565459. Soil samples were collected from five locations within the former produced water vessel and pit area. A shale layer approximately 1-foot thick was encountered during the excavation test pit activities around nine feet below ground surface and competent bedrock was encountered below the shale. Lab results confirmed soil was above COGCC standards for TPH in two locations. Groundwater was not encountered during excavation activities and during the initial December 2020 investigation and the test pit was backfilled to existing grade. This Form 27S details the 2Q21 remediation and soil investigative activities for the 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):

During the May 7, 2021 investigation, soil samples were collected from the base and sidewalls of the excavation as shown on Figure 2. Analytical results from two locations (PWV-WWall and TitPit-SWall) were reported above COGCC standards. The excavation was extended in these areas on May 17, 2021 until samples were returned below standards. Analytical results are presented on Figure 2 and Table 1. Based off these results, FEM does not anticipate completing further soil sampling activities and proposes site closure and No Further Action (NFA) following final reclamation activities with COGCC approval.

Proposed Groundwater Sampling

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

Groundwater was not encountered at the Site and sampling is not anticipated at this time.

Proposed Surface Water Sampling

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

Surface water was not observed at the Site and sampling is not anticipated at this time for this Site.

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

Based on the 12/2/20 investigation results for the inorganic parameters (Arsenic and SAR), a soil sample was collected from the base of the excavation for SAR and one background sample during the May 2021 investigation and excavation activities. The arsenic concentrations appear to be indicative of natural conditions and within the range for backgrounds soils in Colorado range and agricultural lands. FEM does not anticipate further investigation activities. Per Rule 915.f, if the remediation project is not completed by January 15, 2022, then the Operator will comply with the current version of Table 915-1.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 11
Number of soil samples exceeding 915-1 0
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 2550

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 10.7
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 9

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 0'
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 915-1 0

NA Highest concentration of Benzene (µg/l) _____
NA Highest concentration of Toluene (µg/l) _____
NA Highest concentration of Ethylbenzene (µg/l) _____
NA Highest concentration of Xylene (µg/l) _____
NA Highest concentration of Methane (mg/l) _____

Surface Water

0 Number of surface water samples collected
0 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 samples were collected and analyzed for inorganic and metals as part of the Table 910-1 parameters from the presumed depth of the former produced water vessel during the 12/2/20 investigation. An additional background sample was collected from an undisturbed area off the well pad and analyzed for Arsenic, EC, SAR and pH during the May 2021 investigation activities.

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 soils exceeding COGCC standards at the Site and require remediation, were excavated with a trackhoe until analytical results confirmed that the impacted material has been removed or treated. Impacted soils were transported to the Pawnee Waste Landfill in Grover, CO. Confirmation soil samples were collected to ensure the removal of any impacted material.

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.
Following the completion of the approved remediation efforts and/or treatment of impacted soils associated with the Site, source material was removed from the Site and soil samples were collected from the sidewalls and the base during the excavation activities to confirm the horizontal and vertical extents are below the COGCC soil standards. Analytical results from the May 2021 investigation are presented on Figure 2 and Table 1. Based off these results, FEM does not anticipate completing further soil sampling activities and proposes site closure and No Further Action (NFA) following final reclamation activities with COGCC approval.

Soil Remediation Summary

In Situ Ex Situ
_____ Bioremediation (or enhanced bioremediation) _____ Yes _____ Excavate and offsite disposal

Chemical oxidation
 Air sparge / Soil vapor extraction
 Natural Attenuation
 Other _____

If Yes: Estimated Volume (Cubic Yards) 500
Name of Licensed Disposal Facility or COGCC 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.

Groundwater was not encountered at the site during soil delineation activities and monitoring is not anticipated at this time.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other 2Q21 remedial activities

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 Soil investigative workplan

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:

None

Volume of E&P Waste (solid) in cubic yards 500

E&P waste (solid) description Soil from within former pit footprint

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Pawnee Waste

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

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

REMEDIATION COMPLETION REPORT

REMEDIATION 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 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.

Based on the information presented in the approved document #402565459, the well has been plugged and above ground equipment has been removed, the pit will be reclaimed to the present grade of the location or to the approximate original contour of the landscape consistent with the 1000-series rule in accordance with final reclamation of the location. Analytical results from the May 2021 investigation are presented on Figure 2 and Table 1. Based off these results, FEM does not anticipate completing further soil sampling activities and proposes site closure and No Further Action (NFA) following final reclamation activities with COGCC approval.

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? Yes _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 06/23/2021

Proposed date of completion of Reclamation. 09/20/2021

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. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). _____

Proposed site investigation commencement. 07/27/2020

Proposed completion of site investigation. 12/02/2020

REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/03/2021

Proposed date of completion of Remediation. 05/20/2021

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:

[Empty text box for basis of change]

OPERATOR COMMENT

Foundation removed 500 tons of impacted soil from the Titanium pit during the month of May, 2021. Please see attached disposal manifests and photos. Since the well is P&A, the entire location is currently being recontoured and then will be seeded in fall when the conditions are appropriate. Thanks!

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

Signed: Alyssa Beard

Title: EHSR Manager

Submit Date: 06/23/2021

Email: regulatory@foundationenergy.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: KRIS NEIDEL

Date: 02/16/2022

Remediation Project Number: 15761

Condition of Approval

COA Type

Description

1 COA	Based on review of information presented it appears that no further action is necessary at this time, and COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or remediation activities may be required at the site.
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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
402723689	FORM 27-SUPPLEMENTAL-SUBMITTED
402723693	REMEDATION PROGRESS REPORT
402723956	DISPOSAL MANIFESTS
402724767	PHOTO DOCUMENTATION

Total Attach: 4 Files

General Comments

User Group	Comment	Comment Date
Environmental	Pit 111692 was closed in the COGCC database per data presented here.	02/16/2022

Total: 1 comment(s)