

with minor shows reported in Upper and Lower Cretaceous rocks in many of them. The majority of these wells were probably not located in an optimum structural position, because land seismic data are very poor in the Otway Basin and surface geology is useless in defining Mesozoic structure.

No wells have been drilled in the exploration licences that were explored by the Offshore Otway Basin Marine Seismic Survey.

2. Geophysical

The landward areas adjoining the Esso-Hematite acreage have been explored by reflection seismograph, gravity meter and airborne magnetometer. The results are summarized in various subsidy reports made to the Bureau of Mineral Resources. For a comprehensive bibliography see "A Preliminary Review of the Otway Basin, Record 1966/170 by Bureau of Mineral Resources".

The Esso-Hematite concessions were previously explored by the Flinders Island-Kingston Survey and the Cape Grim to Cape Jaffa Marine Seismic Survey. In addition to these reflection seismic surveys, the Bass Strait and Encounter Bay Aeromagnetic Survey obtained reconnaissance information in the central portion of the offshore Otway Basin. The surveys mentioned above were done by Haematite Explorations Pty. Ltd. and final subsidy reports were presented to the Bureau of Mineral Resources. A total of 1,554 miles of three-fold CDP data and 1,064 miles of single-fold information was available in the Esso-Hematite area at the start of this survey.

RESULTS OF CURRENT SURVEY

A. FIELD WORK AND PLAYBACK

A total of 2,364 miles of six-fold CDP reflection information were recorded during this marine survey. Both digital and analog data were recorded simultaneously. A 2400 meter neutrally buoyant detector cable was towed continuously behind the instrument boat. A second boat carried the dynamite and placed charges of 100 lbs. every two hundred meters along the line. The shots were fired between the sixth and seventh group of detectors behind the recording boat.

Various charge sizes and shot positions along the cable were analyzed before settling on the method described above which gave best results for most conditions.

Playback of the analog data involved spread correction and stacking, removal of the water bottom multiples using G.S.I.'s MAE process, band pass filtering at 10K-40K and production of variable density film negatives. The velocities used for normal moveout corrections were calculated by Esso's interpretative staff using uncorrected write-outs. A static correction to compensate for the delay involved in travel through the water was subtracted from the travel times on all sections. The amount of this correction together with the water depth is shown at the top of the sections.

Digital playback using the digital tapes was done on 218 miles of line in South Australia. The digital playback shows significant improvement over the analog playback through better amplitude control and more precise attenuation of the water bottom multiples.