

## **Petrophysical and Geological Modeling for Carbonate Reservoir Simulation - Zeit Bay Field, Gulf of Suez, Egypt**

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The Zeit Bay Field is an oil field located on the south western margin of the Gulf of Suez, Egypt and was discovered as a result of drilling QQ 89-1 well in October 1981. The field is large, complex and a product of long and varied deposition and structural deformation. From production point of view the field is considered as a multi reservoir where oil contribution is coming from several reservoirs in complete hydraulic communication, making it one of the unique reservoirs. The Kareem / Rudeis Carbonate Reservoir is volumetrically the largest reservoir unit in the field, containing approximately 50% of the total reserves. This Carbonate was deposited in pre-tidal to shallow marine environments that were more or less restricted at the western flank of the field structure. Several studies have been done to understand the Carbonate Reservoir performance to optimize the drainage and production. This study has been done using all the available petrophysical, geological and production data to zone and subdivide the Carbonate into production layers that can be correlated across the field. The study aims to:-

1) Construct deposition models of the Kareem / Rudeis Carbonate Reservoir. 2) Conduct thickness and isochore maps for the Carbonates intervals using concepts depositional environment, faulting, and original truncation ..... etc. 3) Assign likely porosity and permeability values and ranges for Carbonates intervals.

This geological model can then be used as a part of the input required to construct a Reservoir Model for Reservoir Characterization.

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