

# State of Colorado Oil and Gas Conservation Commission

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



Document Number:

402721018

Receive Date:

04/28/2022

Report taken by:

ROB YOUNG

## 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>	<b>Phone Numbers</b>
Address: <u>5057 KELLER SPRINGS RD STE 650</u>		Phone: <u>(720) 344-8114</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>	Mobile: <u>(720) 257-2302</u>

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 11274 Initial Form 27 Document #: 401623219

#### 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>PIT</u>	Facility ID: <u>274748</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>DOC SHOWERS</u>		Latitude: <u>40.611664</u>	Longitude: <u>-104.124194</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWSW</u>	Sec: <u>32</u>	Twp: <u>8N</u>	Range: <u>60W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

#### SITE CONDITIONS

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

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

## 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
No	SOILS	~1750 sq ft	Soil 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.

Foundation Energy Management (FEM) provided details of the initial actions in the former Pit and Skim Tank locations (Figure 1 and 2) in the COGCC approved Initial Form 27 (#401623219) document that was submitted on 4/27/2018 and in the Supplemental Form 27 (#401828226) that was submitted on 3/22/21. Approximately 296 tons of impacted soil was removed and transported to the Waste Management Ault facility in 2018. Clean backfill was brought in to bring the former pit area to grade and the former pit location was reseeded. Based on follow up discussions between FEM and COGCC, additional investigative and confirmation sampling activities were completed in May 2021 and the data is presented within this Form 27S.

### 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 ):

As part of the conditions of approval in Form 27S (#401828226), FEM performed confirmation soil sampling in the vicinity of locations SS07 – SS10, since the historical data could not be found as an assessment of Table 915-1 soil suitability parameters in the reclaimed pit area. On 5/12/2021, five soil samples were collected by hand auger in the approximate extents of the former pit area (1 base and 4 sidewall samples). The samples were analyzed for Table 915-1 soil suitability (pH, EC, SAR, and boron). Additionally, one sample was collected beneath the former skim tank location and analyzed for Table 915-1 soil suitability and organic parameters (GBTEX, TPH, and PAHs). The soil sample results are summarized on Tables 1 – 3 and presented on Figures 3 and 4.

#### 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 7

Number of soil samples exceeding 915-1 6

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

Approximate areal extent (square feet) 1750

### NA / ND

ND Highest concentration of TPH (mg/kg)

-- Highest concentration of SAR 32.3

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 2

### 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

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?

A background sample (Background-ST1@2') was collected and analyzed for Table 915-1 organics and soil suitability parameters. The results of this background sample are presented on Tables 1 - 3.

☐ 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?

Based on the results from the recent soil sampling activities, boron, EC, and SAR were above the Table 915-1 soil suitability standards. However, since the infrastructure in the area has been removed and the adjacent land use is not being used for agriculture, FEM does not anticipate further investigation activities at this time. If needed, FEM will address further remedial activities which may include confirmation soil sampling following reclamation activities.

## 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.

Soils exhibiting concentrations above Table 910-1 standards were previously removed and disposed of at Waste Management's Ault facility, a licensed disposal facility.

A description of initial source removal was provided in the previously submitted Form 27 (Document #401828226) and remediation objectives were conditionally approved by the COGCC and the Site was assigned remediation #11274. The remediation of the Showers 5-4 pit was carried out in 2018. Approximately 296 tons of impacted material was encountered and removed with heavy equipment, then transported to Waste Management's Ault facility. Additional source removal is not anticipated at this time due to the limited area of impacted soils located in and around the area. Additionally, the Site is surrounded by natural range land without posing a risk to any receptors or human health and is anticipated to naturally attenuate.

## REMEDIAL ACTION 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.

After approximately 296 tons of impacted material were removed from the pit, confirmation samples were collected at the excavation extents and sample results indicated that hydrocarbon impacts had been removed and the waste manifests were provided to the COGCC in previous F27S submittals. Soil samples collected from the surface at the time of the excavation and analyzed for inorganics showed exceedances for SAR, pH and EC. Supplemental soil sampling performed in May 2021 showed that the soil suitability impacts remain, and further remediation and confirmation sampling may be needed. However, confirmation samples collected during the May 2021 investigation for Table 915 organic constituents were all below the standards. Based on the surrounding land use, FEM does not believe the elevated Table 915-1 soil suitability concentrations will require further remediation, however, if warranted, additional reclamation and remedial activities will be presented to the COGCC for approval in a separate Form 27S report.

## Soil Remediation Summary

☐ In Situ

☐ Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC 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.

NA

## 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 Pit closure confirmation soil sampling

### WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

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? 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 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.

The pit area was reseeded subsequent to the initial pit closure work. However, during the May 2021 soil investigation, minimal grass was observed growing in the former pit area (see photo attached). If warranted, FEM proposes to complete additional soil removal and reclamation activities in conjunction with the reclamation of the tank battery. These activities will include removal and replacement of the surficial soils to match the surrounding ground surface conditions and reseeding of the former pit area in accordance with COGCC Series 1000 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? Yes

If YES, does the seed mix comply with local soil conservation district recommendations? Yes

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

## SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 10/01/2018

Proposed date of completion of Reclamation. 12/31/2021

## 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). 04/09/2018

Proposed site investigation commencement. 04/09/2018

Proposed completion of site investigation. 05/12/2021

## REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/04/2018

Proposed date of completion of Remediation. 06/28/2018

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**

Based on the recent and historical investigative information and analytical results, the hydrocarbon impacts in the vicinity of the former pit and skim tank have been removed along with the above ground infrastructure. Remaining impacts for soil suitability standards remain onsite but are not anticipated to impact the current and surrounding land uses. If required by COGCC, FEM will complete additional removal and/or reclamation as needed during the above-mentioned activities. If needed, confirmation soil samples will also be collected and presented to the COGCC for closure and approval in a subsequent Form 27S report.

Foundation brought in 10 yards of topsoil from Miller's Landscaping in Fort Morgan in August 2021 in an effort to mix and improve soil quality at the former pit and skim tank location. Soil amendments (gypsum) was also applied to the location in an effort to improve soil suitability.

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

Signed: Afton Iiams

Title: HSE/Regulatory Technician

Submit Date: 04/28/2022

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: ROB YOUNG

Date: 05/17/2022

Remediation Project Number: 11274

**Condition of Approval****COA Type****Description**

0 COA

**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**

402721018	FORM 27-SUPPLEMENTAL-SUBMITTED
402725909	OTHER

Total Attach: 2 Files

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

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)