

State of Colorado
Energy & Carbon Management Commission

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Document Number:
403286923
Receive Date:
03/27/2024

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: WESTERN OPERATING COMPANY	Operator No: 95620	Phone Numbers Phone: (303) 726-8650 Mobile: ()
Address: 1165 DELAWARE STREET #200		
City: DENVER	State: CO	Zip: 80204
Contact Person: Steve James	Email: steve@westernoperating.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20886 Initial Form 27 Document #: 402869407

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: WELL	Facility ID: _____	API #: 125-08303	County Name: YUMA
Facility Name: MANSFIELD 24-1	Latitude: 39.775430	Longitude: -102.250250	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 24	Twp: 3S	Range: 44W Meridian: 6 Sensitive Area? No

Facility Type: LOCATION	Facility ID: 304360	API #: _____	County Name: YUMA
Facility Name: MANSFIELD-63S44W 24SESW	Latitude: 39.775413	Longitude: -102.250217	
** correct Lat/Long if needed: Latitude: 39.775412		Longitude: -102.250157	
QtrQtr: SESW	Sec: 24	Twp: 3S	Range: 44W 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? Yes

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

The Mansfield wellhead and produced water tank share a location and is surrounded by vacant land in all directions. There are no residences within a quarter mile of the Site. There are no groundwater well permits mapped within a quarter mile of the Site. Groundwater depth is unknown, but groundwater permit 23419 approximately 0.64 miles southwest of the Site, reported a static water level of 22 feet below ground surface (ft-bgs) at the time of completion. Jack's Gulch, an ephemeral drainage, is mapped approximately 0.15 miles southeast of the Site. The Site is mapped within a Mule Deer Severe Winter Range buffer. An Aquatic Native Species Conservation Waters buffer is mapped approximately 250 southeast of the Site. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the Site.

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
Yes	SOILS	20x20x1	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.

Western Operating proposes to plug and abandon (P&A), and conduct closure, of the Mansfield 24-1 well and produced water tank. The produced water tank is a 200 BBI fiberglass partially buried tank. Plugging and abandonment of the well will likely occur in January of 2022. Cut and cap and facility closure activities are planned to commence and be completed approximately 8 days after P&A activities are complete. Western Operating will conduct site investigation activities, field screening, and confirmation soil sampling activities during closure in accordance with COGCC 900 Series Rules. Discreet soil samples and, if necessary, groundwater samples, 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 an illustration of the location of the Site.

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):

A minimum of ten discreet soil samples will be collected for field screening. At minimum, three samples will be submitted to an accredited laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and Gasoline Range Organics (GRO) [C6-C10] by EPA Method 8260 and for Diesel Range Organics (DRO) [C10-C28] and Residual Range Organics (RRO) [C28-C40] by EPA Method 8015. Analytical results for GRO, DRO, and RRO will be added together to calculate Total Petroleum Hydrocarbons (TPH). The sample collected from the floor of the produced water tank excavation and sidewall of the wellhead excavation will also be analyzed for the Soil Suitability for Reclamation parameters: Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), pH by Saturated Paste Method, and boron by Hot Water-Soluble Soil Extract Method. See the attached Figure 2 for an illustration of the proposed discreet soil sample locations

Proposed Groundwater Sampling

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

If needed, groundwater samples will be collected for analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 14
Number of soil samples exceeding 915-1 1
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 400

NA / ND

ND Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 5.12
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 4

Groundwater

Number of groundwater samples collected 0
Was extent of groundwater contaminated delineated? Yes
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?

Seven site-specific background soil samples were collected from four locations (BG01-BG04) from approximately 3 and 5 feet below ground surface (ft-bgs) in areas away from oil and gas infrastructure and submitted for analysis of EC, SAR, pH, boron, and 915 metals by ECMC approved methods. The highest result for background pH levels (8.79) was utilized as the upper threshold of pH. Background results for arsenic and barium were averaged and multiplied by 1.25 to set site specific background limits of 1.09mg/kg and 233mg/kg respectively. All confirmation soil samples were below background limits for pH, arsenic and barium.

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? No

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

No organic compounds were detected through field-screening or laboratory analysis during the investigation. Analytical results for confirmation soil sample PWV-SS1@4 reported an EC level (4.15 mmhos/cm) above Table 915-1 limits. Excavation was conducted and compliant confirmation soil sample was collected from the floor of the excavation (PWV-SS6@5). In total, approximately 6 cubic yards of presumably impacted soil was excavated from 4-5 ft-bgs and hauled offsite for disposal to Pawnee Waste, LLC. in accordance with ECMC Rules 905 and 906. The remaining soil from the PWV and wellhead excavations was stockpiled onsite and confirmation soil sample C01 was collected to demonstrate the material is not impacted. All other confirmation soil sample results were compliant with Table 915-1 and background limits.

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.

Based on site investigation activities and laboratory analytical results for confirmation soil samples, a remediation plan is not needed.

Soil Remediation Summary

In Situ

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

Ex Situ

- Yes Excavate and offsite disposal
- If Yes: Estimated Volume (Cubic Yards) _____ 6
- 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.

Groundwater was not encountered during excavation of the wellhead for cut and cap activities or flowline removal.

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.

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? 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.

Following facility closure activities, the location was backfilled, compacted, and re-contoured to match pre-existing conditions. The location will be reclaimed in accordance with the ECMC 1000 series.

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. 10/20/2021

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/12/2022

Proposed site investigation commencement. 10/27/2022

Proposed completion of site investigation. 11/22/2023

REMEDIAL ACTION DATES

Proposed start date of Remediation. 11/22/2023

Proposed date of completion of Remediation. 11/22/2023

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

Facility closure activities and confirmation soil sampling was conducted at the Mansfield 24-1 Wellhead and production facility on October 27, 2022, and November 22, 2023. Five discrete soil samples were collected from the floor and sidewalls in each cardinal direction from the wellhead, five discrete soil samples were collected from the floor and sidewalls of the produced water vessel (PWV), a sample was collected from underneath the former separator riser, and a sample was collected from underneath a meter shed. All samples were field screened using a photo-ionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene gas. All soil samples screened with a PID resulted in readings of 0.8 ppm.

A total of 5 initial investigation confirmation soil samples were submitted for laboratory analysis. Soil samples were collected from the floor of the wellhead excavation (WELL-SS1@5), from a sidewall adjacent to the wellhead flowline riser (WELL-SS2@3), from underneath the separator flowline riser (SEP01@3), from the floor of the PWV excavation (PWV-SS1@4), and from a sidewall adjacent to the dumpline riser (PWV-SS2@3). Per approved Form 27 Initial Document 402869407, all confirmation soil samples were submitted to Summit Scientific (Summit) in Golden, Colorado for analysis benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and TPH. The samples collected from the floor of the produced water tank excavation and sidewall of the wellhead excavation will also be analyzed for Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), pH, and boron.

Confirmation soil sample PWV-SS1@4 reported EC exceedances above Table 915-1 and background levels. Excavation was conducted and compliant confirmation soil sample was collected from the floor of the excavation (PWV-SS6@5). Due to the detection of an exceedance, all confirmation samples collected on 10/27/2022 were recollected (WELL-SS1R@5, WELL-SS2R@3, SEP01R@3, and PWV-SS2R@3) and analyzed for the remaining Table 915-1 constituents. Additionally, at the remaining PWV sidewalls, field-screening samples were recollected (PWV-SS3R@3, PWV-SS4R@3, and PWV-SS5R@3) and submitted for analysis of full Table 915-1. All final confirmation soil samples were compliant with Table 915-1 Protection of Groundwater Soil Screening Limits and site-specific background limits.

A general location map is provided as Figure 1. Sample location information is provided in Table 1. Soil sample and field screening locations are presented on Figure 2, and analytical results are summarized in Table 2 Table 3 and Table 4. A photo log and the laboratory analytical reports are also attached.

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: 03/27/2024

Email: rfinley@entradainc.com

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

ECMC Approved: Krystal Heibel

Date: 05/29/2024

Remediation Project Number: 20886

COA Type

Description

<u>COA Type</u>	<u>Description</u>
0 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.

<u>Att Doc Num</u>	<u>Name</u>
403286923	FORM 27-SUPPLEMENTAL-SUBMITTED
403733601	MAP
403733602	SOIL SAMPLE LOCATION MAP
403733603	ANALYTICAL RESULTS
403733607	PHOTO DOCUMENTATION
403733615	ANALYTICAL RESULTS

Total Attach: 6 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>Based on the information presented, it appears that no further action is necessary at this time and the ECMC approves the closure request. However, if 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.</p> <p>The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.</p>	05/29/2024
Environmental	Based on the Operator's assessment of background conditions at the subject location, arsenic results for confirmation soil samples appear to be representative of background as opposed to E&P activities. Therefore, the Operator's demonstration of background will be accepted as an alternative to the default standard in ECMC's Table 915-1.	05/29/2024
Environmental	Based on the information presented, it appears the elevated pH sample from the produced water vessel area appears to be de minimis in quantity or within the range of background pH; therefore, elevated pH may not be associated with E&P activities.	05/29/2024
Environmental	Per Doc# 402869407, a reduced analyte suite was approved consisting of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and Gasoline Range Organics (GRO) [C6-C10] by EPA Method 8260 and for Diesel Range Organics (DRO) [C10-C28] and Residual Range Organics (RRO) [C28-C40] by EPA Method 8015, Soil Suitability for Reclamation parameters; Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), pH by Saturated Paste Method, and boron by Hot Water-Soluble Soil Extract Method.	05/29/2024

Total: 4 comment(s)