

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Krystal Heibel

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 ECMC 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: <u>RED MOUNTAIN RESOURCES LLC</u>	Operator No: <u>10374</u>	Phone Numbers
Address: <u>6538 JUNGFRAU WAY</u>		Phone: <u>(303) 894-2100</u>
City: <u>EVERGREEN</u> State: <u>CO</u> Zip: <u>80439</u>		Mobile: <u>(303) 905-5341</u>
Contact Person: <u>James Hix - East OWP EPS</u>	Email: <u>james.hix@state.co.us</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 26689 Initial Form 27 Document #: 402879787

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: _____

SITE INFORMATION

Yes Multiple Facilities

Facility Type: <u>PIT</u>	Facility ID: <u>110645</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>KILMER 1</u>	Latitude: <u>40.466615</u>	Longitude: <u>-103.443489</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>20</u>	Twp: <u>6N</u>	Range: <u>54W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>312130</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>KILMER-66N54W 20SWSW</u>	Latitude: <u>40.465210</u>	Longitude: <u>-103.442440</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>20</u>	Twp: <u>6N</u>	Range: <u>54W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications SC _____

Most Sensitive Adjacent Land Use freshwater pond adjacent, rural residential, cropland _____

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

HPH: no, riverine runs through the location, freshwater pond adjacent, occupied building unit ~0.21 mile SW

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input checked="" type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input checked="" type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | _____ |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	GROUNDWATER	Unknown	visually, laboratory analysis
Yes	SOILS	Unknown	visually, laboratory analysis

INITIAL ACTION SUMMARY

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

Noble Energy/Chevron performed a site investigation of the Kilmer 1 Tank Battery as part of a public project in 2021. Tanks and production facility equipment were removed under REM 18544. Produced Water Pit Facility ID #110645 remains. Red Mountain/Bhate performed a site investigation including a limited subsurface investigation in 2014 under REM 8141 that included installation of three temporary monitoring wells and collection of a produced water sample. Analysis of soil, groundwater, and produced water was performed along with a sensitive area evaluation. Remediation #8141 was closed in 2015. The Colorado ECMC Orphaned Well Program (OWP) will decommission and remediate the produced water pit(s), the former tank battery, and flowline(s) associated with the Kilmer 1 and collect confirmation samples. Remediation of the Tank Battery and Pit(s) will proceed under Remediation Project #26689.

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):

Stained soil and weathered crude oil were noted in the vicinity of the former Kilmer 1 tank battery and produced water pit during previous inspections. Grab soil samples were collected from the bottom of the pit(s), separator, and production tanks associated with the former Red Mountain Resources - Kilmer 1 Production Facility/Tank Battery in May 2022. Samples were analyzed for full Table 915-1 soil parameters.

Proposed Groundwater Sampling

Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Three temporary monitoring wells installed during the 2014 subsurface investigation were supposed to be abandoned in 2015 when REM 8141 was closed. However, temporary monitoring wells SB-02 was observed during a 2017 inspection. Groundwater samples collected from the three monitoring wells were analyzed for Table 915-1 organic and inorganic water parameters.

Proposed Surface Water Sampling

Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Surface water was not present at the time of the site investigation.

Additional Investigative Actions

Additional alternative investigative actions described in attached Site Investigation Plan (summary):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 31 -- Highest concentration of TPH (mg/kg) 1790
 Number of soil samples exceeding 915-1 6 -- Highest concentration of SAR 11.2
 Was the areal and vertical extent of soil contamination delineated? No BTEX > 915-1 No
 Approximate areal extent (square feet) 43560 Vertical Extent > 915-1 (in feet) 4

Groundwater

Number of groundwater samples collected 3 ND Highest concentration of Benzene (µg/l) _____
 Was extent of groundwater contaminated delineated? No ND Highest concentration of Toluene (µg/l) _____
 Depth to groundwater (below ground surface, in feet) 32 ND Highest concentration of Ethylbenzene (µg/l) _____
 Number of groundwater monitoring wells installed 0 ND Highest concentration of Xylene (µg/l) _____
 Number of groundwater samples exceeding 915-1 1 ND Highest concentration of Methane (mg/l) _____

Surface Water

0 Number of surface water samples collected
 Number of surface water samples exceeding 915-1
 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?
 Site-specific background soil samples were not 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?
 Noble Energy/Chevron performed a public project to remove the ASTs and former production equipment in 2021. The ECMC OWP oversaw a site investigation in May 2022. Additional soil sampling and flowline abandonment is required. Temporary groundwater monitoring wells installed in 2014 are still present at the location, and grab groundwater samples were collected.

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.
 Soil samples were collected from the base of the Kilmer 1# Pit 110645, from the former skim pit, base of the produced water pit, the vertical separator, from the production tank battery location, and produced water tank containment, and analyzed for Table 915-1 parameters. Impacted soils with results above Table 915-1 concentrations/levels will be excavated based on visual and field screening. Source removal and other remediation options will be evaluated. Confirmation soil samples will be collected following excavation to demonstrate compliance with Table 915-1 concentrations/levels.

REMEDICATION 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 impacts to soil and groundwater will be based on the nature of the impacts encountered. The results of the 2014 limited subsurface investigation (Remediation Project # 8141) indicated that BTEX, SVOC (PAH), TPH-GRO/TPH-DRO were not detected in soil samples. Elevated levels of inorganic parameters, pH and specific conductivity, and arsenic concentrations were observed in upgradient and downgradient soil sample locations above ECMC Table 915-1 levels/concentrations. Noble Energy/Chevron decommissioned the tank battery as part of a public project. Flowlines were abandoned in place. Results for soil samples collected on 10/18/2021 indicate that TPH concentrations were reported above Table 915-1 in flowline soil sample, FL01-A@3' (1513 mg/kg). Additionally pH and SAR were reported above Table 915-1 levels in four of the soil samples. The ECMC OWP oversaw additional site investigation in May 2022 (attached). The results will be reviewed to evaluate remediation options at the former tank battery and the produced water pits.

Soil Remediation Summary

In Situ Ex Situ

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

_____ Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) _____
_____ Name of Licensed Disposal Facility or ECMC 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.

Three temporary monitoring wells were installed in 2014 pursuant to REM 8141. The ECMC requested that the temporary monitoring wells be abandoned in 2015; however, temporary monitoring well SB-02 was observed during a 2017 inspection. The monitoring wells are still present and were sampled. Groundwater samples were analyzed for Table 915-1 water parameters. Groundwater results indicated that organic parameters were not detected; however, inorganic parameters exceed Table 915-1 parameter concentrations/levels. Additional subsurface investigation and remediation activities will be evaluated.

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 _____

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).
If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

The former Red Mountain Resources LLC - Kilmer # 1 (OWP) (Location ID #312130) is in the ECMC Orphaned Well Program. The former Operator's bond and other funding will be used to investigate and remediate the location.

Operator anticipates the remaining cost for this project to be: \$ _____

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 _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

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

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? _____

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? _____

Is additional groundwater monitoring to be conducted? _____

Operator shall comply with the ECMC 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.

Once the Kilmer 66N54W 20SWSW location has been determined to meet Table 915-1 concentrations/levels, the location will be regraded to match existing contours of the surrounding area. Produced water Pit #110645 will be restored to level grade and top soil cover brought in if needed to establish a seed bed. Reclamation will be performed in consideration of consultation with the Surface Owner and intended future land 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? _____

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

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. 05/18/2022

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/14/2021

Proposed site investigation commencement. 10/18/2021

Proposed completion of site investigation. 05/17/2022

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:

Noble Energy/Chevron decommissioned the Kilmer #1 (OWP) Tank Battery as part of a public project in October 2021. The ECMC OWP oversaw a subsurface investigation in May 2022.

OPERATOR COMMENT

The RED MOUNTAIN RESOURCES LLC - 10374 KILMER 1 (OWP) oil and gas well and KILMER-66N54W 20SWSW (Location ID #312130) and Pit #110645 are in the ECMC Orphaned Well Program. Noble Energy/Chevron plugged and abandoned (PA) the Kilmer 1 (OWP) well in 2019 and decommissioned the tank battery as part of a public project in October 2021. Remediation of the Kilmer #1 (OWP) well will be performed under Remediation Project #18538. This Form 27 Supplemental presents the site investigation results of the tank battery and pit(s). The ECMC OWP oversaw site investigation activities in May 2022 to delineate the lateral and vertical extent of impacts and sample groundwater from three monitoring wells previously installed at the location. Results indicate that total petroleum hydrocarbons (TPH) were reported at concentrations of 1483 mg/kg in flowline soil samples FL01A-1(2-3) and 1143 mg/kg in FL01A_3(2-3) which are above the Table 915-1 TPH cleanup goal of 500 mg/kg. Groundwater analytical results show that organic compounds were not detected at or above the laboratory reporting limits. Concentrations of chlorides and total dissolved solids (TDS) were reported above the Table 915-1 Cleanup Concentrations in one of the groundwater samples (110645_SB-03). Further site investigation and remediation are required and remediation options will be evaluated to meet soil and groundwater cleanup goals. Remediation of the tank battery/pit(s) will proceed under Remediation Project #26689 (Location #312130).

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

Signed: James Hix

Title: East OWP EPS

Submit Date: 10/31/2024

Email: james.hix@state.co.us

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with ECMC Rules and applicable orders and is hereby approved.

ECMC Approved: Krystal Heibel

Date: 03/05/2025

Remediation Project Number: 26689

COA Type**Description**

	OWP shall provide a Soil Sample Location Map that illustrates the location of proposed soil sample location for pit evaluation, delineation, and remediation.
	If a spill/release of produced fluids or E&P waste causes an impact to soil, OWP should perform sampling and analysis to fully delineate the lateral and vertical extent of those impacts.
	OWP will collect and submit for laboratory analysis a soil sample collected from the areas most likely to have been impacted during the operational life of the flowline. These areas include, but are not limited to: where Flowlines connect to the wellhead, surface equipment, risers, valves, or manifolds; where Flowlines bend or were repaired in the past and at joints and hammer unions; where Flowlines connect to Flowlines or equipment of different material; and where Flowlines crossed drainages or surface water or are in contact with shallow groundwater.
	OWP shall collect confirmation soil samples as described in the Rule 915.e.(2) Guidance Document. OWP will analyze soil samples for TPH (C6-C36), Table 915-1 Organic Compounds in Soil, Table 915-1 metals, and Table 915-1 Soil Suitability for Reclamation (Electrical conductivity, Sodium adsorption ratio, and pH by saturated paste method, boron (hot water soluble)).
	OWP will provide laboratory analytical report(s) as a stand-alone attachment(s) on the replacement Supplemental Form 27. The Laboratory Report PDF(s) must be secured by the issuing laboratory; If there is a difference between the creation date and secured date of the PDF, OWP shall provide an explanation in the case narrative of the associated report. ECMC will not review combined PDFs with lab reports.
	Due to shallow groundwater (~26' bgs) reported on location - OWP shall comply with Table 915-1 Protection of Groundwater Soil Screening Level Concentrations.

6 COAs

ATTACHMENT 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**

403976763	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403976773	SITE INVESTIGATION REPORT

Total Attach: 3 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>"Noble Energy/Chevron performed a site investigation of the Kilmer 1 Tank Battery as part of a public project in 2021. Tanks and production facility equipment were removed under REM 18544.</p> <p>Produced Water Pit Facility ID #110645 remains. Red Mountain/Bhate performed a site investigation including a limited subsurface investigation in 2014 under REM 8141 that included installation of three temporary monitoring wells and collection of a produced water sample. Analysis of soil, groundwater, and produced water was performed along with a sensitive area evaluation. Remediation #8141 was closed in 2015. The Colorado ECMC Orphaned Well Program (OWP) will decommission and remediate the produced water pit(s), the former tank battery, and flowline(s) associated with the Kilmer 1 and collect confirmation samples. Remediation of the Tank Battery and Pit(s) will proceed under Remediation Project #26689."</p>	03/05/2025

Total: 1 comment(s)