The Otway Basin Pilot Project, Victoria, Australia

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The Otway Basin Pilot Project (OBPP) is being undertaken by the Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) in the state of Victoria, Australia. The project is designed to demonstrate the capture, storage and monitoring of CO2 from stationary sources such as power stations. CO2CRC has established a Pilot Project Ltd (CPPL) to operate on behalf of the CO2CRC to implement the demonstration project. The OBPP is being conducted under Australian conditions with the objective of demonstrating CO2 storage at a commercially significant scale.

Site Selection

In 2004, an opportunity was identified to perform storage research in the Otway Basin, one of the most prospective onshore CO2 storage sites in the world. The Otway Basin is a mature, naturally occurring CO2 accumulation in Victoria, Australia. The basin is located in a geologically stable region with a thick overburden, which can help contain the CO2. The project will involve the geological storage of up to 100,000 tonnes of CO2 in the Otway Basin in Western Victoria.

The Otway Basin Pilot Project

CO2CRC Pilot Project Ltd (CPPL) has been established to act as the operator of the demonstration project on behalf of the CO2CRC Joint Venture. CPPL is the owner and holder of two petroleum tenements and the operator of the CO2 gas well, the pipeline and the injection activities. CPPL has worked extensively with Victorian Government State departments to obtain the necessary permits and approvals for the project. Baseline surveys have been conducted to characterise the geological formation and CO2 accumulations. The project includes a suite of monitoring and verification activities by CO2CRC research bodies, the Lawrence Berkeley National Laboratory, the Alberta Research Council, and other international collaborators.

Monitoring and Verification

A primary aim of the project is monitoring and verification to demonstrate that injected CO2 remains contained in the storage formation and verify performance predictions. An extensive monitoring and verification program will be conducted throughout the injection phase and will continue for several years afterwards to verify the long-term containment of the injected CO2 in the subsurface. Baseline data has already been collected from existing monitoring of the site.

The project will include a suite of monitoring and verification activities by CO2CRC research bodies, the Lawrence Berkeley National Laboratory, the Alberta Research Council, and other international collaborators. The range of monitoring techniques will include subsurface, near-surface and atmospheric technologies, including some that will be deployed for the first time anywhere in the world.

Communicating with the Community

Communicating with the community was a key project goal. The aim of the consultative process is to develop trust in the research and confidence in its research program and operational activities. The consultation process involves two-way communication, encourages comment and input from landholders and places an emphasis on transparency. The consultative activities included: community meetings and workshops; media interactions; face-to-face meetings with landholders; and responding to information requests by telephone and email.

The Geological Characterisation

The geological strata have been comprehensively characterised using a range of techniques aimed at understanding the: • geology structure, properties and heterogeneities; • orientation and stress distribution in the bounding faults and the potential for leakage; • behaviour of the injected CO2 in the Waarre C Formation; and; • sensitivities of different modelling techniques and responses.

Depth-convered faults and horizons were used as the framework for the development of a reservoir model and the interpreted depositional models.

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