

State of Colorado
Oil and Gas Conservation 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 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>(970) 313-5582</u> Mobile: <u>()</u> |
| Address: <u>1775 SHERMAN STREET - STE 3000</u> | | |
| City: <u>DENVER</u> State: <u>CO</u> Zip: <u>80203</u> | | |
| Contact Person: <u>Jason Davidson</u> Email: <u>FRspillremediationcontractor@pdce.com</u> | | |

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15435 Initial Form 27 Document #: 402372025

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>TANK BATTERY</u> | Facility ID: <u>441861</u> | API #: _____ | County Name: <u>WELD</u> |
| Facility Name: <u>Pierce Unit Central Tank Battery</u> | | Latitude: <u>40.643635</u> | Longitude: <u>-104.756987</u> |
| <u>441861</u> | | ** correct Lat/Long if needed: Latitude: <u>40.643836</u> Longitude: <u>-104.757313</u> | |
| QtrQtr: <u>SESE</u> | Sec: <u>22</u> | Twp: <u>8N</u> | Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u> |

SITE CONDITIONS

General soil type - USCS Classifications CL 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? No

Other Potential Receptors within 1/4 mile

Pierce Lateral in place 75 feet to the northwest. Rural residential development in place across US HWY 85, 1,000 feet to the east. Rural residential property in place 1,100 feet to the southwest

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 | 65' x 100' x various depths | Site Investigations and Excavation |

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 2/20/20, a triplex pump froze, and the overflow alarm malfunctioned on two produced water tanks, resulting in the release of ~15 bbls of oil and 250 bbls of water. All but ~3 bbls were contained within the unlined, earthen berm secondary containment. The entire release was contained on location. Between 2/20/20 and 2/21/20, hydrovac equipment was used to remove four loads of standing liquids and impacted roadbase from the release area. Between 2/21/20 and 2/22/20, a backhoe was used to excavate an additional 140 cubic yards of impacted roadbase and soil from the release area. The impacted material was manifested and hauled offsite for proper disposal. On 2/25/20, a pothole investigation was conducted using a hydrovac to determine vertical and horizontal extent of hydrocarbon-impacted soils at the Site. 32 potholes were excavated in the release area to depths ranging from 12 to 48 inches below ground surface (bgs). Initial visual and olfactory observations and PID readings indicated the presence of potential hydrocarbon-impacts in the natural clay soil beneath the roadbase. Potential impacts were also observed in the flow path to the south and west of the southeast corner of the secondary containment where liquids had breached the earthen berm. No soil samples were submitted for laboratory analysis during the pothole investigation and groundwater was not encountered. On 4/23/20, Fremont Environmental conducted a hand auger investigation to delineate the vertical and horizontal extent of hydrocarbon-impacted soil at the release area. Eleven soil borings were advanced across the Site to depths ranging from 4 to 7 feet bgs. Based on field observations, 20 characterization soil samples were collected for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), Total Petroleum Hydrocarbons (TPH)- Gasoline Range Organics (GRO) and TPH- Diesel Range Organics (DRO). Groundwater was not encountered during this investigation.

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):

Please refer to the Soil Sample Location Map and Operator Comments associated with the COGCC approved Supplemental Form 27 Document Number 402674693 for an illustration of the post-remediation confirmation soil sampling locations and laboratory analysis to be conducted.

Please refer to the attached Fremont Environmental Remediation System Report for a summary of the confirmation soil sampling conducted at the Site.

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 17
Number of soil samples exceeding 915-1 9
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 6500

NA / ND

-- Highest concentration of TPH (mg/kg) 6091
NA Highest concentration of SAR _____
BTEX > 915-1 No
Vertical Extent > 915-1 (in feet) 24

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) 1232 Volume of liquid waste (barrels) 0

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.

Please refer to the Fremont Environmental Excavation Report submitted with the COGCC approved Supplemental Form 27 Document Number 402487841 and to the Fremont Environmental Remediation System Installation Report submitted with the COGCC approved Supplemental Form 27 Document Number 402583180 for a summary of source removal activities at the Site.

Please refer to the attached Fremont Environmental Remediation System Report for an additional summary of the source removal activities conducted at the Site.

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.

Please refer to the Fremont Environmental Remediation System Installation Report submitted with the COGCC approved Supplemental Form 27 Document Number 402583180 for a summary of the remediation activities at the Site.

Please refer to the attached Fremont Environmental Remediation System Report for an additional summary of the remediation activities conducted at the Site.

Soil Remediation Summary

In Situ

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

Ex Situ

Yes _____ Excavate and offsite disposal
_____ If Yes: Estimated Volume (Cubic Yards) _____ 1232
Name of Licensed Disposal Facility or COGCC 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.

Not applicable

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other Remediation Progress Report

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 Remediation Progress 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.

- A soil vapor extraction (SVE) remediation system was installed and activated at the site on 12/16/2021.
- When it appears that the SVE system has reached the limits of its operational effectiveness, confirmation soil borings will be advanced to determine whether the subsurface soil impacts have been adequately remediated.
- Facility and infrastructure were decommissioned and the location will be reclaimed in accordance with the COGCC 1000 Series.

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: \$ 85000

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:

None

Volume of E&P Waste (solid) in cubic yards 1232

E&P waste (solid) description Hydrocarbon-impacted roadbase and soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Waste Management's North Weld Landfill in Ault, CO

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

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 COGCC 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. _____

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. 02/20/2020

Actual Spill or Release date, or date of discovery. 02/20/2020

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/20/2020

Proposed site investigation commencement. 08/31/2022

Proposed completion of site investigation. 08/31/2022

REMEDIAL ACTION DATES

Proposed start date of Remediation. 12/07/2020

Proposed date of completion of Remediation. 12/07/2023

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

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

Signed: Jason Davidson

Title: Senior Env. Specialist

Submit Date: 10/05/2022

Email: FRspillremediationcontractor@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: RICK ALLISON

Date: 12/21/2022

Remediation Project Number: 15435

COA Type

Description

| | |
|-------|---|
| | Confirmation soil samples collected to support remediation closure must be analyzed for Table 915-1 Organics in Soil in addition to soil TPH. |
| 1 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

| | |
|-----------|--------------------------------|
| 403188782 | FORM 27-SUPPLEMENTAL-SUBMITTED |
| 403188798 | REMEDATION PROGRESS REPORT |

Total Attach: 2 Files

General Comments

User Group

Comment

Comment Date

| | | |
|--|--|---------------------|
| | | Stamp Upon Approval |
|--|--|---------------------|

Total: 0 comment(s)