

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
403100629  
Receive Date:  
07/11/2022

Report taken by:  
CHRIS CANFIELD

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 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>PDC ENERGY INC</u>	Operator No: <u>69175</u>	<b>Phone Numbers</b>
Address: <u>1775 SHERMAN STREET - STE 3000</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80203</u>
Contact Person: <u>Jason Davidson</u>	Email: <u>COGCCSpillRemediation@pdce.com</u>	
		Phone: <u>(970) 313-5582</u>
		Mobile: <u>( )</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 22052 Initial Form 27 Document #: 402956153

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>001-09466</u>	County Name: <u>ADAMS</u>
Facility Name: <u>CENTRICOM STATE 11-16</u>	Latitude: <u>39.961608</u>	Longitude: <u>-104.898667</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u>	Sec: <u>16</u>	Twp: <u>1S</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>001-09683</u>	County Name: <u>ADAMS</u>
Facility Name: <u>PARTERRE 25-16</u>	Latitude: <u>39.961741</u>	Longitude: <u>-104.898535</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWSW</u>	Sec: <u>16</u>	Twp: <u>1S</u>	Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: WELL	Facility ID: _____	API #: 001-09684	County Name: ADAMS
Facility Name: PARTERRE 23-16	Latitude: 39.961742	Longitude: -104.898500	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 001-09686	County Name: ADAMS
Facility Name: PARTERRE 12-16	Latitude: 39.961746	Longitude: -104.898719	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 001-09687	County Name: ADAMS
Facility Name: PARTERRE 22-16	Latitude: 39.961745	Longitude: -104.898642	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 001-09688	County Name: ADAMS
Facility Name: PARTERRE 14-16	Latitude: 39.961742	Longitude: -104.898610	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: WELL	Facility ID: _____	API #: 001-09689	County Name: ADAMS
Facility Name: PARTERRE 11-16	Latitude: 39.961744	Longitude: -104.898575	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NWSW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

Facility Type: LOCATION	Facility ID: 335792	API #: _____	County Name: ADAMS
Facility Name: CENTRICOM STATE-61S67W 16NESW	Latitude: 39.961608	Longitude: -104.898667	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: NESW	Sec: 16	Twp: 1S	Range: 67W Meridian: 6 Sensitive Area? Yes

### SITE CONDITIONS

General soil type - USCS Classifications CL 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**

The Parterre/Centricom Tank Battery (Site) is surrounded by an agricultural field to the west, north, and northeast. A FEMA 100-year floodplain is mapped ~40 feet to the south. A small unnamed ephemeral stream/emergent wetland habitat is located ~100 feet to the south and southwest of the Site and the E-470 Corridor is in place 335 feet to the south. Residential sub-divisions are located ~0.21 miles to the north and ~0.22 miles to the east. There are no domestic groundwater wells constructed within 0.25 miles of the Site. Depth to groundwater is unknown but may be encountered within 20 feet of ground surface based on the presence of the ephemeral stream/emergent wetland in place ~100 feet to the south and southeast. There are no additional sensitive areas or wildlife habitats identified within a quarter mile of the facility. See the attached Figure 1 for an illustration of the location of the Site.

## 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	Not impacted	Facility Closure Site Investigation Activities
No	SOILS	Not impacted	Facility Closure Site Investigation Activities

## INITIAL ACTION SUMMARY

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

Operator proposes to conduct closure of the Parterre/Centricom Tank Battery and 7 wells and associated on-location flowlines. Plug and abandonment (P&A) of the 7 wells is scheduled to commence on 2/22/22 and be completed by 3/15/2022. Tank battery closure, wellhead cut and cap, and flowline removal activities are planned to commence on 3/21/22 and be completed by 5/31/22. The flowline associated with the Parterre 13-16 wellhead, which was P&Ad on 9/7/2020, will also be removed during facility decommissioning. Operator will conduct site investigation activities, field screening, and confirmation soil sampling activities during closure in accordance with COGCC 900 Series Rules. Discrete soil samples will be collected and analyzed pursuant to Rule 915, following the general sample collection guidance in Rule 915.e.(2). All waste generated during the closure activities will be managed and disposed of at a licensed disposal facility in accordance with Rules 905 and 906.

## 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 ):

During tank battery closure, at least 27 discrete soil samples will be collected for field screening only and at least 22 discrete soil samples will be collected for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, and gasoline range organics (GRO) [C6-C10] by EPA Method 8260 and for diesel range organics (DRO) [C10-C28] and residual range organics (RRO) [C28-C40] by EPA Method 8015. Analytical results for GRO, DRO, and RRO will be added together to calculate total petroleum hydrocarbons (TPH). In addition, a soil sample will be collected from the base of the partially buried produced water vessel and will be analyzed for the Soil Suitability for Reclamation Parameters; electrical conductivity (EC), sodium adsorption ratio (SAR), pH by Saturated Paste Method, and boron by Hot Water-Soluble Soil Extract Method. See the Additional Investigative Actions section below for further discussion.

### Proposed Groundwater Sampling

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

Depth to groundwater is unknown but may be encountered within 20 feet of ground surface. Up to two test pits will be excavated to a depth of approximately 10 feet below ground surface (ft-bgs) adjacent to the water vault and separator. If groundwater is encountered within the test pits or a pathway to groundwater is observed, ground water samples will be collected in accordance with COGCC Rule 915.e.(3)., and will be submitted to an accredited laboratory for analysis of BTEX, naphthalene, 1,2,4-TMB, and 1,3,5 TMB by EPA Method 8260. If groundwater is encountered in the wellhead excavations, groundwater samples will be collected and analyzed using the same methods described above.

### 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 ):

At least 31 discrete soil samples will be collected for field screening from the 7 wellhead excavations. The samples collected from the floor of the wellhead excavations will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, 1,3,5-TMB, GRO, DRO, and RRO by the methods discussed above. One sidewall sample will be collected from each wellhead excavation and analyzed for SAR, EC, and pH by the same methods discussed above. Operator will remove the flowlines by cutting them into sections and pulling them from the subsurface. A minimum of 3 discrete soil samples will be collected for field screening during flowline abandonment. If indications of soil impacts are present, the samples will be submitted for laboratory analysis as discussed in the Proposed Soil Sampling section above. If indications of groundwater impacts are present, samples will be collected and submitted for laboratory analysis as discussed in the Proposed Groundwater Sampling section above.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 23

Number of soil samples exceeding 915-1 0

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 0

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_

-- Highest concentration of SAR 2.32

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 0

### 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?

Four background samples were collected from two background borings (BG1 and BG2) to characterize background inorganic concentrations. Samples were collected from areas away from potential sources of impact related to the Site. The background sample locations are displayed on Figure 2 of the attached Facility Closure Report.

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.

Based on site investigation activities and laboratory analytical results source removal was not needed.

### REMEDICATION 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.

Based on site investigation activities and laboratory analytical results, a remediation plan is not needed.

### 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 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.

Groundwater was not encountered during facility closure investigation activities.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly  Semi-Annually  Annually  Other Facility Closure Request

### 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 Facility Closure Request

## 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.

- The project has been completed and no further assessment or remediation is required at this time.

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: \$ 1000

## 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 \_\_\_\_\_

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: \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

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? 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 COGCC 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 facility closure activities, the location was backfilled, compacted, and re-contoured to match pre-existing conditions. Final reclamation activities will be conducted in accordance with the COGCC 1000-Series Rules.

Is the described reclamation complete? No

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. 04/13/2022

Proposed date of completion of Reclamation. 04/13/2023

## 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. 02/08/2022

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

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/22/2022

Proposed site investigation commencement. 03/31/2022

Proposed completion of site investigation. 04/12/2022

### 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**

Location ownership transferred to PDC effective May 6, 2022.

PDC is requesting a No Further Action (NFA) determination for COGCC Remediation Project #22052.

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

Signed: Jason Davidson

Title: Senior Env. Specialist

Submit Date: 07/11/2022

Email: COGCCSpillRemediation@pdce.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: CHRIS CANFIELD

Date: 12/15/2022

Remediation Project Number: 22052

**COA Type****Description**

	Based on the information presented, it appears that no further remedial action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.
	The surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules. For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements and for locations that will no longer have active oil and gas operations, comply with Rule 1004 Final Reclamation requirements.
2 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**

403100629	FORM 27-SUPPLEMENTAL-SUBMITTED
403100673	SITE INVESTIGATION REPORT

Total Attach: 2 Files

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

		Stamp Upon Approval
--	--	---------------------

Total: 0 comment(s)