

# State of Colorado Energy & Carbon Management Commission

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Document Number:

403498700

Receive Date:

08/16/2023

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

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 31142 Initial Form 27 Document #: 403498700

#### 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>WELL</u>	Facility ID: _____	API #: <u>075-08097</u>	County Name: <u>LOGAN</u>
Facility Name: <u>EMERALD 6-34</u>		Latitude: <u>40.715480</u>	Longitude: <u>-103.390850</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>NWNE</u>	Sec: <u>34</u>	Twp: <u>9N</u>	Range: <u>54W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

  

Facility Type: <u>LOCATION</u>	Facility ID: <u>312255</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>EMERALD-69N54W 34NWNE</u>		Latitude: <u>40.715480</u>	Longitude: <u>-103.390850</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>NWNE</u>	Sec: <u>34</u>	Twp: <u>9N</u>	Range: <u>54W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

## **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 Emerald #6-34 wellhead is surrounded by vacant land in all directions. There are no residences within a quarter mile of the wellhead. There are no domestic well permits mapped within a quarter mile of the wellhead. Groundwater depth is unknown, but groundwater permit 113822 approximately 0.37 miles northeast of the wellhead, reported a static water level of 330 feet below ground surface (ft-bgs) at the time of completion. There is no surface water mapped within a quarter. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the wellhead. See Figure 1 for a Topographic Location Map.

# 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.

Western Operating proposes to plug and abandon (P&A) the Emerald #6-34 well. Plugging and abandonment of the well will occur in Summer to Fall 2023. Cut and cap activities are planned to commence and be completed approximately 10 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, 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 ):

Soil samples will be collected from the surface in cardinal directions of the wellhead, as defined in Rule 911.a.(4) guidance document (9/20/21), for field screening purposes. Discrete soil samples will be collected for laboratory analysis either in any area of observed hydrocarbon impacts, or adjacent to the cut and capped wellhead from native material and below the wellhead and separator flowline risers. Soil samples will be submitted for laboratory analysis of BTEXN, TMBs, PAHs, TPH (C6-C36), pH, EC, SAR, and boron by COGCC approved methods. See the attached Figure 2 for an illustration of the wellhead and proposed soil sample locations

### 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. Grab 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 ):

Western Operating will either remove the flowline or abandon in place with landowner agreement. Assessments will be conducted during the decommissioning of the off-location flowline (~2,450 feet in length) approximately every 250 feet. Soils will be field screened below the flowline and if suspected impacts are observed, a soil sample will be collected for an initial assessment and submitted for laboratory analysis of BTEXN, TMB's, PAH's, and TPH (C6-C36). Laboratory soil samples will be collected at significant direction changes, and in close proximity to sensitive habitats, such as wetlands, surface water crossings, and HPH boundaries. These samples will be submitted for analysis of BTEXN, TMB's, PAH's and TPH (C6-C36). If analytical results indicate the presence of organic compound concentrations, the sample will be analyzed for the full Table 915-1 suite. See the attached Figure 3 for an illustration of the flowline alignment and proposed soil sample locations.

# 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.

Any hydrocarbon impacted material will be transported off-site to a licensed disposal facility in accordance with Rules 905 and 906.

### **REMEDATION 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.

If reportable hydrocarbon impacts, as defined in Rule 912.b., are discovered, a site-specific remediation plan will be developed and submitted via a Supplemental Form 27. If reportable impacts are not encountered, a Supplemental Form 27 closure request will be submitted within 90 days of abandonment and/or decommissioning activities.

### **Soil Remediation Summary**

☐ In Situ

☐ Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC 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&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: \$ 5000

### 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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC 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.

Reclamation will be conducted in accordance with COGCC 1004 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. 07/31/2023

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

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 08/16/2023

Proposed site investigation commencement. 08/28/2023

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 serves as notification for the abandonment of the Emerald 6-34 wellhead and the associated flowline. Abandonment activities are planned to begin the week of August 28, 2023. This schedule may be adjusted due to unforeseen circumstances, delays, and/or changes in weather. GPS data will be collected for all soil sample locations.

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: 08/16/2023

Email: rfinley@entradainc.com

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

COGCC Approved: Krystal Heibel

Date: 08/25/2023

Remediation Project Number: 31142

**COA Type****Description**

	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.
	Operator will submit a Form 42 for pre-abandonment notice pursuant to Rule 1105.d. A Form 42 will be filed prior to starting flowline abandonment, and will be included in the Related Forms in a supplemental Form 27. Abandonment will occur per the requirements of Rule 1105. During flowline abandonment, any liquids evacuated from the flowline will be contained and disposed per the requirements of Rule 905. Note: Approval of this Form 27 does not imply approval of pre-abandonment required by Rule 1105.d.
	On the Supplemental Form 27 following on-location flowline abandonment, Operator shall provide the associated Form 42 – Abandonment of Flowlines Verification Report document number required by Rule 1105.f.(1).
	In accordance with Rule 913.e.(3), Operator will adopt a quarterly reporting schedule. 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)).
5 COAs	

**Attachment Check 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**

403498700	INVESTIGATION/REMEDATION WORKPLAN (INITIAL)
403498727	SITE MAP
403498728	MAP
403498729	MAP
403509691	FORM 27-INITIAL-SUBMITTED

Total Attach: 5 Files

**General Comments**



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

Total: 0 comment(s)