

STRUCTURAL FRAMEWORK

Permit T-19-P lies at the northwestern end of the Bass Basin. Its tectonic style is unique as compared to the rest of the Bass Basin. This is due to the influence of the Mornington - King Island fault.

Movements on the NNE - SSW trending Mornington - King Island fault commenced in the Oligocene and persist through today as indicated by earthquake pattern studies and available reflection seismic data. This movement is interpreted to be a combination of right lateral wrenching and uplift, and has overprinted early northwest-southeast trends established during initial basin evolution. Both of these trends have to be understood individually in order to remove the effects of the Mornington - King Island fault and resolve the early basin history.

Rifting in T-19-P commenced in the Early Cretaceous.

The Early Cretaceous fault geometry recognized from the BMR data demands significant crustal extension, in contrast to the largely vertical movements previously proposed. The faults are planar, with shallow to moderate dip, generally to the south-southwest, and produce a tilt of the basement surface of up to 40 degrees. This "domino-style" rotational faulting resulted from a south southwest-north northeast upper crustal extension of 50% to 70%.

This "half-graben" style of rifting allowed for the development of deep Pre-Tertiary depocenters which may contain an adequate source and reservoir rocks section. Such depocenters are recognized in Permit T-19-P and are illustrated on Figure D and Map 1. They lie between prominent horst blocks