

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
401625309  
Receive Date:  
05/03/2018

Report taken by:  
Stan Spencer

Site Investigation and Remediation Workplan (Initial 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 INFORMATON

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>		Mobile: <u>(720) 257-2302</u>
		Email: <u>abeard@foundationenergy.com</u>

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 11306 Initial Form 27 Document #: 401625309

**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 Facilites ( in accordance with Rule 909.c. )

Facility Type: <u>PIT</u>	Facility ID: <u>112108</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>FEDERAL 6-13</u>		Latitude: <u>39.391359</u>	Longitude: <u>-109.038730</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWSW</u>	Sec: <u>6</u>	Twp: <u>8S</u>	Range: <u>104W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**SITE CONDITIONS**

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Federal - open 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:

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> <b>E&amp;P Waste</b> | <input type="checkbox"/> <b>Other E&amp;P Waste</b>  | <input type="checkbox"/> <b>Non-E&amp;P Waste</b> |
| <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
UNDETERMINED	SOILS	NA	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 is planning to collect soil samples at the Federal 6-13 pit location from the proposed sample locations on the attached map, with a hand auger decontaminated between each sample location.

## 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 proposes to collect 5 soil samples by hand auger for the pit closure investigation - 1 base sample, and 4 sidewall samples. The sidewall samples will be analyzed for pH, EC and SAR in addition to BTEX and TPH. The inorganic concentrations will be used to evaluate potential reclamation success.

### 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 5  
Number of soil samples exceeding 910-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

### NA / ND

NA Highest concentration of TPH (mg/kg) \_\_\_\_\_  
NA Highest concentration of SAR \_\_\_\_\_  
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) \_\_\_\_\_  
Number of groundwater monitoring wells installed \_\_\_\_\_  
Number of groundwater samples exceeding 910-1 \_\_\_\_\_

\_\_\_\_\_ 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 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?

Background EC, pH and SAR collected and run if exceedance

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

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Soil samples will be collected from the locations proposed on the attached map, and analyzed for BTEX, TPH, EC, SAR and pH (with the exception of the base soil sample, which will not be run for EC, SAR, and pH due to the sample depth). Based on the analytical results, soil will be removed as necessary.

## 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.

Since soil samples have not been collected yet, Foundation will require additional data in order to develop the remediation plan. However, should soil samples in the pit base and sidewalls exceed the Table 910-1 standard, soil will be removed until the extent of impacts have been determined and removed and clean samples obtained. Foundation will be seeking BLM approval to create a landfarm(s) at a lined, bermed location based on topography and distance to surface water should soil exceed the Table 910-1 standard. Further details on the landfarm will be established once soil concentrations are known.

## Soil Remediation Summary

In Situ

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

Ex Situ

- No \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_
- Yes \_\_\_\_\_ Excavate and onsite remediation
- Yes \_\_\_\_\_ Land Treatment
- Yes \_\_\_\_\_ Bioremediation (or enhanced bioremediation)
- No \_\_\_\_\_ Chemical oxidation
- No \_\_\_\_\_ 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

# REMEDATION 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? \_\_\_\_\_

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: \_\_\_\_\_

## 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.

Once soil samples collected from the base and sidewalls of the pit show concentrations less than the Table 910-1 standard, the berms will be pushed into the base of the pit. Additional topsoil will be brought in as needed and compacted to bring the pit area to surface and prepared for seeding with dryland pasture seed mix. If soil amendments are necessary to increase the chance of success at seeding. Foundation will add amendments based on inorganic soil results.

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). 05/09/2018

Date of commencement of Site Investigation. 05/09/2018

Date of completion of Site Investigation. 05/09/2018

### REMEDIAL ACTION DATES

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

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

### SITE RECLAMATION DATES

Date of commencement of Reclamation. 09/01/2018

Date of completion of Reclamation. 09/30/2018

**OPERATOR COMMENT**

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

Signed: Alyssa Beard

Title: EHS Manager

Submit Date: 05/03/2018

Email: abeard@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: Stan Spencer

Date: 05/07/2018

Remediation Project Number: 11306

**COA Type****Description**

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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**

401625309	FORM 27-INITIAL-SUBMITTED
401628354	SOIL SAMPLE LOCATION MAP

Total Attach: 2 Files

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

Environmental	Upon confirmation of compliance with Table910-1 standards, the non-working surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules plus all BLM requirements for Federal surface lands.	05/07/2018
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Total: 1 comment(s)