

CO₂-Enhanced Coalbed Methane Recovery: Micro-Pilot Testing

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The Alberta Research Council Inc. (ARC) leads a consortium of over 20 companies that established a pilot site at Fenn-Big Valley, Alberta, Canada on Gulf Canada operated properties. This site was chosen because Gulf had the only sustained production from coal seams in Canada.

The main objectives of the project are: to reduce greenhouse gas emissions by subsurface injection of carbon dioxide into deep coalbeds.; and to enhance coalbed methane recovery factors and production rates as a result of carbon dioxide injection. Or put more concisely - to enhance coalbed methane (CBM) production while storing CO₂ in coal reservoirs based on both economic and environmental criteria .

An initial assessment and feasibility of injecting flue gases into Mannville coals was made. This was followed by the design and implementation of four micro-pilots (pure CO₂, pure N₂, 50/50 CO₂/N₂ and 13/87 CO₂/N₂ single well injection-soak-production tests) to measure reservoir response to waste gas injection following BP-Amoco procedures. Numerical models are being evaluated by history matching the data sets collected in these micropilot tests. This year, the design and implementation of a full-scale 5 spot pilot project at a suitable site in Alberta is planned.

It is expected that the final results will show Gas Producers the best way to enhance production from low permeability CBM wells. On the other hand, reducing "**Greenhouse Gas Emissions**" is a priority to the Utilities and is addressed. Cost curves will be generated to assess the price per tonne of CO₂ stored in coal reservoirs based on wellhead price of natural gas and composition of flue gas injected.