

INTRODUCTION

Seven core chips from Core #1 were studied petrologically for detailed information on this oil and gas-bearing reservoir. The sandstone consists of well sorted superfine (to coarse silt) quartz, with less than 5% lithic fragments. It has up to 20% clay matrix (dominantly kaolinite from XRD and SEM studies) and sideritic carbonate cement, although excellent porosity is preserved in the reservoir. The pore throats are less than 0.05 mm in size and strongly influenced by the presence of the kaolinitic matrix.

Further petrologic work consisted of identifying the composition of the intrusives and extrusives encountered during drilling. A number of ditch cuttings, junk sub samples and specimens from Core #2 were submitted for petrologic analysis and, on selected samples, geochronology was attempted.

The intrusive located within the Eastern View Coal Measures was confirmed as a fine to medium grained dolerite cum gabbro with generally fresh mineralisation. It proved suitable for K/Ar dating on the separated biotite and gave a late Oligocene age of 23.8 ± 0.2 Ma.

The extrusive penetrated below 3025 m in Yolla-1 is an altered amygdaloidal basalt. Virtually no primary minerals remain, but relict textures are often preserved and the basalt is both amygdaloidal and porphyritic in texture. The basalt has altered to mostly chlorite and carbonate with minor silica and zeolites with relict traces of original minerals and opaques. In general, these basalts, because of their extensive alteration, proved to be unsuitable to K/Ar dating. A lesser altered junk sub sample of the basalt, submitted for whole rock K/Ar analysis, returned an age of 54.1 ± 0.6 Ma. Since this rock had suffered some alteration it is thought that this age probably represents a minimum and may in fact may be as old as Paleocene or Late Cretaceous.

Fission track analysis was attempted on samples from both the dolerite and basalt without success. Apatite and zircons were recovered from the dolerite but at the present downhole temperature all fission tracks were erased from the dolerite. The few zircons recovered were consumed during the etching process. The basalt was devoid of apatite or zircon.