

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

#7945

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8/26/2013

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.

OGCC Employee:

☒ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No: 2145651

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

GENERAL INFORMATION

OGCC Operator Number: 69175		Contact Name and Telephone	
Name of Operator: PDC Energy, Inc.		Name: Brandon Bruns	
Address: 1775 Sherman Street, Suite 3000		No: (303) 831-3971	
City: Denver State: CO Zip: 80203		Fax: (303) 860-5838	
API/Facility No: 05-123-11529		County: Weld	
Facility Name: H&S (Mineral) #1		Facility Number:	
Well Name: H&S (Mineral) #1		Well Number: H&S (Mineral) #1	
Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSW S6 T4N R65W		Latitude: 40.339955 Longitude: -104.713433	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.):	Condensate/Produced Water		
Site Conditions: Is location within a sensitive area (according to Rule 901e)?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	If yes, attach evaluation.	
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.):	Storage Yard for Magna Energy Services		
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan:	Valent sand, 0 to 3 percent slopes		
Potential receptors (water wells within 1/4 mi, surface waters, etc.):	Surface water is located approximately 1,855' north of the tank battery, a residential building is approximately 405' southwest, a water well is approximately 580' southwest, and depth to shallowest groundwater is approximately 14 feet bgs.		
Description of Impact (if previously provided, refer to that form or document):			
Impacted Media (check):	Extent of Impact:	How Determined:	
<input checked="" type="checkbox"/> Soils	Refer to the attached Figure 2 and Table 1	Excavation and soil sampling	
<input type="checkbox"/> Vegetation			
<input checked="" type="checkbox"/> Groundwater	Refer to the attached Figure 3 and Table 2	Drilling and groundwater sampling	
<input type="checkbox"/> Surface water			

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
A Form 19 was submitted on July 29, 2013. COGCC assigned spill tracking number 2145651 for this location. An aerial map of the site is included on Figure 1.
Describe how source is to be removed:
The source area was previously excavated and impacted material was transported and disposed of as described in the Form 19.
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.:
On June 21, 2013, prior to backfilling the excavation, a slotted remediation pipe was placed at the bottom to be used for soil vapor extraction. Subsequent to the Form 19 submittal, on July 11, 2013, PDC installed eight (8) temporary monitoring wells using direct push drilling to assess residual petroleum hydrocarbon concentrations. Groundwater was encountered one foot below the excavation total depth at approximately 14 feet below ground surface (bgs). Subsequent groundwater sampling was conducted on July 25, 2013 at the eight temporary well locations. Groundwater samples were submitted to Summit Scientific Laboratories for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using USEPA Method 8260B. Analytical results indicate six of the eight sample locations exhibit groundwater constituent concentrations above COGCC Table 910-1 standards. Point of compliance wells (BH07 and BH08) exhibit BTEX concentrations below laboratory detection limits. Analytical results are summarized on Table 2 and illustrated on Figure 3. The analytical report is included as Attachment A. PDC initiated enhanced fluid recovery (EFR) and air sparge (AS) events on August 6, 2013 and will continue this until subsurface contaminant concentrations are compliant with COGCC limits. Quarterly groundwater monitoring will continue until four consecutive quarters of BTEX concentrations are compliant with COGCC Table 910-1 groundwater limits.
Submit Page 2 with Page 1.

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REMEDIATION WORKPLAN (CONT.)

OGCC Employee:

Tracking Number: _____
Name of Operator: PDC Energy, Inc.
OGCC Operator No: 69175
Received Date: _____
Well Name & No: H&S (Mineral) #1
Facility Name & No.: H&S (Mineral) #1

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
PDC will continue to sample the eight monitoring wells on a quarterly basis to assess the dissolved phase petroleum hydrocarbon impacts in groundwater using USEPA Method 8260. Groundwater sampling will continue until four consecutive quarters of groundwater monitoring data indicate that BTEX concentrations are in compliance with the COGCC Table 910-1 groundwater standards.

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 area where the excavation is located is used as an equipment access area to the tank battery location and consists of road base. The excavation has been backfilled and compacted with clean material and the ground surface was 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:
PDC feels that no further Site investigation is required at this time. The excavation extent and soil sample locations are illustrated on Figure 2. Temporary monitoring locations are illustrated on Figure 3. Soil analytical results are summarized in Table 1 and groundwater analytical results are summarized in Table 2.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
Waste was disposed of at the Waste Management Facility in Ault, CO under PDC waste manifests.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>6/20/2013</u>	Date Site Investigation Completed: <u>7/11/2013</u>	Remediation Plan Submitted: _____
Remediation Start Date: <u>8/6/2013</u>	Anticipated Completion Date: <u>NA</u>	Actual Completion Date: <u>TBD</u>

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

Print Name: Brandon Bruns

Signed:  Title: EHS Professional Date: _____

OGCC Approved: _____ Title: EPS Date: 8/27/2013