
Origin of Hydrocarbons of East Abu Gharadig Sub-Basin, Western Desert, Egypt

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The Abu Gharadig Basin is located in the northern part of the Western Desert of Egypt. The Abu Gharadig Basin is composed of two main troughs, west and east troughs. The western trough sourced hydrocarbons from the Jurassic as well as the Lower and Upper Cretaceous. The eastern trough sourced hydrocarbons mainly from the Jurassic, as the Cretaceous appears to have been, and still is, too immature for generation of hydrocarbons. Recently Apache and Repsol discovered oil from the eastern trough at the Karama Oil Field in 2001. Since that time Apache has continued exploration activities in the area and discovered 24 additional Jurassic-sourced oil fields in the area to the south of the eastern trough.

In order to identify the origin of hydrocarbons in the area, oil from different structures were analyzed. The correlation between the different oils in East Bahariya area suggest that these oils are quite similar and appear to be generated from the same source at probably similar thermal maturity. However, the recorded differences in the light-end content can be attributed to the variable water washing and biodegradation affecting the oil traps further away from the depocenter of the trough at shallower structural levels to the south.

Basin mod analyses for wells in the east Abu Gharadig area indicate that oil in the area is believed to be generated from Type III source rocks in Upper Jurassic, presumably Upper & Lower Safa shales of the Khatatba Formation.
