

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
402489871  
Receive Date:  
09/28/2020

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: FOUNDATION ENERGY MANAGEMENT LLC	Operator No: 10112	<b>Phone Numbers</b>
Address: 5057 KELLER SPRINGS RD STE 650		Phone: (303) 244-8114
City: ADDISON	State: TX	Zip: 75001
Contact Person: Alyssa Beard		Mobile: ( )
		Email: abeard@foundationenergy.com

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 15731 Initial Form 27 Document #: 402411962

**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 checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation	<input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project
<input checked="" 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: 119432	API #: _____	County Name: MESA
Facility Name: PURE 1	Latitude: 39.351082	Longitude: -108.613723	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWNW	Sec: 24	Twp: 8S	Range: 101W
		Meridian: 6	Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications GC      Most Sensitive Adjacent Land Use Non-crop Federal 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? No

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

There is a ephemeral stream 0.04 miles from the pit on location.

# 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	Pit base, East & South Sidewalls	Field screening & 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 by hand auger from the pit base and sidewalls and field screened utilizing a Photo-Ionizing Detection (PID) unit by Foundation's environmental consultant. Samples will then be analyzed to determine the extent of impact.

## 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 deliniated to a maximum of five feet for the pit closure investigation - 1 base sample and 4 sidewall samples. Foundation intends to analyze the base sample off the pit bottom for full Table 910-1. If the base sample does not exceed PAH, Metals, or Inorganics, the four side wall samples will be analyzed for a reduced list of TPH (GRO & DRO), BTEX.

### 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) 100

### NA / ND

--          Highest concentration of TPH (mg/kg) 19510  
--          Highest concentration of SAR 6.77  
         BTEX > 910-1 Yes  
         Vertical Extent > 910-1 (in feet) 4

### 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?

A background sample will be collected and analyzed for arsenic and inorganics.

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?

Soils from the base of the pit currently exceed Table 910-1 standards, therefore, additional excavation and remediation is required. During the excavation process, soils within the pit bottom will be field screened in 1-2 foot intervals utilizing a Photo-Ionizing Detection (PID) unit and PetroFlag unit and results recorded. Vertical delineation of soils will continue until field screening methods determine compliance with Table 910-1 standards, at which point a confirmation sample will be collected to be analyzed for Full COGCC Table 910-1 analysis.

# 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.

An excavator and related heavy equipment will be used to excavate, stockpile, and landfarm any contaminated soils

## 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.

The extent of contamination will be determined through excavation and sampling until COGCC cleanup standards are achieved. Impacts to ground water resources are not expected at this time, but will be assessed during remedial activities. Contaminated soils, depending on volume, will be land-farmed and treated onsite with a microbial agent to enhance the bio-degradation of hydrocarbons in soil. Treatment will begin immediately and would continue until such a time that subsequent sampling shows that the soils can meet COGCC cleanup standards. After all contaminated soils have been excavated, confirmation samples and data will be collected to verify and document that 910-1 clean-up standards have been achieved. Specific details of the landfarming process are included in the attachments within the landfarming operations plan.

## 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  
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 but will be assessed during remedial activities.

# 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? No

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? No

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 to the present grade of the location or to the approximate original contour of the landscape consistent with the 1000-series Rule, in accordance with Final Reclamation of the location.

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). 06/17/2020

Date of commencement of Site Investigation. 06/17/2020

Date of completion of Site Investigation. 09/17/2020

## REMEDIAL ACTION DATES

Date of commencement of Remediation. 10/12/2020

Date of completion of Remediation. 10/12/2020

## SITE RECLAMATION DATES

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

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

## OPERATOR COMMENT

Please forward to John Heil

Attached are the analytical results, data tracking spreadsheet, sample location map, landfarming operations plan and approved BLM Sundry for land treatment for the Coal Gulch Federal 4-24 location (Facility Pit ID 119432). Analytical results collected from sampling activities on (6.17.20) indicate multiple hydrocarbon exceedances within the pit base, east and south sidewalls.

Foundation proposes utilizing heavy equipment to excavate impacted soils from 3ft bgs until field screening methods indicate compliance. Once field screenings show compliance, confirmation samples will be collected from the base and sidewalls of the pit and submitted for analysis for DRO, GRO, BTEX and PAHs. As outlined in the attached landfarming operations plan, impacted soils will be treated onsite until cleanup standards are achieved. Once analytical data shows compliance within the pit and landfarmed soils, then the treated soils will be used to backfill the excavation and closure of pit facility ID: 119432 and REM#15731 will be requested.

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: 09/28/2020

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: 10/16/2020

Remediation Project Number: 15731

## COA Type

## Description

	Berms around the land treat location(s) shall be sufficient to prevent stormwater run on and runoff. Berms shall be maintained at all times.
	The frequency of farming (tilling, disking, nutrient loading, surfactants, etc.) shall be provided to the COGCC as a subsequent report to this workplan.
	Only E&P waste generated from the pit excavation shall be landfarmed. No other E&P waste shall be treated at this facility
	Any accumulation of fluid in treatment area(s) shall be removed upon detection. All treatment area(s) shall monitored after any significant precipitation event.
	After the landfarmed material has been used to backfill the pit excavation, operator shall collect, at a minimum one soil sample underneath the landfarm to ensure no contaminants leached into the subsurface.
	At a minimum, collect soil samples from the proposed treatment areas at a frequency to establish a rate of biodegradation. Samples shall be collected consistently from the same approximate locations during each sampling event.

## **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.

<b><u>Att Doc Num</u></b>	<b><u>Name</u></b>
402489871	FORM 27-SUPPLEMENTAL-SUBMITTED
402490849	ANALYTICAL RESULTS
402490851	ANALYTICAL RESULTS
402490858	ANALYTICAL RESULTS
402490877	ANALYTICAL RESULTS
402490883	OTHER
402491565	SOIL SAMPLE LOCATION MAP
402496561	SITE MAP
402496562	OTHER

Total Attach: 9 Files

### **General Comments**

<b><u>User Group</u></b>	<b><u>Comment</u></b>	<b><u>Comment Date</u></b>
		Stamp Upon Approval

Total: 0 comment(s)