

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

**SITE INVESTIGATION AND REMEDIATION WORKPLAN**

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

**CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED**

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Produced Water Vault Closure

**GENERAL INFORMATION**

<b>OGCC Operator Number:</b> <u>69175</u> Name of Operator: <u>PDC Energy, Inc.</u> Address: <u>1775 Sherman Street, Suite 3000</u> City: <u>Denver</u> State: <u>CO</u> Zip: <u>80203</u>		Contact Name and Telephone <b>Name:</b> <u>Zack Lisenfeld</u> No: <u>(970) 506-9273</u> Fax: <u>(970) 373-6581</u>	
API/Facility No: _____ Facility Name: <u>Succo GU 4, 43-20</u> Well Name: <u>Succo GU 4, 43-20</u> Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWSE S20 T2N R66W</u>		County: <u>Weld</u> Facility Number: <u>327274</u> Well Number: <u>Succo GU 4, 43-20</u> Latitude: <u>40.120918</u> Longitude: <u>-104.7977</u>	

**TECHNICAL CONDITIONS**


Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____		Oil / Produced Water	
<b>Site Conditions:</b> Is location within a sensitive area (according to Rule 901e)? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation. ** Please see 'Potential Receptors' section below.		Rangeland <u>Shingle loam, 3 to 9 percent slopes</u>	
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): _____ Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____ Potential receptors (water wells within 1/4 mi, surface waters, etc) _____		A residential building is located 630' northwest and surface water is located 105' east of the facility. The nearest water well is located 245' northwest and 11 water wells are located in a 1/4-mile radius.	
<b>Description of Impact</b> (if previously provided, refer to that form or document):			
Impacted Media (check): <input checked="" type="checkbox"/> Soils <input type="checkbox"/> Vegetation <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface water	Extent of Impact: <u>Refer to the attached Figure 2 and Table 1</u>		How Determined: <u>Excavation and soil sampling</u>

**REMEDIALTION WORKPLAN**

Describe initial action taken (if previously provided, refer to that form or document):  On July 6, 2015, a historic release was discovered during dump line replacement and produced water tank removal activities. An Initial Form 19 was submitted to the COGCC on July 8, 2015 (Doc# 400864427). A topographic map of the site is included on Figure 1.
Describe how source is to be removed: Approximately 2,530 cubic yards of impacted material were removed and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal under PDC waste manifests. Soil encountered in the excavation area was field screened for (VOC) concentrations using a photoionization detector (PID). Soil samples were collected from the sidewalls and base of the excavation area at depths ranging between 6 feet and 11 feet below ground surface (bgs). Soil samples were submitted to Summit Scientific Laboratories in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260B, and TPH - diesel range organics (DRO) by USEPA Method 8015. The soil sample (SS01) collected from the base of the final excavation extent below the former produced water vessel was also submitted for analysis of pH, electrical conductivity (EC), and sodium adsorption ratio (SAR). Analytical results indicated soil samples collected from the final extent of the excavation area exhibited constituent concentrations below COGCC Table 910-1 soil standards. Soil analytical data is summarized in Table 1 and the laboratory analytical reports are included as Attachment A.
Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.: Soil analytical results received on July 20, 2015, indicated hydrocarbon impacts above regulatory standards were successfully removed by excavation activities. The produced water tank will not be replaced. Consequently, PDC is requesting a produced water vessel closure for this location and a No Further Action (NFA) for this release.

FORM  
27  
Rev 6/99

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Tracking Number: \_\_\_\_\_  
Name of Operator: PDC Energy, Inc.  
OGCC Operator No: 69175  
Received Date: \_\_\_\_\_  
Well Name & No: Succo 4, 43-20  
Facility Name & No.: Succo 4, 43-20

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REMEDATION WORKPLAN (CONT.)

OGCC Employee: \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):  
Groundwater was not encountered during excavation activities.

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. Use additional sheet for description if required.  
The excavation was backfilled and compacted with clean material and the ground surface was re-contoured to match pre-existing conditions.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.  
Is further site investigation required? ☐ Y ☒ N If yes, describe:  
Based on the soil laboratory analytical results, PDC feels that no further site investigation activities are required. The excavation extent and soil sample locations are illustrated on Figure 2. Soil analytical results are summarized in Table 1 and the laboratory analytical reports are included as Attachment A.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):  
Waste was disposed of at the Buffalo Ridge Landfill in Keenesburg, Colorado under PDC waste manifests.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	<u>7/6/2015</u>	Date Site Investigation Completed:	<u>7/20/2015</u>	Remediation Plan Submitted:	_____
Remediation Start Date:	<u>N/A</u>	Anticipated Completion Date:	<u>N/A</u>	Actual Completion Date:	<u>N/A</u>

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

Print Name: Zack Liesenfeld

Signed: \_\_\_\_\_ Title: EHS Professional Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_