

Further seismic refraction work at Boobyalla.

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Various geophysical surveys in the Gladstone-Boobyalla area have proved a deep basin filled with a variety of Tertiary rocks. The only independent indication of the depth of the basin was provided by a rough attempt at seismic reflection (Leaman, 1972). Using this latter information as a guide it was decided to attempt a deeper refraction sounding.

The geophone spread was laid in an approximately E-W direction with the shot point 1770 m to the east near the Delta Mine. A critical point was observed. On the record the layer velocity was 1500 m/s and the refractor velocity 4260 m/s. However, when the time and distance of the first arrivals was examined it was found that the average velocity in the Tertiary materials must be at least 2130 m/s. This is consistent with the results of Moore (1972) who noted what appeared to be abnormally high velocities for such material.

The thickness of Tertiary sediments may be calculated as a minimum of 525 m using the average velocity deduced from the record. As a velocity inversion is indicated, 2400/1500/4260 m/s, by relating all available information this interpretation must remain a little doubtful. However, the maximum depth to basement cannot exceed 640 m. The depth range quoted here; 525-640 m compares very favourably with the minimum reflection interpretation of 550-610 m.

A refractor velocity of 4260 m/s does not provide any unique information about the basement since this velocity is typical of fractured dolerite or granite, Permian rocks or Mathinna sediments.

REFERENCES

- LEAMAN, D.E. 1972. Reflection seismic survey, Boobyalla. *Unpub.Rep.Dep. Mines Tasm.* 1972.
- MOORE, W.R. 1972. Refraction seismic survey, Delta mine. *Unpubl.Rep.Dep. Mines Tasm.* 1972.

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