

State of Colorado  
Oil and Gas Conservation Commission

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FOR OGCC USE ONLY

#8437

Received  
5/13/2014

**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: 2147488

**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>05-123-37409</u>	County: <u>Weld</u>		
Facility Name: <u>LaSalle 25G-212</u>	Facility Number: <u>LaSalle 25G-212</u>		
Well Name: <u>LaSalle 25G-212</u>	Well Number: <u>LaSalle 25G-212</u>		
Location (Qtr, Sec, Twp, Rng, Meridian): <u>SWNW S25 T5N R65W</u>		Latitude: <u>40.37364</u>	Longitude: <u>-104.62017</u>

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): \_\_\_\_\_ Drilling Mud

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.): \_\_\_\_\_ Oil and Gas Production / Agriculture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: \_\_\_\_\_ Aquolls and aquents, gravelly substratum

Potential receptors (water wells within 1/4 mi, surface waters, etc.): \_\_\_\_\_ Surface water is located approximately 5,100' southwest and buildings are located approximately 925' north of the well. The nearest water well is located greater than one mile. Depth to shallowest groundwater is unknown.

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 Tables 1 and 2</u>	<u>Soil sampling</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface water	_____	_____

**REMEDIATION WORKPLAN**

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

A release of drilling mud occurred on December 26, 2013 while drilling at the LaSalle 25G-212 (API # 05-123-37409) well. A Form 19 was submitted to the COGCC and spill tracking # 2147488 was assigned 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 mitigated as described in the Form 19 submitted on December 29, 2013.

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 March 6, 2014, PDC collected confirmation soil samples in the area of the release to demonstrate residual petroleum hydrocarbon impacts were successfully mitigated. Soil samples were collected at three locations at a depth of 6 inches below ground surface (bgs) and submitted to Summit Scientific Laboratories in Golden, Colorado for analysis of the full Table 910-1 suite. Analytical results indicate that organic compound concentrations are below Table 910-1 soil standards. Inorganic compound concentrations were also below regulatory standards, except for arsenic in SS01 - SS03, specific conductance in SS01, and SAR in SS03. However, these arsenic concentrations are well within the USGS total arsenic background values which typically range from 0.05 to 10.9 milligrams per kilogram (Assessment of Geochemical Variability and a Listing of Geochemical Data for Surface Soils of the Front Range Urban Corridor, Colorado, USGS, 1994). In addition, these sample results for arsenic are well below the 11 mg/kg level (average of all land uses) listed in the Background Soil Arsenic Concentrations in Colorado table in the guidance document entitled "Risk Management Guidance for Evaluating Arsenic Concentrations in Soil" from the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment dated June 2010. In addition, EC and SAR were detected at concentrations above COGCC soil limits in samples SS01 and SS03, respectively. These concentrations were minimal compared to the COGCC Table 910-1 soil limits. As part of the process of cleaning up the spill, PDC brought in a minimum of 3 to 4 feet of clean backfill to re-establish the site and to install earthen stormwater BMPs. Though elevated EC and SAR concentrations are present in the subsurface at the site, the concentrations are present at a depth of approximately 3 to 4 feet below ground surface. This depth is below the three foot depth that is outlined by the COGCC in Rule 1003.d(3) for the closure of drilling pits and as outlined in the COGCC's response to Question #32 of the frequently asked questions that were submitted during the 2008 rulemaking. Analytical results are presented in Table 1 and sample locations are illustrated on Figure 2. The analytical report is included as Attachment A.



REMEDIATION WORKPLAN (CONT.)

OGCC Employee: R. Allison

Tracking Number: 2147488
Name of Operator: PDC Energy, Inc.
OGCC Operator No: 69175
Received Date: 5/13/2014
Well Name & No: LaSalle 25G-212
Facility Name & No.: LaSalle 25G-212

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
Groundwater was not encountered during mitigation and sampling 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 impacted area has been 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 [x] N If yes, describe:
PDC feels that no further Site investigation is required at this time. The site layout and soil sample locations are illustrated on Figure 2. Soil analytical results are summarized in Table 1 and the analytical report is included in Attachment A.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
No waste was removed from location during mitigation activities.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 12/26/2013 Date Site Investigation Completed: 3/6/2014 Remediation Plan Submitted:
Remediation Start Date: NA Anticipated Completion Date: NA Actual Completion Date:

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: 5/13/14

OGCC Approved: Title: Northeast EPS Date: 5/20/2014