

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
Address: <u>1775 SHERMAN STREET - STE 3000</u>	Phone: <u>(303) 860-5800</u>	
City: <u>DENVER</u>	State: <u>CO</u>	Mobile: <u>()</u>
Zip: <u>80203</u>		
Contact Person: <u>Karen Olson</u>	Email: <u>COGCCSpillRemediation@pdce.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 17820 Initial Form 27 Document #: 402654568

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>123-10805</u>	County Name: <u>WELD</u>
Facility Name: <u>WEBER 1-26</u>	Latitude: <u>40.458300</u>	Longitude: <u>-104.738160</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>26</u>	Twp: <u>6N</u>	Range: <u>66W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>319160</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>WEBER-66N66W 26NESE</u>	Latitude: <u>40.458300</u>	Longitude: <u>-104.738160</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NESE</u>	Sec: <u>26</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 SM

Most Sensitive Adjacent Land Use Agriculture

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

Surface Water: Riverine - 378 feet N-NW, Occupied Buildings: 331 feet W-SW, Livestock: 1,310 feet SW, FWS Wetlands: Riverine - 378 feet N-NW, HP
Habitat: within Bald Eagle Roost Site

Tank Battery, Wellhead, and Flowline are located within Bald Eagle Roost Site

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	SOILS	See Tables 1-3 and Figure 1	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 COGCC Rule 911, this form serves as notification for decommissioning, abandonment, and removal of the Weber 1-26 tank battery, wellhead and 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 COGCC.

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):

Grab soil samples will be collected below and/or adjacent to applicable facility equipment, as defined in the Rule 911.a.(4) guidance document (1/4/21), for field screening purposes. Discrete soil samples will be collected for laboratory analysis either in any area of observed hydrocarbon impacts, or in the sample locations designated by the COGCC. GPS data will be collected for all soil sample locations. Soil samples will be submitted for laboratory for analysis of BTEX, naphthalene, total petroleum hydrocarbons (TPH C6-C36), 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB by EPA Methods 8260B and 8015. Additionally, soil sample(s) will be collected in the area most likely to be impacted by produced water to confirm soil suitability for reclamation. The sample(s) will be submitted for laboratory analysis of electrical conductivity (EC), pH, sodium adsorption ratio (SAR), and boron by saturated paste and hot water soluble extraction methods. Refer to the Proposed Sample Location Map.

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):

An assessment will be conducted during the removal of the on-location flowline (estimated to be 180 feet in length), with an emphasis in the areas where the flowline changes direction from N to W and W to S. 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 submitted for laboratory analysis of BTEX, naphthalene, 1,2,4-TMB, 1,3,5-TMB, and TPH (C6-C36) by EPA Methods 8260B and 8015. GPS data and photo documentation will be recorded for each inspection/sample location. A sample location figure will be provided in the Supplemental Form 27.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

NA / ND

Number of soil samples collected 10

-- Highest concentration of TPH (mg/kg) 90

Number of soil samples exceeding 915-1 3

-- Highest concentration of SAR 0.245

Was the areal and vertical extent of soil contamination delineated? Yes

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 June 17, 2021, one background sample (BKG01) was collected from native material topographically up-gradient of the tank battery location and submitted for analysis of pH. Analytical results indicated that pH was in exceedance of the applicable Table 915-1 standard 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?

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.

During tank battery decommissioning activities conducted on June 17, 2021, elevated field screened VOC concentrations were recorded below the former AST01 location. Analytical results indicated that organic compound concentrations were above the applicable COGCC Table 915-1 Protection of Groundwater SSLs. Consequently, approximately 9.5 cubic yards of soil were removed from below the former AST and transported to the North Weld Waste Management Landfill for disposal under a PDC waste manifest. On June 18, 2021, five soil samples (AST01-B, & AST01-Direction)) were collected from the base and sidewalls of the final excavation extent at approximately 2.5 feet and 6 feet below ground surface, respectively. The samples collected from the base and sidewall which exhibited the highest field screened VOC concentration were submitted for laboratory analysis of BTEX, naphthalene, 1, 2, 4-TMB, 1, 3, 5-TMB and TPH (C6-36). Analytical results indicated that organic compound concentrations were below the applicable COGCC Table 915-1 standards in both sample locations.

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 on site and below production equipment, adjacent to and surrounding the wellhead and below the flowline riser was visually inspected and field screened for VOC concentrations using a PID. Per the approved proposed soil sampling plan, samples were collected below and/or adjacent to the above ground storage tank (AST), separator flowline and dump line (SEP-FL and SEP-DL), wellhead (WH), and flowline riser (FLR). The samples were collected from areas most likely to be impacted by oil and gas operations located adjacent to and below production infrastructure. Soil samples WH01, AST01, AST02, SEP01-FL, SEP01-DL-B, SEP01-DL-N, AST01-B, and AST01-S were submitted for lab analysis of BTEX, naphthalene, 1, 2, 4-TMB, 1, 3, 5-TMB and TPH (C6-C36). Due to the absence of a produced water vessel, five soil samples were collected adjacent to and below the separator dump line. The samples collected from the base and sidewall which exhibited the highest PID reading as well as sample FLR01 were submitted for lab analysis of pH, EC, SAR and boron. Lab results indicated that pH was in exceedance of the applicable Table 915-1 standard in sample SEP01-DL-N. Consequently, one background sample (BKG01) was collected from native material topographically up-gradient of the location and submitted for analysis of pH. Lab results indicated that pH was in exceedance of the applicable regulatory standard in native material. Analytical results indicated that organic compound concentrations and inorganic parameters were in compliance with the applicable COGCC Table 915-1 standards and background concentrations. Lab results are summarized in Tables 1 and 2, and GPS coordinates and field screened VOC concentrations are summarized in Table 3. Field screening and lab sample locations are illustrated on Figure 1. Laboratory reports are included as Attachment A and decommissioning, abandonment and closure field notes/photo logs are included as Attachment B.

Soil Remediation Summary

<input type="checkbox"/> In Situ	<input checked="" type="checkbox"/> 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.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

Quarterly Semi-Annually Annually Other Tank Battery, Wellhead P&A and Flowline Removal Closure Request

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 Tank Battery, Wellhead P&A and Flowline Removal

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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: North Weld Waste Management Facility

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? 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 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.

Following tank battery decommissioning activities as well as wellhead and flowline removal activities, the location was backfilled, compacted, and recontoured to match pre-existing conditions. The location will be reclaimed in accordance with COGCC 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. _____

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. 02/02/2021

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

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 05/03/2021

Proposed site investigation commencement. 06/17/2021

Proposed completion of site investigation. 06/18/2021

REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/18/2021

Proposed date of completion of Remediation. 06/18/2021

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

Based on analytical results and field observations recorded during the closure, abandonment, and decommissioning of the Weber 1-26 wellhead, tank battery, and associated flowline, PDC is submitting a closure request for this location.

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

Signed: Karen Olson

Title: Senior Program Manager

Submit Date: 09/15/2021

Email: COGCCSpillRemediation@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: 10/28/2021

Remediation Project Number: 17820

Condition of Approval**COA Type****Description**

	Operator will provide additional confirmation soil samples from the area around AST01B @ 6' and AST 01-S to document compliance with Table 915-1 Groundwater Soil Screening Levels.
	Operator will provide waste disposal documentation for the reported disposal of 9.5 cubic yards of soil.
2 COAs	

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**

402808871	FORM 27-SUPPLEMENTAL-SUBMITTED
402809428	PHOTO DOCUMENTATION
402811599	ANALYTICAL RESULTS
402811600	SOIL SAMPLE LOCATION MAP

Total Attach: 4 Files

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

Environmental	Closure not approved, removed closure request and applied conditions of approval.	10/28/2021
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Total: 1 comment(s)