

### VIC/TAS BRANCH

April Meeting



#### ABSTRACT

To be presented by Mark Trupp at Vic/Tas Branch Meeting, held Tuesday, 19th April, 1994.

#### **“Hydrocarbon Prospectivity of the Torquay Sub-basin, Offshore Victoria.”**

The Torquay Sub-basin lies to the south of Port Phillip Bay in Victoria. It has two main tectonic elements: a Basin Deep area which is flanked to the southeast by the shallower Snail Terrace. It is bounded by the Otway Ranges to the northwest and shallow basement elsewhere. The stratigraphy of the area reflects the influence of two overlapping basins. The Lower Cretaceous section is equivalent to the Otway Group of the Otway Basin, whilst the Upper Cretaceous and Tertiary section is comparable with the Bass Basin stratigraphy.

The Torquay Sub-basin apparently has all of the essential ingredients needed for successful hydrocarbon exploration. It has good reservoir seal pairs, moderate structural deformation and probable source rocks in a deep kitchen. Four play types are recognised:

1. Large Miocene age anticlines, similar to those in the Gippsland Basin, with an Eocene sandstone reservoir objective,
2. The same reservoir in localised Oligocene anticlines associated with fault inversion,
3. Possible Lower Cretaceous Eumeralla Formation sandstones in tilted fault blocks and faulted anticlines and
4. Lower Cretaceous Crayfish Sub-group sandstones also in tilted fault block traps.

Maturity modelling suggests that the Miocene anticlines post-date hydrocarbon generation. Poor reservoir potential and complex fault trap geometries down-

grade the two Lower Cretaceous plays.

The Oligocene play was tested by Wild Dog-1 which penetrated excellent Eocene age reservoir sands beneath a plastic shale seal, however, the well failed to encounter any hydrocarbons. Post-mortem analysis indicates the well tested a valid trap. The failure of the well is attributed to a lack of charge. Remaining exploration potential is limited to the deeper plays which have much greater risks associated with each play element.