FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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

Document Number: 401962554
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 INFORMATON

Name of Operator: FOUNDATION ENERGY MANAGEMENT LLC Operator No: 10112
Address: 5057 KELLER SPRINGS RD STE 650
City: ADDISON State: TX Zip: 75001
Contact Person: Alyssa Beard

Phone Numbers
Phone: (303) 2448114
Mobile: ( )
Email: abeard@foundationenergy.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13164 Initial Form 27 Document #: 401962554

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [x] 909.c.(1), Rule 905: Pit or PW vessel closure
- [ ] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: PIT Facility ID: 119465 API #: County Name: GARFIELD
Facility Name: Federal #3-10-84 119465 Latitude: Longitude:
** correct Lat/Long if needed: Latitude: 39.381049 Longitude: -108.968898
QtrQtr: NESE Sec: 10 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? No
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

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 3-10 pit location from the proposed sample locations shown on the attached map, with a hand auger decontaminated between each sample.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] 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 samples will be analyzed for EC, pH 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 exceeeding 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 and sidewalls and compared to Table 910-1 standards 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 location after evaluating each location with BLM representative Jim Byers during on-site meetings. The landfarm will be tilled/turned between every 2 weeks to one month until a confirmation sample(s) of the landfarmed material 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 Tabl 910-1 standard. Additional topsoil will be brought in as necessary and compacted to bring the pit area to surface and prepared for seeding. If soil amendments are necessary to increase the chance for success at seeding. Foundation will add amendments based on inorganic soil results. Foundation will reseed the former pit area with a seed 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: 04/10/2019

Remediation Project Number: 13164

COA Type	Description
	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.
	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.
	Land Treatment of oily waste shall be performed in strict accordance with the requirements of COGCC Rule 907.e.(2).
	The operator shall comply with Rule 910.b.3.
	Reclamation shall be in accordance with the BLM approved plans.
	COGCC does not approve of the operator's request for land teatment at this time until the following criteria is met: Provide a copy of the Approved BLM Sundry for land treatment. Operator shall provide a site diagram depicting the location of the proposed land treatment unit that depicts the location of containment berms.

	4/6/2016 Field Inspection Report (doc #674300652) indicates that the pit is 4' 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 least one discrete, representative sample collected from the pit 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.
	Operator shall ensure that all soil samples are analyzed for TPH (DRO, GRO), BTEX, EC, pH, and SAR regardless of sample collection depth.
	Operator shall provide corrected lat/long for the subject pit via a Supplemental eForm 27.

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
401962554	FORM 27-INITIAL-SUBMITTED
401994443	SOIL SAMPLE LOCATION MAP

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
Environmental	Scout Card indicates that Pit Facility ID #119465 is a duplicate of Pit ID #113543.	04/10/2019
Environmental	Operator indicates under Site Conditions that there are no surface water features located within 1/4-mile of the subject facility. 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 80' east of the pit facility.	04/05/2019
Environmental	Updated lat/long for pit based on coordinates provided in 1/27/2017 field inspection report (doc# 675203785).	04/05/2019

Total: 3 comment(s)