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RESERVOIR ASSESSMENT OF THE NUBIAN SANDSTONE RESERVOIR IN SOUTH CENTRAL GULF OF SUEZ, EGYPT

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ABSTRACT

The Gulf of Suez is considered as one of the most important petroleum provinces in Egypt and contains the Saqqara and Edfu oil fields located in the South Central portion of the Gulf of Suez. The Nubian sandstone reservoir in the Gulf of Suez basin is well known for its great capability to store and produce large volumes of hydrocarbons. The Nubian sandstone overlies basement rocks throughout most of the Gulf of Suez region. It consists of a sequence of sandstones and shales of Paleozoic to Cretaceous age. The Nubian sandstone intersected in most wells has excellent reservoir characteristics. Its porosity is controlled by sedimentation style and diagenesis. The cementation materials are mainly kaolinite and quartz overgrowths. The permeability of the Nubian sandstone is mainly controlled by grain size, sorting, porosity and clay content especially kaolinite and decreases with increase of kaolinite. The permeability of the Nubian Sandstone is evaluated using the Nuclear Magnetic Resonance (NMR technology) and formation pressure data in addition to the conventional logs and the results were calibrated using core data.

In this work, the Nubian sandstone was investigated and evaluated using complete suites of conventional and advanced logging techniques to understand its reservoir characteristics which have impact on economics of oil recovery.