

State of Colorado  
Energy & Carbon Management Commission1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
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Document Number:

403961432

Receive Date:

10/25/2024

Report taken by:

Kari Brown

## 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: PDC ENERGY INC	Operator No: 69175	Phone Numbers Phone: (970) 313-5582 Mobile: ( )
Address: 1099 18TH STREET SUITE 1500		
City: DENVER	State: CO Zip: 80202	
Contact Person: Karen Olson	Email: karen.olson@chevron.com	

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 32453 Initial Form 27 Document #: 403580972

## 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: LOCATION	Facility ID: 446742	API #: _____	County Name: WELD
Facility Name: MDM Tank Battery 435363		Latitude: 40.134794	Longitude: -104.967770
		** correct Lat/Long if needed: Latitude: 40.134794	Longitude: -104.967862
QtrQtr: SWSE	Sec: 14	Twp: 2N	Range: 6W Meridian: 6 Sensitive Area? Yes

## SITE CONDITIONS

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

Is domestic water well within 1/4 mile? Yes Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

**Other Potential Receptors within 1/4 mile**

Nearest Well: Stock - 586' SSW; Surface Water: Unnamed Creek - 128' NNE; Occupied Building: 251' SSW; Livestock: 205' SSW; FWS Wetlands: 118' NNE  
Freshwater Emergent Wetland (PEM1A); Tank Battery Within 100-Year Floodplain .

**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	GROUNDWATER	NA	Lab Analysis or Field Screening, if encountered
Yes	SOILS	Refer to Tables and Figures	Lab Analysis and Field Screening

**INITIAL ACTION SUMMARY**

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

In accordance with ECMC Rule 911, this form serves as notification for the decommissioning and abandonment of the MDM 33, 34-14 Tank Battery. The ground and sub-surfaces were visually inspected for hydrocarbon impacts during equipment decommissioning. In addition, on-site dump lines located between the separator and tank battery were removed by pulling from either end during decommissioning activities. Field observations and photo documentation was recorded in a field inspection form for submittal to the ECMC.

**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 ):

Grab soil samples were collected below and/or adjacent to applicable facility equipment, as defined in the Rule 911.a.(4) guidance document (9/20/21), for field screening purposes. Discrete soil samples were collected for laboratory analysis either in any area of observed hydrocarbon impacts, or in the sample locations designated by the ECMC. Soil samples were submitted for laboratory analysis of the full Table 915-1 analytical suite by ECMC approved methods. See the attached Figure 2 for an illustration of the facility layout and 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. Groundwater samples will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260, chloride and sulfate anions by EPA Method 300.0, and total dissolved solids (TDS) by Method SM 2540C.

**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 ):

Discrete soil samples were collected from the base of the produced water vessel excavation and excavation sidewall in areas most likely to be impacted and exhibiting the highest field screened VOC concentration. The soil samples were submitted for laboratory analysis of the full Table 915-1 analytical suite by ECMC approved methods. Assessment of off location flowlines will be addressed with their respective wellheads under a separate Form 27. A detailed summary of decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, is attached to this Form 27.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 10

Number of soil samples exceeding 915-1 10

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

Approximate areal extent (square feet) 600

### NA / ND

-- Highest concentration of TPH (mg/kg) 3400

-- Highest concentration of SAR 6.87

BTEX > 915-1 Yes

Vertical Extent > 915-1 (in feet) 5

### 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?

Four background samples were collected from one discrete location near the tank battery (BKG01) from depths ranging between 0-0.5 to 5 feet below ground surface (ft. bgs.) and analyzed for full Table 915-1 analysis.

Benzo(a) anthracene, indeno(1,2,3-cd) pyrene, and pyrene were observed within the applicable Table 915-1 standards at 0-0.5', but above the laboratory minimum detection limit. The analytical results of this background sample will not be used and additional background soil samples will be collected to assess table 915-1 constituents in native soil.

☐ 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?

A supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the ethyl-benzene, xylenes, 124-TMB, 1,3,5-TMB, naphthalene, TPH, 1-Methylnaphthalene (M), and 2-M exceedances observed during decommissioning. A proposed SSI map is attached to this Form 27. During the SSI, soil samples will be collected and analyzed for full ECMC Table 915-1 constituents. Concurrently with the SSI, additional background samples will be collected to determine if pH, arsenic, and barium are attributed to native soil conditions at the site. The SSI will be completed in accordance with the proposed implementation schedule, and the results of the SSI will be submitted on a subsequent Form 27.

## 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.

Refer to the Remediation Summary section below.

## REMEDIAL ACTION 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 supplemental site investigation (SSI) will be completed to vertically and horizontally delineate the ethyl-benzene, xylenes, 124-TMB, 1,3,5-TMB, naphthalene, TPH, 1-Methylnaphthalene (M), and 2-M exceedances observed during decommissioning at the waste characterization sample WC01, and decommissioning soil sample PWV01-B. The SSI will proceed in accordance with the attached proposed site investigation map, and proposed sampling plan outlined in the Site Investigation report section of this Form 27.

## Soil Remediation Summary

☐ In Situ

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

☐ Ex Situ

\_\_\_\_\_ 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&M Report☒ Other Decommissioning Sample Summary & Supplemental Site Investigation Proposal.

### 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 does not have site-specific financial assurance for this project; however, Operator has inactive well, blanket, and surface bonding including Surety IDs 106077122, 106473808, and 106473820, as well as commercial general liability and/or umbrella/excess insurance meeting the requirements of Rule 705.b. Operator does not anticipate making an insurance claim for this project.

- Further soil investigation/delineation is required

Costs included herein are estimates only and may change over time based on numerous factors. Accordingly, Operator makes no guarantees as to the accuracy of such cost estimates, thus providing an estimate for the next year below.

Operator anticipates the remaining cost for this project to be: \$ 50000

### 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? 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.

Reclamation will be conducted in accordance with ECMC 1000 Series Rules.

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

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. 10/16/2024

Proposed date of completion of Reclamation. 01/25/2027

## 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. 09/16/2023

Actual Spill or Release date, or date of discovery. 10/17/2024

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/16/2024

Proposed site investigation commencement. 10/24/2024

Proposed completion of site investigation. 07/24/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/24/2025

Proposed date of completion of Remediation. 07/24/2026

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:

The implementation schedule has been changed due to the decommissioning of the MDM 33, 34-14 Tank Battery and necessity for supplemental site investigation activities adjacent to the tank battery. The proposed site investigation will be completed following the approval of this form, landowner negotiations, and crew availability.

**OPERATOR COMMENT**

This Form 27 is being submitted to include the decommissioning results and historic reportable release discovered at the former MDM 33, 34-14 Tank Battery location. A proposal to delineate the ethyl-benzene, xylenes, 124-TMB, 1,3,5-TMB, naphthalene, TPH, 1-Methylnaphthalene (M), and 2-M exceedances identified during decommissioning (soil samples WC01, PWV01-W) is presented in the Site Investigation Report section of this Form 27.

Concurrently with the SSI, additional background samples will be collected to determine if pH, arsenic, and barium are attributed to native soil conditions at the site.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. The results of the supplemental site investigation will be submitted on a subsequent Form 27.

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

Signed: Jake Whritenour

Title: Environmental Consultant

Submit Date: 10/25/2024

Email: tas-chevron-1@tasman-geo.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: Kari Brown

Date: 01/23/2025

Remediation Project Number: 32453

**COA Type****Description**

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.

**Att Doc Num****Name**

403961432	FORM 27-SUPPLEMENTAL-SUBMITTED
403969603	ANALYTICAL RESULTS
403969604	ANALYTICAL RESULTS
403969608	SITE INVESTIGATION PLAN
403969611	OTHER

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)