

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 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>	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 #: 31438 Initial Form 27 Document #: 403485013

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>LOCATION</u>	Facility ID: <u>310839</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>NELSON-65N67W 34NESW</u>	Latitude: <u>40.355690</u>	Longitude: <u>-104.883580</u>	
** correct Lat/Long if needed: Latitude: <u>40.354902</u>		Longitude: <u>-104.881726</u>	
QtrQtr: <u>NESW</u>	Sec: <u>34</u>	Twp: <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? 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

Nearest Well: Monitoring / Sampling - 918' NE; Surface Water: Hill and Brush Ditch - 540' SSW; Occupied Building: 743' NW; Livestock: 1,255' WNW; FWS Wetlands: 540' SSW Riverine (R4SBCx); HPH Sensitive Wildlife Habitat: Rule 1202.c: 1,121' SSW Aquatic Native Species Conservation Area; Rule 1202.d: Tank Battery Within Mule Deer Winter Concentration Area; Rule 1202.d: 584' SSW - Mule Deer Severe Winter Range; Rule 309.e.1: 682' W - Bald Eagle Roost Site; 100-Year Floodplain 1,083' S of Tank Battery.

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	SOILS	TBD	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 ECOM Rule 911, this form serves as notification for the decommissioning and abandonment of the Nelson 34K production facility. The ground and sub-surfaces will be visually inspected for hydrocarbon impacts during equipment decommissioning. In addition, on-site dump lines located between the separator and tank battery will be removed by pulling from either end during decommissioning activities. Field observations and photo documentation will be recorded in a field inspection form for submittal to the ECOM.

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):

Grab soil samples will be collected below and/or adjacent to applicable facility equipment, as defined in the Rule 911.a.(4) guidance document (9/20/21), for field screening purposes. Discrete soil samples will be collected for laboratory analysis either in any area of observed hydrocarbon impacts, or in the sample locations designated by the ECOM. Soil samples will be submitted for laboratory analysis of BTEXN, TMB's, PAH's, TPH (C6-C36), pH, EC, SAR, and boron by COGCC approved methods, with the exception of the sample(s) collected below the AST(s) which will be analyzed for BTEXN, TMB's, PAH's, and TPH (C6-C36). See the attached Figure 1 for an illustration of the facility layout and proposed soil sample locations.

Proposed Groundwater Sampling

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

If groundwater is encountered during decommissioning and/or abandonment activities, a grab sample will be collected as soon as practical. If contaminated soil is in contact with groundwater or if free product/hydrocarbon sheen are observed, the release will be reported in accordance with Rule 912.b. Groundwater samples will be submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260.

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):

If a produced water vessel is present, discrete soil samples will be collected from the base of the excavation and excavation sidewall in areas most likely to be impacted and exhibiting the highest field screened VOC concentration. The soil samples will be submitted for laboratory analysis of BTEXN, TMB's, PAH's, TPH (C6-C36), pH, EC, SAR, and boron by ECOM approved methods. Assessment of off-location flowlines will be addressed with their respective wellheads under a separate Form 27.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 6

Number of soil samples exceeding 915-1 1

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

Approximate areal extent (square feet) 100

NA / ND

-- Highest concentration of TPH (mg/kg) 1010

-- Highest concentration of SAR 0.464

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?

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?

Following the discovery of the historic release below the former separator, source mass removal activities will be initiated following land owner negotiations.

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.

Any hydrocarbon impacted material will be transported off-site to a licensed disposal facility in accordance with Rules 905 and 906.

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.

On January 15, 2024, a historic release was discovered following receipt of final analytical results from soil samples collected during decommissioning activities at the Nelson 34K Tank Battery. On December 28, 2023, 6 soil samples (SEP01-FL, SEP01-DL, PWV01-B, PWV01-E, AST01, & COMP01) were collected at the tank battery at depths ranging between approximately 0 to 6 ft bgs. Soil samples SEP01-FL, SEP01-DL, PWV01-B, PWV01-E, & COMP01 were submitted for laboratory analysis of the ECMC Table 915-1 organic compounds in soil, TPH (C6-C36), pH, EC, SAR, & boron. Soil sample AST01 was submitted for analysis of the ECMC Table 915-1 organic compounds in soil, TPH (C6-C36). Analytical results indicated that organic compounds were in exceedance of the Table 915-1 POG SSLs in soil sample SEP01-DL. Consequently, soil sample SEP01-DL was requested for additional laboratory analysis of the Table 915-1 metals, and results are in process. 3 background soil samples (BKG01) were collected from the native material up-gradient of the wellhead at approximately 3 ft, 4 ft, and 6 ft bgs and submitted for laboratory analysis of pH and metals. Pending receipt of the remaining Table 915-1 laboratory results, PDC will be submitting an analyte reduction request for the director approval based on the constituents identified in the samples collected from the source material. Excavation and confirmation soil sampling activities are currently ongoing, final analytical results and field activities will be summarized in a forthcoming Supplemental Form 27.

Preliminary soil analytical results are summarized in Tables 1-3. GPS coordinates and PID readings for the soil sample collected during decommissioning activities are summarized in Table 4. Site topography is illustrated in Figure 1. Field screening and laboratory sample locations are illustrated on Figure 2. The laboratory reports are included as Attachment A and the decommissioning field notes and photo log are included in Attachment B.

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 COGCC 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

_____ 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 has not been encountered during initial decommissioning activities.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other 90 Days Post Completion

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 90 Days Post Completion of Source Mass Removal,
Proposed Remediation Work Plan

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.

- Assessment activities as outlined herein are proposed.

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 _____

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? 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 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.

Reclamation will be conducted in accordance with ECMC 1004 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. 12/28/2023

Proposed date of completion of Reclamation. 12/28/2028

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. 07/05/2023

Actual Spill or Release date, or date of discovery. 01/15/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/23/2023

Proposed site investigation commencement. 01/19/2024

Proposed completion of site investigation. 03/31/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/28/2023

Proposed date of completion of Remediation. 12/28/2028

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:

Based on the discovery of historic hydrocarbon impacts below the former separator, source mass removal activities will be initiated following land owner negotiations. The Implementation Schedule has been updated to reflect these changes.

OPERATOR COMMENT

Based on correspondence from the ECMC, this Supplemental Form 27 was prepared for the historic release discovered below the separator for the Nelson 34K Tank Battery and in conjunction with the Supplemental Form 19 submitted under Document No. 403656036. Excavation activities are not scheduled at this time. Following landowner negotiations, supplemental source mass removal activities will be initiated via mechanic excavation.

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

Signed: Karen Olson

Title: Senior Program Manager

Submit Date: 01/18/2024

Email: Taspillremediationcontractor@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: Taylor Robinson

Date: 01/29/2024

Remediation Project Number: 31438

COA Type

Description

<u>COA Type</u>	<u>Description</u>
0 COA	

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

403655918	INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL)
403655974	PHOTO DOCUMENTATION
403658415	SITE MAP
403658416	SOIL SAMPLE LOCATION MAP
403658420	ANALYTICAL RESULTS
403669614	FORM 27-SUPPLEMENTAL-SUBMITTED

Total Attach: 6 Files

General Comments

User Group

Comment

Comment Date

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

Total: 0 comment(s)