

State of Colorado
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

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Receive Date:

01/15/2025

Report taken by:

KRIS NEIDEL

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>WOLVERINE RESOURCES LLC</u>	Operator No: <u>10677</u>	Phone Numbers
Address: <u>109 EAST 17TH STREET #430</u>		Phone: <u>(970) 946 3761</u>
City: <u>CHEYENNE</u>	State: <u>WY</u>	Zip: <u>82001</u>
Contact Person: <u>Jacob Harter</u>	Email: <u>jharter@cottonwoodconsulting.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 27431 Initial Form 27 Document #: 403280057

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>100048</u>	API #: _____	County Name: <u>MOFFAT</u>
Facility Name: <u>STERRETT 1</u>	Latitude: <u>40.784643</u>	Longitude: <u>-107.851651</u>	
** correct Lat/Long if needed: Latitude: <u>40.784412</u>		Longitude: <u>-107.851583</u>	
QtrQtr: <u>SENE</u>	Sec: <u>32</u>	Twp: <u>10N</u>	Range: <u>93W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

Facility Type: <u>PIT</u>	Facility ID: <u>100049</u>	API #: _____	County Name: <u>MOFFAT</u>
Facility Name: <u>STERRETT 1</u>	Latitude: <u>40.784643</u>	Longitude: <u>-107.851651</u>	
** correct Lat/Long if needed: Latitude: <u>40.784412</u>		Longitude: <u>-107.851583</u>	
QtrQtr: <u>SENE</u>	Sec: <u>32</u>	Twp: <u>10N</u>	Range: <u>93W</u>
Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

Facility Type: WELL	Facility ID: _____	API #: 081-06348	County Name: MOFFAT
Facility Name: STERRETT (OWP) 1		Latitude: 40.784510	Longitude: -107.851580
** correct Lat/Long if needed: Latitude: _____ Longitude: _____			
QtrQtr: SENE	Sec: 32	Twp: 10N	Range: 93W 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? Yes

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

NA

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
No	SOILS	NA	Laboratory Analytical 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.

The ECMC Orphan Well Program plugged the Sterrett #1 (OWP) well and decommissioned the wellsite during the fall 2023 and the summer 2024. During the plugging and decommissioning activities, soil samples were collected in accordance with the Initial Form 27 for the project and ECMC Rule 915.e(2)B. A total of ten soil samples were collected from the site during the wellsite decommissioning. Soil sampling results indicated that all soils were below ECMC Table 915-1 standards or consistent with background concentrations with the exception of soils in the vicinity of an open ended flowline located east of the separator and soils in the vicinity of the west AST loadout. Based on the initial site investigation it appears the two historical pits (Facility ID: 100048/100049) associated with this site were likely located near the open ended flowline east of the separator. During November 2024 the ECMC OWP conducted remediation activities in these areas.

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):

During November 2024 the ECMC OWP conducted remediation activities in vicinity of the flowline east of the separator (Facility ID: 100048/100049) and in the vicinity of the west AST loadout. An excavator and semi-trucks were used to remove the impacted soils and haul them to the Moffat County Landfill. During excavation activities, Cottonwood used a PID to guide the excavation. When excavation activities appeared to be successful in removing impacted soils in certain portions of the excavation based on PID readings and field observations, confirmation soil samples of soils left in-place were collected from the excavation areas to define the extent of impacts in that direction. A confirmation soil sample was collected in each of the four sidewalls and one from the base of the excavation to confirm all impacted soils were removed. Soil samples were analyzed for analytes that failed during the initial sampling event and one sample was analyzed for full ECMC Table 915-1.

Proposed Groundwater Sampling

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

No groundwater or pathways to groundwater were discovered during the plugging, decommissioning, and remediation activities. No groundwater samples were collected for this project.

Proposed Surface Water Sampling

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

No surface water was discovered in the vicinity of the wellsite during the plugging, decommissioning, and remediation activities. No surface water samples were collected for this project.

Additional Investigative Actions

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

Two historical pits (Facility ID: 100048/100049) are registered with the Sterrett #1 (OWP) wellsite location. The two pits were registered as a 15'x15'x3' 120 bbls blow down pit and a 10'x10'x3' 50 bbls evaporation / tank drain off pit. Based on the field investigation and the initial sampling, it was determined that these historical pits were likely located near the open ended flowline discovered east of the separator. The initial Latitude and Longitude for the pits (Facility ID: 100048/100049) appears to be incorrect and has both pits located to the north of the location. The corrected Latitude and Longitude for both pits has been documented on this Form 27. Remediation efforts focused on these pit locations.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 17
Number of soil samples exceeding 915-1 3
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 2234

NA / ND

-- Highest concentration of TPH (mg/kg) 75300
-- Highest concentration of SAR 10.8
BTEX > 915-1 Yes
Vertical Extent > 915-1 (in feet) 15

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 915-1

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 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?

One background soil sample was collected upgradient from the wellsite from nearby, non-impacted native soil to establish background concentrations. Three additional backgrounds were collected within the Wolverine Well Plugging Project area. A table of background soil sample results is provided in the attachments. The background samples indicate arsenic above the ECOM Table 915-1 standards. It is requested that background concentrations be considered when evaluating this site for final closure.

☒ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards) 1429 Volume of liquid waste (barrels) 0

☒ Is further site investigation required?

Following the initial sampling conducted during the wellsite decommissioning, the impacted soils in the vicinity of the flowline east of the separator and in the vicinity of the west AST loadout were excavated and impacted soils were hauled to the Moffat County Landfill for disposal.

Approximately 10 yards of impacted soils were excavated from the vicinity of the west AST loadout. One soil sample (SS11) was collected from the base of the excavation. Laboratory analytical results indicated that all analytes were below ECOM Table 915-1 standards with the exception of pH which was slightly outside the range of the ECOM Table 915-1 standards.

Additionally, approximately 1112 yards of impacted soils were excavated in the vicinity of the flowline east of the separator (Facility ID: 100048/100049) and five confirmation soil samples were collected from the base (SS12) and four sidewalls (SS13-SS16). SS12 was submitted for analysis of TPH, SS13 was submitted for ECOM Table 915-1 constituents, and SS14-SS16 were submitted for analysis of pH, SAR, TPH, BTEX, and boron. Laboratory analytical results indicated that SS12 had TPH values that exceeded ECOM Table 915-1 standard. Laboratory analytical results of SS13-SS16 indicated that all analytes were below ECOM Table 915-1 standards with the exception of pH which was slightly outside the range of the ECOM Table 915-1 standards.

Following the receipt of these results, an additional 200 yards were excavated from the base of the excavation and one soil sample (SS17) was collected at a depth of approximately 16.5 feet bgs. SS17 was submitted for laboratory analysis of pH, SAR, TPH, BTEX, and boron. Laboratory analytical results indicated that all analytes were below the ECOM Table 915-1 standards.

Following remediation efforts, it appears all soils have been remediated to ECOM Table 915-1 standards.

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.

Impacted material was excavated and hauled to the Moffat County Municipal Solid Waste Landfill for disposal. Disposal receipts are provided in the attachments.

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.

During the project, approximately 1,312 yards of impacted soils were excavated and hauled to the Moffat County Municipal Solid Waste Landfill for disposal. Following remediation efforts, it appears all soils have been remediated to ECMC Table 915-1 standards.

Soil Remediation Summary

☐ In Situ

☒ Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 1312

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or ECMC Facility ID # _____ 0

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ 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 was not encountered during any of the excavation and remediation activities.

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 scope of work described in this Initial Site Investigation and Remediation Workplan has been completed by the ECMC Orphaned Well Program (OWP).

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

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:

Impacted material was excavated and hauled to the Moffat County Municipal Solid Waste Landfill for disposal.

Volume of E&P Waste (solid) in cubic yards 1312

E&P waste (solid) description Impacted soils

ECMC Disposal Facility ID #, if applicable: 0

Non-ECMC Disposal Facility: Moffat County Municipal Solid Waste Landfill

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

E&P waste (liquid) description No liquid E&P waste was generated during this remediation.

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? 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? Yes ☐

Does Groundwater meet Table 915-1 standards? Yes

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.

Final reclamation will be conducted per ECMC reclamation rules and prioritized based on OWP funding and staff availability. Any exceedances defined under "Soil Suitability for Reclamation" within Table 915-1 are addressed during a later reclamation phase of the project. The scope of reclamation planning for this site will include a plan to address and avoid any effect on reclamation from 915-1 inorganic exceedances that are documented on this form; and will be accessible to ECMC staff upon request once developed. ECMC remains responsible for monitoring, maintenance, and management of all sites until passing final reclamation. This includes, but is not limited to, tasks such as weed control, installation and maintenance of storm water controls, and re-seeding until the site meets ECMC final reclamation standards. For questions regarding reclamation activities please contact ECMC OWP Reclamation Project Manager at (970) 946-9107.

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? No

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

Did the local soil conservation district provide the seed mix? No

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 04/01/2025

Proposed date of completion of Reclamation. 12/31/2025

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. _____

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/15/2023

Proposed site investigation commencement. 04/01/2023

Proposed completion of site investigation. 08/01/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/01/2024

Proposed date of completion of Remediation. 12/01/2024

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

Following remediation efforts, it appears all soils have been remediated to ECMC Table 915-1 standards with the exception of pH and arsenic. Arsenic concentrations are relatively consistent with background concentrations and pH concentrations are only slightly outside the range of the ECMC Table 915-1 standards. It is requested the site be approved for final closure.

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

Signed: Jacob Harter

Title: Consultant

Submit Date: 01/15/2025

Email: jharter@cottonwoodconsulting.com

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: KRIS NEIDEL

Date: 05/07/2025

Remediation Project Number: 27431

COA Type**Description**

	Based on review of information presented it appears that no further action is necessary at this time, and ECMC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding ECMC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required at the site.
	As stated the OWP is responsible for obtaining Final Reclamation.
2 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**

404013340	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404050185	SOIL SAMPLE LOCATION MAP
404050187	PHOTO DOCUMENTATION
404050212	ANALYTICAL RESULTS
404050214	ANALYTICAL RESULTS
404050216	ANALYTICAL RESULTS
404050217	ANALYTICAL RESULTS
404050219	ANALYTICAL RESULTS
404050222	ANALYTICAL RESULTS
404050230	DISPOSAL MANIFESTS
404050273	ANALYTICAL RESULTS
404051135	ANALYTICAL RESULTS
404194527	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 13 Files

General Comments**User Group****Comment****Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)