

Great Southern Basin Regional Study

The Great South Basin is one of New Zealand's largest basins and contains up to 8 km of sediment. Exploration during the 1970s and 1980s resulted in 35,000 km of seismic reflection data and eight exploration wells. Hydrocarbon indications were found in four of the eight wells, including a gas-condensate discovery of 461 BCF.

Produced by GNS Science, the Great South Basin Regional Study provides appropriate technical information, data synthesis, and analysis for hydrocarbon exploration companies to evaluate prospectivity. It is accompanied by a GNS monograph that provides underpinning technical information. The Regional Study represents the culmination of five years work by a team of petroleum geologists and includes structure, isopach, and paleogeographic maps for each stratigraphic interval, based on interpretation of all available data. Detailed discussion of kerogen maturity is presented for 17 key sites, and source rock maturity and generated volumes of oil and gas for each unit are predicted across the entire basin. A systematic well failure analysis and a summary of key exploration risks is included.

The report includes new source rock chemistry and maturity data (comprehensive table included

in appendices) and digital grids of: structural mapping at 1: 500,000; paleogeography; and new petroleum generation and maturity modelling. All of these data are presented in A0 maps and digital coverage in ARC shape or grid file format.

The time saving nature of the GSB Regional Review becomes apparent when you consider that it was developed from interpretations of paper, not digital seismic. No-one has produced a large scale digital data set for the regional extent of this study, unless they have re-processed it themselves (and this would be 'closed file'), or is yet to be acquired.

Key features include:

- Well failure analysis summarising well and test data, a review of play concept and petroleum system, and a short discussion of the reasons for well failure.
- New Ro data for the Tara-1 well and some onshore samples.
- Generative potential maps created using GNS' in-house multi-1D modelling package
- 80 biomarker data samples

from eight wells (including two Canterbury Basin wells) covering about 15 of the primary biomarker ratios and indices are provided

- Gas chemistry data presented as summaries of selected gas composition data and isotopic ratios (13C and 3He/4He) for onshore seeps and Kawau-1 DST samples.
- Source rock data including isotopic ratios, sulphur content, sats/aro ratio, and additional notes for over 40 samples. ■

