



**PDC Energy, Inc.**  
**Merit Acquisition Compliance Work Plan**

**February 2013**

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# 1. Overview

PDC Energy, Inc. (PDC) has prepared this Merit Acquisition Operational Compliance Work Plan (Plan) to detail operational and environmental compliance activities that are being completed at properties were purchased by PDC from Merit Energy Company (Merit) in 2012. PDC purchased these assets, which include wells and associated tank batteries on June 29, 2012. PDC has conducted inspections at each of the acquired facilities in order to develop a comprehensive plan to ensure that each of the properties meets PDC's operational standards and to identify potential compliance issues.

As part of the purchase, PDC acquired approximately 740 oil and gas wells and 380 associated tank batteries in the DJ Basin of Colorado. Table 1 is a list of the wells and Table 2 is a list the tank batteries that were involved in the acquisition. PDC prepared this Plan for submittal to the Colorado Oil and Gas Conservation Commission (COGCC) so that the COGCC staff is aware that PDC is actively working to bring these acquired facilities into compliance with applicable state and federal regulations.

The work that PDC is currently completing falls into the following six categories:

- Mechanical Integrity Testing (MIT);
- Bradenhead Testing;
- Concrete Produced Water Vault Removals and new tank replacement upgrades;
- Spill Prevention, Control, and Countermeasure (SPCC) compliance activities;
- Stormwater inspections and compliance activities;
- Rule 318A.e. (4) Greater Wattenberg Area (GWA) Water Well Sampling; and
- General Housekeeping Activities.

## 2. Production Related Activities

Two operational compliance items that are being completed on the Merit wells are Mechanical Integrity Testing (MIT) and bradenhead testing.

### 2.1 Mechanical Integrity Testing

After acquiring these assets, PDC operations personnel began evaluating the Merit wells to determine which of these had been shut-in two years prior to the June 29, 2012 acquisition date, and if there were any other wells that had been shut-in for longer than

the two year timeframe. The purpose of this activity was to develop a comprehensive list of locations and associated shut-in timeframes so PDC could begin scheduling MIT work to ensure compliance with COGCC Rule 326(b). In addition, PDC wanted to confirm the list that was included in a letter from the COGCC to Ms. Arlene Valliquette at Merit, dated May 3, 2012. In this letter, the COGCC detailed specific Merit wells that were out of compliance with COGCC Rules 319 and 326 for temporary abandonment and integrity testing. The letter listed a compliance date of November 3, 2012 to complete this work.

In the May 3<sup>rd</sup> 2012 letter, the COGCC identified 53 wells that required MITs, however, based on the due diligence efforts completed by PDC, a total number of 59 well locations were identified as possibly being out of compliance with COGCC abandonment and testing requirements (see Table 3). Since the acquisition, PDC has evaluated each of these 59 locations and is completing the following compliance activities on the acquired wells:

- As of January 31, 2013, PDC has completed MITs on 47 wells;
- PDC currently plans to plug and abandon 25 of the wells (highlighted in blue in Table 3);
- After evaluating historical production data, PDC has determined that 17 wells will be put back into production (highlighted in green in Table 3).

In correspondence between Merit and the COGCC dated May 30, 2012, a deadline of April 30, 2013 was proposed to complete all MIT work on the identified wells. PDC feels that it will be able to meet this deadline and that all the COGCC Form 21's associated with the MIT activities can be submitted by the April 30<sup>th</sup> deadline.

## **2.2 Bradenhead Testing**

In addition to completing MITs on the acquired wells, bradenhead testing is also being conducted.

PDC consulted with the COGCC and confirmed 119 wells previously operated by Merit reportedly have insufficient surface casing to protect the Laramie/Fox Hills aquifer as per Rule 317a and require bradenhead testing (Table 4).

Upon further research completed by PDC, three (3) of these wells were divested by Merit to Great Western Operating Co. prior to being acquired by PDC. They are:

| <b><u>Well</u></b> | <b><u>API #</u></b> |
|--------------------|---------------------|
| Front Range #1     | 05-001-06542        |
| Front Range #2     | 05-001-06862        |
| Front Range #3     | 05-001-08738        |

Additionally, one (1) of these wells has been previously plugged and abandoned. This well is:

| <b><u>Well</u></b> | <b><u>API #</u></b> |
|--------------------|---------------------|
| Bergman #1         | 05-001-06182        |

Also, according to the *Division of Water Resources, Denver Basin Aquifer Evaluation Tool* there are four (4) wells listed that do have sufficient surface casing to protect the Laramie/Fox Hills aquifer. PDC requests that these wells be excluded from further bradenhead testing requirements. They include:

| <b><u>Well</u></b>      | <b><u>API #</u></b> |
|-------------------------|---------------------|
| Wyman #34-6             | 05-001-09292        |
| Bowen #2-7              | 05-123-16691        |
| Buffalo Gardens #U13-1J | 05-123-08909        |
| Johnston #1             | 05-123-13652        |

Taking the above information into account, there are a total of 111 former Merit wells on the revised list that qualify for bradenhead testing by PDC. Prior to the acquisition by PDC, Merit conducted bradenhead tests on many of the wells on this list. Since the acquisition, PDC has conducted bradenhead tests on 18 additional wells on the revised list. Results of the Merit and PDC bradenhead tests are listed in Table 4 and summarized in the table below.

| <b>YEAR</b>  | <b># TESTS</b> | <b>BHD = 0 psi</b> | <b>BHD &gt; 0 psi</b> | <b>BHD &gt; 2009<br/>Pressure Guidance</b> |
|--------------|----------------|--------------------|-----------------------|--|
| 2001 (Merit) | 3              | 3                  | -                     | -  |
| 2002 (Merit) | 1              | -                  | 1                     | 0  |
| 2006 (Merit) | 1              | 0                  | -                     | -  |
| 2010 (Merit) | 82             | 70                 | 12                    | 10   |
| 2012 (PDC)   | 18             | 16                 | 2                     | 0  |

The bradenhead testing has identified two (2) wells that exhibited a bradenhead pressure of 100 psi. They are:

| <u>WELL</u>   | <u>API #</u> | <u>YEAR</u> |
|---------------|--------------|-------------|
| Lorenz #44-28 | 05-123-14444 | 2010        |
| Irving #5     | 05-123-23067 | 2012        |

There are seven (7) wells on the revised list that have had no bradenhead test conducted. PDC also plans to re-test those wells that had tests done in 2001, 2002, and 2006, and on those wells that exhibited bradenhead pressures in 2010 that exceed the COGCC 2009 pressure guidance. In summary, PDC has identified a total of 21 wells where bradenhead tests are required. The tests will be completed by the end of March 2013. These wells are highlighted in yellow and orange in Table 4.

Upon completion of these additional tests, the results will be reviewed to determine what further action will be recommended for these wells and COGCC staff will be consulted accordingly.

### **3. Environmental Related Activities**

PDC is also completing environmental compliance related activities at the acquired wells and batteries. This work includes removing precast concrete vaults that have historically been used by Merit for the storage of produced water, and replacing them with new tanks. PDC is also upgrading secondary containment structures and revising the field wide SPCC plan to incorporate these upgrades. In addition, PDC has completed stormwater compliance inspections at these facilities and is updating the PDC basin wide Stormwater Management Plan (SWMP).

#### **3.1 Concrete Vault Removal**

As a field-wide upgrade, PDC is removing all of the partially buried concrete vaults from the acquired Merit batteries and is replacing these with new, partially buried fiberglass tanks. As part of the change-out process, PDC will be collecting soil samples and logging change-out information for each location. PDC developed a field data collection form that will be completed for each vault replacement. PDC plans to provide a copy of this completed form as part of agency correspondence or when needed as a supplement to the COGCC (Form 19s or 27s) should soil or groundwater impacts be encountered during the vault replacement activities. Table 5 provides a list of the former Merit batteries that currently have concrete vaults on them. This list was obtained during the Phase I that was completed as part of the asset purchase.

## **3.2 SPCC Compliance**

Immediately following the acquisition, PDC began the process of inspecting each tank battery to ensure compliance with SPCC regulations. PDC inspected each Merit tank battery location and completed a SPCC inspection. Based upon findings from the inspections, the existing PDC SPCC General Field Plan is being updated to incorporate the additional acquired facilities. After completing the SPCC inspections, it was determined that approximately 60% of the Merit facilities required upgrades to the secondary containment structures.

PDC has initiated the SPCC upgrade work and anticipates having all of the Merit facilities in compliance with SPCC regulations by the end of the first quarter 2013. Updates to the SPCC General Field Plan will be incorporated by the end of February 2013.

## **3.3 Facility Stormwater Compliance**

A stormwater compliance review was also conducted at the Merit locations. As part of the stormwater inspections, a COGCC Tier 1 evaluation was completed at each location. Of all the wellheads that were inspected, it was determined that 581 of these locations met all of the Tier 1 criteria and could be excluded from PDC's Post-Construction Stormwater Program. In addition to the wellheads, all the tank batteries were also inspected and 326 of these facilities also met the Tier 1 criteria. A list of all the wellheads and tank batteries that were inspected as well as the Tier 1 results are summarized in Tables 6 and 7. The locations that did not meet the criteria will continue to be regularly inspected as part of our stormwater compliance plan. The PDC stormwater compliance data base has been updated to include the new Merit wells and batteries.

## **3.4 Rule 318A. – GWA Water Well Sampling**

As per Rule 318A.e(4), operators are required to sample applicable water wells as a Condition of Approval (COAs) on Form 2 - Application for Permit to Drill. According to a list provided by COGCC staff, Merit had COAs under Rule 318A.e (4) for ten (10) wells. It is unknown if Merit attempted to sample any qualifying water wells associated with these wells. PDC could not verify if Merit submitted any of these results to the COGCC. As a result, PDC is currently working on this issue and will provide water well sampling results as soon as practicable or notify the COGCC staff accordingly.

### **3.5 General Housekeeping**

PDC personnel are completing general housekeeping activities at each of the former Merit locations. General housekeeping activities that are being completed include:

- Ensuring every location is free of debris, trash, and work obstructions;
- Inspecting each wellhead and tank battery location to ensure each location has the proper signage; and
- Inspecting equipment to ensure that it is operating properly.

In addition to the daily inspections of the wells and batteries, these former Merit facilities have been included in the annual PDC Wellhead Inspection Program. These annual inspections are used to document equipment upgrades and to ensure that compliance issues have been addressed. Modifications to tank batteries are noted, including SPCC and stormwater compliance upgrades. All operational compliance related issues are noted and the associated compliance documents are updated.



## **TABLES**