FORM
27
Rev 3/16

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 INFORMATON

Name of Operator: WESTERN OPERATING COMPANY Operator No: 95620
Address: 1165 DELAWARE STREET #200
City: DENVER State: CO Zip: 80204
Contact Person: Steve James

Phone Numbers
Phone: (303) 893-2438
Mobile: ( )
Email: steve@westernoperating.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13634 Initial Form 27 Document #: 401981504

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: 111624 API #: County Name: WELD
Facility Name: HOOZIE-BJOLIN 1 Latitude: 40.536872 Longitude: -103.643533
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SENE Sec: 33 Twp: 7N Range: 56W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM
Most Sensitive Adjacent Land Use Agriculture
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

None identified.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [x] 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	Undetermined	Undetermined

INITIAL ACTION SUMMARY

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

On 6/13/19, a hand auger site assessment was conducted and 5 soil borings were advanced in the vicinity of the pit. One boring was advanced in the center of the pit, and the remaining four borings were advanced on top of the pit berm in cardinal directions of the pit center. Each soil boring was advanced manually using a hand auger and soil was field screened every vertical 1-foot interval for evidence of petroleum hydrocarbon impact such as staining, odor, and elevated VOC concentrations measured using a PID. The soil boring advanced in the center of the pit (SS06) was advanced to ~16.5 ft below ground surface (bgs) until encountering refusal. Elevated PID readings, staining, and odor was observed from the top of the boring to total depth of the boring. One soil sample (SS06@16.5') was collected for lab analysis of BTEX and total TPH-GRO, TPH-DRO, and TPH-ORO. Based on field observations it was determined that additional excavation would be necessary to remove impact from the sidewalls and no other samples were submitted for analysis. Lab analytical results indicated that sample SS06 exceeded the COGCC Table 910-1 standards for TPH with a concentration of 4,320 mg/kg. The soil analytical results figure, summary table, and lab analytical report are provided as attachments.

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):

Based on the results of the hand auger assessment, Western conducted additional source removal excavation and on 7/29/2019 LTE collected confirmation soil samples. The extent of excavation was ~30 ft by ~30 ft to ~20 ft bgs. Five soil samples were collected: one from each sidewall at 18 ft bgs and one from the floor at 20 ft bgs of the excavated pit for lab analysis. Each sidewall soil sample was collected using the backhoe bucket and soil was screened at 3 ft bgs, 10 ft bgs, and 18 ft bgs for evidence of petroleum hydrocarbon impact such as staining, odor, and elevated VOC concentrations. Samples were collected from the interval exhibiting the greatest evidence of impact (18 ft bgs). Following collection, the soil samples were submitted for laboratory for analysis of BTEX, TPH-GRO, TPH-DRO, TPH-ORO, pH, EC, and SAR. The soil analytical results figure, summary table, and laboratory analytical report are provided as attachments.

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

- [x] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

On 6/9/18, Teter and Son Oilfield Service, Inc. (Teter), removed approximately 2 cubic yards of stained soil from the pit and stockpiled the material onsite. On 4/8/19 and 4/10/19, Teter hauled the stockpiled material offsite for disposal at Buffalo Ridge Landfill in Keenesburg, Colorado. During this period, Teter also removed additional oily soil from the pit to allow access for a hand auger assessment to be conducted. Teter marked the area where the material was stockpiled with a stake. During the hand auger assessment on 6/13/19, LTE personnel collected GPS location data to document where the soil was stockpiled. LTE also collected 2 surficial soil samples (0"-6" bgs) beneath the area where the soil was stockpiled. The samples were submitted for laboratory analysis of BTEX, TPH-GRO/DRO/ORO, EC, pH, and SAR. A soil stockpile location and soil sample map, soil analytical results summary table, laboratory report, and disposal manifests are provided as attachments.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 6

Number of soil samples exceeeding 910-1: 6

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet): 900

NA / ND

-- Highest concentration of TPH (mg/kg): 9800

-- Highest concentration of SAR: 1.42

BTEX > 910-1: Yes

Vertical Extent > 910-1 (in feet): 20

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

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?

Additional excavation will be conducted to remove petroleum hydrocarbon impacts to soil at the site. Additional confirmation soil sampling from the final extent of excavation will be conducted after the additional excavation is completed to ensure all impacts have been mitigated.

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.

Source removal excavation and confirmation soil sampling.

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.

Additional excavation is required to removed petroleum hydrocarbon impacted soil to the maximum extent practicable. Further site investigation should be performed after the additional excavation is conducted to ensure the removal of all containminated soil.

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) 325
  - 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.

NA

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other As needed

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Pit Assessment Report

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

None

Volume of E&P Waste (solid) in cubic yards 325

E&P waste (solid) description Contaminated soil

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Buffalo Ridge Landfill

Volume of E&P Waste (liquid) in barrels 0

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?

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.

TBD

Is the described reclamation complete?

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?

If NO, does the seed mix comply with local soil conservation district recommendations?

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). 06/13/2019

Date of commencement of Site Investigation. 06/13/2019

Date of completion of Site Investigation.

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/05/2019

Date of completion of Remediation.

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

Excavation is ongoing. All volumes presented in this report are estimates.

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

Signed:` Steve James Title: President

Submit Date:` 08/20/2019 Email: steve@westernoperating.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: 08/30/2019

Remediation Project Number: 13634

COA Type	Description

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
402141028	FORM 27-SUPPLEMENTAL-SUBMITTED
402141219	MAP
402148264	MAP
402148271	ANALYTICAL RESULTS
402148273	ANALYTICAL RESULTS
402148297	DISPOSAL MANIFESTS
402148338	ANALYTICAL RESULTS
402148356	ANALYTICAL RESULTS

Total Attach: 8 Files

General Comments

User Group	Comment	Comment Date
Environmental	Pending Operator response re: ongoing pit excavation	08/23/2019

Total: 1 comment(s)