

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404555714
Receive Date:
02/24/2026
Report taken by:
Nikki Graber

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: WESTERN OPERATING COMPANY	Operator No: 95620	Phone Numbers Phone: (303) 893-2438 Mobile: ()
Address: 1165 DELAWARE STREET #200		
City: DENVER	State: CO	Zip: 80204
Contact Person: Steven James	Email: steve@westernoperating.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 9066 Initial Form 27 Document #: 2143143

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

No Multiple Facilities

Facility Type: PIT	Facility ID: 101980	API #: _____	County Name: ADAMS
Facility Name: HOUGH 1-12	Latitude: 39.987910	Longitude: -103.719512	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NENW	Sec: 12	Twp: 1S	Range: 57W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use PASTURE
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

Intermittent stream to the west (downgradient)
DTW= 37' per LSP-001 MORRIS WELL 1 (Permit 14484-R)
Rule 1202.d HPH Pronghorn winter concentration

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	GROUNDWATER	NA	Lab data (2015)
Yes	SOILS	100' x 40' x 12'	Soil Borings

INITIAL ACTION SUMMARY

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

An initial investigation occurred in 2008 when subsurface impacts were observed. In 2015, an additional investigation consisting of soil borings and groundwater well installation was carried out to delineate the lateral extent of impacts. In September 2025, eight (8) soil borings were advanced to a total depth of 18 feet below ground surface (bgs) to further assess the horizontal and vertical extent of contamination associated with the former produced water pit.

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):

Soil samples were collected from intervals with the highest PID reading and from the terminal depth of the soil boring. Laboratory analytical results from the September 2025 borings indicate that hydrocarbon impacts are generally present between 8 and 12' bgs. Analytical results, boring logs, and a soil sample location map are included with this report. Additional investigation activities to determine the extent of horizontal impacts are required. Subsequent confirmatory sampling will be performed following delineation and/or remediation activities.

Proposed Groundwater Sampling

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

Seven groundwater samples were collected on July 3, 2015 (Doc #2495350). Laboratory groundwater analytical results reported that none of the samples exceeded the WQCC Reg 41 standards for BTEX. Based on the laboratory results, groundwater is not impacted at this site, and further groundwater sampling is not proposed at this time. Groundwater was not encountered during the September 2025 subsurface investigation.

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 17

Number of soil samples exceeding 915-1 8

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 2000

NA / ND

 Highest concentration of TPH (mg/kg)

 Highest concentration of SAR

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 18

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?

Three (3) background soil samples were collected from undisturbed native material in areas not impacted by oil and gas operations. Laboratory results indicated that naturally occurring concentrations of arsenic, barium, and selenium in these samples exceeded the Table 915-1 residential soil standards. Accordingly, confirmation sample results are compared to site-specific background thresholds calculated as 1.25 times the average concentration of the three background samples.

Background sample EC values ranged from 0.38 to 8.83 mmhos/cm, and SAR values ranged from 0.83 to 14.85. Boron concentrations ranged from 0.22 to 1.15 mg/L, and pH values ranged from 8.04 to 8.24. Based on this data, site-specific background thresholds are calculated as 1.25 times the average of the background values and will be used to evaluate EC, SAR, and Boron exceedances.

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?

Based on the analytical results, additional remediation activities will be required to address impacts from approximately 8-16' bgs in the area of the former produced water pit footprint.

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.

Any hydrocarbon-impacted material will be transported off-site to a licensed disposal facility in accordance with Rules 905 and 906. Waste manifests will be provided with future Form submittals, if applicable.

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.

A work plan will be submitted prior to any additional investigation or remediation activities, which may include, but are not limited to, in situ chemical oxidation and/or additional dig-and-haul excavation. Updates will be provided to ECMC accordingly.

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.

Laboratory results from the five monitoring wells and two grab samples collected in 2015, indicate that groundwater is not impacted at the site. And no additional groundwater sampling is proposed at this time.

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 Pit closure

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.

Western Operating (#95620) is enrolled in the Option 3 financial Assurance plan approved 07/12/2023

Operator anticipates the remaining cost for this project to be: \$ 20000

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

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.

If no surface disruption is necessary, no reclamation is proposed. Any surface disruption will be reclaimed according to the ECMC 1000 series rules.

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. 06/04/2025

Actual Spill or Release date, or date of discovery. 02/04/2009

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/04/2009

Proposed site investigation commencement. 01/01/2009

Proposed completion of site investigation. 06/30/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/30/2026

Proposed date of completion of Remediation. 06/30/2027

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

This Form is being submitted to meet quarterly reporting requirements.

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

Signed: Lauren Glazier

Title: Consultant

Submit Date: 02/24/2026

Email: lglazier@cgrs.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: Nikki Graber

Date: 04/30/2026

Remediation Project Number: 9066

COA Type**Description**

	ECMC has processed this form as an update without technical review; no data was attached thus approval of this form does not imply any agreement with comments on completion of site investigation or alteration of site plan. All ongoing/unaddressed comments/COAs from previous Forms remain applicable. Operator shall not delay execution of remedial or investigative actions while waiting for ECMC approval and may request expedited review if necessary.
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1 COA

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**

404555714	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404641899	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)