

Reservoir Potential, Net Pay Zone and 3D Modeling of Cretaceous Clastic Reservoir in Eastern Sulieman Belt Pakistan

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Abstract : The aim of the study is to explore subsurface structures through data that is acquired from the seismic survey to delineate the characteristics of the reservoir through petrophysical analysis. Ghazij Shale of Eocene age is regional seal rock in this field. In this research work, 3D property models of subsurface were prepared by applying Petrel software to identify various lithologies and reservoir fluids distribution throughout the field. The 3D static modeling shows a better distribution of the discrete and continuous properties in the field. This model helped to understand the reservoir properties and enhance production by selecting the best location for future drilling. A complete workflow is proposed for formation evaluation, electrofacies modeling, and structural interpretation of the subsurface geology. Based on the wireline logs, it is interpreted that the thickness of the Pab Sandstone varies from 250 m to 350 m in the entire study area. The sandstone is massive with high porosity and intercalated layers of shales. Faulted anticlinal structures are present in the study area, which are favorable for the accumulation of hydrocarbon. 3D structural models and various seismic attribute models were prepared to analyze the reservoir character of this clastic reservoir. Based on wireline logs and seismic data, clean sand, shaly sand, and shale are marked as dominant facies in the study area. However, clean sand facies are more favorable to act as a potential net pay zone.

Keywords : cretaceous, pab sandstone, petrophysics, electrofacies, hydrocarbon

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