FORM 27 Rev 5/22

State of Colorado
Energy & Carbon Management Commission

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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 INFORMATON

Name of Operator: PDC ENERGY INC Operator No: 69175
Address: 1099 18TH STREET SUITE 1500
City: DENVER State: CO Zip: 80202
Contact Person: Karen Olson Email: Karen.Olson@chevron.com

Phone Numbers
Phone: (970) 313-5582
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 36082 Initial Form 27 Document #: 403837584

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.
- [X] 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: SPILL OR RELEASE Facility ID: 486654 API #: County Name: WELD
Facility Name: Wells Ranch 34F-212 Latitude: 40.447320 Longitude: -104.431945
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SWNW Sec: 34 Twp: 6N Range: 63W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications SM
Most Sensitive Adjacent Land Use Rangeland
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? No

Other Potential Receptors within 1/4 mile

Stock well present 655 ft NE
Livestock within 1/4 mile- Cattle barn in place 910 ft NW
Oil and Gas Production Operations within 1/4 mile- 569 ft NE, 905' NW, 1038 ft SE, 1146 ft SW, 1409 ft W

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

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [X] **E&P Waste**
  - [ ] Produced Water
  - [X] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	15' x 30' x 1' bgs (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.

A release of approximately 2 bbls of production fluid within lined secondary containment was discovered on 4/1/2024 at the Wells Ranch 34f-212 tank battery. While loading, a contracted driver stepped away from the bucket and left the valve on the load out bucket open causing the release. Upon discovery, the facility was shut in and clean up operations commenced. Approximately 20 cubic yards of soil were excavated via hydrovac equipment.

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: 14
Number of soil samples exceeeding 915-1: 14
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet): 450

NA / ND

-- Highest concentration of TPH (mg/kg): 4480
-- Highest concentration of SAR: 12.8
BTEX > 915-1: Yes
Vertical Extent > 915-1 (in feet): 1

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?

Five background samples were collected including one within the imported material of the lined secondary containment. Laboratory data is provided on Tables 3 and 4 and illustrated on Figure 4.

☐ 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.

On 4/1/2024, hydrovac equipment was used to remove impacted soil adjacent to the loading bucket. The initial amount of soil removed was less than 10 cubic yards (CY). Laboratory analyses indicated that additional excavation was required to remove petroleum-impacted soil. On 5/7/2024, it was determined that approximately 10 CY of impacted soil had been removed; therefore, a Form 19 Spill Report was submitted to ECMC. As shown on Tables 1, 2, 3 and 4, soil samples were collected for analyses on 4/19/2024, 4/26/2024, 5/21/2024 and 6/5/2024. The soil samples collected on 6/5/2024 indicated that all petroleum-impacted soil had been adequately remediated. A total of approximately 20 CY of impacted material was transported for disposal to Republic Services Tower Road landfill in Commerce City, Colorado in accordance with Rules 905 and 906. Copies of the waste manifests are available upon request.

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.

As described in the Source Removal Summary tab, petroleum-impacted soil has been adequately remediated. However, non-compliant concentrations of pH, SAR, arsenic, barium, cadmium, lead, and selenium need to be resolved.

PDC proposes to utilize the Table 915-1 Residential Soil Screening Levels (RSSLs) for this release because: this spill occurred aboveground when personnel were present and immediately initiated cleanup, an intact Claymax liner is present at a depth of 1 ft beneath the soil bedding material and equipment, a steel vertical wall constitutes the perimeter of the secondary containment, and the depth to groundwater is estimated at approximately 25 feet.

Utilizing the Table 915-1 RSSLs, barium, cadmium, lead, and selenium concentrations are less than their respective standards; therefore, these metals can be considered adequately remediated.

Arsenic concentrations within the excavation area can be resolved by comparison to the maximum background concentration of arsenic. The maximum background concentration of arsenic was 4.23 mg/kg at sample "BG-N". The arsenic concentrations present along the sidewalls of the excavation are all less than that concentration.

PDC proposes that the extent of pH and SAR impacts is limited to the bedding material within the secondary containment since the steel wall and the Claymax-lined floor represent impervious barriers. Since the footprint of the secondary containment structure delineates the horizontal and vertical extent of pH and SAR impacts, PDC will request that those impacts be left in place via a Reclamation Plan in accordance with ECMC Rule 915.b. This Reclamation Plan will be submitted in a future Supplemental Form 27.

As shown in the attached photos, an intact Claymax liner was present on the floor of the secondary containment. This liner was not cut to obtain samples beneath the liner; however, soil was removed to immediately above the liner.

Soil Remediation Summary

☐ **In Situ**

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

☒ **Ex Situ**

- Yes Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) 20
  - 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 site investigation or remediation activities at the Site.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

[X] 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

[X] 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 anticipates the remaining cost for this project to be: $

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 20

E&P waste (solid) description Hydrocarbon Impacted Soil

ECMC Disposal Facility ID #, if applicable:

Non-ECMC Disposal Facility: Republic Services Tower Road Landfill in Commerce City, 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:

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.

The Wells Ranch 34F-212 Facility is an active facility and there are no current plans for decommissioning or reclamation activities. A Reclamation Plan will be developed in accordance with ECMC Rule 915.b to address pH and SAR levels above Table 915-1 standards encountered in the bedding material within lined secondary containment.

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. 05/08/2024

Actual Spill or Release date, or date of discovery. 04/01/2024

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/01/2024

Proposed site investigation commencement. 04/02/2024

Proposed completion of site investigation. 09/30/2024

REMEDIAL ACTION DATES

Proposed start date of Remediation. 04/02/2024

Proposed date of completion of Remediation. 06/05/2024

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

From approved Form 27, Doc #403837584, two COAs were provided by ECMC:

COA #1: Operator shall collect confirmation soil samples directly beneath previous soil sample locations with TPH exceedances (SS-06, SS-07, and SS-07-02), within the Claymax liner, to acquire vertical delineation of TPH exceedances.

Operator cut the Claymax liner in the specified locations and collected samples from beneath the liner, These samples were analyzed for Table 915-1 organics; as shown in Tables 1 and 2 and on Figure 3, all organic constituents were less than Table 915-1 standards. Therefore, this COA is resolved.

COA #2: Operator shall soil samples beyond the secondary containment fence and towards the produced water vault to acquire lateral delineation of Soil Suitability for Reclamation analytes.

Operator collected soil samples (SS-08, SS-09, SS-10, SS-11, SS-12 and SS-13) outside the steel wall secondary containment as well as inside the steel wall adjacent to the produced water vault as shown on Figure 4. These samples were analyzed for Suitability for Soil Reclamation analytes. As shown on Table 3, pH and SAR, which were elevated in previous sampling, were all within the Table 915-1 standards. However, exceedances of EC were present outside the steel wall and adjacent to the produced water vault - EC exceedances had not been observed previously including in the Waste Characterization sample. EC concentrations in all samples in the spill area were less than the Table 915-1 standard.

Therefore, Operator proposes that pH and SAR be considered adequately delineated. Further, Operator proposes that EC also be considered adequately delineated because SS-08 and SS-09 are outside of the secondary containment and these concentrations are greater than those in the actual spill area as well as the Waste Characterization sample. If ECMC does not agree with this proposal, Operator will collect soil samples further north from SS-08 and SS-09 and analyze for EC only to further delineate EC.

After resolution of Suitability for Soil Reclamation issues have been resolved, Operator proposes to prepare a Reclamation Plan to allow elevated concentrations to remain within the secondary containment.

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

Signed: Paul Henehan Title: Environmental Consutlant

Submit Date: 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: Date:

Remediation Project Number: 36082

COA Type	Description
0 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
403955301	SITE INVESTIGATION REPORT
403955302	ANALYTICAL RESULTS
403955303	ANALYTICAL RESULTS

Total Attach: 3 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)