

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203

Phone: (303) 894-2100 Fax: (303) 894-2109



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Receive Date:

08/27/2021

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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

| | | |
|--|-----------------------------|---|
| Name of Operator: TEP ROCKY MOUNTAIN LLC | Operator No: 96850 | Phone Numbers Phone: (970) 263-2760 Mobile: (970) 623-4875 |
| Address: PO BOX 370 | | |
| City: PARACHUTE | State: CO Zip: 81635 | |
| Contact Person: Michael Gardner | Email: mgardner@terraep.com | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 16326 Initial Form 27 Document #: 402562109

PURPOSE INFORMATION

- ☐ Rule 913.c.(1): Pit or Cuttings Trench closure.
- ☐ Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- ☒ Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- ☐ Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- ☐ Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- ☐ Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- ☐ Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- ☐ Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- ☐ Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- ☐ Rule 913.g: Changes of Operator.
- ☐ Rule 915.b: Request to leave elevated inorganics in situ.
- ☒ Other: Historical subsurface remediation

SITE INFORMATION

No Multiple Facilities

| | | | |
|--|---------------------|------------------------|---|
| Facility Type: LOCATION | Facility ID: 314929 | API #: | County Name: RIO BLANCO |
| Facility Name: GOVT-EQUITY-62S98W 26NENW | Latitude: 39.852702 | Longitude: -108.364768 | |
| ** correct Lat/Long if needed: Latitude: 39.851940 | | Longitude: -108.366709 | |
| QtrQtr: NENW | Sec: 26 | Twp: 2S | Range: 98W Meridian: 6 Sensitive Area? No |

SITE CONDITIONS

General soil type - USCS Classifications GM

Most Sensitive Adjacent Land Use Rangeland

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? No

Other Potential Receptors within 1/4 mile

Black Sulphur Creek located approximately 740 feet away. An abandoned monitoring well located on the C-27A location (1,755 feet to the west/northwest) indicated a static water level of 7 feet. The elevation difference between the C-27A and Gov 298-26-1 is ~73 feet, suggesting that groundwater could be ~80-100 feet deep.

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 |
|-----------|----------------|------------------|-------------------------|
| Yes | SOILS | TBD | Analytical data results |

INITIAL ACTION SUMMARY

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

While performing a due diligence around a party buried tank (PBT) for an asset acquisition screening, historical hydrocarbon impacts were observed below the ground surface starting at 5-feet and extending to 10-11 feet where a hard compacted layer was encountered. A track mounted drilling rig was utilized to complete six (6) boreholes around the PBT and pad perimeter to obtain subsurface soil samples for TPH and BTEX, as the purpose of the sampling was for a due diligence acquisition screening.

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):

As of 12/29/20, six (6) subsurface soil grab samples have been collected and analyzed for TPH and BTEX. Further site investigation activities will consist of soil samples being analyzed for full COGCC Table 910-1 constituents.

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):

Additional subsurface soil site investigation is needed to delineate the horizontal and vertical extent of impacts.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 24

Number of soil samples exceeding 915-1 14

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

Approximate areal extent (square feet) 5625

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 80'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 915-1 0

Surface Water

0 Number of surface water samples collected

0 Number of surface water samples exceeding 915-1

If surface water is impacted, other agency notification may be required.

NA / ND

-- Highest concentration of TPH (mg/kg) 11560

-- Highest concentration of SAR 18

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 11

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)

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?

No further investigation is needed at this time

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.

The source of the impacted soil has yet to be determine as these are historical impacts believed to date back to the previous operator (Whiting Oil & Gas). Impacts will likely be excavated and hauled for offsite disposal or remediated in-situ.

Update 8/17/2021: The source is believed to be from the leaking production tank/equipment from the previous operator.

REMEDIAL ACTION 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.

Remediation of the impacted subsurface soils may consisted of excavation and offsite disposal to Oilfield Water Logistics (OWL). From July 6, 2021 to July 30, 2021, a total of 145 loads of soil were excavated and hauled offsite. Field screened using a PID, Petroflag and olfactory was used to guide the excavation until confirmation soils were collected. Areas where soils exceed COGCC thresholds were excavated. Contaminated soils were hauled offsite for disposal, and the remediated areas were resampled.

Soil Remediation Summary☐ In Situ☒ Ex Situ

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

Yes _____ Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) _____ 1740
_____ 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 impacts are not expected at this time. However, if it is determined that groundwater is impacted, a separate groundwater remediation and monitoring plan will be completed.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other

☐ Request Alternative Reporting Schedule:

☐ Semi-Annually ☐ Annually ☒ Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

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? ☒ Yes

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:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? ☒ Yes

If YES:

☒ Compliant with Rule 913.h.(1).

☒ Compliant with Rule 913.h.(2).

☒ Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards? ☒ Yes

Does the previous reply indicate consideration of background concentrations?

Does Groundwater meet Table 915-1 standards? ☒ Yes

Is additional groundwater monitoring to be conducted?

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

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 pad surface 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.

Any seeding of the disturbed area will be performed in accordance with its' intended use.

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 provide the seed mix? Yes

If YES, does the seed mix comply with local soil conservation district recommendations? Yes

Did the local soil conservation district provide the seed mix? _____

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. _____

Proposed date of completion of Reclamation. _____

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required. 12/08/2020

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 12/07/2020

Proposed site investigation commencement. 12/07/2020

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. _____

Proposed date of completion of Remediation. _____

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

Please forward onto John Heil

The remediation activities at the Gov 26-1 have been completed and confirmation soil samples from the excavation bottom and side walls indicate that soils comply with COGCC Table 910-1 thresholds, with the exception to arsenic and inorganics. Below is a summary of the remediation process.

Excavation of the impacted soils commented on July 6, 2021 by excavating soils on the south end of the pad. Soils were excavated to a depth of 11-feet where a solid bedrock layer was encountered. Soils were scrapped along the bedrock layer laterally north, east and south where soils were field screened and inspected via visually and olfactory. Excavation continued laterally north until the partly buried tank was reached. Field screening indicated that soils still exceeded cleanup standards for hydrocarbons to the north, which required TEP production personnel to disconnect the flowlines and other equipment necessary to remove the tank. While production personnel were disconnecting the equipment, samples were collected from the southern portion of the excavation to determine if the excavated area met clean-up thresholds. Samples were collected on 7/27/21, however due to capacity issues at the lab, final lab results were not received until August 11, 2021. By that time the tank had been removed and excavation continued to the north.

Prelim data reports of the southern excavation indicated that the West Wall exceeded COGCC thresholds for benzo(a)pyrene as well as the eastern wall had an unusually high arsenic level. Crews excavated another 1-2 feet from the side walls and samples were re-collected on 8/10/21. Results received on 8/17/21 indicate that the B(a)P now meets COGCC thresholds and the arsenic levels dropped by 50%.

Excavation on the northern half of the site was conducted similar to the southern half, which was guided by field screening, visual and olfactory senses. Additional soil samples collected from the impacted area on 8/4/2021 indicate that results complied with COGCC thresholds under Table 910-1, with the exception to arsenic and inorganics.

The excavation confirmation data in conjunction with the pothole and borehole data shows that all of the impacted area has been delineated and excavated.

All excavated material was hauled offsite for disposal to Oilfield Water Logistics (OWL). A total of 145 loads were hauled for disposal. Attached is a copy of the first (#1) manifest, as well as a copy of the last (#145).

TEP is requesting consideration and allowance to the arsenic exceedances due to background levels within the Boise Ranch/Ryan Gulch area being similar (or higher) than the arsenic levels observed within the excavation. Regarding the inorganics exceedances, TEP is requesting allowance and consideration due to the exceedances posing no environmental risk or concern for the following reasons:

- * Depth to groundwater is at 80 (or more) feet deep.
- * There is no pathway to surface or groundwater. Nearest surface water is ~750 feet to the north and separated by rugged terrain and geologic features, such as hills or low lying areas
- * A solid bedrock layer is present at 10-11 feet below the pad providing an added layer of percolation protection
- * The exceedances within the excavation are > 3ft below, and out of the root zone, and will not preclude the successful reclamation of the pad (i.e., interference with vegetative regrowth);
- * The area will be capped with an additional layer of native soil during reclaim.

TE is requesting closure of the REM# 16326 and no further action be provided as soils satisfy COGCC Table 910-1 thresholds (previously approved under Doc# 402562109) with the consideration requests above.

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: 08/27/2021

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: 09/01/2021

Remediation Project Number: 16326

Condition of Approval

COA Type

Description

| | |
|--|---|
| | Based on a review of the information provided, it appears that no further action is necessary at this time and COGCC approves the closure request. Should conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards, or, if groundwater is found to be significantly impacted, further investigation and/or remediation activities may be required at the site. |
|--|---|

1 COA

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> |
|--------------------|--------------------------------|
| 402778970 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 402783635 | ANALYTICAL RESULTS |
| 402783640 | MAP |
| 402783641 | SOIL SAMPLE LOCATION MAP |
| 402783677 | ANALYTICAL RESULTS |
| 402783678 | ANALYTICAL RESULTS |
| 402783680 | ANALYTICAL RESULTS |
| 402783682 | ANALYTICAL RESULTS |
| 402783683 | ANALYTICAL RESULTS |
| 402783684 | DISPOSAL MANIFESTS |
| 402783685 | DISPOSAL MANIFESTS |
| 402783687 | ANALYTICAL RESULTS |
| 402790618 | ANALYTICAL RESULTS |
| 402794395 | ANALYTICAL RESULTS |

Total Attach: 14 Files

General Comments

| <u>User Group</u> | <u>Comment</u> | <u>Comment Date</u> |
|-------------------|--|---------------------|
| Environmental | Doc #402783635 old data tracker Doc #402790618 updated data tracker | 08/25/2021 |

Total: 1 comment(s)