

# CO<sub>2</sub> CAPTURE AND STORAGE (CCS) CASE STUDY

ZeroGen - Northern Denison Trough  
Queensland, Australia

## AWT DISCIPLINES

**Petrophysics**

**Geophysics**

**Operation Geology**

**Geology & Geomodelling**

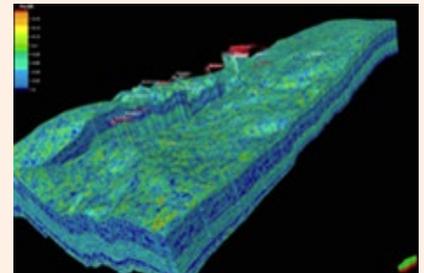
**Reservoir Engineering**

## AWT WORKSCOPE

One of the key issues is to establish the proof of concept for the land-mark CO<sub>2</sub> sequestration project. Following on this, AWT was engaged and multi-discipline sub-surface study was carried out by the team members (including project leader) incorporating seismic interpretation and reservoir characterisation to support GHG Tenement Application in Queensland (Southern Bowen and Surat Basins). The study was performed to identify the likely suitable reservoir and the feasibility analysis of the CO<sub>2</sub> storage capacities.

### AWT Involvement:

- Storage reservoir identification
- Well location planning
- Operations geology
- Field development planning
- Designed sub-surface appraisal programme
- Sub-surface and core evaluation studies



## PROJECT BACKGROUND

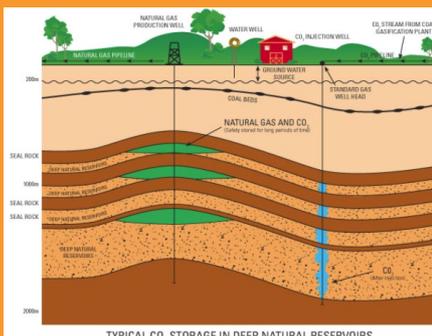
ZeroGen was a Carbon Capture and Storage (CCS) project In Queensland, proposed by ZeroGen Pty Ltd, a Queensland government owned company. The 1<sup>st</sup> stage of the project was the sequestration in deep saline aquifers in the Northern Denison Trough near Emerald, approx. 220 km from plant. AWT was involved in this stage and carried out an assessment on the geological formations for CO<sub>2</sub> storage. Drilling Program One (DP1) was successfully completed, involving the drilling and testing of two wells with depths between 1000m & 2000m in the Northern Denison Trough. The 2<sup>nd</sup> stage was planned to include the construction of a 400 megawatt CCS project in Queensland at a site yet to be determined. The estimated cost of the total project had been reported as being \$4.3 billion.

### AWT Project Description:

- Prepare data for development of a static geological model. This included:
  - Using regional maps at top reservoir and seal;
  - Wireline log analysis to characterise reservoir sand seal pairs;
  - Prepare poro-perm transforms using Petrophysics.
- Build a static model.
- Run dynamic model for:
  - Simulation for footprint, rate and pressure analyses of CO<sub>2</sub> movement;
  - Undertake probabilistic monte-carlo simulations, to evaluate storage capacities and single well injection rates.

## OUTCOME

- Feasibility appraisal work ongoing
- Confirmation of feasibility likely to lead to extensive involvement in development programme
- ZeroGen had the potential to become a world-leading CCS project



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