

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>(970) 313-5582</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>karen.olson@chevron.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 36122 Initial Form 27 Document #: 403826338

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>SPILL OR RELEASE</u>	Facility ID: <u>486346</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Raindance FD Off-Site #20-202HNX</u>	Latitude: <u>40.455451</u>	Longitude: <u>-104.927633</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SESE</u>	Sec: <u>30</u>	Twp: <u>6N</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 Golf Course, Hoedown Hill Ski Area
Is domestic water well within 1/4 mile? No Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Occupied Buildings within 1/4 mile- 865' SE, 1,160' SE, 1,180' SE, 1,300' E
High Priority Habitats within 1/4 mile - Edge of a Bald Eagle Active Nest Site Half Mile Buffer in place 1,290' NW
Oil and Gas Production Operations- 1,079' NE, 1,300' S

No other potential receptors are located within 1/4 mile of the Site.
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
No	GROUNDWATER	Not impacted	Not encountered
Yes	SOILS	7,000' sq. x 3' deep (Hydrocarbons)	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.

On 3/22/2024, an equipment failure on a bulk separator resulted in a release of 170 barrels (bbls) of an oil/water fluid mix. Approximately 98 bbls of fluid were recovered via hydrovac. The fluid was contained within an unlined steel secondary containment area. Upon discovery, the facility was shut in and clean up operations commenced. Between 3/22/2024 and 4/9/2024, approximately 832 cubic yards (CY) of impacted soil were removed via hydrovac or hand digging.

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):

Proposed Groundwater Sampling

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

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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 1
Number of soil samples exceeding 915-1 0
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 7000

NA / ND

NA Highest concentration of TPH (mg/kg) _____
-- Highest concentration of SAR 3.97
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?

On May 29, 2025, one additional background soil sample (BG-E 2 Ft) was collected to the east of the facility. A COA from the most recent Form 27 (Doc #404147353) suggested that a confirmation background sample adjacent to the soil sample BG-E-OFF 2 Ft be collected to verify the pH concentration.

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.

Approximately 832 CY of impacted soil were hauled offsite for disposal under PDC manifest to Republic Services Tower Road landfill in Commerce City, CO or to the Waste Management's North ern Weld County landfill in Ault, Colorado in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

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.

Immediately after the release was discovered, hydrovac crews initiated fluid and impacted soil removal in the affected areas. Approximately 832 CY of petroleum-impacted soil were excavated via hydrovac or hand digging and hauled offsite for disposal. The attached Tables 1-4 summarize the laboratory data from the 80 confirmation soil samples collected during the remedial excavation. Sample IDs with light brown shading denote soil samples that were removed by excavation. Figures 1-10 illustrate the soil locations and soil chemistry. These data indicate that petroleum-impacted soil has been removed from the Site.

All other Table 915-1 constituents have been adequately remediated with the exception of pH. ECMC has approved that determination in Doc #404147353 on 4/4/2025.

The COA from that document states: "ECMC agrees that Table 915-1 contaminants of concern at the site are in compliance with Table 915-1 or background concentrations with the exception of pH. Operator should address pH exceedances with through a Reclamation Plan pursuant to Rule 915.b. or verify the sole background sample result (BG-E-OFF 2 Ft) that exceeded Table 915-1 soil suitability for reclamation standards."

As suggested by ECMC in this COA, Operator collected a background soil sample adjacent to sample BG-E-OFF 2 Ft that had an elevated pH level (8.84 su). This elevated pH level is greater than all the onsite confirmation soil samples indicating pH levels are less than native concentrations and can be considered adequately remediated.

Therefore, all Table 915-1 constituents can be considered adequately remediated.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 832

_____ 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

_____ 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 site investigation or remediation activities at the Site.

REMEDATION 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 Site Investigation Report

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.

- Source mass removal is complete
- Petroleum-impacted soil has been removed and Table 915-1 metals and Suitability for Soil Reclamation (SSRs) analytes have all been resolved.

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: \$ 5000

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 832

E&P waste (solid) description Hydrocarbon Impacted Soil

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Republic's Tower Road LF in Commerce City, CO and Waste Management's North Weld LF in Ault, CO

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

E&P waste (liquid) description _____

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: _____

REMEDATION COMPLETION REPORT

REMEDATION 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 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.

The Raindance FD Off-Site #20-202HDX Facility is an active facility and there are no current plans for decommissioning or reclamation activities. pH and/or EC impacts greater than the ECMC Table 915-1 limits will remain in place at the Site. Following horizontal and vertical delineation, a Reclamation Plan will be developed in accordance with the ECMC Rule 915.b.

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. _____

Proposed date of completion of Reclamation. _____

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. 03/22/2024

Actual Spill or Release date, or date of discovery. 03/22/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/22/2024

Proposed site investigation commencement. 03/22/2024

Proposed completion of site investigation. 09/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/22/2024

Proposed date of completion of Remediation. 12/31/2024

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

This form serves as an update and a closure request for the Raindance FD Off-Site #20-202HNX separator release that occurred on 3/22/24.

Prior to submittal of this Form 27, all Table 915-1 constituents had been adequately remediated with the exception of pH. ECMC approved that determination in Doc #404147353 on 4/4/2025.

The single COA from that ECMC approved document states: "ECMC agrees that Table 915-1 contaminants of concern at the site are in compliance with Table 915-1 or background concentrations with the exception of pH. Operator should address pH exceedances with a Reclamation Plan pursuant to Rule 915.b. or verify the sole background sample result (BG-E-OFF 2 Ft) that exceeded Table 915-1 soil suitability for reclamation standards."

As suggested by ECMC in this COA, Operator collected a background soil sample adjacent to sample BG-E-OFF 2 Ft that had an elevated pH level (8.84 su). This elevated background pH level is greater than all the onsite confirmation soil samples indicating pH levels are less than native concentrations and can be considered adequately remediated.

Therefore, all Table 915-1 constituents can be considered adequately remediated and a no further action determination is requested.

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

Signed: Paul Henehan

Title: Consultant

Submit Date: 06/13/2025

Email: paulh@fremontenv.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: 11/04/2025

Remediation Project Number: 36122

COA Type

Description

	<p>Based on the information presented, it appears that no further action is necessary at this time and the ECMC approves the closure request. However, if future conditions at the site indicate contaminant concentrations in soils exceeding ECMC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required.</p> <p>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.</p>
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1 COA

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

404238177	FORM 27-SUPPLEMENTAL-SUBMITTED
404238404	ANALYTICAL RESULTS
404238407	REMEDIATION PROGRESS REPORT

Total Attach: 3 Files

General Comments

User Group

Comment

Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)