

(7) Contribution to Geological Concepts

The stratigraphic succession encountered in Nangkero-1 was essentially as predicted on the basis of the results of Poonboon-1, six miles to the south west.

There is excellent log correlation with Poonboon-1 in the lower part of the Torquay Group and in the Demons Bluff Formation and very small variations in the thickness of particular intervals can be observed between the two wells. However there appear to be no significant trends indicating preferential structural growth or depositional thickening of either area relative to the other.

In Nangkero-1, part of the lower Torquay Group, from 5503 to 5550 feet K.B., correlates with an undated interval in Poonboon-1 between the upper and lower N. asperus zones (5550 to 5600 feet K.B.). Sidewall core 42 was shot in Nangkero-1 at 5525 feet K.B. to attempt to refine the palynological zonation but it gave a poorly preserved microflora and was assigned to the undifferentiated N. asperus zone. However, the microflora lacked T. magnificus which is diagnostic of the lower N. asperus zone. The base of the Torquay Group at this level (5525 feet K.B.) may therefore lie within the upper N. asperus zone which straddles the Eocene-Oligocene boundary. In conformity with this assignation, the boundary is placed within the Demons Bluff Formation in the well.

The Eastern View Coal Measures in Nangkero-1 consist of interbedded sandstone, siltstone, coal and minor shale. An aggregate of 440 feet of coal with individual seams up to 40 feet thick is recognised. The sand distribution in the well is typical of the formation in that the upper part is more sandy and net sand decreases downwards as does bed thickness of individual sand units. Distinctive gamma ray log profiles are recognised for many individual sands in the well. Between 6500 and 8000 feet (K.B.) "christmas tree" shapes ("transgressive" or channel fill "shapes" in a normal marine deltaic succession, Fons, 1969, Pirson, 1970) are common, whereas below 8000 feet to total depth (9440 feet K.B.) many sands show "inverted christmas tree" shapes ("regressive" or barrier bar "shapes" in a marine deltaic succession). However, in Nangkero-1 the distinctive patterns are not exclusively associated with either "red" or "blue" dip patterns (Crocker, 1971). Nor do they appear to reflect simple changes in grain size but rather degree of clay choking of the sands probably related to quite local changes in environment of deposition. It is not possible to relate the distinctive log patterns to individual transgression and regressions because bed thickness is so small, many units are present and the types which could be classed as "transgressive" or "regressive" do not