

Petrophysical analysis of the reservoir intervals in Kahi-01, Kohat Sub-Basin Basin, Pakistan

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Abstract

This study deals with the petrophysical analysis of the Kahi-01 in Kahi Village within Kohat Sub-Basin (Upper Indus Basin) for evaluating the reservoir potential of identified intervals. This was achieved by using different parameters. Three formations namely, Lockhart Limestone, Hangu Formation and Lumshiwai Formation were selected for further investigation according to the cut off factor. The Lockhart Limestone with dominant lithology of limestone having 36m thickness, with the vuggy and crystalline type of porosities is considered to be hydrocarbon wet and water dry. The Hangu Formation has thickness of 50m with dominant lithology of sandstone. The analysis shows that the grain size has a range of silt to fine sand. There were three prospective zones identified as A1, A2, and A3 with high hydrocarbon saturation and less shale content having the thickness of 7m, 15m and 22m respectively, in which A3 zone is more promising than the rest. The Lumshiwai Formation has a thickness of 75m, with dominant lithology of coarse sandstone. The prospects as compared to the intervals identified within Lockhart Limestone and Hangu Formation are not much promising, however, with fair amount of hydrocarbon saturation and coarseness of the grain size of the sandstone suggests it to be a significant reservoir.