2D SESIMIC INTERPRETATION AND PETROPHYSICAL ANALAYSIS OF DHULIAN-KHAUR AREA, UPPER INDUS BASIN, PAKISTAN

BY

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Dedication

To our Parents and Teachers who have been continuous source of inspiration and help for us, otherwise we would not have been able to achieve our goals and strive for our bright future.

ABSTRACT

The area of study is Khaur oil field. Khaur oil field is located in Punjab, 80 kilometers southwest of Islamabad. The objectives were to study the geology of the area, to delineate the subsurface geology, to evaluate the physical characteristics of the reservoir and evaluation of hydrocarbon potential of the Khaur oil field. The tectonics and geology showed that the area falls in a compressional regime. Two faults were identified; a north dipping main thrust and a south dipping back thrust. The time and depth contour maps showed an up thrown block bounded by two faults, and an anticline was identified. The Paleocene age Patala Formation acts as the source, Eocene age Chorgali and Sakesar act as reservoirs and the Miocene age Murree Formation provides seal rocks. The provided seismic lines were studied. The prominent reflectors on the seismic sections were picked, faults were identified, and structural interpretation was done. Time and depth contour maps were prepared, and evaluation of hydrocarbon potential of the study area was done through petrophysical analysis. Well log data showed that Chorgali is not a potential reservoir, and a zone was chosen from Sakesar that may act as a potential reservoir. However no cross-over zones were identified in the zone, and on the basis of petrophysical analysis, it can be determined that well Khaur OXY-01 no longer acts as a potential reservoir which is why it is now abandoned. A recommendation can be made to work in the Dhulian-Khaur area for water wells. Advanced seismic interpretations techniques can be applied to acquire maximum information about the subsurface. High resolution seismic and wire line logs should be acquired in the fractured zones.

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