

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
Taylor Robinson

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>(303) 860-5800</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>Karen Olson</u>	Email: <u>taspillremediationcontractor@pdce.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 29462 Initial Form 27 Document #: 403401640

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>WELL</u>	Facility ID: _____	API #: <u>123-11563</u>	County Name: <u>WELD</u>
Facility Name: <u>J. Nelson 33-23</u>	Latitude: <u>40.359250</u>	Longitude: <u>-104.893280</u>	
	** correct Lat/Long if needed: Latitude: <u>40.359236</u>	Longitude: <u>-104.893344</u>	
QtrQtr: <u>SWNE</u>	Sec: <u>33</u>	Twps: <u>5N</u>	Range: <u>67W</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? 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: Irrigation - 4,649' W; Surface Water: Hill and Brush Ditch - 213' SSW; FWS Wetlands: 213' SSW Riverine (R4SBCx); HPH Sensitive Wildlife Habitat: Rule 1202.c: 959' W - Aquatic Native Species Conservation Area; Rule 1202.d: Wellhead & Flowline Within Mule Deer Winter Concentration Area; Rule 1202.d: 608' SW - Mule Deer Severe Winter Range; 100-Year Floodplain 702' S of Wellhead.

Flowline Conflict: Rule 1202.d: Wellhead & Flowline Within Mule Deer Winter Concentration Area

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 and 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.

In accordance with ECMC Rule 911, this form serves as notification for the abandonment of the J Nelson 33-23 wellhead and removal of the associated flowline. The ground and sub-surfaces were visually inspected for hydrocarbon impacts during abandonment activities. Field observations and photo documentation were recorded in a field inspection form for submittal to the ECMC.

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):

Soil samples were collected from the surface in cardinal directions of the wellhead, as defined in Rule 911.a.(4) guidance document (9/20/21), for field screening purposes. Discrete soil samples were collected for laboratory analysis either in any area of observed hydrocarbon impacts, or adjacent to the cut and capped wellhead from native material and below the flowline riser. Soil samples were submitted for laboratory analysis of BTEXN, TMB's, PAH's, TPH (C6-C36), pH, EC, SAR, and boron by ECMC approved 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, grab groundwater samples will be collected and analyzed for all organic and inorganic compounds 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):

Assessments were conducted during the removal of this on-location flowline (estimated to be 270 feet in length). Laboratory soil samples were collected below the flowline risers. The flowline and adjacent sub-surface were inspected for any visual and olfactory indicators of potential failure and hydrocarbon impacts. Soils were field screened below the flowline and if suspected impacts were observed, a soil sample was collected for an initial assessment and submitted for laboratory analysis of BTEXN, TMB's, PAH's, and TPH (C6-C36) by ECMC approved methods. If analytical results indicated the presence of organic compound concentrations, the sample was analyzed for the full Table 915-1 suite.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 5

Number of soil samples exceeding 915-1 3

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

Approximate areal extent (square feet) 300

NA / ND

-- Highest concentration of TPH (mg/kg) 72

-- Highest concentration of SAR 7.29

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 6

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?

On July 13, 2023, two (2) background soil samples (BKG01 @ 4' & BKG01 @ 6') were collected from native material topographically upgradient of the wellhead. The background soil samples were submitted for laboratory analysis of ECMC Table 915-1 metals, pH, and SAR. Analytical results indicated that arsenic, barium, and pH were in exceedance of the applicable regulatory standards in native material.

Additionally, on December 19, 2023, four (4) background soil borings (BKG02 - BKG05) were advanced in native material surrounding the former wellhead location. Soil samples were collected from the background soil borings at depths ranging from 3 feet to 8 feet bgs and were submitted for laboratory analysis of SAR. Analytical results indicated that SAR levels were below the applicable standards in native material.

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?

Up to three (3) soil borings will be advanced to horizontally delineate the SAR exceedance observed during decommissioning activities and supplemental site investigation activities. The soil borings will be advanced via hand auger methodologies to approximately 8 feet bgs. Soil samples will be collected from native material adjacent to soil boring SB05 at depths ranging between 4 feet and 8 feet bgs and will be submitted for laboratory analysis of SAR.

Three (3) additional background soil borings will be advanced surrounding the former wellhead to approximately 8 feet bgs and will be submitted to the laboratory for analysis of SAR. Volatile organic compound (VOC) concentrations using a photoionization detector (PID) and lithologic descriptions will be recorded for each soil boring. Supplemental site investigation activities are proposed to be conducted by the end of the fourth quarter 2024, pending approval of this form and landowner approval. The proposed soil boring locations are illustrated on Figure 1.

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.

No soil was removed from the location during wellhead decommissioning and closure activities or the removal of the associated flowline.

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 December 19, 2023, five (5) soil borings (SB01-SB05) were advanced via hand auger to confirm and delineate the vertical and horizontal extents of the SAR exceedance observed in soil sample FLR01 @ 4'. Three (3) soil samples were collected from the source soil boring SB01 at approximately 3 feet, 4 feet, and 5 feet bgs from soil adjacent to FLR01 and were submitted for analysis of SAR. Additionally, five (5) soil samples were collected from the four (4) cardinal direction borings (SB02-SB05) at depths ranging between approximately 4 feet and 5 feet bgs and were submitted for analysis of SAR. Analytical results indicated that SAR levels were below applicable ECMC Table 915-1 Soil Suitability for Reclamation standards in all confirmation soil samples with the exception to SB05 @ 4'.

Soil Remediation Summary

In Situ

Ex Situ

- _____ Bioremediation (or enhanced bioremediation)
- _____ Chemical oxidation
- _____ Air sparge / Soil vapor extraction
- _____ Natural Attenuation
- _____ Other _____

- _____ 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 wellhead decommissioning, flowline removal, and supplemental 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 Third 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.

- 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.

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

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. 07/13/2023

Proposed date of completion of Reclamation. 09/30/2026

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. 04/19/2023

Actual Spill or Release date, or date of discovery. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/02/2023

Proposed site investigation commencement. 09/30/2024

Proposed completion of site investigation. 03/30/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/30/2025

Proposed date of completion of Remediation. 03/30/2026

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:

Proposed completion of site investigation date is being updated to reflect the schedule to complete the supplemental site investigation. The ECMC will be updated on a subsequent Form 27 with the results of the supplemental site investigation, or if the schedule is changed due to site access constraints.

OPERATOR COMMENT

This Form 27 is being submitted as a Third Quarter 2024 timeline update for the J Nelson 33-23 Wellhead.

Pending location landowner approval and/or crew availability, supplemental site investigation activities will be completed as outlined in the proposed site investigation report.

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: Karen Olson

Title: Remediation Advisor

Submit Date: 09/30/2024

Email: taspillremediationcontractor@pdce.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: Taylor Robinson

Date: 12/04/2024

Remediation Project Number: 29462

COA Type

Description

<u>COA Type</u>	<u>Description</u>
	Operator shall submit a minimum of one soil sample for the proposed laboratory analysis from each soil boring advanced.
	Operator shall field log soil borings during monitoring well installation and provide boring logs/well construction diagrams with the next monitoring report.
	ECMC approves of the proposed soil boring/monitoring well locations. If field observations indicate that the proposed delineation borings are located inside the previous excavation extent additional soil borings will be required. Additionally, depending on the results of the current site investigation plan, Operator may be required to install additional soil borings/monitoring wells to fully delineate soil impacts.
3 COAs	

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.

<u>Att Doc Num</u>	<u>Name</u>
403934540	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403938947	SITE INVESTIGATION PLAN
404015051	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 3 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)