FORM 27 Rev 3/16

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 INFORMATON

Name of Operator: TEP ROCKY MOUNTAIN LLC Operator No: 96850
Address: PO BOX 370
City: PARACHUTE State: CO Zip: 81635
Contact Person: Michael Gardner Email: MGardner@terraep.com

Phone Numbers
Phone: (970) 263-2790
Mobile: (970) 623-4875

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11706 Initial Form 27 Document #: 401715498

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: 422272 API #: County Name: GARFIELD
Facility Name: TR 41-35-597 2 Latitude: 39.574510 Longitude: -108.240600
** correct Lat/Long if needed: Latitude: 39.574388 Longitude: -108.240339
QtrQtr: NENE Sec: 35 Twp: 5S Range: 97W Meridian: 6 Sensitive Area? Yes

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? No
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

none

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
Yes	SOILS	12 inches	Confirmation analytical data

INITIAL ACTION SUMMARY

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

At the location(s) of the pit which are the furthest downgradient, lowest in elevation and/or have the potential for pooling of liquid, field-screening will be performed and will utilize appropriate field equipment which may include, but is not limited to the following.
-PetroFlag unit,
-photoionization gas detector (PID),
Confirmation sample(s), Rule 905.b.(4), will be collected and submitted for lab analysis and verification to confirm compliance with Rule 910 and Table 910-1, relative to the aforementioned field screen activity.
Other areas of the pit walls and floor will be inspected for evidence of impact via field screening and visual observation. Grab samples will be collected, as appropriate, to demonstrate diligence and thoroughness of investigation activities performed as directed in Rule 905.b.(1). In addition, all field screening activities and results will be documented and complied into a summary report, table and/or map to be provided with the Notice of Completion (NOC) Report.
Grab sample(s) will be submitted for laboratory analysis to confirm field screening activities. Sub-liner sample analytes will include considerations identified by Rule 910 and all contaminants of concern for soils from Table 910-1.

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):

Five (5) grab samples will initially be collected from the pit subsoils along the side wall and bottom. Sample locations will be provided in a sample location map attached to the closure summary.

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: 9

Number of soil samples exceeeding 910-1: 2

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

Approximate areal extent (square feet): 3200

NA / ND

-- Highest concentration of TPH (mg/kg): 1019

-- Highest concentration of SAR: 19

BTEX > 910-1: No

Vertical Extent > 910-1 (in feet): 2

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?

Three (3) background samples were collected from undisturbed soils adjacent to the pad

☐ 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

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.

Upon removal of the pit liner(s), onsite personnel noticed the underling soil containing a mild hydrocarbon odor and discoloration on the pit bottom and southern side wall. While equipment was on site, it was used to excavate approximately two (2) feet off the bottom and approximately one (1) foot off the southern side wall. Excavated soils were placed within an earthen bermed containment on the eastern side of the pad for further evaluation. On 7/25/19 environmental contractor personnel conducted field screening consisting of three (3) grab samples on each of the pit side walls and three (3) samples were collected off the pit bottom. Results of the field screening are attached in the field screening diagram. Due to field screening readings indicating that soils did not exceed Table 910-1 at the current depths, samples were collected and submitted for full COGCC Table 910-1. Additionally, a composite sample from the excavated soils was collected and submitted to determine actual 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.

Samples collected on 7/25/19 from within the pit indicated that the side walls and bottom satisfied COGCC Table 910-1 thresholds with the exception to the southern side wall contained one analysis for Benzo(a)pyrene with a concentration of 0.024 mg/kg, exceeding the COGCC threshold by 0.002 mg/kg. Additional exceedances consisted of inorganic constituents and arsenic, which typically exceed Table 910-1 thresholds and are comparable to background concentrations for the Trial Ridge area. An additional six (6) inches was excavated from the pits southern wall and re-sampled for benzo(a) pyrene on 8/2/19, which results indicated compliance with Table 910-1 thresholds at that time.

Landfarm sample results from the 7/25/19 sampling indicated that soils exceeded for TPH and PAH thresholds. A bioremediation product was applied and the soils were turned three times (3x). The landfarm was split into two halves (North & South) and samples were re-collected on 7/31/19 for full COGCC Table 910-1. Results indicate TPH and PAH constituents now satisfy Table 910-1, with arsenic and inorganic parameters exceeding.

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 # ____
- 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.

Groundwater has not been impacted

REMEDIATION 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? Yes

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

Soils excavated from within the pit were placed within an above ground earthen bermed landfarm. A vast majority of the excavated material was rock (~75%) with the other 25% being actual soil. Impacted soils were treated and turned 3x before resampling. Soils will be used onsite a fill material within the bottom of the pit at ~25ft below other native fill material removed and stockpiled onsite during the construction of the pit.

Volume of E&P Waste (solid) in cubic yards 250

E&P waste (solid) description rock and soil

COGCC Disposal Facility ID #, if applicable: 0

Non-COGCC Disposal Facility:

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? 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 pit will be reclaimed to the present grade of the location or to the approximate original contour of the landscape and consistent with the 1000-series Rule.

Seeding of the disturbed area will be performed in accordance with its' intended use. The seed mix will be prescribed by the landowner. 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). 08/20/2018

Date of commencement of Site Investigation. 05/01/2019

Date of completion of Site Investigation. 08/02/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/25/2019

Date of completion of Remediation. 08/02/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation.

Date of completion of Reclamation.

OPERATOR COMMENT

Please forward onto John Heil

Information within the Supplemental Form 27 is related to the TR 41-35-597 pit closure and includes initial investigation actions, field screening results, confirmation analytical data and sample location map. As mentioned within this Form 27, soils excavated were treated onsite and satisfy COGCC Table 910-1. Soil will be placed back within the pit and capped with the native soil removed during the original construction of the pit.

TEP is requesting relief to arsenic and inorganic exceedances as outlined in COGCC FAQ 31 & 32 as native cover capping will consisted of 3ft of soil, as well as arsenic concentrations are consistent with background arsenic concentrations for this area (Trail Ridge).

TEP is requesting closure of the production pit (Facility ID 422272) and REM# 11706.

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

Signed:` Michael Gardner Title: TEP Environmental

Submit Date:` 12/17/2019 Email: MGardner@terraep.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: 12/18/2019

Remediation Project Number: 11706

COA Type	Description
	Operator shall submit a F27 Supplemental update for Remediation #4949 with an updated Lat/Long.
	After review of the data presented, elevated levels of [SAR/EC/pH] exist deeper than three feet below ground surface. Per guidance in FAQ 32, elevated levels of [SAR/EC/pH] at three feet below ground surface or deeper should not adversely affect the successful reclamation of the site. If groundwater is found to be impacted, or if reclamation is not compliant with the 1000-series rules, additional remediation activities may be required at the site. It appears that no further action is necessary at this time and COGCC approves the closure request.

	Operator states that "Samples collected on 7/25/19 from within the pit indicated that the side walls and bottom satisfied COGCC Table 910-1 thresholds with the exception to the southern side wall contained one analysis for Benzo(a)pyrene with a concentration of 0.024 mg/kg, exceeding the COGCC threshold by 0.002 mg/kg. Additional exceedances consisted of inorganic constituents and arsenic, which typically exceed Table 910-1 thresholds and are comparable to background concentrations for the Trial Ridge area. An additional six (6) inches was excavated from the pits southern wall and re-sampled for benzo(a)pyrene on 8/2/19, which results indicated compliance with Table 910-1 thresholds at that time." For future pit sampling, Operator shall formally request a reduced analyte suite.

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
402203181	FORM 27-SUPPLEMENTAL-SUBMITTED
402203530	SOIL SAMPLE LOCATION MAP
402203535	OTHER
402203545	ANALYTICAL RESULTS
402203547	ANALYTICAL RESULTS
402203549	ANALYTICAL RESULTS
402203553	ANALYTICAL RESULTS
402203560	ANALYTICAL RESULTS
402252432	ANALYTICAL RESULTS

Total Attach: 9 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)