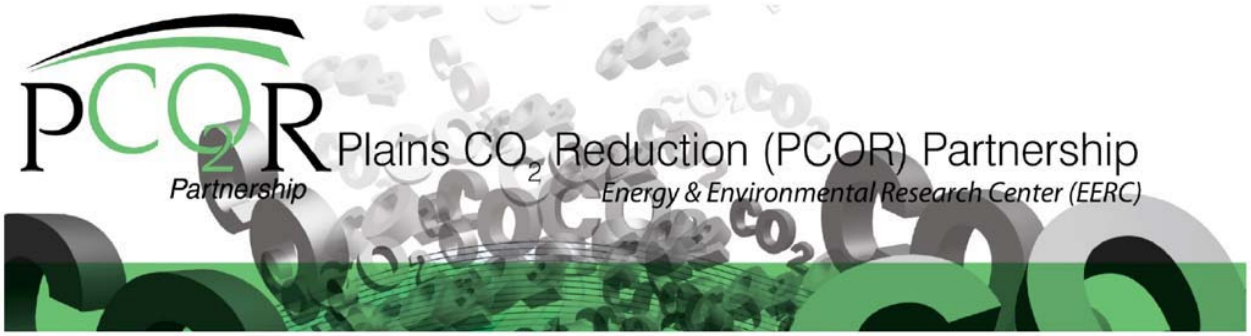

BELL CREEK TEST SITE BASELINE MVA INITIATED

Plains CO_2 Reduction (PCOR) Partnership Phase III
Task 5 – Milestone M30

Prepared for:

Ms. Andrea T. McNemar

National Energy Technology Laboratory
U.S. Department of Energy
3610 Collins Ferry Road
PO Box 880
Morgantown, WV 26507-0880

Cooperative Agreement No. DE-FC26-05NT42592

Prepared by:

Charles D. Gorecki
Edward N. Steadman
John A. Harju

Energy & Environmental Research Center
University of North Dakota
15 North 23rd Street, Stop 9018
Grand Forks, ND 58202-9018

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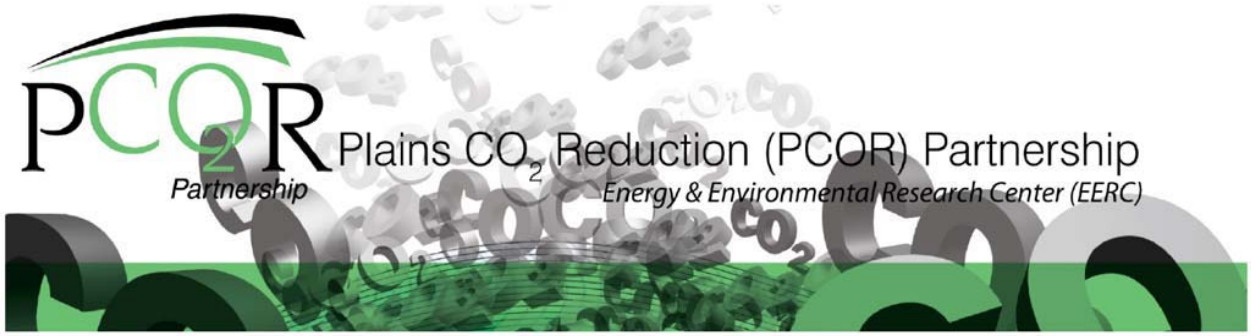

BELL CREEK TEST SITE BASELINE MVA INITIATED

BACKGROUND

The Plains CO_2 Reduction (PCOR) Partnership is working with Denbury Resources Incorporated (DRI) to determine the efficacy of developing a robust and practical monitoring, verification, and accounting (MVA); risk management; and simulation project associated with commercial-scale injection of carbon dioxide (CO_2) for the purpose of simultaneous enhanced oil recovery (EOR) and storage of CO_2. A technical team that includes DRI, the Energy & Environmental Research Center (EERC), and others will conduct a variety of activities to determine the baseline geological characteristics and potential for leakage through existing wellbores in the vicinity of the injection site and surrounding areas. DRI will carry out the injection process, while the EERC will conduct CO_2 MVA activities at the site. The project, which will be conducted in the Bell Creek oil field in Powder River County in southeastern Montana, will provide insight regarding the impact of miscible CO_2 flood tertiary recovery on oil production and successful CO_2 storage sequestration within a sandstone reservoir in the Cretaceous Muddy Formation. The Bell Creek project will be a unique opportunity to develop a set of cost-effective MVA protocols for large-scale CO_2 storage associated with an EOR operation.

The Bell Creek oil field is an ideal candidate for a CO_2 tertiary recovery and storage project because of a number of factors. The primary reason is its depth of 4500 feet, which results in temperature and pressure conditions that will maintain the injected CO_2 in a supercritical state and may allow for miscibility of the CO_2 in the oil. The secondary reason is that the average permeability of the Bell Creek reservoir is 900 millidarcies, and its porosity averages 24%, allowing for high CO_2 injection rates and a fairly rapid production response. With respect to potential wellbore leakage, there are hundreds of existing wellbores in Bell Creek oil field, and many others are in close proximity to the oil field. Identification and examination of data related to drilling, completion, operation and, where applicable, plugging of these existing wellbores are necessary to determine the potential for wellbore leakage and develop monitoring and mitigation plans to eliminate or minimize associated risks.

BELL CREEK TEST SITE BASELINE MVA INITIATED

A variety of activities focused on developing a successful MVA program at the Bell Creek oil field and the surrounding area were initiated in the first quarter of Phase III – Year 4. These

activities have been broken into two groups (surface and near-surface and deep MVA) and include the following.

Surface and Near-Surface MVA Program

- A detailed soil gas survey is in the planning process with Denbury, in which the EERC would perform a baseline soil gas survey over the entire Bell Creek Oil field over the next 12–24 months. This would include several (at least four repeat surveys) to capture the seasonal variations in the soil gas content.

- A shallow groundwater-monitoring program is in the planning stages with Denbury Resources, in which the EERC would perform baseline shallow groundwater monitoring in selected groundwater wells throughout the Bell Creek Field, focusing on the Phase I area. This baseline activity will take place over the next 24 months and include several repeat surveys to include seasonal variation.

- Surface water sampling will take place in conjunction with soil gas and shallow groundwater-monitoring activities.

Deep MVA Program

- The EERC has scanned and made electronic copies of all of the well files for the Bell Creek Field, and it is currently integrating these data, as well as historic core data from the field, into a baseline geological model. All public and proprietary well data that exist have been collected and are being incorporated into this baseline model.

- The EERC and Denbury are working on plans to drill a deep monitoring well into the middle of an injector producer pattern to 1) collect additional baseline data such as core, well logs, and well tests; 2) run baseline crosswell and 3-D vertical seismic profiles (VSPs), which will be used along with repeat surveys to track the CO_2 as it moves through the subsurface; and 3) install downhole pressure and temperature sensors which will continuously track the movement of fluids in the subsurface.

- The EERC and Denbury are developing a plan to use all of the injectors and producers in the field (starting with the Phase I area) to account for the injected CO_2 and outfit additional wells with other cost-effective monitoring applications for an increased level of certainty.

- The EERC and Denbury are working together to determine the applicability of using 3-D surface seismic surveys over a portion (to include the Phase I area) or the entire field to acquire a good baseline for additional 4-D seismic surveys in the future and to obtain a more thorough understanding of the geology of the reservoir and seal formations. This may also be a unique opportunity to integrate crosswell, 3-D VSP, and 3-D surface seismic to get a much greater understanding of the geology and a clearer picture of CO_2 movement in the subsurface.

- The field MVA activities will be coupled with detailed modeling and simulation to ensure that the injected CO_2 is either recycled or stays in the reservoir indefinitely.