

3. RESULTS

Results are presented graphically in Enclosure 1. Tables of calculated parameters for selected sands are attached in Appendix 1. A summary of average results for the selected sands is shown in Table 1.

The results show that the sandstone reservoirs have good to excellent porosity (average porosities of 17.4 to 28.4%). Good permeability is indicated from the mudcake buildup observed on the caliper log over most sandstones. There appears to be no consistent trend of average porosity and permeability reduction with depth in the interval of Eastern View Coal Measures penetrated in Pipipa 1.

The results also show that all sandstones are dominantly water-bearing. No moveable hydrocarbons were detected, though several sandstones contain significant concentrations of residual hydrocarbons.

The lowest water saturations coincide with those sandstones in which shows are recorded on the mudlog. The uppermost sandstone with low water saturation (1945-1954 metres) is of particular interest because cuttings from it produced a good oil show, with a coincident increase in butane on the gas chromatograph. Good porosity (average 20.2%) was calculated and permeability is indicated by the caliper log. However, the sandstone has anomalously high gamma ray values indicating that it is a "hot" or radioactive sandstone. Further evidence of good reservoir quality is provided by the presence of a fast drilling break. The running of a NGS log would greatly assist in the identification of high gamma sandstones in future wells.

Two other sandstones with low average water saturations occur over the intervals 1992.00-1997.05 metres and 2015.00-2019.00 metres. During penetration of these sandstones the gas chromatograph recorded the first occurrence of hexane in the well.

4. IMPLICATIONS FOR EXPLORATION

The preservation of good quality reservoirs, with good to excellent porosity and permeability in Pipipa 1 gives encouragement that similar reservoir quality may occur in the undrilled "Pelican zone" (M M diversus to top L Balmei) sequence associated with the Pipipa Deep Prospect.

The presence of a high heat flow event (probable igneous intrusion) in the past (vitrinite reflectance values of up to 2.29 are recorded) has not resulted in significant deleterious diagenetic effects to the reservoirs.

The presence of residual hydrocarbons is confirmed by log analysis. Inspection of show descriptions from cuttings and sidewall cores confirms that live oil is present in the sequence. Migration of oil into the reservoirs post dated the high heat flow event and therefore cracking of the oil has not occurred. Unfortunately no geochemical analyses are available to determine the maturity of the oil.