

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404472357

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 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: <u>PDC ENERGY INC</u>	Operator No: <u>69175</u>	Phone Numbers Phone: <u>(970) 304-5000</u> Mobile: <u>()</u>
Address: <u>1099 18TH STREET SUITE 1500</u>		
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>Dan Peterson</u>	Email: <u>RBUEUF27@chevron.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 42297 Initial Form 27 Document #: 404285269

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>123-22962</u>	County Name: <u>WELD</u>
Facility Name: <u>LUNDVALL J 18-12</u>	Latitude: <u>40.397600</u>	Longitude: <u>-104.825630</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u>	Sec: <u>18</u>	Twp: <u>5N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>123-22966</u>	County Name: <u>WELD</u>
Facility Name: <u>LUNDVALL J 18-6</u>	Latitude: <u>40.397660</u>	Longitude: <u>-104.825630</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESW</u>	Sec: <u>18</u>	Twp: <u>5N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

Facility Type: SPILL OR RELEASE Facility ID: 491169 API #: _____ County Name: WELD
 Facility Name: Lundvall J18-6 Latitude: 40.397662 Longitude: -104.825600
 ** correct Lat/Long if needed: Latitude: _____ Longitude: _____
 QtrQtr: NESW Sec: 18 Twp: 5N Range: 66W Meridian: 6 Sensitive Area? Yes

Facility Type: SPILL OR RELEASE Facility ID: 491196 API #: _____ County Name: WELD
 Facility Name: LUNDVALL J18-12 Latitude: 40.397594 Longitude: -104.825623
 ** correct Lat/Long if needed: Latitude: _____ Longitude: _____
 QtrQtr: NWNW Sec: 18 Twp: 5N Range: 66W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SW Most Sensitive Adjacent Land Use Grassland
 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? No

Other Potential Receptors within 1/4 mile

- Bald Eagle Active Nest Site - Half Mile Buffer HPH 0.22mi W
- Freshwater Emergent Wetland 0.1/0.18/0.2/0.21mi SW, 0.21mi S
- Freshwater Forested/Shrub Wetland 0.18/0.22mi W, 0.21mi SW
- Freshwater Pond 0.11mi SW, 0.16mi N
- Riverine 0.08SW
- Farm Structure 0.09/0.1mi N

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.

Pursuant to ECMC Rule 911 a site investigation was conducted pertaining to the Lundvall J 18-12 and Lundvall J 18-6 wellhead cut and cap and flowline removal. The wellheads were cut and capped per ECMC rules on October 27, 2025. Additionally, soil samples were field screened at the N-E-S-W sides of the wellheads.

The flowlines were previously abandoned on 6/25/2025 and 6/26/2025, and the ECMC was notified on Form 44 Document number 403936719. The June 2025 Lundvall J18-12 flowline abandonment sample results were summarized via supplemental Form 27 document number 404296903, which remains "In Process" at the time of this submittal. The June 2025 Lundvall J18-06 flowline abandonment sample results were summarized via supplemental Form 27 document number 404293951, which remains "In Process" at the time of this submittal.

The Field Qualitative Criteria Checklist was utilized during flowline decommissioning activities and no visual and olfactory impacts were observed. Based on laboratory analytical data, a historical release was reported on July 24, 2025, under F19 Document Number 404294738, for elevated naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene at sample location FL01-W-R@4' for Lundvall J 18-06 flowline abandonment.

The Field Qualitative Criteria Checklist was utilized during flowline decommissioning activities and no visual and olfactory impacts were observed. Based on laboratory analytical data, a historical release was reported on July 28, 2025, under F19 Document Number 404297407, for elevated benzo (a)anthracene at sample location FL01-W-R@4' for Lundvall J 18-12 flowline abandonment.

The Lundvall J18-12 and Lundvall J 18-06 flowlines were removed on November 4, 2025. Final analytical results are pending review and will be summarized in a subsequent Form 27 submittal.

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):

A grab soil sample was collected at the base of the excavation or the area showing the highest degree of impact during field screening activities at the wellhead excavation. A grab confirmation soil sample were collected at the wellhead excavation, and soil samples were field screened at the N-E-S-W sides of the wellhead. If the flowline is removed in the future, soil samples will be collected 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. 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):

If groundwater is encountered during the site investigation a grab groundwater sample will be collected and analyzed for all organic compounds and inorganic parameters per ECMC Table 915-1.

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 area will occur during abandonment activities. Field personnel will field screen all disturbed areas using visual and olfactory senses to determine if laboratory confirmation sampling is required. The ECMC Wellhead and Flowline Closure Checklists were utilized and filled out during the abandonment process. A detailed summary of wellhead 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 <u>2</u>	-- Highest concentration of TPH (mg/kg) <u>52.8</u>
Number of soil samples exceeding 915-1 <u>2</u>	-- Highest concentration of SAR <u>2.56</u>
Was the areal and vertical extent of soil contamination delineated? <u>No</u>	BTEX > 915-1 <u>No</u>
Approximate areal extent (square feet) <u>200</u>	Vertical Extent > 915-1 (in feet) <u>5</u>
Groundwater	
Number of groundwater samples collected <u>0</u>	Highest concentration of Benzene (µg/l) _____
Was extent of groundwater contaminated delineated? <u>Yes</u>	Highest concentration of Toluene (µg/l) _____
Depth to groundwater (below ground surface, in feet) _____	Highest concentration of Ethylbenzene (µg/l) _____
Number of groundwater monitoring wells installed _____	Highest concentration of Xylene (µg/l) _____

Number of groundwater samples exceeding 915-1 _____

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?

Six background soil samples were collected from six locations near the wellheads on October 27, 2025 and analyzed for Table 915-1 metals in soil and Soil Suitability for Reclamation parameters per ECMC Table 915-1. The background soil samples were collected from a depth of 4 feet below ground surface (ft bgs). The lithology between the site and background locations was observed to be poorly graded sands. Additional background samples will be collected to determine site specific background concentrations of pH, arsenic, barium, and chromium.

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 elevated levels of pH, arsenic, barium, and chromium are attributed to native soil conditions at the site. Background soil samples will be analyzed by a certified laboratory for analysis of metals per ECMC Table 915-1 and soil suitability parameters including pH, EC, SAR, and boron. Proposed background soil sample locations are shown on the attached proposed excavation map.

The Lundvall J18-12 and Lundvall J 18-06 flowlines were removed on November 4, 2025. Final analytical results are pending review and will be summarized in a subsequent Form 27 submittal.

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 naphthalene, 1-methyl-naphthalene, and 2-methyl-naphthalene exceedances observed at sample location FL01-W-R@4' on June 26, 2025 (LUNDVALL J 18-6 flowline) and the benzo(a)anthracene exceedance observed at sample location FL01-W-R@4' on June 26, 2025 (LUNDVALL J 18-12 flowline) will be removed through a remedial excavation in accordance with the proposed excavation map attached to this Form 27. Soil samples will be collected from the base and sidewalls of the respective final excavation extents and will be submitted for analysis of the full ECMC Table 915-1 suite.

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.

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 elevated levels of pH, arsenic, barium, and chromium are attributed to native soil conditions at the site. Background soil samples will be analyzed by a certified laboratory for analysis of metals per ECMC Table 915-1 and soil suitability parameters including pH, EC, SAR, and boron. Proposed background soil sample locations are shown on the attached proposed excavation map.

The Lundvall J18-12 and Lundvall J 18-06 flowlines were removed on November 4, 2025. Final analytical results are pending review and will be summarized in a subsequent Form 27 submittal.

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

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 site investigation activities.

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 and Site Investigation Proposals

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 11 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: \$ 15000

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. 06/25/2025

Proposed date of completion of Reclamation. 10/31/2027

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. 06/03/2025

Actual Spill or Release date, or date of discovery. 07/24/2025

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/25/2025

Proposed site investigation commencement. 03/18/2026

Proposed completion of site investigation. 07/18/2026

REMEDIAL ACTION DATES

Proposed start date of Remediation. 07/18/2026

Proposed date of completion of Remediation. 01/18/2027

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 LUNDVALL J 18-6 and J 18-12 flowlines and necessity for remedial excavation activities adjacent to the flowlines.

OPERATOR COMMENT

This Form 27 is being submitted to include a 1Q 2026 update for the LUNDVALL J 18-12 and Lundvall J 18-06 (REM #42297) flowline and wellhead decommissioning results and historic reportable release discovered at the former flowline locations. A proposal to excavate the benzo(a)anthracene exceedance identified during decommissioning (soil sample FL01-W-R@4' at Lundvall J 18-12) is presented in the Remedial Action Plan section of this Form 27. A proposal to excavate the naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceedances identified during decommissioning (soil sample FL01-W-R@4' at Lundvall J 18-06) is presented in the Remedial Action Plan section of this Form 27.

Based on laboratory analytical data received on 7/28/2025 a historic release was reported for sample location FL01-W-R@4' for Lundvall J18-12 under Form 19 Document Number 404297407.

Based on laboratory analytical data received on 7/24/25, a historic release was reported for sample location FL01-W-R@4' for Lundvall J18-06 under Form 19 Document Number 404294738.

The flowlines were previously abandoned on 6/25/2025 and 6/26/2025, and the ECMC was notified on Form 44 Document number 403936719.

The June 25 and 26, 2025 Lundvall J18-12 flowline abandonment sample results were summarized via supplemental Form 27 document number 404296903, which remains "In Process" at the time of this submittal. A closure request for LUNDVALL J 18-12 flowline (REM #37583) was included on Form 27 document number 404421000. This was a duplicate REM, and all future work going to be reported under REM #42297.

The June 25 and 26, 2025 Lundvall J18-06 flowline abandonment sample results were summarized via supplemental Form 27 document number 404293951, which remains "In Process" at the time of this submittal. A closure request for LUNDVALL J 18-6 flowline (REM #37693) was included on Form 27 document number 404420811. This was a duplicate REM, and all future work going to be reported under REM #42297.

The Lundvall J18-12 and Lundvall J 18-06 flowlines were removed on November 4, 2205. Final analytical results are pending review and will be summarized in a subsequent Form 27 submittal.

Six background soil samples were collected from six locations near the wellheads on October 27, 2025 and analyzed for Table 915-1 metals in soil and Soil Suitability for Reclamation parameters per ECMC Table 915-1. The background soil samples were collected from a depth of 4 feet below ground surface (ft bgs). The lithology between the site and background locations was observed to be poorly graded sands. Additional background samples will be collected to determine site specific background concentrations of pH, arsenic, barium, and chromium.

Pursuant to Rule 913.e, 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: Kayla White, P.E.

Title: Environmental Consultant

Submit Date: _____

Email: CVX-PM@cdhconsult.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: 42297

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

404498728	LABORATORY ANALYTICAL REPORT
404498730	LABORATORY ANALYTICAL REPORT
404498779	SITE INVESTIGATION REPORT
404500034	SITE INVESTIGATION REPORT

Total Attach: 4 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)