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**EFFECT OF BASEMENT ON THE LOCATION  
OF PETROLEUM ACCUMULATIONS  
IN WEST MALAYSIA**

NIK RAMLI NIK HASSAN  
PETRONAS PETROLEUM RESEARCH INSTITUTE

The location of common hydrocarbon traps in West Malaysia are largely influenced by basement morphology. Types of hydrocarbon traps affected by the basement are (a) drape structures and (b) growth anticlinal structures. Basement drapes are early formed structures located near the edge of the basin whilst growth anticlinal structures are formed much later in deeper basinal areas.

Drape structures are formed over pre-Tertiary basement horsts consisting of either metasediments, limestones or igneous rocks. These structures show progressive increase in closure with increasing depth. Growth anticlinal structures are generally formed by compressional forces acting on sediments overlying basement half grabens. The orientation and shape of the underlying half grabens determines the orientation and shape of growth anticlinal structures. In the southeastern part of the Malay Basin, basement half grabens are oriented east-west, overlain by east-west trending anticlines. Each anticline has its own growth history which may be dependent upon such factors as size of underlying half graben, amount

of graben fill and distance from the edge of the basin. The Sotong Field is an example of drape structure. Primary oil-bearing reservoirs in the Sotong Field are located in fluvio-deltaic sandstones of the Pulai Formation. The main hydrocarbon bearing sandstone unit in this field consists of stacked channel fill sandstones deposited over basement high. Structural closure was formed due to sediment compaction over basement high. Sedimentologic response to Sotong basement resulted in the formation of stratigraphic traps.

The Duyong field is an example of simple growth anticlinal structure. Gas-bearing sandstone units in the Duyong Field consists of fluvio-deltaic K sandstones and offshore bar to storm sheet J sandstones. Based on a study of sedimentologic response to structural growth, it can be shown that growth of the Duyong anticline occurred most probably after early Miocene time.