

PRESSEINFORMATION

Helmholtz-Centre Potsdam

GFZ German Research Centre for Geosciences

and

Landesamt für Bergbau, Geologie und Rohstoffe Brandenburg

Start of Underground Storage of CO₂ in Ketzin

On Monday, 30th June 2008, the GFZ German Research Centre for Geosciences begins with the underground storage of CO₂ in Ketzin. Within the framework of the European CO₂-SINK Project up to 60 000 tons of CO₂ (carbon dioxide) will be stored at a depth of more than 600 m during the next 2 years.

Under the management of the GFZ in cooperation with 18 partners from 9 countries, the injection into and storage of CO₂ in deep, saltwater-filled, porous rocks will be examined for the first time Europe-wide. An injection well and two observation wells have been successfully lowered to depths of 800 m, equipped with the most modern sensor technology and successfully tested. The necessary infrastructure and injection-system are complete. The safety of the underground store is supported by extensive survey reports.

To guarantee for the safety of storage, the responsible State Office for Mining, Geology and Minerals of Brandenburg (LBGR) have supported the project in technical and safety-related issues during the prospecting, development and examination of the storage location Ketzin, and have issued the required legal mining-authorizations. *„For us as the responsible Authority with years of experience in the authorization and monitoring of underground storage, the authorization of a CO₂-storage is an interesting change, as here, we are permitting, for the first time in Europe, the injection of CO₂ into saline aquifers for research purposes“* says Dr. Klaus Freytag, the President of LBGR, and looks forward to giving green light for the injection of CO₂ this Monday.

With this pilot plant a large laboratory is generated in which the behaviour of CO₂ in the underground can be examined under natural conditions. *„Nowadays, a safe energy supply and environmental aspects can no longer be treated separately. The storage of the green-house gas CO₂ is hereby an option to win time in the development and introduction of CO₂-reduced energy technology“* explains Professor Dr. Dr. h.c. Reinhard Hüttl, Scientific Executive Director of the German Research Centre for Geosciences *„With the project CO₂SINK in Ketzin we avail of a worldwide unique laboratory in which we can examine in detail the storage of CO₂ in the underground and the interaction with the geo- and biosphere. In addition to the reduction of CO₂-emissions through CO₂-separation and storage, regenerative and basic loadable energy resources are tapped and adaptation strategies developed.“*

For storage, CO₂ in food-grade quality is employed, which is used, for example, in drinks such as mineral water or beer.

An Underground Laboratory and Safety First

The selected rock formation represents a natural lab, which due to its geology is suitable for the planned project. Even at a depth of 400 m over a former gas store there is an impermeable overlying cap rock. The envisaged CO₂ test-storage horizon, in turn, lies almost twice as deep in the underground. A number of impermeable layers cover the actual store horizon. For the upper barrier the practical proof of impermeability has already been rendered through the operation of the former natural gas store in Ketzin. Further impermeable layers are located between the former store horizon and the rock layer envisaged for the planned injection. Thus, this location has a natural multi-barrier system which guarantees for the necessary imperviousness of the storage system.

In all three wells cores were recovered which were examined in detail to investigate the suitability of the rock layers for storage. The quality of the storage horizon and the overlying layers are ideal for this research project, as due to the complex structure of the underground the resolution of different monitoring technologies could be tested and improved.

During the two year duration of the experiment a continuous monitoring of the area from the surface to depth will take place. Measuring sounds will be lowered into the wells, to quantify the characteristics of the rock at the different depth-levels with three-dimensional seismological investigations (similar to ultra sound diagnostic in medicine). Geoelectrical and thermal systems will be employed and the reaction of CO₂ with the rocks will be examined in-situ. The behaviour of carbonic acid and its dissemination in the underground were prognosed with the help of a computer simulation. The observations in Ketzin will also help to improve these numerical models.

Test of the geological underground store

The time span since completion of the drilling operations in September 2007 has been used to investigate the storage characteristics and to test the functionality of the sensor technique. Hereby seismic, geoelectric, hydraulic, chemical and biological observations have been carried out and the conditions before the injection start have been recorded. In this way changes resulting from the storage of CO₂ can be qualitatively and quantitatively observed and important conclusions on the optimal monitoring of storage systems obtained. All investigations confirm that CO₂ can be safely stored in the geological aquifer-store in Ketzin.

End of Press Release

Homepage des CO₂SINK Projektes:
<http://www.co2sink.org>

<http://www.gfz-potsdam.de> >>Public Relations >> Image Galleries >> CO₂SINK

CO₂SINK Project Partners:

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