

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

Document Number:

403755053

Receive Date:

04/15/2024

Report taken by:

Krystal Heibel

## Site Investigation and Remediation Workplan (Initial 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
Address: 1165 DELAWARE STREET #200		Phone: (303) 726-8650
City: DENVER	State: CO	Zip: 80204
Contact Person: Steve James	Email: steve@westernoperating.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 35132 Initial Form 27 Document #: 403755053

## 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: PIT	Facility ID: 101089	API #: _____	County Name: MORGAN
Facility Name: SAND RIVER UNIT	Latitude: 40.023513	Longitude: -103.635510	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 27	Twp: 1N	Range: 56W Meridian: 6 Sensitive Area? No

Facility Type: PIT	Facility ID: 101090	API #: _____	County Name: MORGAN
Facility Name: SAND RIVER UNIT	Latitude: 40.023645	Longitude: -103.635092	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SENW	Sec: 27	Twp: 1N	Range: 56W Meridian: 6 Sensitive Area? No

Facility Type: PIT		Facility ID: 101091		API #:		County Name: MORGAN	
Facility Name: SAND RIVER UNIT				Latitude: 40.024854		Longitude: -103.634553	
** correct Lat/Long if needed: Latitude:                      Longitude:							
QtrQtr: SENW	Sec: 27	Twp: 1N	Range: 56W	Meridian: 6	Sensitive Area? No		

  

Facility Type: PIT		Facility ID: 116880		API #:		County Name: MORGAN	
Facility Name: PETERSON 1,2,4,5,6,9,11,13,15				Latitude: 40.023117		Longitude: -103.634838	
** correct Lat/Long if needed: Latitude:                      Longitude:							
QtrQtr: NWSW	Sec: 27	Twp: 1N	Range: 56W	Meridian: 6	Sensitive Area? No		

## **SITE CONDITIONS**

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

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**

The Sand River Unit (Location ID: 313654) is surrounded by rangeland. There are no water well permits, residences, or occupied buildings mapped within over a mile of the Site. Livestock grazes within a quarter mile of the Site. Groundwater depth is unknown, but DWR permit 32474, approximately 1.5 miles east northeast of the pit, reported a static water level of 80 feet below ground surface (ft-bgs) at the time of completion. A freshwater emergent wetland is mapped approximately 0.68 mile north of the pit, there is no other surface water or wetlands mapped within a mile of the Site. The Site is mapped within Mule Deer Severe Winter Range Rule 1202.d Density Habitat (effective Nov. 30, 2023). There are no additional sensitive areas or wildlife habitats identified within a mile of the wellhead.

# 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	No known impacts	Investigation pending

## INITIAL ACTION SUMMARY

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

This Form 27 Initial is being submitted in response to Field Inspection Form 709100239 identifying active pits on location that have been decommissioned. Based on historical aerial imagery, the pits were decommissioned between 2009 and 2011 without a Form 27 Site Investigation and Remediation Workplan.

Western Operating proposes to conduct remedial investigation at the former Sand River Unit location (Site). Western Operating will conduct site investigation activities, field screening, and confirmation soil sampling at the Site. Discreet soil samples and, if necessary, one groundwater sample will be collected and analyzed pursuant to Rule 915, following the general sample collection guidance in Rule 915.e.(2) and Rule 915.e.(3). All waste generated during the closure activities will be managed and disposed of in accordance with Rules 905 and 906. See the attached Figure 1 for a topographic location map.

## 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 ):

At least twelve soil borings will be conducted to collect confirmation soil samples in the area of the former pits. Four soil borings will be placed within the approximately floors of the three former pits and advanced to at least 5 ft-bgs to investigate the vertical extent of potential soil impacts remaining underneath the former pits. These samples will be submitted for full table 915-1 analysis. At least eight soil borings will be placed underneath the former containment berms in the cardinal directions of the former pit and investigate the horizontal extents for potential soil impacts at 3 ft-bgs. These samples will be submitted for analysis of EC, SAR, pH, boron and Table 915-1 metals only. If analytical results from floor samples reports detections of organic constituents, the berm/horizontal extent sample analysis will be expanded to include Table 915-1 organic constituents. See the attached Figure 2 for Proposed Soil Sampling Location Diagram

### Proposed Groundwater Sampling

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

If groundwater is encountered during decommissioning and/or abandonment activities, a grab sample will be collected as soon as practical. If contaminated soil is in contact with groundwater or if free product/hydrocarbon sheen are observed, the release will be reported in accordance with Rule 912.b. Groundwater samples will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Method 8260.

### 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 ):

Per Field Inspection Form 709100239, ECMC field inspector suspected "evidence of a produced water spill/salt kill was observed west and down gradient of the former pits. Operator shall submit a Form 19 Initial to NE EPS." Based on phone correspondence with Krystal Heibel on 3/18/2024, Western Operating requests to conduct investigation and collect confirmation soil samples prior to required reporting the suspected salt kill as a release. If a spill/release of greater than 10 cubic yards is indicated by laboratory results from the above and below proposed confirmation soil sampling work plan, a Form 19 Spill/Release Report will be submitted at that time.

Western Operating proposes to conduct at least four soil borings in the area of potential salt staining in order to investigate the potential and extents of a spill/release. Samples will be collected from surface soils (0.5 ft-bgs) and 2 ft-bgs and submitted for full table 915-1 analysis. See the attached Figure 2.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected \_\_\_\_\_ 0

Number of soil samples exceeding 915-1 \_\_\_\_\_

Was the areal and vertical extent of soil contamination delineated? \_\_\_\_\_

Approximate areal extent (square feet) \_\_\_\_\_

### NA / ND

\_\_\_\_\_ Highest concentration of TPH (mg/kg) \_\_\_\_\_

\_\_\_\_\_ Highest concentration of SAR \_\_\_\_\_

\_\_\_\_\_ BTEX > 915-1 \_\_\_\_\_

\_\_\_\_\_ Vertical Extent > 915-1 (in feet) \_\_\_\_\_

### 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?

☐ 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

### SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

If a suspected release is identified through soil screening and/or laboratory analysis, soils may be removed and transported to a licensed disposal facility. If all source material cannot be removed during excavation activities, alternative plans will be proposed in subsequent Form 27 supplemental.

### 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 remediation or closure plan will be developed based on the results of the confirmation soil sampling investigation.

### 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.

## 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&amp;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.

Western Operating has \$5,000,000 in liability insurance and is currently adequately bonded.

Operator anticipates the remaining cost for this project to be: \$ 2000

### 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: \_\_\_\_\_

# 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.

Initial investigation activities proposed above will be conducted with hand tools to minimize any potential impact to previous reclamation efforts. If necessary, any invasive activities will be reclaimed in accordance with COGCC 1000-Series Rules.

Is the described reclamation complete? \_\_\_\_\_

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. \_\_\_\_\_

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

## **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 04/15/2024

Proposed site investigation commencement. \_\_\_\_\_

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

This Form 27 Initial is being submitted in response to Field Inspection Form 709100239 identifying active pits on location that have been decommissioned. Based on historical aerial imagery, the pits were decommissioned between 2009 and 2011 without a Form 27 Site Investigation and Remediation Workplan. Four pits are listed as active at or around this Location ID, however, historical aerial imagery only indicates three distinct pits were at this location. Pit ID 101091 is suspected to be a duplicate of Pit ID: 116880.

Western Operating Company proposes to conduct a soil boring investigation at the footprint of the former pit location and collect confirmation soil samples to compare soil quality against ECMC Table 915-1 standards. Please see Proposed Soil Sampling section above for additional details.

Western Operating proposes to conduct at least four soil borings in the area of potential salt staining in order to investigate the potential and extents of a spill/release. Samples will be collected from surface soils (0.5 ft-bgs) and 2 ft-bgs and submitted for full table 915-1 analysis. If a spill/release of greater than 10 cubic yards is indicated by laboratory results from the proposed confirmation soil sampling work plan, a Form 19 Spill/Release Report will be submitted at that time.

Results of remedial investigation activities, as well as a proposed remedial action plan if necessary, will be provided in a subsequent Form 27 Supplemental.

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

Signed: Ryan Finley

Title: Senior Project Geologist

Submit Date: 04/15/2024

Email: rfinley@entradainc.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: Krystal Heibel

Date: 04/26/2024

Remediation Project Number: 35132

## COA Type

## Description

	Operator shall fully populate the implementation schedule in accordance with Rule 913.d on the subsequent Supplemental Form 27.
	Operator shall provide documentation or evidence to suppose the claim that Pit ID 101091 is a duplicate of Pit ID: 116880 within the subsequent submittal.
	Operator shall conduct a closure investigation in accordance with Rule 911.c. Pit Closure Guidance Document.
	In accordance with Rule 913.e.(3), Operator will adopt a quarterly reporting schedule (every 90 days).  ECMC selected Quarterly under Remediation Progress Update.
	Operator shall collect confirmation soil samples as described in the Rule 915.e.(2) Guidance Document. Operator 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)).  All soil samples taken to characterize the site shall be analyzed for full Table 915-1 analytes.
	If groundwater is encountered, Operator will analyze groundwater samples for Table 915-1 Groundwater Inorganic Parameters (total dissolved solids, sulfate, chloride) and organic compounds in groundwater.
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

403755053	FORM 27-INITIAL-SUBMITTED
403755054	MAP

Total Attach: 3 Files

**General Comments**

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

Total: 0 comment(s)