

State of Colorado
Oil and Gas Conservation Commission

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Report taken by:
RICK ALLISON

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>		Mobile: <u>(720) 2572302</u>
		Email: <u>abeard@foundationenergy.com</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9287 Initial Form 27 Document #: 2615072

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 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 checked="" type="checkbox"/> Other <u>Pit Investigation in support of pit closure</u>

SITE INFORMATION N Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: <u>PIT</u>	Facility ID: <u>273442</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>HOFFMAN 34-7& 34-10 PIT 1</u>		Latitude: <u>40.621210</u>	Longitude: <u>-104.075049</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>SWNE</u>	Sec: <u>34</u>	Twp: <u>8N</u>	Range: <u>60W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use CROP LAND

Is domestic water well within 1/4 mile? Yes 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

None-verified through COGCC e-GIS website tool

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	possible contamination	sampling taken on 7/17 to determin

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

This form is being submitted as follow up to inspection #667400504 that identified potential seeping from the pit's eastern sidewall. Sampling was conducted on 7/17/2015 to see if impacts need to be addressed.

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):

Updated 12/15/17 - soil samples will be collected at locations approved by COGCC in support of closing Rem#9287 and the pit itself.

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 15
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 _____
Vertical Extent > 910-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? Yes
Depth to groundwater (below ground surface, in feet) 20'
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?

Sample results will be returned the week of Jul 27th and further determination will be made what steps need to be taken to address this site.
Updated 12/15/17 : sample results will determine this.

REMEDIATION ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? Yes _____

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Soil will be excavated using a trackhoe while using a PID meter to direct digging to contaminated areas.

REMEDICATION 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.

Update, 12/15/17 - Foundation has decided to go ahead and close the Hoffman pit. Foundation is submitting a proposed sample collection location map for approval by COGCC. The samples will be run for BTEX, TPH, pH, EC, and SAR.

Update, 2/9/18 - A soil sample collected from the base of the South pit contained TPH concentrations over the Table 910 standard. A revised remediation/pit closure plan includes the following:

Day 1. Collect soil samples from the north pit using the excavator bucket due to the steepness and depth of the pit. The samples will be run overnight for GBTEX and DRO. If the samples are below the Table 910 standard, the berms will be pushed into the pit base to start the closure process of the north pit. If a sample is above the standard, soil will be removed. Soil that is impacted and excavated will be hauled to the Waste Management, Ault location. Once clean samples are taken, the pit berms will be pushed into the base. A sample will also be collected from the surface of the crop area east of the north pit per Rick Allison to close out prior remediation number. Samples run for EC, pH and SAR will be run at a standard TAT due to the depth of sample collection.

Addition of top soil, compaction, and contouring will occur in Spring 2018.

The south pit has known hydrocarbon impacts. Foundation assumes that the pit base is impacted and will need to be removed to Waste Management.

On Day 1 of pit closure activities, test pits will be dug in order to better determine impacted volume adjacent to the south pit. These samples will also be run overnight in order to guide activities on Day 2. Once impacted material has been removed, the goal is to collect clean sidewall and base samples from the south pit.

The excavation activities and sampling will be overseen by Tasman Geosciences. The final earthwork on this project to backfill the pits, compact, recontour and reseed will likely be performed by a separate contractor in March or April.

Soil Remediation Summary

In Situ

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

Ex Situ

Yes _____ Excavate and offsite disposal
If Yes: Estimated Volume (Cubic Yards) _____ 250
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

_____ 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.

Groundwater is not expected to be encountered, but if it is encountered, the remediation plan will be re-evaluated.

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: _____

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No _____

Do all soils meet Table 910-1 standards? _____

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? _____

Does Groundwater meet Table 910-1 standards? _____

Is additional groundwater monitoring to be conducted? _____

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.

If reseeding does need to take place, the seed mix will be discussed with the landowners and stormwater controls put in place when the location is reseeded.

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? No _____

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). 12/29/2017

Date of commencement of Site Investigation. 02/19/2018

Date of completion of Site Investigation. 03/16/2018

REMEDIAL ACTION DATES

Date of commencement of Remediation. 02/19/2018

Date of completion of Remediation. 03/16/2018

SITE RECLAMATION DATES

Date of commencement of Reclamation. 03/31/2018

Date of completion of Reclamation. 04/30/2018

OPERATOR COMMENT

This Supplemental Form 19 is being submitted with analytical results from the Hoffman South Pit base in preparation for pit closure activities. The soil sample from the south pit base at 6' bgs exceeded Table 910 for TPH. Foundation plans to use an excavator to collect samples from the Hoffman North Pit base and sidewalls due to the steep terrain, and run the samples with an overnight or 24-hour turnaround time so that any impacts found can be removed and resampled immediately. Delineation by test pitting will be performed adjacent to and below the South pit to determine additional volume to be removed, assuming that the entire base of the pit is impacted. At this time Foundation plans to dig and haul impacted South pit material under the guidance of an environmental consultant, but this remedial approach may be adjusted to consider in-situ treatment if it appears that significantly higher volumes are likely. Foundation plans to push in the earthen berm material surrounding both pits once sample results indicate that the pits are ready for closure. The addition of top soil, compaction, recontouring, and reseeding of the former pit area is planned to occur in April.

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 & Regulatory _____

Submit Date: 02/09/2018 _____

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: RICK ALLISON _____

Date: 02/16/2018 _____

Remediation Project Number: 9287 _____

COA Type**Description**

	Include at least one sample of the surface northwest of the north pit where oily waste was apparently land treated as part of unresolved Remediation Project 1836.
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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**

401518541	FORM 27-SUPPLEMENTAL-SUBMITTED
401518858	ANALYTICAL RESULTS
401541429	SOIL SAMPLE LOCATION MAP

Total Attach: 3 Files

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

Environmental	REturned to Draft: Please use the Remediation Action Plan section of the form 27 to update Foundation's remediation plans for the Hoffman pit.	02/01/2018
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Total: 1 comment(s)