

# State of Colorado Oil and Gas Conservation Commission

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



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Receive Date:

Report taken by:

## 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: FOUNDATION ENERGY MANAGEMENT LLC	Operator No: 10112	<b>Phone Numbers</b>  Phone: (303) 2448114 Mobile: ( )
Address: 5057 KELLER SPRINGS RD STE 650		
City: ADDISON	State: TX Zip: 75001	
Contact Person: Alyssa Beard	Email: regulatory@foundationenergy.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 15044

Initial Form 27 Document #: 401995029

#### 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: PIT	Facility ID: 119456	API #:	County Name: GARFIELD
Facility Name: 1-8	Latitude: 39.384116	Longitude: -109.005278	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: SENE	Sec: 8	Twp: 8S	Range: 104W Meridian: 6 Sensitive Area? Yes

#### 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? Yes

Is groundwater less than 20 feet below ground surface? Yes

#### Other Potential Receptors within 1/4 mile

An un-named dry ephemeral drainage is present at approximately 1,007 ft to the south with an elevation difference of ~31ft.

# 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
No	SOILS	<Table 910-1	Field screening & 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.

At the location(s) of the pit which are the furthest downgradient, lowest in elevation and/or have the potential for pooling of liquid, field-screening will be performed and will utilize appropriate field equipment which may include, but is not limited to the following:  
-PetroFlag unit  
-Photoionization gas detector (PID),  
Confirmation sample(s), Rule 905.b.(4), will be collected and submitted for lab analysis for COGCC Table 910-1 thresholds. (BTEX, GRO, DRO, Metals, PAH, EC/pH and SAR).  
Grab samples will be collected, as appropriate, to demonstrate diligence and thoroughness of investigation activities performed as directed in Rule 905.b.(1).

## 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 five (5) soil samples by hand auger for the pit closure investigation - 1 base sample (Full 910-1), and 4 sidewall samples (hydrocarbons and inorganics). The sidewall samples will be analyzed for BTEX, GRO, DRO, EC/pH and SAR.

### 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 3  
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 0.507  
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

-- 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?

Three (3) background soil samples were collected on 8/7/19 at a nearby location (Federal 30-11) which is approximately 2.95 miles to the northwest. The background samples collected were analyzed for pH, Arsenic, EC and SAR. Results of the samples show consistency with the arsenic exceedances observed at the Government 1-8 and are typical for the region.

☐ 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.

At the time of investigation, no production water or fluids were present within the pit. Subsurface soil investigation did not indicate that the soils exceeded Table 910-1 on the pit bottom or sidewalls, with the exception to arsenic and inorganic constituent (EC).

## **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.

No remediation is currently anticipated as consideration is being requested in accordance with FAQ 31 and 32 as arsenic exceedances are comparable to background levels for Praire Canyon and inorganic constituents (EC) will be capped with 3 feet of native cover.

## **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**

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
No \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Air sparge / Soil vapor extraction  
No \_\_\_\_\_ Natural Attenuation  
No \_\_\_\_\_ 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 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? 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? 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 pit will be reclaimed in accordance with the COGCC 1000 Series Rules in addition to any SUA/COAs defined by the surface owner.  
The pit will be reclaimed to the present grade of the location or to the approximate original contour of the landscape.  
Seeding of the disturbed area will be performed in accordance with its' intended use. The seed mix will be prescribed / approved by the landowner (BLM).

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). 04/07/2019

Date of commencement of Site Investigation. 08/27/2019

Date of completion of Site Investigation. 08/27/2019

### **REMEDIAL ACTION DATES**

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

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

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

Please forward to John Heil.

COGCC records currently indicate that four (4) facility pit IDs are associated with the Government 1-8 location however, only one (Facility ID 119456) is correctly associated with Foundation Energy. The other three (3) facility pits IDs (112117, 113548 & 119455) indicate different operator ownerships, therefore this Supp. Form 27 only pertains to (Facility ID 119456).

Information within the Supp. Form 27 is related to the Government 1-8 (Facility ID 119456) pit closure and includes initial investigation activities, field screening results, confirmation analytical data and soil sample location map. Samples were collected from the pit bottom surface, as well as at every 1 foot interval to a maximum depth of 4 feet. Soils were field screening with the instruments mentioned within the Initial Investigation and results indicated hydrocarbon concentrations did not exceed Table 910-1. A sample was collected from the bottom of the pit at 4 feet below the pit bottom (~8 feet below the pad surface) and analyzed for full Table 910-1. Samples were also collected from the side walls at a depth of ~1 foot laterally and analyzed for a reduced analyte list consisting of DRO/GRO/BTEX/Inorganics as approved in the Initial Form 27. All confirmation soil results indicate compliance with Table 910-1 with the exception to arsenic and EC. Consideration is being requested in accordance with FAQ 31 & 32 as arsenic levels are comparable to other background levels in Praire Canyon and any inorganic exceedances will be capped with 3 feet of native cover.

Foundation Energy is requesting closure of the Government 1-8 (Facility ID 119456) and REM #15044.

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

Submit Date: `

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: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 15044

**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**

402349127	SOIL SAMPLE LOCATION MAP
402349130	ANALYTICAL RESULTS
402349151	ANALYTICAL RESULTS
402349152	ANALYTICAL RESULTS
402349156	OTHER
402350221	ANALYTICAL RESULTS

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)