

Cretaceous Delta Offers Promise In Deep Water Taranaki Basin Bidding Round

A new opportunity for investment in the promising but unexplored deep water Taranaki Basin exists with a five-block permitting round currently on offer.

New Zealand's first deep water petroleum permit round covers a total 42,000 km² area

in 200 m to 1800 m deep waters, adjacent to the highly productive Taranaki Basin off the west coast of the North Island.

An exciting new play, a Late Cretaceous delta approximately 100 km long and 2000 m thick that appears to be rich in source rocks has been revealed by interpretation of seismic data from a 2D reconnaissance survey of the deep water basin. There may also be an Eocene sandstone play.

The deep water basin, which lies within New Zealand's Exclusive Economic Zone, lies on the Continental shelf edge into the head of the New Caledonia Basin. A total of 6208 km of non-exclusive 2D reconnaissance seismic data, tied to eight wells near the shelf edge, was acquired in 2001 by TGS-NOPEC Geophysical Company Ltd in collaboration with the New Zealand research agency, the Institute of Geological and Nuclear Sciences Ltd.

The TGS-NOPEC survey has indicated more than 10,000 m of sedimentary section in the deeper water off the shelf and revealed a new play unknown from the Taranaki Basin. A mainly Late Cretaceous

delta has been mapped, prograding into the head of the New Caledonia Basin. The delta, in common with many deltas around the world, is believed to contain large volumes of petroleum source rocks, culminating with deposition of coal measures equivalent to the Rakopi Formation in the Taranaki Basin.

Deltaic deposition was terminated by a major marine transgression that shifted the facies belts at least 100 km to the southeast. This maximum flooding surface represents a condensed section of the sort that commonly is an excellent regional seal. This regional seal overlies rocks interpreted to be coal measures from well ties and seismic character.

Trapping mechanisms include drapes across rift block highs and inversion structures created by gentle compression and, possibly, strike-slip faulting during the Eocene. Large structures with areas of 50 to 150 km² are present in the survey area.

Thermal modelling indicates that source rocks within the delta are generally mature today and that maturity is a low risk for this basin. Relative ages and character of the sedimentary fill, together with considerations of basin and reflector geometry, allow comparisons to be made with the productive Gippsland Basin of south eastern Australia.

Applications for the deep water Taranaki blocks close on September 30th 2003. The five blocks will be allocated by staged work programme bidding. Another licensing round will be notified during 2003 by the New Zealand Government over an extensive onshore and offshore area of the northern Taranaki Basin, including the highly prospective northern Taranaki Basin.

