Enhanced CBM/CO₂ Storage Micro-pilot Test in the Anthracitic Coals of the Qinshui Basin, Shanxi Province, China

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China ECBM Project

Canadian International Development Agency (CIDA)

Ministry of Commerce (MOFCOM)

Canadian Climate Change Development Fund (CCCDF) (CA $ 5 million)

China United Coalbed Methane Corporation Ltd. (CUCBM) (CA $ 5 million)

3.5 - year CA $ 10 million Project (Started March 2002)
Participants

CIDA
Canadian Consortium:
• Alberta Research Council (ARC)
• Sproule International Ltd.
• Computer Modelling Group (CMG)
• SNC-Lavalin Inc.
• Computalog
• CalFrac Well Services
• Porteous Engineering

• China United Coalbed Methane Corporation Ltd. (CUCBM)
Site Visit
Injecting Liquid CO$_2$
Bottom-hole Pressure Response During CO₂ Injection

![Pressure Response Graph]

- **Date**
  - 3-Apr
  - 8-Apr
  - 13-Apr
  - 18-Apr
  - 23-Apr
  - 28-Apr
  - 3-May

- **Bottom-hole Pressure (KPa)**

**Note:** The graph shows the pressure response over time, with peaks and troughs indicating the injection activity.
Injectivity versus Cumulative $\text{CO}_2$
Summary

• The single well micro-pilot test as conducted in the South Qinshui TL-003 well has been completed successfully and has met all the technical objectives of the micro-pilot test.

• The history matching of the dataset from the micro-pilot and the simulation prediction for the multi-well pilot indicated a significant production enhancement compared to primary production, and that substantial CO₂ storage in the coal seam is feasible.
Major Tasks for 2005

- Multi-well pilot design based on verification of Micro-pilot reservoir simulator predictions
- Initial commercial economic evaluation
- Training and technology transfer being conducted in Canada and China
- Initiate multi-well pilot project
The Future!

- Enhanced coalbed methane (ECBM) recovery
- Sequestration of CO₂