

Jurassic Hydrocarbon Potentiality In Northern Western Desert of Egypt Emphasizing Khalda Areas

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The main objective of this paper is to integrate structural and stratigraphic studies to assess the main themes of basin evolution, structural framework, regional stratigraphy and its effects on Jurassic reservoir distribution and size, their formation and destruction, source nature and distribution, exploration potential.

An increasing proportion of the Egyptian hydrocarbon production comes from the Western Desert. The oil production in the Western Desert accounted for about 21 % of Egypt's total oil production a day (32.0 mm Ton/ year). The gas fields in the area produced 26% of the total gas production in the country (38.4 mm Ton/ year).

Most of the successful gas discoveries in the Western Desert are coming⁴ from deferent stratigraphic units within the Jurassic section.

The Jurassic section represents the ideal example for the hydrocarbon system (Source, Reservoir, and Seal & Trap) in the northern part of the Western Desert of Egypt.

An early rifting phase in the Jurassic and Early Cretaceous formed several half graben-like basins with intervening platforms having basin and range geometry. Thick wedges of Jurassic and Lower Cretaceous sections were deposited in these basins and include potential source rocks. Rift-bounding faults are oriented E-W, ENE-WSW, and WNW-ESE. NNE-SSW oriented faults locally bounded some basins as well.

The Western Desert of Egypt still has a significant hydrocarbon potential as recent oil and gas discoveries indicate (for example in the Khalda Concession, Khatatba Formation). Results of new wells, combined with 3D seismic and additional geological interpretation, demonstrate that fields may be larger than previously thought.