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Hydrocarbon potentialities evaluation for upper Bahariya reservoir at Horus oil field and its implications in field productivity, north western desert, Egypt

The cenomanian upper Bahariya member is an attractive petroleum exploration target in north western desert. The present work deals mainly with the interpretation of Well Logs, geological and geophysical data to evaluate the hydrocarbon potential of the upper Bahariya member in the Horus oil field. This achieved by constructing subsurface maps (isopach, sandstone isolith, siltstone isolith, triangle facies, clastic/non clastic ratio and sandstone/shale ratio) to show the areal variation of the lithostratigraphic unit and interpretation of environmental condition of the study area and the seismic data to determine the subsurface structure of the study area and the data obtained from 17 wells scattered in the area of study. The structural evaluation is represented by construction of time and depth structural contour maps on top of the upper Bahariya member. All the results of petro-physical parameters are represented vertically as litho-saturation cross plots and laterally in different iso-parametric maps, such as effective porosity, shale content, net pay thickness and hydrocarbon saturation variation maps. These maps revealed that the promising hydrocarbon bearing zones are characterized by their clay content ranges 15 to 23%, effective porosity ranges from 15 to 19%, net pay thickness ranges from 6 to 15 feet and hydrocarbon saturation ranges from 20 to 45%. The end results and the gain of this integration is a significantly better accuracy in reserve estimation and field productivity. It's recommended to re-visit all well (17 Wells) which drilled before.

Biography

Ahmed Abd El- Gawad Sultan is a confident technical professional with broad and full understanding of the Exploration and Studies business. He has more than 12 years' experience (offshore and onshore) in Petrophysics, Geology, Reservoir Evaluation, Modeling and the integrated work programs/projects. He has received his BSc in Geological and Geophysical Engineering from Faculty of Petroleum and Mining Engineering from Suez University in 2005 as a well as MSc in Geoscience from the same faculty, where he teaches Petroleum Sciences in the Geological and Geophysical Engineering Dept. He has completed his PhD in Petrophysics in 2017 from Faculty of Petroleum, Suez University. He has published and a co-author for around 15 technical papers and presentations.

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