

### Mesozoic Rocks

The earliest Mesozoic rocks in the Otway Basin are represented by over 5000 feet of Lower Cretaceous sands which were encountered in the Esso Crayfish A-1. The areal extent of this sandstone sequence is not known but it does appear to correlate with the thick quartose sandstones present in the lower part of the onshore wells Frome-Broken Hill Pty. Ltd. Pretty Hill-1 and Planet Oil Casterton-1. The overlying Lower Cretaceous Otway Group may attain a maximum thickness of about 15,000 feet. This section is predominantly non-marine and consists of greywackes subgreywackes, carbonaceous siltstones and chloritic mudstones. The sandstones usually contain abundant matrix material resulting in very low permabilities. The Otway Group is represented in Prawn A-1 by 817 feet of impermeably lithic sandstones.

The Upper Cretaceous sequence in the Otway Basin is represented by the Sherbrook Group. This section was apparently deposited by a major marine transgression followed by a subsequent regression. Locally the base of the Sherbrook Group is represented by a quartz sandstone known as the Waarre Formation which is overlain by a ferruginous sandstone called the Flaxmans Formation. The Waarre Formation is well developed in the Port Campbell area. Overlying the Flaxmans Formation are the carbonaceous mudstones of the Belfast Formation which grade upward into shallow water sandstones and siltstones of the Paaratte Formation which is in turn, overlain by non-marine sandstones of the Curdies Formation.

Esso Prawn A-1 penetrated an Upper Cretaceous section having a thickness of 5510 feet. The undifferentiated Curdies-Paaratte Formation had a thickness of 2987 feet and consisted predominantly of massive porous and permeable quartz sandstones with occasional thin interbedded carbonaceous shales. The Belfast Formation consisted of silty carbonaceous shale approximately 173 feet thick. The Flaxmans-Lower Belfast section was comprised of 2062 feet of calcareous and relatively impermeably quartz sandstones. The basal Upper Cretaceous Waarre Formation was represented by 288 feet of massive impermeable siliceous conglomerate in a calcareous sandstone matrix.

### Tertiary Rocks

#### Paleocene-Eocene (Wangerrip and Browns Creek Groups)

A transgressive sea deposited lagoonal to shallow neritic mudstones, sandstones and conglomerates in the Otway Basin during Paleocene-Eocene time. A total aggregate thickness for this sequence is about 4000 feet, based on seismic data.

The Paleocene section at Prawn A-1 consisted of 193 feet of conglomerate referred to as the Pebble Point which was overlain by about 67 feet of silty mudstone known as the Rivernook Formation. The uppermost Paleocene Dilwyn and Eocene Mepunga Formations consisted of massive carbonaceous porous quartz sandstone. Uppermost Eocene time was represented by 557 feet of Narrawaturk marl.

#### Oligocene-Miocene

During Oligocene-Miocene time the sea continued to transgress the Otway Basin depositing marl, limestone and calcareous siltstones and sandstones. The total composite thickness of this section is about 3500 feet from seismic data.

Oligocene time is represented in Prawn A-1 by 57 feet of sandy limestone known as the Clifton limestone and part of the overlying Gellibrand marl. The Gellibrand marl which ranges up into Miocene time had a thickness of 2056 feet. (Samples were not recovered in Prawn A-1 above 934 feet).