

State of Colorado Oil and Gas Conservation Commission



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FOR OGCC USE ONLY

Received  
5/12/2014

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OGCC Employee:

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Spill  Complaint  
 Inspection  NOAV

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Tracking No: 400606668

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): \_\_\_\_\_

GENERAL INFORMATION

<b>OGCC Operator Number:</b> 69175		Contact Name and Telephone	
Name of Operator: <u>PDC Energy, Inc.</u>		Name: <u>Brandon Bruns</u>	
Address: <u>1775 Sherman Street, Suite 3000</u>		No: <u>(303) 831-3971</u>	
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80203</u>		Fax: <u>(303) 860-5838</u>	
API/Facility No: <u>05-123-11760</u> <span style="color: red;">437252</span>	County: <u>Weld</u>		
Facility Name: <u>Sitzman 1 &amp; 32-4/French 1, 5: 41-1</u>	Facility Number: <u>Sitzman 1 &amp; 32-4/French 1, 5: 41-1</u>		
Well Name: <u>Sitzman 1 &amp; 32-4/French 1, 5: 41-1</u>	Well Number: <u>Sitzman 1 &amp; 32-4/French 1, 5: 41-1</u>		
Location (QtrQtr, Sec, Twp, Rng, Meridian): <u>SENW S4 T5N R64W</u>		Latitude: <u>40.431826</u>	Longitude: <u>-104.550872</u>

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)?  Y  N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Residential / Agriculture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Kim loam, 1 to 3 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water is located approximately 600' west, south, and southeast of the tank battery, a residence is located approximately 180' southwest, the nearest water well is approximately 1,755' northeast. Depth to groundwater is approximately 15' 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	<u>Refer to Figure 2 and Table 1</u>	<u>Excavation and soil sampling</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>Refer to the attached Figure 3 and Table 2</u>	<u>Drilling and groundwater sampling</u>
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

A historical release was discovered during a production line repair on November 7, 2013. An eForm 19 was submitted to the COGCC and a spill tracking number 400606668 was established for the project. 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 February 10, 2014, PDC installed eight temporary monitoring wells (BH01 through BH08) for monitoring and remediation purposes, using direct push drilling techniques. Groundwater was encountered approximately 15 feet below ground surface (bgs). Groundwater monitoring was conducted on February 26, 2014 at the eight temporary well locations, as illustrated on Figure 3. Groundwater samples were submitted to Summit Scientific Laboratories in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using USEPA Method 8260B. Analytical results indicate that benzene concentrations are in exceedance of COGCC Table 910-1 groundwater standards at two of the eight sample locations (BH04 and BH06). Soil analytical results are presented in Table 1 and groundwater analytical results are summarized in Table 2. The analytical reports are included as Attachment A. PDC has selected monitored natural attenuation as the remedial strategy for this site. Should BTEX concentrations increase during subsequent monitoring events, additional remedial strategies may be evaluated. PDC will conduct quarterly groundwater monitoring at the eight temporary monitoring locations until BTEX concentrations are below COGCC groundwater standards for four consecutive quarters.



REMEDIATION WORKPLAN (CONT.)

OGCC Employee: R. Allison

Tracking Number: 400606668
Name of Operator: PDC Energy, Inc.
OGCC Operator No: 69175
Received Date: 5/12/2014
Well Name & No: Sitzman 1 & 32-4/French 1, 5; 41-1
Facility Name & No.: Sitzman 1 & 32-4/French 1, 5; 41-1

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
Groundwater was encountered during excavation and drilling activities at approximately 15 ft bgs. PDC will continue quarterly groundwater sampling at the eight monitoring wells 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 has been backfilled and compacted with clean material and the ground surface was contoured to match pre-existing conditions. The tank battery has since been re-built.

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 [x] 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. The analytical reports are included in 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 Waste Management Facility in Ault, Colorado under PDC waste manifests.

IMPLEMENTATION SCHEDULE

Table with 4 columns: Date Site Investigation Began, Date Site Investigation Completed, Remediation Plan Submitted, Remediation Start Date, Anticipated Completion Date, Actual Completion Date. Values include 12/19/2013, 2/10/2014, TBD, 2/26/2014, NA.

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: [Signature] Title: EHS Supervisor Date: 5/12/14

OGCC Approved: \_\_\_\_\_ Title: Northeast EPS Date: 5/19/2014

- 1. Before requesting No Further Action, collect confirmation soil samples from the area where soil samples SS03 and SS05 were collected. 2. Submit boring logs for the monitoring wells installed at the site. Boring logs may be submitted with the next remediation status update. 3. Submit Remediation Progress Reports on an annual basis, at a minimum.