

State of Colorado  
Oil and Gas Conservation Commission

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401962763  
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Report taken by:  
John Heil

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) 2448114</u>	
City: <u>ADDISON</u>	State: <u>TX</u>	Zip: <u>75001</u>
Contact Person: <u>Alyssa Beard</u>	Email: <u>regulatory@foundationenergy.com</u>	
		Mobile: <u>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**

Remediation Project #: 11316 Initial Form 27 Document #: 401625411

**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>111769</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>FEDERAL 29-16 29-16</u>	Latitude: <u>39.419500</u>	Longitude: <u>-109.007365</u>	
** correct Lat/Long if needed: Latitude: <u>39.419375</u>		Longitude: <u>-109.007285</u>	
QtrQtr: <u>SESE</u>	Sec: <u>29</u>	Twp: <u>7S</u>	Range: <u>104W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

**SITE CONDITIONS**

General soil type - USCS Classifications ML 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**

An un-named ephemeral drainage is located approximately 42ft to the East.

# 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	12-15 feet below ground surface	Soil samples

## 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 29-16 pit location from the proposed sample location 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 bas sample, and 4 sidewall samples. The sidewall samples will be collected and analyzed for pH, EC and SAR in addition to GBTEX 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

-- Highest concentration of TPH (mg/kg) 91  
-- Highest concentration of SAR 0.99  
BTEX > 910-1 No  
Vertical Extent > 910-1 (in feet) 15

### 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

-- 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?

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 were excavated using heavy equipment and land-farmed onsite.

## 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.

In August 2018, approximately 60 cubic yards of impacted soils were excavated and stockpiled on site. Excavation depths extended to 15 ft below ground surface(bgs) at the base and 12ft bgs at the sidewalls. Five (5) confirmation samples were collected from the pit and analyzed for BTEX, DRO and GRO as outlined in the initial Form 27 (Doc#401625411). Results indicated concentrations are below 910-1 standards. Stockpiled impacted soils were spread into a landfarm lift to enhance hydrocarbon degradation. Additionally, a microbial product was applied to the ~60 yds of stockpiled soils to increase degradation. Landfarm status sampling of the landfarm material on 12-12-18, indicated that elevated concentrations of DRO remained at a concentration of 2900 mg/kg. Following the exceedance, additional applications of bioremediation product was applied and soil turning was continued when weather permitted. Confirmation sampling conducted in the Spring of 2019 (4/8/19) confirmed compliance with COGCC 910-1 thresholds.

## 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

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
No \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Air sparge / Soil vapor extraction  
No \_\_\_\_\_ 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 anticipated at this time

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

Frequency:  Quarterly  Semi-Annually  Annually  Other Final Closure Report

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

Other Notice of Completion (NOC)

## 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:

Onsite landfarming and used as backfill within the excavation upon successful treatment

Volume of E&P Waste (solid) in cubic yards 60

E&P waste (solid) description hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: 0

Non-COGCC Disposal Facility:

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

Do all soils meet Table 910-1 standards? Yes

Does the previous reply indicate consideration of background concentrations? Yes

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

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

## 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 area where the pit is present and landfarming occurred will be reclaimed in accordance with COGCC 1000 series rules and per landowner COA. Pit area will be reseeded with a BLM-approved seed mix.

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). 05/10/2018

Date of commencement of Site Investigation. 05/10/2018

Date of completion of Site Investigation. 05/10/2018

## **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 08/28/2018

Date of completion of Remediation. 08/28/2018

## **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 10/01/2019

Date of completion of Reclamation. 10/01/2019

**OPERATOR COMMENT**

Please forward onto John Heil. Prepared by HRL Compliance Solutions.

Federal 29-16 Pit Closure

Included in this Supplemental Form 27 is the analytical results for the sampling that occurred at the Federal 29-16 pit and landfarm. Soils remaining within the pit bottom and side sampled on 8/28/18 for constituents outlined in the previously submitted and approved Initial Form 27 (Doc# 401625411) indicate compliance with COGCC Table 910-1.

Landfarming operations occurred during the end of 2018 and throughout the Spring of 2019. Due to the small volume of soil (60 yards) occupying an area ~40' x 25' x 1.5', one five point composite sample was collected from various depths throughout the landfarm for TPH, BTEX, and inorganic constituents. Any Landfarmed soil will be placed back within the excavation and the berms constructed of clean fill material for the landfarm will be used to cap the pit area, allowing for relief to inorganic exceedance in accordance with COGCC FAQ 32.

COGCC records and database indicates three pits are associated with this location on the COGCC database (111769,111770,111771). The only pit that is currently visible is Facility ID 111769. The other facility ID's are believed to be serving as "secondary" containments for onsite above ground storage tanks (ASTs).

Foundation is requesting closure of the Federal 29-16 pit (Facility ID 111769) and landfarm (REM# 11316), facilities ID's (111770,111771) will be closed when the location goes to reclamation.

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

Signed: Alyssa Beard

Title: HSE Manager

Submit Date: 01/15/2020

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: John Heil

Date: 02/03/2020

Remediation Project Number: 11316

**COA Type****Description**

	Based on review of the information provided, it appears that no further action is necessary at this time and COGCC approves the closure request. Should conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards, or, if groundwater is found to be significantly impacted, 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**

401962763	FORM 27-SUPPLEMENTAL-SUBMITTED
402064079	ANALYTICAL RESULTS
402163934	OTHER
402199837	ANALYTICAL RESULTS
402199839	ANALYTICAL RESULTS
402227873	SOIL SAMPLE LOCATION MAP

Total Attach: 6 Files

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

Environmental	COGCC staff approves the closure of Federal 29-16 pit (Facility ID 111769) and landfarm.	02/03/2020
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Total: 1 comment(s)