CO₂SINK - In situ R&D Laboratory for Geological Storage of CO₂ in a Saline Aquifer

CSDLF Project Status Report (PSR)
December 2008

1. Project Location
Ketzin, State of Brandenburg, Germany

2. Project Lead
GeoForschungsZentrum Potsdam, German Research Centre for Geosciences (GFZ)
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3. Project Objectives
- Developing a basis for geologic storage of CO₂ into a saline aquifer
- Establishing the first European in-situ laboratory for onshore storage of CO₂
- Creating a field laboratory with one injection well and two observation wells
- Characterization of flow and reaction processes in geologic storage, including detailed analysis of samples of rocks, fluids and microorganisms from the underground reservoir
- Intensive monitoring of the injected CO₂ using a broad range of geophysical (time-lapse seismic, electrical and thermal), geochemical and microbiological techniques
- Development and benchmarking of numerical models
- Definition and testing of risk-assessment strategies

4. Recent Milestones
- Feb./May 2007: Spud-in of the CO₂SINK injection and observation wells
- June 13, 2007: Opening of the Ketzin Field Lab, CO₂ Storage Site and Info Centre
- Sept. 8, 2007: One injection and two observation wells drilled and cemented (smart wells with electrical and fibre-optical permanent sensors behind casing)
- Feb. 8, 2008: Injection facility installed and tested
- Feb. 29, 2008: Hydraulic testing successful
- June 18, 2008: Final lifting of injection and observation wells; slug injection
- June 24, 2008: Commissioning of injection facility, start of injection test phase
- June 30, 2008: Start of CO₂ injection
- Nov. 17, 2008: Presentation of the CO₂SINK Status Report to GHGT-9, Washington

5. Status
- 5-years lifetime 04/2004 - 03/2009; extension of project lifetime is applied for
- July 2008: start injection of up to 60,000 tonnes CO₂
- Nov 2008: 4500 tonnes of CO₂ injected till now

Completed subprojects:
- Storage site development
- Baseline Storage Site Modeling
- GeoEngineering: drilling, coring, pre-injection logging

Ongoing subprojects:
- Rock/fluid interactions laboratory experimentation
- Economic/ecological analysis and safety concepts
- CO₂ supply, transport, intermediate storage, conditioning and injection
- Geophysical and geochemical borehole and surface MMV of CO₂ storage
- Project coordination and public outreach
- Preparation (permitting and operation) of CO₂ wellbore abandonment and post-injection MMV

The present state of the CO₂SINK Integrated Project has been summarized in the Proceedings of GHGT-9 by Schilling, F., Borm, G., Wuerdemann, H., Moeller, F., Kuehn, M. and the CO₂SINK Group: Status Report on the First European on-shore CO₂ Storage Site at Ketzin (Germany) and illustrated by 5 technical posters to GHGT-9 on specific topics of the project.