

The prospectivity of the Dungun Graben — Block PM304, Malay Basin

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The Dungun Graben lies on the south-western margin of the Malay Basin some 50 km due east of the town of Dungun on the east coast of Peninsular Malaysia. In outline the graben is rhombic in shape, elongate in NNW-SSE orientation, the same as the Malay Basin. It is 35 km in length reaching a maximum of 10 km in width. Sediment infill is interpreted to have changed from lacustrine to deltaic and ultimately to fluvial. The basement is probably entirely of metamorphic or crystalline origin and thought to be of Lower Cretaceous age.

The Dungun Graben lies entirely within Block PM304, operated by Amerada Hess (Malaysia) Ltd. Following 2D seismic acquisition in 1998, a geochemistry study was undertaken one of the aims of which was to assess the hydrocarbon potential of the graben. No wells have been drilled in the graben and subsequently seismic facies analysis was utilised in basin modelling and source rock prediction.

Critical factors in formation of hydrocarbons in the Dungun Graben are the source rock maturity and, to the lesser extent, the source quality. Maturity modelling show most of the section in the graben is immature, with the exception of late Oligocene sediments (Group M). Given the size and depth of the graben (< 3,200 m) it is unlikely that source rocks will have been buried deep enough to generate and expel significant quantities of hydrocarbons. Similar pull apart features are likely to exist further north along the western margin of the basin or possibly on the eastern side of the basin. If these were to be buried deep enough they could constitute a viable hydrocarbon play in this region.