

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

404066614

Receive Date:

02/04/2025

Report taken by:

Collin Metz

## 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) 860-5800
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 #: 31414 Initial Form 27 Document #: 403441996

## 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 #: 123-11231	County Name: WELD
Facility Name: SMITH-REEVES 27-1	Latitude: 40.368860	Longitude: -104.871750	
** correct Lat/Long if needed: Latitude: 40.368848		Longitude: -104.871767	
QtrQtr: NESE	Sec: 27	Twp: 5N	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE	Facility ID: 485885	API #: _____	County Name: WELD
Facility Name: Smith Reeves 27-1 Wellhead/Flowline	Latitude: 40.366002	Longitude: -104.870828	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESE	Sec: 27	Twp: 5N	Range: 67W 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? No

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: Monitoring / Sampling - 2,595' SW; Surface Water: Loveland and Greeley Canal - 644' SSW; Occupied Building: 737' ENE; Livestock: 658' ENE;  
FWS Wetlands: 644' SSW Riverine (R4SBCx); HPH Sensitive Wildlife Habitat: Rule 1202.d: Wellhead & Flowline Within Mule Deer Severe Winter Range.

Flowline Conflict: Wellhead & Flowline within Mule Deer Severe Winter Range.

# 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 Document No. 403698907	Confirmation Soil Sampling

## 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, a site investigation was conducted pertaining to the decommissioning and closure of the Smith-Reeves 27-1 wellhead and associated flowline. On 12/1/2023 the wellhead was cut and capped per ECMC rules. Field screening and confirmation samples were collected in accordance with ECMC Rule 911. Additionally, soil samples were field screened at the N-E-S-W sides of the wellhead. Flowline soil samples were taken along the flowline at any points of material change and/or hammer unions, directional changes, as well as at the bell holes on either side of a waterway. Based on analytical results, it was determined that a historic release was discovered along the flowline with organic exceedances at soil samples locations FL01-05, FL01-06, and FLR02 respectively. Due to subcontractor availability, excavation activities were unable to be initiated. As such, no soil was removed from the location. Initial findings were reported under ECMC Document No. 403665793 and assigned remediation #31414.

## 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 ):

On 12/1/2023, soil samples were collected per the approved soil sampling plan. Soil samples were collected below the wellhead and flowline riser (WH01 & FLR01) at approximately 4 ft and 6 ft bgs. Additionally, soil samples were collected every 250 ft along the flowline, at the halfway point, at significant directional changes, and at the separator flowline riser (FL01-01 through FL01-06 and FLR-02). Furthermore, soil samples were field screened N-E-S-W of the wellhead. Soil samples were analyzed by a certified laboratory using approved ECMC laboratory analysis methods for the full extent of 915-1, including EC, SAR, pH, metals, and boron.

### Proposed Groundwater Sampling

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

If groundwater is encountered during the site investigation, a grab groundwater sample will be collected and analyzed for all organic and inorganic compounds per ECMC Table 915-1. This sample analysis includes, but is not limited to: 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 of the wellhead and flowline areas occurred during abandonment/removal activities. During abandonment/removal activities, field personnel field screened disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling was required. Confirmation soil samples submitted for laboratory analysis were analyzed for full ECMC Table 915-1 constituents. A detailed summary of the wellhead and flowline decommissioning activities, including field notes, site photos, figures, and laboratory analytical results, was submitted as an attachment to Supplemental Form 27 Document No. 403698907.

Analytical results indicate that soil samples FL01-05, FL01-06, and FLR-02 exceed the Table 915-1 standards for benzo(a)anthracene. Additionally, lead exceedances were observed in WH01 and FLR01, cadmium exceedance in FLR01, selenium exceedance in FL01-06, and EC exceedance in FL01-03. The remaining soil samples were below their respective analytical values.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 6

Number of soil samples exceeding 915-1 6

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

Approximate areal extent (square feet) 600

### NA / ND

ND Highest concentration of TPH (mg/kg)

-- Highest concentration of SAR 3.1

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

### 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?

On 12/01/2023, two background soil samples (BKG01@4' and BKG01@6') were collected from native material topographically up-gradient of the wellhead location and submitted for laboratory analysis of ECOM Table 915-1 Metals, pH, and EC. Analytical results indicated that pH, arsenic and barium were observed in exceedance of the applicable regulatory standards in native material. The maximum background concentration for pH was observed to be 9.00. The maximum background concentrations with a 1.25x multiplier applied for arsenic and barium were calculated to be 1.34 mg/kg, 294 mg/kg, respectively.

☐ 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?

Based on laboratory analytical results, a mechanical excavation is proposed adjacent to and below FL01-05@4', FL01-06@4', & FLR02@4'. Confirmation soil samples will be collected from the base and sidewalls of the final excavation extents and submitted for laboratory analysis for the full ECOM Table 915-1 list of contaminants.

Concurrently with the remedial excavation a supplemental site investigation (SSI) is proposed in the Remedial Action Plan section of this Form 27. Background soil samples will be collected to determine if EC, cadmium, lead, and/or selenium are attributed to native soil conditions at the site. As such, five soil borings are proposed to vertically and horizontally delineate the cadmium & lead exceedances observed in soil samples WH01@6' & FLR01@4'. An additional five borings will be advanced in the vicinity of FL01-03 to vertically delineate EC & selenium proximal to FL01-03. Furthermore, five additional background soil borings are proposed to be completed in native material adjacent to the final wellhead excavation extent and soil sample FL01-03 to evaluate EC, cadmium, lead, & selenium in native material. The proposed soil boring locations were submitted as an attachment to Supplemental Form 27 Document No. 403698907, illustrated on attached Figures 3 & 4.

The results of the remedial excavation, SSI and background sampling will be completed in accordance with the proposed implementation schedule, and the results 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.

The benzo(a) anthracene exceedances observed at 4 feet bgs in sample locations FL01-05, FL01-06, and FLR02 will be removed via mechanical excavation in accordance with the proposed soil boring location map, and proposed sampling plan outlined in the Site Investigation Report section of this Form 27. The results of the remedial excavation will be submitted on a subsequent Form 27.

## 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.

On 12/01/2023 field screening and confirmation soil samples were collected during the decommissioning of the wellhead and associated flowline. WH01 & FLR01 were collected below the wellhead & flowline riser at depths ranging from 4 ft to 6 ft bgs. Additional soil samples (FL01-01 - FL01-06 & FLR02) were collected along the flowline, at the halfway point, at the significant direction changes, and at the separator flowline riser. Soil samples (WH01, FLR01, FL01-03, FL01-05, FL01-06, & FLR02) were submitted for laboratory analysis of the full Table 915-1 analytical suite. Analytical results indicated that organic and inorganic compound concentrations were in compliance with the applicable Table 915-1 standards, with exception to the following samples:

-FL01-05: benzo(a) anthracene  
-FL01-06: benzo (a) anthracene  
-FLR02: benzo (a) anthracene  
-WH01: lead  
-FLR01: cadmium & lead  
-FL01-03: EC & selenium

Based on laboratory analytical results a historic release was reported to the ECMC on 12/29/2023. Supporting documentation was included on the previously submitted Supplemental Form 27 Document No. 403698907. In addition to the remedial excavation and supplemental site investigation (SSI) described in the Source Removal Summary, background soil samples will be collected to determine if EC, cadmium, lead, and selenium are attributed to native soil conditions at the site. The results of the remedial excavation, SSI and background sampling will be submitted on a subsequent Form 27. The remedial excavation, SSI and background soil sampling will be completed in accordance with the attached proposed soil boring maps, and proposed sampling plan outlined in the Site Investigation Report 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.

Groundwater was not encountered during the decommissioning activities associated with wellhead and associated flowline.

## 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 Fourth Quarter 2024 - Timeline Update

### 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.

- Source mass removal and confirmation sampling will be conducted to remove impacted soil adjacent to the flowline release.
- Investigation and delineation of EC, cadmium, lead, & selenium is ongoing.
- Native material assessment of EC, cadmium, lead, & selenium is ongoing.
- Facility and infrastructure were decommissioned and the location will be reclaimed in accordance with the ECMC 1000 Series.

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.

Following wellhead decommissioning and flowline removal activities, the location was backfilled, compacted, and re-contoured to match preexisting conditions. Location will be reclaimed in accordance with the ECMC 1000 series.

Following additional source mass removal activities, the location will be backfilled, compacted, and re-contoured to match preexisting conditions. The location will be reclaimed in accordance with the ECMC 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. 12/01/2023

Proposed date of completion of Reclamation. 12/01/2028

## 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. 04/19/2023

Actual Spill or Release date, or date of discovery. 12/29/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/13/2023

Proposed site investigation commencement. 02/04/2025

Proposed completion of site investigation. 08/04/2025

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 05/04/2026

Proposed date of completion of Remediation. 12/01/2028

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 necessity for remedial excavation activities and a supplemental site investigation (SSI). The ECMC will be updated on a subsequent Form 27 with the results of the remedial excavation, or if the schedule is changed due to site access constraints. The proposed remedial excavation and SSI will be completed pending the approval of this form.

## **OPERATOR COMMENT**

This Form 27 is being submitted as a Fourth Quarter 2024 timeline update for the completion of the remedial excavation and supplemental site investigation (SSI) at the Smith Reeves 27-1 Wellhead and Flowline location.

The remedial excavation, SSI and background sampling will be completed in accordance with the Remedial Action Plan section of this Form 27, and previously approved by the ECMC under Supplemental Form 27 Document No. 403932749. The proposed soil boring locations were submitted as an attachment to Supplemental Form 27 Document No. 403698907, illustrated on attached Figures 3 & 4.

Supplemental source mass removal activities will be initiated along the former Smith-Reeves 27-1 flowline at the location of soil samples FL01-05, FL01-06, and FLR02. Additionally, SSI activities will be conducted to assess EC, cadmium, lead, and/or selenium concentrations adjacent to and below the former wellhead excavation and along the flowline at soil sample FL01-03. Concurrently with the SSI, additional background samples will be collected to determine if elevated EC, cadmium, lead, and selenium concentrations can be attributed to native soil conditions at the site.  
(Excavation activities are planned to be completed before or after the SSI that is scheduled for 9/30/25 and 10/01/2025.)

Quarterly reporting will be conducted until closure criteria are achieved for this remediation project. The ECMC will be updated with the results of the remedial excavation and concurrent SSI and background soil sampling 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: Brock Nelson

Title: Environmental Consultant

Submit Date: 02/04/2025

Email: tas-chevron-5@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: Collin Metz

Date: 04/02/2025

Remediation Project Number: 31414

## **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**

404066614	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
404150994	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 2 Files

## **General Comments**

### **User Group**

### **Comment**

### **Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)