

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 INFORMATION

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

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13721 Initial Form 27 Document #: 402067472

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>374696</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>JOLLY 16-23D</u>	Latitude: <u>39.529489</u>	Longitude: <u>-107.563782</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWNW</u>	Sec: <u>16</u>	Twp: <u>6S</u>	Range: <u>91W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications OH

Most Sensitive Adjacent Land Use Pasture/farmland @ 2020ft to the east with an elevation difference of 754ft

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

Garfield Creek lies approximately 3075ft to the east and an unnamed ephemeral drainage lies approximately 3700ft to the west.

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	TBD	field screening, confirmation 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.

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 compiled 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

☒ 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 walls at a point positioned center at a depth of 3-4 feet below ground surface (bgs) from the crest of the pit. An additional sample will be collected off the bottom of the pit at the lowest point. All samples will be analyzed for COGCC Table 910-1 thresholds. Sample locations will be provided in a sample location map attached to the closure summary. Any additional identified areas of concern will be sampled independently for TPH/BTEX for initial concentrations.

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 11

Number of soil samples exceeding 910-1 6

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

Approximate areal extent (square feet) 0

NA / ND

-- Highest concentration of TPH (mg/kg) 430

-- Highest concentration of SAR 87

BTEX > 910-1 No

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) 92'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

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 the nearby undisturbed soil and analyzed for arsenic and inorganics (SAR/EC/pH)

☐ 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.

Pit subliner soil screening and investigation indicated soils did not exceed COGCC Table 910-1 thresholds. Samples were collected from various points on the side wall and pit bottom and field screened with PID and Petroflag. Readings ranged from 12-55ppm with the PID and 110-221 mg/kg with the Petroflag. Due to field screening results indicating no impacts exceeded Table 910-1, confirmation samples were collected from a depth of 0-6" below the surface of the side wall and pit bottom surface. Sample results indicated all soils satisfy Table 910-1 with the exception to arsenic and inorganics (SAR/EC/pH). Arsenic concentrations observed are comparable with background concentrations and relief to the arsenic threshold in Table 910-1 is requested as outlined in FAQ 31. Additional site investigation information is available below regarding the SAR concentrations being elevated above background concentrations.

The pit liner has been removed and hauled off-site to an approved commercial solid waste disposal facility.

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.

Initial sampling conducted on 6/4/19 of the pit side wall and bottom indicated that arsenic and inorganic (SAR/EC/pH) exceedances were observed. Side wall samples were collected at a point positioned center on the wall, approximately 10 feet below the ground surface. The pit bottom sample was collected off the bottom of the pit at the lowest point, approximately 20ft below ground surface. The arsenic concentrations within the pit sampling is consistent with concentrations observed in background samples and relief to the arsenic threshold outlined in Table 910-1 is requested as per COGCC FAQ 31. Due to the high inorganic concentrations, the COGCC requested that additional sampling be collected from within the pit to further evaluate concentrations. Additional sampling was conducted on 6/21/19 of the side walls at a point higher than the initial sampling, which was ~five (5) feet below the ground surface. The additional pit bottom sample was collected at the opposite side of the pit, which is approximately the same depth as the initial sampling. Results from the re-sampling on 6/21/19 indicate inorganics (SAR/EC/pH) concentrations were below COGCC Table 910-1 with the exception to the western wall and bottom, as well as one PAH constituent exceeded (dibenzo(A,H)anthracene) by 0.013 mg/kg. The surface of the side wall was roughened with the teeth on the trackhoe bucket (~4" deep), removing any interference from the felt liner bleed (typically present within the 1-2 inches of the underlying soil) and exposing the soil to UV light for approximately 11 days for allow for natural degradation of the dibenzo(a,h)anthracene constituent. A sample was re-collected from the northern side wall on 7/2/19, where concentrations now satisfy COGCC Table 910-1.

No soils were excavated nor was any landfarming conducted. The surface roughening on the north wall by the trackhoe teeth to a depth of 4" remained in place until resampling.

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) _____ 0
Name of Licensed Disposal Facility or COGCC Facility ID # _____
_____ Excavate and onsite remediation
No _____ Land Treatment
No _____ Bioremediation (or enhanced bioremediation)
No _____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)
No _____ Chemical oxidation
No _____ Air sparge / Soil vapor extraction
No _____ Natural Attenuation
No _____ 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 by the operation of the production pit and monitoring is not required. The nearest ground water well (Permit # 234309) indicates static water levels are at 92ft.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Facility Closure Report

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? No

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:

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

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). 05/01/2019

Date of commencement of Site Investigation. 06/24/2019

Date of completion of Site Investigation. 07/02/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Please forward onto John Heil

KP 22-16 Pit Closure

Included in this Supplemental Form 27 is revised information and responses to the previously submitted Supplemental Form 27 (402071332).

TEP has resampled on 6/21/19 the pit bottom and side walls as outlined in the Remedial Action Plan. Results are attached, as well as outlined in a revised data tracking table and updated sample location map.

Regarding the COA's from the previously submitted Supp. Form 27. Responses are as followed:

- TEP has contacted the landowner and informed them of the inorganics levels and TEP will be submitting a Form 19 for possible historical release impacts. Attached is an e-mail correspondence. A voicemail is also available from the landowner providing approval, however the audio file is not compatible with the COGCC E-Form database to upload.
- The KP 22-16 pit was relined in May 2011 under the previous operator (WPX Energy)
- Field observations are provided within the Remedial Action Plan portion of this Form 27, along with a photograph of the pit post liner removal.
- There was no soil excavated from the pit. Surface roughening occurred on the northern wall to allow for exposure to UV light for natural degradation of PAH constituents, but never removed from its original place.
- An initial Form 19 (Doc# 402083516) and Supplemental Form 19 (Doc# 402110264) have been submitted

Any inorganic exceedance will be capped with a minimum of 3ft of native cover and managed in accordance with COGCC FAQ 32.

TEP is requesting closure of the production pit (Facility ID 374696) and REM# 13721.

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 Env.

Submit Date: 09/25/2019

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: 10/15/2019

Remediation Project Number: 13721

COA Type

Description

Final Reclamation should comply with 1004 rules.

	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.
	Based on 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.

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>
402129100	FORM 27-SUPPLEMENTAL-SUBMITTED
402129630	SOIL SAMPLE LOCATION MAP
402129633	ANALYTICAL RESULTS
402129646	ANALYTICAL RESULTS
402129650	ANALYTICAL RESULTS
402129656	ANALYTICAL RESULTS
402129688	CORRESPONDENCE
402129862	PHOTOS

Total Attach: 8 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)