PLAINS CO_2 REDUCTION (PCOR) PARTNERSHIP (PHASE II) – BURKE COUNTY, NORTH DAKOTA, LIGNITE DEMONSTRATION SITE

Topic: Sequestration of Carbon Emissions in Geologic Formations
Enhanced Coalbed Methane

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ABSTRACT

Deep coal seams are believed to provide a viable opportunity for large-scale underground sequestration of carbon dioxide. The opportunity looks even more attractive because of the possibility of simultaneous coalbed methane production. However, despite the maturity of the idea and several ongoing enhanced coalbed methane (ECBM) production projects worldwide, the implications of applying the concept to a wide range of coal types and seams are unclear. The Plains CO_2 Reduction Partnership field validation test in Burke County, North Dakota, aims to define CO_2 sequestration capacity and CH_4 production potential of North Dakota lignite reserves. It is anticipated that the results of the test will be applicable to lignite seams throughout the United States and worldwide and will reveal features having foremost importance for CO_2 sequestration and CH_4 production in lignite.

The goal of the field validation test in Burke County, North Dakota, is to evaluate the features of fluid transport in lignite, the stability of carbon dioxide stored within a lignite seam, the factors controlling the success of sequestration/production operations in lignite, and the economics of the operation. The test will adopt a standard five-spot production/ injection well geometry to allow for more efficient site characterization, replacement of natural gas by carbon dioxide, and monitoring, mitigation, and verification (MMV) activities.

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