

State of Colorado  
Oil and Gas Conservation Commission

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402493826  
Receive Date:  
10/09/2020  
Report taken by:  
RICK ALLISON

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.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

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>(303) 244-8114</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>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 15882 Initial Form 27 Document #: 402474352

**PURPOSE INFORMATION**

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
<input checked="" type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure	<input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
<input type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project
<input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste	<input type="checkbox"/> Rule 906.c.: Director request
<input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure	<input type="checkbox"/> Other _____

**SITE INFORMATION** N Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: <u>PIT</u>	Facility ID: <u>463396</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>State 36-3-9 199860</u>	Latitude: <u>40.450345</u>	Longitude: <u>-104.156471</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENW</u>	Sec: <u>36</u>	Twp: <u>6N</u>	Range: <u>61W</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? 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**

# 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
UNDETERMINED	SOILS	TBD	Field screening and 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.

Samples will be collected from the pit base and sidewalls by Foundation's environmental consultant Tasman Geosciences, using a hand auger.

## 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 ):

Foundation plans to collect five (5) soil samples by hand auger for the pit closure investigation - 1 base sample and 4 sidewall samples. The samples will be held on ice and transported to the laboratory under chain of custody procedures. All samples will be analyzed for BTEX, TPH (DRO & GRO), pH, EC, and SAR by a NELAC-accredited lab.

### 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 ):

TBD - based on confirmation sample results.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 6  
Number of soil samples exceeding 910-1 2  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 12.4  
BTEX > 910-1 No  
Vertical Extent > 910-1 (in feet) 0

### 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 910-1 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 910-1  
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?

One background sample will be collected from an area of undisturbed soil to the east of the well pad.  
\*\*Updated 10/9/20 - A background sample was collected east of the pit area.

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.

Should impacted soils be discovered exceeding COGCC Table 910-1 standards and require remediation, soils will be excavated via backhoe equipment and taken to Pawnee Waste disposal facility.  
\*Updated 10/9/20 - Petroleum hydrocarbon impacted soils were not encountered in the sidewall or base samples of the pit. No staining was observed.

## 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.

\*Updated 10/9/20 - Hydrocarbon remediation is not necessary.  
The analytical results for the soil sample collected from the north wall of the pit at 3' bgs reflected an SAR level of 12.4, which slightly exceeds the standard. However, Foundation would like to request a deviation from the standard based on FAQ 32, which indicates that inorganics in soils that exceed the standard can be left in place at depths greater than three feet.  
In addition, this entire location will be reclaimed in late 2020 or spring of 2021, at which time the location will be ripped and topsoil restored. It is likely that additional topsoil will be brought in.

## Soil Remediation Summary

### In Situ

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

### Ex Situ

- \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ 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.

Not applicable

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other \_\_\_\_\_

Report Type:  Groundwater Monitoring  Land Treatment Progress Report  O&M Report

Other \_\_\_\_\_

## 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? Yes

Do all soils meet Table 910-1 standards? No

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

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? Yes

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? \_\_\_\_\_

## 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 State 36-3-9 well is scheduled for plugging in September 2020. 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 rules in accordance with Final Reclamation of the location.

\*Updated 10/9/20 - The State 36-3-9 well was successfully plugged in September, 2020. The location will be reclaimed in either October/November 2020, as resources allow, or Spring 2021. The location will be reseeded with an NRCS-approved mix for this area, which has already been obtained from a soil conservationist in the USDA-NRCS Greeley office.

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 approve the seed mix? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

# IMPLEMENTATION SCHEDULE

## **PRIOR DATES**

Date of Surface Owner notification/consultation, if required. \_\_\_\_\_

Actual Spill or Release date, if known. \_\_\_\_\_

## **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 09/02/2020

Date of commencement of Site Investigation. \_\_\_\_\_

Date of completion of Site Investigation. \_\_\_\_\_

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. \_\_\_\_\_

Date of completion of Remediation. \_\_\_\_\_

## **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 11/01/2020

Date of completion of Reclamation. 11/15/2020

**OPERATOR COMMENT**

Included in this Supplemental Form 27 are the analytical results from the soil sampling at the State 36-3-9 pit. All samples were analyzed for BTEX, TPH, EC, pH, and SAR. Confirmation sample results indicate compliance with Table 910-1 standards with the exception of SAR in the North sidewall sample collected at 3 feet. Sample were collected with a hand auger by Foundation's consultant, Tasman Geosciences.

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: 10/09/2020 \_\_\_\_\_

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: RICK ALLISON \_\_\_\_\_

Date: 10/12/2020 \_\_\_\_\_

Remediation Project Number: 15882 \_\_\_\_\_

**COA Type****Description**

	<p>Soil sample analytical results indicate that the SAR of soil in the north pit wall is above the Table 910-1 Allowable Level at a depth of 3 feet below the ground surface. BTEX and total petroleum hydrocarbons (TPH) concentrations of the soil are in compliance with the Table 910-1 Allowable Levels. The pit is located within the cut wall of the pad. COGCC will not require further action at this time. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater or surface water is found to be impacted, then further investigation and/or remediation activities may be required. The pit must be covered with at least 3 feet of material that complies with the Table 910-1 levels for pH, EC and SAR.</p> <p>Operator will comply with Rule 1004 for final reclamation of the location.</p>
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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**

402493826	FORM 27-SUPPLEMENTAL-SUBMITTED
402497706	ANALYTICAL RESULTS
402497707	ANALYTICAL RESULTS
402503624	OTHER

Total Attach: 4 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)