

State of Colorado  
Energy & Carbon Management Commission

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Document Number:  
404280127

Receive Date:  
\_\_\_\_\_

Report taken by:  
\_\_\_\_\_

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: <u>PDC ENERGY INC</u>	Operator No: <u>69175</u>	<b>Phone Numbers</b>
Address: <u>1099 18TH STREET SUITE 1500</u>		Phone: <u>(970) 313-5582</u>
City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80202</u>		Mobile: <u>( )</u>
Contact Person: <u>Jason Davidson</u>	Email: <u>jason.davidson@chevron.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 33237 Initial Form 27 Document #: 403575609

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: <u>SPILL OR RELEASE</u>	Facility ID: <u>484969</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Phelps 32 Sec Separator</u>	Latitude: <u>40.011100</u>	Longitude: <u>-104.792570</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SENE</u>	Sec: <u>32</u>	Twp: <u>1N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

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**

Unnamed Drainage and associated Wetland: 100' S  
Irrigation Ditch: 630' SW  
Unnamed Ponds: 600' S, 580' SE, and 1,200' N  
Livestock: 660' N and 1,190' NW  
Domestic Water Wells: 845' NW, 1,110' SE, 1,120' SE, 1,180' NE, 1,210' SE, and 1,300' SE  
Residential Properties: 1,040' N, 1,130' S, and 1,160' SE

No other potential receptors are located within ¼ mile of the Site.  
Above distances are approximations.

**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
No	GROUNDWATER	Refer to Tables 1-2 & Figures 4 & 6	Quarterly Groundwater Sampling
Yes	SOILS	6' x 8' x 3' deep	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.

On 8/19/23, a broken site glass on the Phelps 11-32 CHZ separator resulted in the release of less than 1 barrel of produced fluids. Impacted surface soil was excavated using a hydrovac.

During additional soil removal activities on 8/21/23, groundwater was encountered at a depth of approximately 3 feet below ground surface (bgs). Free phase condensate was observed on the surface of the groundwater.

Approximately 3 cubic yards of impacted soil and groundwater were removed from the impacted area via hydrovac and transported to Republic Services Tower Road Landfill in Commerce City, CO for disposal under PDC manifest in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

Soil samples were collected on 8/23/23 and analyzed for the full ECMC Table 915-1 suite of analytes by ECMC approved methods. A grab groundwater sample was also collected from the base of the excavation and analyzed for ECMC Table 915-1 Organic Compounds in Groundwater by ECMC approved methods. The laboratory data are summarized in Tables 1 to 6 and illustrated on Figure 3.

Based on the laboratory data, petroleum constituents in the unsaturated soil have been adequately remediated. However, arsenic, barium, electrical conductivity (EC) and/or sodium adsorption ratio (SAR) concentrations were above the ECMC Table 915-1 standards in the soil samples. Further, the benzene concentration in the groundwater sample exceeded the ECMC Table 915-1 standard.

**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 ):

One soil sample will be collected from each monitoring well soil boring and analyzed for the full ECMC Table 915-1 suite of analytes. In addition, five background soil borings will be advanced to collect background soil samples for analysis of arsenic, barium, EC, and SAR by ECMC approved methods.

**Proposed Groundwater Sampling**

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

Five groundwater monitoring wells have been installed. One groundwater sample will be collected from each monitoring well and analyzed for ECMC Table 915-1 Organic Compounds and Inorganic Parameters in Groundwater by ECMC approved methods. Groundwater sampling and analyses will be completed on a quarterly basis until four consecutive ECMC-compliant quarters are achieved. At that time, a request for a no further action (NFA) determination will be submitted.

**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 ):

On 1/10/24, five monitoring wells were advanced at the Site using hand auger equipment. Soil samples were collected at a depth of 2 feet bgs from each boring and analyzed for the full ECMC Table 915-1 suite of analytes. The laboratory data indicate that arsenic, barium, selenium, and pH exceeded their respective Table 915-1 standards. All other analytes were in compliance with their respective Table 915-1 standards.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 15  
Number of soil samples exceeding 915-1 8  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 48

### NA / ND

-- Highest concentration of TPH (mg/kg) 650  
-- Highest concentration of SAR 12.6  
BTEX > 915-1 Yes  
Vertical Extent > 915-1 (in feet) 3

### Groundwater

Number of groundwater samples collected 5  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 6  
Number of groundwater monitoring wells installed 5  
Number of groundwater samples exceeding 915-1 0

ND Highest concentration of Benzene (µg/l) \_\_\_\_\_  
ND Highest concentration of Toluene (µg/l) \_\_\_\_\_  
ND Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
ND Highest concentration of Xylene (µg/l) \_\_\_\_\_  
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?

On 1/3/24, five background soil samples were collected off the location and analyzed for arsenic, barium, EC and SAR by ECMC approved methods. These data were summarized in Form 27 Supplemental Doc #403860260.

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.

On 8/19/23, during initial excavation activities, impacted surface soils were removed using a hydrovac.  
During additional soil removal activities on 8/21/23, approximately 3 cubic yards of impacted soil and groundwater were removed from the impacted area via hydrovac and transported to Republic Services Tower Road Landfill in Commerce City, CO for disposal under PDC manifest in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

### 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.

All Table 915-1 constituents in soil have been adequately remediated (see approved Form 27s: Doc #403575609, #403770398 and #403962437).

Six quarters of organic concentrations in groundwater have been compliant with Table 915-1. Groundwater sampling and analyses will be completed on a quarterly basis until a downward trend in the data is established. Once a downward trend in the data is established, PDC will request an NFA for Remediation Project #33237.

### Soil Remediation Summary

In Situ

Ex Situ

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

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

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

If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 3

\_\_\_\_\_ 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

Yes \_\_\_\_\_ Other Removed via hydrovac and transported to Republic Services Tower Road Landfill in Commerce City, CO.

### 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.

Q1 and Q2 2025 groundwater samples were collected from five monitoring wells (MW-1 through MW-5) on January 13, 2025, and April 15, 2025, respectively. These samples were submitted to Summit Scientific and Pace Analytical Laboratory for analyses of BTEXN, 1,2,4 TMB, 1,3,5 TMB, sulfate, chloride, and TDS by ECMC-approved methods. Data from the Q1 2025 sampling are being provided for transparency; however, PDC will not be relying on Method 300.0 analyses (chloride and sulfate), which were analyzed outside of the required holding time. For Q1 2025, all five groundwater samples were compliant with Table 915-1 organic compound standards. The TDS concentration in MW-4 exceeded the 125% of the local background concentration, which was determined by the upgradient well MW-1.

For Q2 2025, all five groundwater samples were compliant with Table 915-1 organic compound and inorganic compound standards. The laboratory data are summarized in Tables 1 and 2 and shown on Figure 4 and 6. The groundwater flow direction was to the southwest in Q1 and Q2 2025, as illustrated on Figures 3 and 5. The laboratory reports are attached.

Six quarters of organic concentrations in groundwater have been reported as compliant with their respective Table 915-1 standards.

With the approval of Supplemental Form 27 Doc #403962437 by ECMC, selenium has been determined to be adequately remediated. Therefore, dissolved selenium is no longer analyzed.

Please refer to the Operator Comments section of this Form 27 for additional discussion.



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.

The Phelps 12-32NHZ facility is an active facility and there are no current plans for decommissioning or reclamation activities. To address residual levels of pH, EC, and SAR in soil at the Site, PDC prepared a Reclamation Plan in accordance with ECMC Rule 915.b. The Reclamation Plan was approved per supplemental Form 27 Doc #403962437.

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. 08/24/2023

Actual Spill or Release date, or date of discovery. 08/21/2023

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/19/2023

Proposed site investigation commencement. 08/21/2023

Proposed completion of site investigation. 07/03/2024

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 08/19/2023

Proposed date of completion of Remediation. 04/15/2025

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:

Updated Proposed Completion of Site Investigation date based on the completion of quarterly groundwater monitoring activities at the Site.

**OPERATOR COMMENT**

This Form updates the ECMC with Q2 2025 groundwater data collected at the Phelps 32 Sec Separator location on April 15, 2025.

This Form also provides an update on the Q1 2025 data that was collected at the Phelps 32 Sec Separator location on January 13, 2025. The previously submitted Supplemental Form 27 Doc #404164676 was denied due to out of hold laboratory data, an explanation is provided below.

Operator was informed by the laboratory that the sample holding times were exceeded for various Table 915-1 constituents. Because not all analytes would be outside of holding times, the lab ran the samples for the full Table 915-1 suite. The full laboratory report (Report) is being transmitted to ECMC for transparency. The Report's case narrative identifies which constituents were run outside of the required holding times. The Report's note column also identifies the impacted constituents. Operator will not be relying on any results associated with a constituent that was outside of the required holding time. The Method 300.0 analyses (chloride and sulfate) were analyzed outside of allotted holding times due to delays at Summit Scientific for the groundwater samples collected during quarterly monitoring on January 13, 2025.

Replacement groundwater samples were collected during scheduled quarterly groundwater monitoring on April 15, 2025.

All Table 915-1 constituents in soil have been adequately remediated (see approved Supplemental Form 27s: Doc #403575609, #403770398 and #403962437).

Following source removal, six consecutive quarters of groundwater sampling have been reported at the location with concentrations of organic compounds in compliance with Table 915-1 standards. Inorganic compounds have been compliant with the calculated background concentrations every quarter except Q1 2025, when TDS concentrations were reported above the calculated background standard.

A downward trend in Table 915-1 inorganic data across the Site has not been observed. However, following the excavation of source material, these concentrations have remained stable, suggesting they are representative of local background levels. In addition, the Site is surrounded by cropland and the inorganic concentrations seen at the Site are attributed to these farming and irrigation operations.

Based on the items summarized above, PDC requests NFA for Remediation Project #33237.

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

Signed: Jason Davidson

Title: Remediation Advisor

Submit Date: \_\_\_\_\_

Email: jason.davidson@chevron.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: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: 33237

**COA Type**

**Description**

0 COA	
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**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**

404280269	LABORATORY ANALYTICAL REPORT
404280270	LABORATORY ANALYTICAL REPORT
404281372	MONITORING REPORT

Total Attach: 3 Files

**General Comments**

**User Group**

**Comment**

**Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)