680375 Komombo: A New Oil Province in Upper Egypt
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The paper discusses some of the geological and geophysical work performed in Centurion’s Block 2 concession area in Upper Egypt; and which lead to the discovery of the Al Baraka field in 2007 - leading to the opening up of a new petroleum province in the Mesozoic rift basins of Upper Egypt.

The Komombo Block-2 Concession is located on the west bank of the Nile River, about 570 km SSE of Cairo, and about 260 km east of the Red Sea. It was part of a larger former Repsol concession which was relinquished in 2001 after the drilling of five wells.

Sediments in the Upper Egypt basin are present in distinct depositional depressions separated by low uplifts or platform areas. Basins formed in the Jurassic - Lower Cretaceous as non-marine rifts.

The three Komombo wells drilled by Repsol are located in a NW-SE trending half-graben. All 3 wells had oil shows but were not commercial.

After Centurion obtained Exploration rights on Komombo Block 2 in 2004, the coarse 2-D seismic grid was infilled with additional 2-D seismic.

Seismic processing of the datasets which was undertaken by Spectrum-Geopex in Cairo, benefited from coherent noise reduction, tomographic statics and pre-stack time migration; allowing the geoscientist to identify structures not previously seen on the original data.

A surface geological mapping project and a basin analysis study were also undertaken.

Based on analysis of the newly processed seismic data, Centurion identified a number of leads and decided to drill Komombo-4, later renamed Al Baraka-1. This well was drilled in 2007 to test the potential of Jurassic and Cretaceous reservoirs.

Testing of the Early Cretaceous Abu Ballas Fm produced 150 b/d of 37 degrees API oil - with a wax content similar to that of Sudan. The well, drilled to 8,712 ft, penetrated several oil-bearing zones. It tested from three additional intervals in the deeper Early Cretaceous section.

The Al-Baraka well has produced the first oil ever deep in Upper Egypt. Four months from discovery, the first crude shipment was delivered on Dec. 27, 2007, to Asyut refinery, 320 km away.

The quality of the processed seismic data played an important role in the analysis of the area; with the drilling results proving a working hydrocarbon system with significant exploration potential. The find has helped to speed up economic development in Upper Egypt, which is outside of the country’s traditional producing areas. The field has been reported to be producing at 6,000 b/d.
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