

(6) Relevance to Occurrence of Petroleum

Remapping of the Red horizon in the Nangkero area confirms the existence of the structure which the well was designed to test. However Nangkero-1 had no hydrocarbon shows. The very minor amounts of hydrocarbons indicated on the computer processed interpretation reflect an optimistic bias in the programme due to a slightly inappropriate shale factor being used. If a more realistic estimate of clay content were employed, these artifacts would be eliminated from the interpretation.

In addition to confirming the Red horizon structure, Nangkero-1 encountered sands with good reservoir potential, interbedded with tight siltstone, coal and shale which could act as seals. The coaliness of the M. diversus and L. balmei zone strata in the well is consistent with the high organic content of these strata in the Pelican 1 and 2 wells where they are associated with, and may have acted as source rocks for, gas/condensate bearing sands. However at Nangkero, for unknown reasons, sands interbedded with the coals are devoid of hydrocarbons, and the source potential of the coals of the M. diversus and L. balmei zone in this area is therefore questionable. It is possible that they have not undergone sufficient maturation, though unlikely, because poor palynomorph preservation in samples from the well may indicate higher heat flow in the past than at present. Another factor which may help explain why porous sands on structure in Nangkero-1 are dry is the fairly thinly interbedded nature of strata and the low net sand in the M. diversus and L. balmei zones which may have precluded long distance migration and accumulation of hydrocarbons.