

State of Colorado Oil and Gas Conservation Commission

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401962562

Receive Date:

04/03/2019

Report taken by:

John Heil

Site Investigation and Remediation Workplan (Initial 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 #: 13412 Initial Form 27 Document #: 401962562

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>119479</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>Federal #21-4X 119479</u>		Latitude: <u>39.401548</u>	Longitude: <u>-108.994838</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>NENW</u>	Sec: <u>4</u>	Twp: <u>8S</u>	Range: <u>104W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

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? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

☒ E&P Waste

☐ Other E&P Waste

☐ Non-E&P Waste

☒ Produced Water

☐ Workover Fluids

☐ Oil

☐ Tank Bottoms

☐ Condensate

☐ Pigging Waste

☐ Drilling Fluids

☐ Rig Wash

☐ Drill Cuttings

☐ Spent Filters

☐ Pit Bottoms

☐ Other (as described by EPA)

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	SOILS	Unknown	Soil 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.

Foundation is planning to collect soil samples at the Federal 21-4x pit location from the proposed sample locations in the attached map, with a hand auger decontaminated between each sample.

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 samples by hand auger for the pit closure investigation- 1 base sample, and 4 sidewall samples. The sidewall sample will be collected and analyzed from pH, EC and SAR assuming they are collected within 3' of the natural ground level. All samples collected will be analyzed for GBTEX and DRO. The samples will be preserved on ice and delivered to Summit Scientific in Golden, CO.

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

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? No

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 910-1

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

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Soil samples will be collected from the locations proposed on the attached map, and analyzed for BTEX, TPH, EC, SAR and pH (with the exception of the base soil sample, which will not be run for EC, SAR, and pH due to the sample depth) Based on the analytical results, soil will be removed as necessary at a later date with a backhoe/trackhoe and landfarmed on location. The landfarmed material will be bermed. Confirmation samples will again be collected from the base the sidewalls and compared to Table 910-1 standard to ensure impacted soil will be treated.

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.

Since soil samples have not been collected yet, Foundation will require additional data in order to develop the remediation plan. However, should soil samples in the pit base and sidewalls exceed the table 910-1 standard, soil will be removed from the pit until clean samples have been obtained from the extent of the excavation. Soil will be screened with a PID at the time of the excavation. Foundation has procured BLM approval to landfarm any impacted material after evaluating each location with BLM representative Jim Byers during on-site meetings. The landfarm will be tilled/turned every two weeks to one month until a confirmation sample(s) of the landfarmed material (including EC, pH, and SAR) indicates that the soil can be replaced into the former pit. A Supplemental Form 27 requesting closure will be submitted to COGCC at that time.

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

☐ _____ 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.

NA

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? _____

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: _____

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.

Once soil samples collected from the base and sidewalls of the pit show concentrations less than the table 910-1 standard, the berms will be pushed into the base of the pit. If landfarming is necessary, the material will be replaced into the former pit once laboratory analytical shows that concentrations are below the Table 910-1 standard. Additional top soil will be brought in as necessary and compacted to bring the pit area to the surface and prepared for seeding. If soil amendments are necessary to increase the chance for success at seeding. Foundation will add amendments based on the inorganic soil results. Foundation will reseed the former pit area with a see mix approved by the BLM during the next favorable season, and weed spraying will be utilized for weed prevention.

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). 04/08/2019

Date of commencement of Site Investigation. 04/08/2019

Date of completion of Site Investigation. 04/08/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/03/2019

Date of completion of Remediation. 10/07/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. 10/21/2019

Date of completion of Reclamation. 10/21/2019

OPERATOR COMMENT

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: 04/03/2019

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: 04/23/2019

Remediation Project Number: 13412

COA Type

Description

	Operator shall ensure that all soil samples are analyzed for TPH (DRO, GRO), BTEX, EC, pH, and SAR regardless of sample collection depth.
	At least one discrete, representative sample collected from the pit bottom shall be analyzed for the complete Table 910-1 list (including EC, SAR, pH, and PAHs). If the PAHs are non-detect, the operator may request a reduced analyte suite via a Supplemental eForm 27.
	4/5/2016 Field Inspection Report (doc #674300635) indicates that the pit is 5' deep. Operator proposes collecting soil samples with a hand auger from 3' depth. Operator shall collect samples continuously from the surface to the vertical extent of delineation determined by field screening methods. Foundation shall employ field screening methods to determine appropriate sample collection depths, per Rule 910.b.(3).
	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.

	<p>COGCC does not approve of the operator's request for land treatment at this time until the following criteria is met:</p> <p>Provide a copy of the Approved BLM Sundry for land treatment.</p> <p>Operator shall provide a site diagram depicting the location of the proposed land treatment unit that depicts the location of containment berms.</p>
	The operator shall comply with Rule 910.b.3.
	Land Treatment of oily waste shall be performed in strict accordance with the requirements of COGCC Rule 907.e.(2).
	Operator shall provide 72 hours notice to Environmental staff John Heil (john.heil@state.co.us) or 970-787-0029 prior to conducting field operations related to closing this pit.

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.

<u>Att Doc Num</u>	<u>Name</u>
401962562	FORM 27-INITIAL-SUBMITTED
401994949	SOIL SAMPLE LOCATION MAP

Total Attach: 2 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	Reclamation shall be in accordance to BLM's specifications.	04/23/2019
Environmental	COGCC GIS Online aerial photos and topographic map document the presence of multiple mapped, unnamed (ephemeral) surface water features, located within 1/4-mile of the subject pit, including one located approximately 190' west and 840' east of the pit facility.	04/23/2019

Total: 2 comment(s)