

State of Colorado
Energy & Carbon Management Commission

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Document Number:
403899281
Receive Date:
08/26/2024
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 ECOM 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 #: 31300 Initial Form 27 Document #: 403441397

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>123-28024</u> | County Name: <u>WELD</u> |
| Facility Name: <u>HIGHPOINTE 10LD</u> | Latitude: <u>40.409860</u> | Longitude: <u>-104.883220</u> | |
| ** correct Lat/Long if needed: Latitude: <u>40.409892</u> | | Longitude: <u>-104.883215</u> | |
| QtrQtr: <u>SESW</u> | Sec: <u>10</u> | Twp: <u>5N</u> | Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

| | | | |
|---|----------------------------|-------------------------------|---|
| Facility Type: <u>WELL</u> | Facility ID: _____ | API #: <u>123-28025</u> | County Name: <u>WELD</u> |
| Facility Name: <u>HIGHPOINTE 10PD</u> | Latitude: <u>40.410000</u> | Longitude: <u>-104.883190</u> | |
| ** correct Lat/Long if needed: Latitude: <u>40.410004</u> | | Longitude: <u>-104.883204</u> | |
| QtrQtr: <u>SESW</u> | Sec: <u>10</u> | Twp: <u>5N</u> | Range: <u>67W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

| | | | |
|-------------------------------|--|------------------------|---------------------|
| Facility Type: WELL | Facility ID: _____ | API #: 123-28033 | County Name: WELD |
| Facility Name: HIGHPOINTE 10B | Latitude: 40.409920 | Longitude: -104.883220 | |
| | ** correct Lat/Long if needed: Latitude: 40.409948 | Longitude: -104.883213 | |
| QtrQtr: SESW | Sec: 10 | Twp: 5N | Range: 67W |
| | | Meridian: 6 | Sensitive Area? Yes |

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

Wellhead (Highpointe 10B): Nearest Well: Monitoring / Sampling - 2,281' WNW; Surface Water: Arroyo - 275' E; FWS Wetlands: 253' ENE Riverine (R4SBCx).

Wellhead (Highpointe 10LD): Nearest Well: Monitoring / Sampling - 2,292' WNW; Surface Water: Arroyo - 278' E; FWS Wetlands: 248' ESE Riverine (R4SBCx).

Wellhead (Highpointe 10PD): Nearest Well: Monitoring / Sampling - 2,275' WNW; Surface Water: Arroyo - 276' E; FWS Wetlands: 246' ESE Riverine (R4SBCx).

Flowline Conflict: Flowlines Cross Arroyo between 953' NW and 984' NW of Wellheads.

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 |
|-----------|----------------|-------------------------------------|----------------------------|
| Yes | SOILS | Refer to Tables 1-4 and Figures 1&2 | 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 Highpointe 10B, Highpointe 10LD, and Highpointe 10PD wellheads and removal of the associated flowlines. The ground and sub-surfaces will be visually inspected for hydrocarbon impacts during abandonment activities. 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 each 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 wellheads from native material and below the flowline risers. Soil samples will be submitted for laboratory analysis of BTEXN, TMB's, PAH's, TPH (C6-C36), pH, EC, SAR, and boron by ECMC approved methods. See the attached Figures 1-3 for an illustration of the wellheads 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):

Assessments will be conducted during the removal of the off-location flowlines (estimated to be between 1,226 feet and 1,272 feet in length) approximately every 250 feet. Laboratory soil samples will be collected below the flowline risers, in close proximity to sensitive habitats, and at the significant direction change (NW-N). The flowlines 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 flowlines and if suspected impacts are observed, a soil sample will be 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 indicate the presence of organic compound concentrations, the sample will be analyzed for the full Table 915-1 suite.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 13

ND Highest concentration of TPH (mg/kg) _____

Number of soil samples exceeding 915-1 2

-- Highest concentration of SAR 1.14

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

BTEX > 915-1 No

Approximate areal extent (square feet) 100

Vertical Extent > 915-1 (in feet) 6

Groundwater

Number of groundwater samples collected 0

Highest concentration of Benzene (µg/l) _____

Was extent of groundwater contaminated delineated? No

Highest concentration of Toluene (µg/l) _____

Depth to groundwater (below ground surface, in feet) _____

Highest concentration of Ethylbenzene (µg/l) _____

Number of groundwater monitoring wells installed _____

Highest concentration of Xylene (µg/l) _____

Number of groundwater samples exceeding 915-1 _____

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 November 14, 2023, two background soil samples (BKG02 @ 4' & BKG02 @ 6') were collected from native material topographically upgradient of the former wellheads and submitted for laboratory analysis of the Table 915-1 metals suite, and pH. Additionally, two background soil samples (BKG02) were collected from native material topographically up-gradient of the nearby B&B 10-12 Wellhead location and submitted for laboratory analysis of pH. Two background soil samples (BKG01) were collected from native material topographically up-gradient of the nearby Edwards 43-9 Tank Battery location and submitted for laboratory analysis of the Table 915-1 metals suite. Analytical results indicated that pH, arsenic, and barium exceeded the acceptable range of the applicable Table 915-1 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 five (5) soil borings will be advanced to vertically and horizontally delineate the lead exceedance observed in soil sample FLR01 @ 4'. Confirmation soil samples will be submitted for laboratory analysis of lead. In addition, two (2) background soil borings will be advanced up-gradient of the former wellhead location.

Up to five (5) soil borings will be advanced to vertically and horizontally delineate the arsenic and cadmium exceedances observed in soil sample FLR04 @ 4' collected beneath the separator flowline riser. Confirmation soil samples will be submitted for laboratory analysis of arsenic and cadmium. In addition, two (2) background soil borings will be advanced up-gradient of the soil sample FLR04 @ 4' location.

All samples from the background soil boring locations will be submitted for laboratory analysis of arsenic, cadmium, and lead.

Volatile organic compound (VOC) concentrations using a photoionization detector (PID) and lithologic descriptions will be recorded for each borehole. Proposed soil boring locations are illustrated on Figures 3 & 4.

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.

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.

Soil encountered adjacent to and surrounding the wellheads and below the flowline risers was visually inspected and field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). Per the approved proposed soil sampling plan, nine soil samples (WH01 - WH03 & FLR01 - FLR06) were collected at approximately 4 feet and 6 feet bgs from undisturbed areas most likely to be impacted by oil and gas operations located adjacent to and below production infrastructure. In addition, seven soil samples (FL01-01 - FL01-07) were collected every 250 feet along the flowline, at the halfway point, in close proximity to sensitive habitats, such as surface water crossings, and at the significant direction changes (NW-N & N-NE). Soil samples WH01 - WH03, FLR01 - FLR06, & FL01-04 - FL01-07 were submitted for laboratory analysis of the full ECMC Table 915-1 analytical suite. Analytical results indicated that organic compounds were in compliance with the applicable ECMC Table 915-1 standards, except for lead in soil sample FLR01 @ 4', and arsenic and cadmium in soil sample FLR04 @ 4'. Consequently, two background soil samples (BKG02 @ 4' & BKG02 @ 6') were collected from native material topographically up-gradient of the former wellheads and submitted for laboratory analysis of the Table 915-1 metals suite and pH. Additionally, two background samples (BKG02 @ 4' & BKG02 @ 6') were collected from native material topographically up-gradient of the nearby B&B 10-12 Wellhead location and submitted for laboratory analysis of pH. Two background samples (BKG01 @ 2.5' & BKG01 @ 4') were collected from native material topographically up-gradient of the nearby Edwards 43-9 Tank Battery location and submitted for laboratory analysis of the Table 915-1 metals suite. Analytical results indicated that pH, arsenic, and barium exceeded the acceptable range of the applicable Table 915-1 standards in native material.

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 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 wellhead decommissioning and flowline removal activities.

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 decommissioning and flowline removal 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? 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. 10/31/2023

Proposed date of completion of Reclamation. 08/26/2025

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. 05/25/2023

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/12/2023

Proposed site investigation commencement. 08/26/2024

Proposed completion of site investigation. 02/26/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 10/31/2023

Proposed date of completion of Remediation. 08/26/2025

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 Supplemental Form 27 is being submitted as a Third Quarter 2024 timeline update for the Highpointe 10PD Wellhead. Pending location landowner approval and crew availability, supplemental site investigation activities will be completed as outlined in the proposed site investigation report. Supplemental Form 27s will be prepared and submitted on a quarterly schedule to provide updates and progress of the remediation until closure criteria has been achieved.

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: 08/26/2024

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: 10/18/2024

Remediation Project Number: 31300

COA Type**Description**

| 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**

| | |
|-----------|--|
| 403899281 | INVESTIGATION/REMEDATION WORKPLAN (SUPPLEMENTAL) |
| 403899328 | SITE INVESTIGATION PLAN |
| 403963490 | FORM 27-SUPPLEMENTAL-SUBMITTED |

Total Attach: 3 Files

General Comments**User Group****Comment****Comment Date**

| User Group | Comment | Comment Date |
|------------|---------|---------------------|
| | | Stamp Upon Approval |

Total: 0 comment(s)