

State of Colorado
Energy & Carbon Management Commission

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Report taken by:
RICK ALLISON

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 #: 32673 Initial Form 27 Document #: 403569450

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>123-11299</u>	County Name: <u>WELD</u>
Facility Name: <u>BUNN, M. 1-34</u>	Latitude: <u>40.442782</u>	Longitude: <u>-104.757560</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>34</u>	Twp: <u>6N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>OFF-LOCATION FLOWLINE</u>	Facility ID: <u>471439</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Wellhead Line 34NESE</u>	Latitude: <u>40.442011</u>	Longitude: <u>-104.757315</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>34</u>	Twp: <u>6N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications GW

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

Wellhead:

Closest Domestic Well within quarter mile – 780' SSE
Additional Domestic Wells – 870' W, 1120' SSW, 1170' SE
Nearest Surface Water – Cache La Poudre River 870' NW
Nearest Occupied Building – 800' SSE
Additional Occupied Buildings – 1095' SE, 1140' SSW, 1040' SE
Freshwater Forested/Shrub Wetland – 900' NW
Freshwater Pond – 530' NW, 890' NW
100-Year Effective Floodplain – 60' N
Aquatic Native Species Conservation Waters – 400' NW

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

Additional Flowline Receptors:

No other potential receptors are located in proximity to the flowline
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
UNDETERMINED	GROUNDWATER	TBD	Not yet 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 ECMC Rule 911, this form serves as notification for the abandonment of the Bunn M 1-34 wellhead and removal of the associated flowline. The ground and sub-surfaces will be visually inspected for hydrocarbon impacts during equipment decommissioning. Field observations and photo documentation will be 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 will be 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 will be 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 risers. Soil samples will be submitted for laboratory analysis of the full Table 915-1 analytical suite by ECMC approved methods. See the attached Figure 1 for an illustration of the wellhead 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 (TMB), and 1,3,5-TMB by EPA Method 8260, chloride and sulfate anions by EPA Method 300.0, and total dissolved solids (TDs) by Method SM 2540C.

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 will be conducted during the removal of the off-location flowline (~306 feet in length) approximately every 250 feet. Laboratory soil samples will be collected below the flowline risers, at the significant direction changes, and in close proximity to sensitive habitats, such as wetlands, surface water crossings, and HPH boundaries. The flowline and adjacent sub-surface will be inspected for any visual and olfactory indicators of potential failure and hydrocarbon impacts. Soils will be field screened below the flowline and if suspected impacts are observed, a soil sample will be collected for an initial assessment and submitted for laboratory analysis of the full Table 915-1 analytical suite by ECMC approved methods. See the attached Figure 1 for an illustration of the flowline alignment and proposed soil sample locations.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 2
Number of soil samples exceeding 915-1 2
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 150

NA / ND

-- Highest concentration of TPH (mg/kg) 5600
Highest concentration of SAR _____
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) 9 Volume of liquid waste (barrels) 0

Is further site investigation required?

Following the discovery of the historic release adjacent to the former wellhead, source mass removal activities will be initiated following land owner negotiations and crew availability.

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.

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.

On March 8, 2024, a historic release was discovered following receipt of preliminary analytical results from soil samples collected during decommissioning activities at the Bunn M 1-34 Wellhead. On March 7, 2024, six soil samples (WH01-B, WH01-[directional], and WC01) were collected from within and adjacent to impacted source material encountered at the wellhead at depths ranging between approximately 4 feet and 6 feet below ground surface (bgs). Soil samples WH01-B and WH01-N were submitted for laboratory analysis of the ECMC Full Table 915-1 analytical suite. Analytical results indicated that organic compounds were in exceedance of the Table 915 -1 Protection of Groundwater (POG) Soil Screening Levels (SSLs) in soil samples WH01-B & WH01-N. Consequently, soil sample WC01 was requested for laboratory analysis of the full Table 915-1 analytical suite. Final results are pending. Background soil samples will be collected from native material up-gradient of the wellhead and will submitted for preliminary analysis of the Table 915-1 metals. Final analytical results and field activities will be summarized in a forthcoming Supplemental Form 27. 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.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 9

_____ 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 was not encountered during initial decommissioning activities.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other 90 days following receipt of final lab results

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 following receipt of final lab results

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? Yes

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

No beneficial use

Volume of E&P Waste (solid) in cubic yards 9

E&P waste (solid) description Hydrocarbon impacted soils

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: North Weld Waste Management

Volume of E&P Waste (liquid) in barrels 0

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 conducted in accordance with ECMC 1004 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. 03/07/2024

Proposed date of completion of Reclamation. 03/07/2029

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. 09/11/2023

Actual Spill or Release date, or date of discovery. 03/08/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 11/01/2023

Proposed site investigation commencement. 03/08/2024

Proposed completion of site investigation. 09/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/08/2024

Proposed date of completion of Remediation. 03/08/2029

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 adjacent to the former wellhead, source mass removal activities will be initiated following land owner negotiations and crew availability. 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 adjacent to the wellhead at the Bunn M 1-34 Wellhead and in conjunction with the Supplemental Form 19 submitted under Document No. 403713399.

Excavation activities are not scheduled at this time. Following landowner negotiations, supplemental source mass removal activities will be initiated via mechanical 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: Remediation Advisor

Submit Date: 03/08/2024

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: RICK ALLISON

Date: 03/12/2024

Remediation Project Number: 32673

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

403713441	FORM 27-SUPPLEMENTAL-SUBMITTED
403713489	SOIL SAMPLE LOCATION MAP
403713491	ANALYTICAL RESULTS
403713492	PHOTO DOCUMENTATION
403713493	SITE MAP

Total Attach: 5 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)