



Plains CO₂ Reduction (PCOR) Partnership
Energy & Environmental Research Center (EERC)

BELL CREEK TEST SITE – 1.5M METRIC TONS OF CO₂ INJECTED

**Plains CO₂ Reduction (PCOR) Partnership Phase III
Task 9 – Milestone M49**

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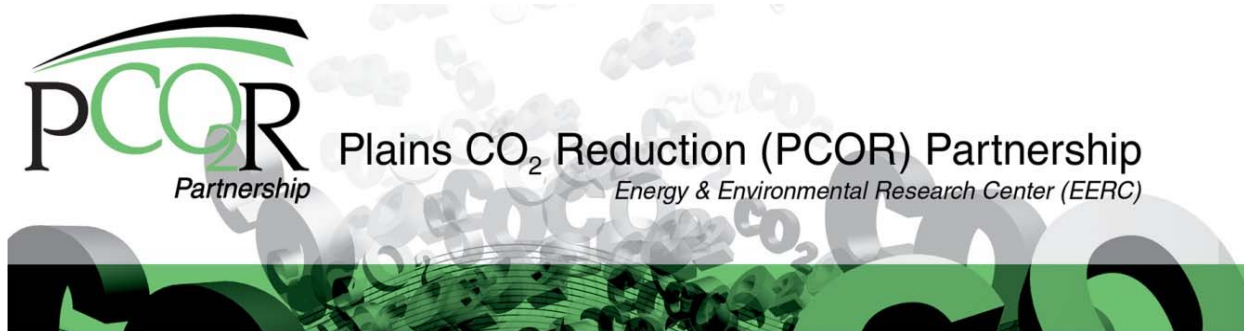
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BELL CREEK TEST SITE – 1.5M METRIC TONS OF CO₂ INJECTED

BACKGROUND

The Plains CO₂ Reduction (PCOR) Partnership is one of seven Regional Carbon Sequestration Partnerships competitively awarded by the U.S. Department of Energy (DOE) National Energy Technology Laboratory in 2003 as part of a national plan to mitigate greenhouse gas emissions. The PCOR Partnership is led by the Energy & Environmental Research Center (EERC) at the University of North Dakota and includes stakeholders from the public and private sectors. The PCOR Partnership region includes all or part of nine U.S. states and four Canadian provinces.

Phase III, the development phase, is a 10-year effort (2007–2017) that extends the characterization (Phase I) and validation (Phase II) phases. The Phase III efforts of the PCOR Partnership include two large-volume demonstration tests, one in Canada (the Ft. Nelson project) and one in the United States (the Bell Creek project). The demonstration tests focus on injecting commercial-scale volumes of carbon dioxide (CO₂) into deep geologic formations for CO₂ storage.

Many different aspects of carbon capture and storage will be evaluated during the demonstrations, ranging from CO₂ capture, compression, and pipeline transport to injection, recycle; and monitoring, verification, and accounting.

1.5M METRIC TONS OF CO₂ INJECTED AS OF NOVEMBER 2014

The PCOR Partnership, led by the EERC, is working with Denbury Onshore LLC (Denbury) to study associated CO₂ storage in relation to a commercial enhanced oil recovery (EOR) project at the Denbury-operated Bell Creek oil field located in southeastern Montana. Denbury is managing all injection, production, and recycle activities as part of its commercial CO₂ EOR operation. The EERC, through the PCOR Partnership, is studying the behavior of reservoir fluids and injected CO₂ to demonstrate safe and effective associated CO₂ storage related to a commercial EOR project. The PCOR Partnership is developing practices and technologies that will allow future commercial-scale CO₂ storage projects make informed decisions regarding site selection, injection programs, operations, and monitoring strategies that maximize storage efficiency and effective storage capacity in clastic geologic formations.

Denbury is developing the Bell Creek oil field in a phased approach with each development phase corresponding to approximately 12 months of injection before the next development phase is brought online. Continuous CO₂ injection has been occurring at the Bell Creek oil field since May of 2013, primarily in the Phase 1 development area. Currently, active injection has expanded into the Phase 2, 3, and 4 development areas. The amount of injected gas is being reported to the Montana Board of Oil & Gas (MBOG) by Denbury on a monthly basis, although there has a lag between when the data are supplied to MBOG and when they are made publicly available.

This milestone marks that 1,500,000 metric tons of CO₂ were injected at the Bell Creek oil field, which occurred in November 2014. Current reported MBOG injection totals are 1,660,570 metric tons of total gas (composition >95% CO₂) from 46 wells in the Bell Creek oil field as of November 30, 2014 (Figure 1). The CO₂ is sourced from the Lost Cabin gas-processing facility, which processes gas from the Madden Field in the Wind River Basin of Wyoming, and the Shute Creek gas-processing facility, which processes gas from the LaBarge Field in the Green River Basin of Wyoming. Subsequent monthly injection totals will be reported to DOE as part of the PCOR Partnership's regular quarterly reporting once the data become available.

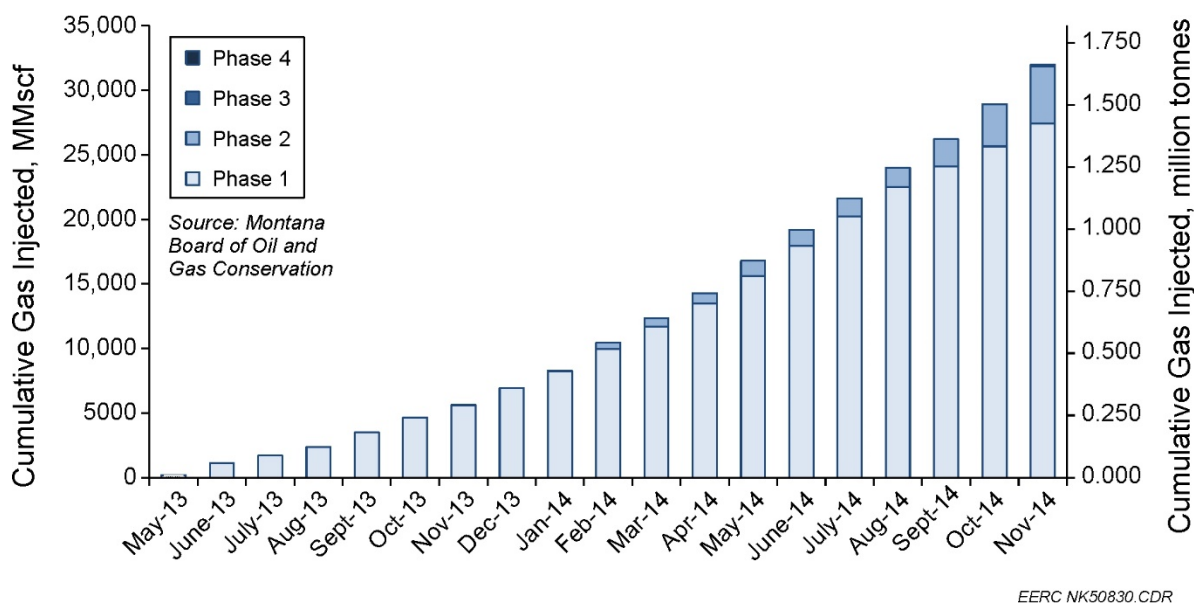


Figure 1. Monthly breakdown of cumulative gas injection by development phase at the Bell Creek oil field.