The Hydrocarbon Habitat of Petronas Carigali's Main Operating Areas in the Malay Basin

Md. Nazri Ramli, Jamlus Yassin & Mansor Ahmad, PETRONAS Carigali Sdn. Bhd., Kuala Lumpur

The popular hypothesis has been that sourcing of oil and gas in the Malay Basin was from deeply buried source beds. The observed distribution pattern of non-associated gas and oil with associated gas in structures of different geological ages was attributed to the timing of trap formation in relation to oil and gas generation phases. This model however, could not satisfactorily explain, in certain cases, the presence of substantial amounts of oil in younger structures while older ones were found to be gas bearing.

Recent geochemical studies by PETRONAS Carigali have revealed that intraformational sourcing is the likely process for hydrocarbon generation in PETRONAS Carigali's operating areas, even at relatively shallow depths (i.e. between 1100-1500 mss). This is due to the interplay of different source types and the varying geothermal gradients (4 to 6° C/ 100 m) resulting in the generation of crude oils of different maturity levels and distinct physical and chemical properties.