

State of Colorado Oil and Gas Conservation Commission

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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>	Phone Numbers
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>ABeard@foundationenergy.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13996 Initial Form 27 Document #: 402143419

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>119435</u>	API #: _____	County Name: <u>MESA</u>
Facility Name: <u>Kenwood Hunters Canyon #4 119435</u>		Latitude: <u>39.332119</u>	Longitude: <u>-108.588290</u>
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNE</u>	Sec: <u>30</u>	Twp: <u>8S</u>	Range: <u>100W</u>
Meridian: <u>6</u>		Sensitive Area? <u>Yes</u>	

SITE CONDITIONS

General soil type - USCS Classifications OH 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

Ephemeral drainages lie approximately 1727ft to the northwest and 1285ft to the east. No surface water identified within ephemeral drainages during on-site visit on July 23, 2019.

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 checked="" 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	None	Visual observations, field screening, & confirmation 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.

Pit onsite is a small, earthen blowdown pit, approximately 9'x9' in size. Upon removal of the wildlife netting, a sample will be collected from the soils within the pit bottom (0-12") and field screened utilizing a Photo-Ionizing Detection (PID) unit and PetroFlag and recorded. Vertical delineation of the pit will occur to a maximum depth of five (5) feet below the surface of the pit bottom, which is three (3) feet beyond the operating depth of the pit as outlined in the COGCC Form 15 (Doc# 400992062). Vertical delineation of the subsoil will consist of field screening in one (1) foot increments and will be recorded for future supplemental form submittals. If no hydrocarbon impacts are observed within the five foot delineation column, two (2) confirmation samples will be collected, the first one at 0-12" below the pit bottom to be analyzed for full COGCC Table 910-1 and a second sample collected at five (5) feet to be analyzed for a reduced list of TPH (DRO/GRO) and BTEX. Should results from the upper sample indicate exceedances to other constituents outlined within Table 910-1, the lab will be requested to activate the five foot sample for that exceeding constituent. If field screening instruments or confirmation data indicate hydrocarbon concentrations exceed Table 910-1, impacted soils will be excavated and placed within a landfarm shown in the attached figure. A separate landfarm remediation plan will be submitted, outlining the details and specifics of the landfarming operation.

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):

Two soil samples collected from 0-12" and analyzed for full Table 910-1. A second sample will be collected at five (5) feet below the pit bottom surface and analyzed for TPH and BTEX only.

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 2

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) 354

-- Highest concentration of SAR 2.18

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) 0

Highest concentration of Toluene (µg/l) 0

Highest concentration of Ethylbenzene (µg/l) 0

Highest concentration of Xylene (µg/l) 0

Highest concentration of Methane (mg/l) 0

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 9/5/2019 from varying locations. Results of the samples show consistency with Arsenic exceedances observed within the production pit.

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 0

Volume of liquid waste (barrels) 0

☐ 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.

Underlying soils within the pit do not exceed COGCC Table 910-1 thresholds with the exception of Arsenic, which are consistent with background concentrations.

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 required at this time as soils within the pit do not exceed Table 910-1

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
_____ No Land Treatment
_____ No 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.

Groundwater impacts are not anticipated as depth is noted to be 2,000 feet (See pit Form 15)

REMEDATION 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: _____

REMEDATION COMPLETION REPORT

REMEDATION 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 site was for plugged and abandoned in September of 2019 under well abandonment report approved by the COGCC on 4/22/19. 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. Seeding of the disturbed area will be performed in accordance with it's intended use. The seed mix will be prescribed by the landowner (BLM). There are no known noxious weeds in the immediate area of the disturbance.

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). 09/05/2019

Date of commencement of Site Investigation. 09/05/2019

Date of completion of Site Investigation. 09/05/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. 10/07/2019

Date of completion of Reclamation. 10/07/2019

OPERATOR COMMENT

Please forward to John Heil.

Included in this Supplemental Form 27 is the analytical results for the sampling that occurred at the Kenwood HC#4 pit. Field screening from the surface of the pit bottom to five (5) below indicated a negative hydrocarbon concentration exceeding COGCC Table 910-1. Due to field screening instruments indicating soils did not exceed clean-up threshold requirements, confirmation samples collected on 9/5/19 for full COGCC Table 910-1. Confirmation results indicate hydrocarbon concentrations are compliant with COGCC Table 910-1 standards and the only exceedance noted with for arsenic, which are also less than background arsenic concentrations. The Initial Form 27 approved by the COGCC on 8/15/2019 (Doc# 402143419) indicated that only base samples from 0-12" and at 5' below ground surface (bgs) be submitted.

Foundation is requesting relief to the Arsenic exceedances within the base samples in accordance with COGCC FAQ 31 as background concentrations in that area are comparable. Clean native soil from the pad will be used to backfill the pit and reclaimed in accordance with BLM and surface owner agreement.

Foundation is requesting closure of the Kenwood Hunters Canyons #4 pit and remediation #13996 as all soils satisfy COGCC requirements.

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

Signed: ` Kris Rowe

Title: Env. Consultant

Submit Date: ` 09/24/2019

Email: Krowe@HRLcomp.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: 10/14/2019

Remediation Project Number: 13996

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**

402181830	FORM 27-SUPPLEMENTAL-SUBMITTED
402181856	ANALYTICAL RESULTS
402181860	ANALYTICAL RESULTS
402181974	ANALYTICAL RESULTS
402187448	OTHER
402187480	SITE MAP

Total Attach: 6 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)