

Exploration Permit T/24P

**ANNUAL REPORT
Year 2 (1991)**

OR-0274

EXPLORATION PERMIT T/24P

ANNUAL REPORT

YEAR TWO (1991)

- A). The following report is a comprehensive summary of exploration efforts for 1991.
- B). No exploration operations were conducted within the area during the year.
- C). Gravity/magnetics:

Pearson, deRitter and Johnson, Inc. have completed the generation of 23 gravity/magnetics profiles acquired during the shooting of the 1990 seismic program, as well as corresponding Free Air and Bouger gravity maps based on the 781 line kms of data.

Seismic:

Processing of the 810 km 1990 MXT-90 seismic acquisition program was completed during the year by Western Geophysical.

Tectonostratigraphic model:

Cape Sorell-1 well information indicates that the section of interest to this study (approximately 3900 ft to TD) is comprised of largely continental to marginal marine material deposited in a proximal downthrown position to a major taphrogenic fault, which forms the eastern boundary of the sub-basin.

Three sequence stratigraphic elements of interest thus far include: an unconformity near the Tertiary/Cretaceous interface (approximately 8970 ft) below which shows were encountered in the well, a Lowstand Systems Tract sequence boundary at approximately 5300 ft and a coincident (at the well site) transgressive surface. Based on the reprocessed Amoco seismic data, time-structure maps have been generated for the latter two events, as well as an isochron map of the intervening section. The significance of the LST, Type 1 sequence boundary is that this surface defines the major channeling episode in the sub-basin and plays a major role in more than one of the play concepts developed thus far.

The greater resolution of the 1990 seismic has allowed for a more sophisticated understanding of the tectonics at work in the area. The active separation of Australia and Antarctica has manifested itself along the west coast of Tasmania in the form of well defined fault blocks, perpendicular to the coast, most likely involving a Jurassic and older pre-rift section. Alluvial deposition on the downthrown sides of the major rift related faults is clearly in evidence. The Cape Sorell-1 well stopped just short of, or barely penetrated, the fan associated with the eastern taphrogenic fault. The upper surface of this fan provides a convenient discontinuity which serves as a detachment zone for extensional, listric normal faulting oriented parallel to the coast.

Three tentative play concepts have been developed thus far which involve structural, structural/stratigraphic, and stratigraphic elements.

Regional studies:

Reference material has been compiled to investigate the relationship of the South Australian basins to the west coast of Tasmania.

D). Data submitted during the year:

Appropriate copies and reproducibles of the MXT-90 seismic lines and shot point location base maps, plus diskettes of the navigation data. Shipped 11/21/91.

E). Work plans for 1992 include:

Geophysical interpretation will continue on the GeoQuest workstation involving the MXT-90 seismic augmented by the reprocessed Amoco data. The goal will be to refine play concepts and identify lead areas within the block.

The investigation into the relationship between the South Australian basins and the Strahan sub-basin will be completed.

F). Submittal of appropriate copies and reproducibles of gravity/magnetics profiles, line location maps, plus Bouger and Free Air maps, as well as preliminary time-structure and isochron maps based on the reprocessed Amoco seismic, to the Director. Shipment accompanies this report, under separate cover.

Submittal of field tapes and support data of the 1990 MXT-90 seismic program from HGS, Sydney to the Australian Archives. Transfer authorization received 1/14/92.

G). The 1991 annual expenditure is \$243,005.