

pressuring are encountered. Consequently prediction of porosity in undrilled prospects can be accomplished with reasonable confidence. An area of improved porosity occurs in the vicinity of the Poonboon 1 and Nangkero 1 wells around the north eastern corner of T/25P.

#### 7.4.3 Core Porosity and Permeability Data

Explorers in the Bass Basin have observed that despite having good porosity sandstones in the Eastern View Coal Measures have often low permeability due largely to their relative mineralogical immaturity and subsequent permeability reducing diagenetic processes. This was particularly evident in the test results from the Pelican Field appraisal well, Pelican 5, where despite good shows, good visual and log derived porosity, production testing failed to establish commercial flow rates due to poor permeability reservoirs.

Whilst permeability can be inferred from wireline logs by analysis of the caliper logs for mud cake development over permeable sandstones and separation of resistivity curves, measurements from core offer the only direct method of quantifying permeability and studying its distribution.

A compilation of all available open file core plug porosity and permeability data was made. These data were then input in the Terrastation database so that manipulation and displays of the data could be performed. In total 733 porosity-permeability analyses were used.

A porosity-permeability crossplot of all the data from the Bass Basin shows a broad scatter of data showing a log normal reduction in permeability with reduced porosity. The degree of scatter in the data is such that for a given porosity, permeability cannot be predicted with confidence. It was therefore necessary to devise subsets of the data to examine which other controlling factors affect the relationship between porosity and permeability.

The factors addressed in this study are: age and depositional facies.