

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

403943634

Receive Date:

10/09/2024

Report taken by:

RICK ALLISON

## 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 ECOM 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
Address: 1099 18TH STREET SUITE 1500		Phone: (303) 316-6106
City: DENVER	State: CO	Zip: 80202
Contact Person: Karen Olson	Email: karen.olson@chevron.com	Mobile: ( )

## PROJECT, PURPOSE &amp; SITE INFORMATION

## PROJECT INFORMATION

Remediation Project #: 36910 Initial Form 27 Document #: 403907832

## 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: LOCATION	Facility ID: 426441	API #: _____	County Name: WELD
Facility Name: Moss 14-16H Pad	Latitude: 40.568870	Longitude: -104.676790	
** correct Lat/Long if needed: Latitude: 40.567536		Longitude: -104.676282	
QtrQtr: SWSW	Sec: 16	Twp: 7N	Range: 65W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 488137	API #: _____	County Name: WELD
Facility Name: Former Moss 14-16H	Latitude: 40.567597	Longitude: -104.676410	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSW	Sec: 16	Twp: 7N	Range: 65W Meridian: 6 Sensitive Area? Yes

Facility Type: <u>SPILL OR RELEASE</u>		Facility ID: <u>488138</u>		API #: _____		County Name: <u>WELD</u>	
Facility Name: <u>Former Moss 14-16H</u>				Latitude: <u>40.567589</u>		Longitude: <u>-104.676356</u>	
** correct Lat/Long if needed: Latitude: _____				Longitude: _____			
QtrQtr: <u>SWSW</u>	Sec: <u>16</u>	Twp: <u>7N</u>	Range: <u>65W</u>	Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

Facility Type: <u>SPILL OR RELEASE</u>		Facility ID: <u>488140</u>		API #: _____		County Name: <u>WELD</u>	
Facility Name: <u>Former Moss 14-16H</u>				Latitude: <u>40.567589</u>		Longitude: <u>-104.676301</u>	
** correct Lat/Long if needed: Latitude: _____				Longitude: _____			
QtrQtr: <u>SWSW</u>	Sec: <u>16</u>	Twp: <u>7N</u>	Range: <u>65W</u>	Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>		

## **SITE CONDITIONS**

General soil type - USCS Classifications SP      Most Sensitive Adjacent Land Use Cropland

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**

Residential 0.1mi SW, 0.1/0.24mi W, 0.07mi NW, 0.16mi E  
 Farm Structure 0.1/0.11mi SW, 0.09/0.13mi W, 0.09mi NW, 0.16/0.18/0.2/0.23mi E

## 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	GROUNDWATER	Refer to Tables and Figures	Lab Analysis and Field Screening
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.

A site investigation was conducted pursuant to ECMC Rule 911 at the Moss 14-16H Facility and Tank Battery location.

### 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 confirmation soil samples were collected from the produced water vessel(s) excavation, beneath the ground oil tank(s), at the risers for the flowline (s) and dumpline(s) of any separator(s). In addition, the on-site dump lines located between the separator and tank battery were removed by pulling from either end. Soil samples were analyzed by a certified laboratory for the full extent of Table 915-1, including but not limited to: TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons) organic compounds in soil per ECMC Table 915-1, and EC, SAR, pH, metals, and boron. All samples collected were analyzed by a certified laboratory using approved ECMC laboratory analysis methods.

#### Proposed Groundwater Sampling

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

Groundwater was encountered during the site investigation, and one grab groundwater samples (GW01; 07/25/24) was collected and analyzed for all organic and inorganic compounds per ECMC Table 915-1; this sample analysis includes BTEX, naphthalene, 1,2,4- trimethylbenzene (TMB), and 1,3,5-TMB 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 ):

Visual inspection at the tank battery area will occur during abandonment activities. Field personnel will field screen all disturbed areas using visual and olfactory senses. Additionally, discrete soil samples will be collected from the base of the excavation and excavation sidewall in areas most likely to be impacted and exhibiting the highest field screened VOC concentration. 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

NA / ND

Number of soil samples collected 13

ND Highest concentration of TPH (mg/kg)

Number of soil samples exceeding 915-1 13

-- Highest concentration of SAR 0.74

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

BTEX > 915-1 No

Approximate areal extent (square feet) 700

Vertical Extent > 915-1 (in feet) 6

#### Groundwater

Number of groundwater samples collected 1

ND Highest concentration of Benzene (µg/l)

Was extent of groundwater contaminated delineated? Yes

ND Highest concentration of Toluene (µg/l)

Depth to groundwater (below ground surface, in feet) 5

ND Highest concentration of Ethylbenzene (µg/l)

Number of groundwater monitoring wells installed 0

ND Highest concentration of Xylene (µg/l)

Number of groundwater samples exceeding 915-1 0

NA 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?

Five background soil samples were collected near the tank battery and analyzed for metals in soil per ECMC Table 915-1, pH, SAR, EC, and boron. Background soil samples were collected from depths ranging between 0-0.5 to 6 feet below ground surface (ft bgs).

☐ 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?

Concurrently with the remedial excavation that is proposed in the Remedial Action Plan section of this Form 27, background soil samples will be collected to determine if pH and lead exceedances are attributed to native soil conditions at the site. Proposed background soil sample locations will be shared with the Moss 14-16H Flowline and Wellhead investigation (Remediation # 36130) and are shown on the attached proposed soil boring location map.

### 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.

The benzo(a)anthracene exceedances observed at sample locations (AST01@0-6", AST02@0-6", and PWV01-B@4') will be removed through a remedial excavation.

#### 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.

Remedial excavation confirmation samples will be collected for full ECMC Table 915-1 suite of analysis.

#### 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

Name of Licensed Disposal Facility or ECMC Facility ID #

Natural Attenuation

Excavate and onsite remediation

Other \_\_\_\_\_

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 encountered and sampled at the flowline separator riser (FL01R-S@5') location (GW01@5' on 7/25/2024) during the associated Moss 14-16H flowline decommissioning. The flowline separator riser location will be managed with the flowline and wellhead remediation (Remediation #36130).

## 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 Source Mass Removal & 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
- Soil source removal 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? 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.

Reclamation will be 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. 07/25/2024

Proposed date of completion of Reclamation. 10/09/2026

## 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. 06/20/2024

Actual Spill or Release date, or date of discovery. 10/02/2024

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/25/2024

Proposed site investigation commencement. 10/09/2024

Proposed completion of site investigation. 04/09/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/09/2025

Proposed date of completion of Remediation. 04/09/2026

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 Moss 14-16H tank battery and necessity for remedial excavation activities adjacent to the tank battery. The proposed remedial excavation 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 Moss 14-16H Tank Battery location. A proposal to excavate the benzo(a)anthracene exceedances identified during decommissioning (AST01@0-6", AST02@0-6", and PWV01-B@4') is presented in the Remedial Action Plan section of this Form 27.

Groundwater was encountered and sampled at the flowline separator riser (FL01R-S@5') location (GW01@5' on 7/25/2024) during the associated Moss 14-16H flowline decommissioning. The flowline separator riser location will be managed with the flowline and wellhead remediation (Remediation #36130), in accordance with approved Form 27 Document #403891295.

Quarterly reporting will be conducted until closure criteria are achieved for the remediation project. The results of the remedial excavation and background sampling 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: Allan Engelhardt

Title: Environmental Consultant

Submit Date: 10/09/2024

Email: tas-chevron-3@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: RICK ALLISON

Date: 12/26/2024

Remediation Project Number: 36910

## 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

403943634	INVESTIGATION/REMEDIATION WORKPLAN (SUPPLEMENTAL)
403950738	OTHER
403950746	OTHER
403950748	ANALYTICAL RESULTS
404040538	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 5 Files

## General Comments

### User Group

### Comment

### Comment Date

Environmental	Changed related Spill Facility ID from 487655 (well) to 488137,488138,488140 for Releases reported at tank battery investigated by this Remediation Project 36910.	12/26/2024
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Total: 1 comment(s)