

**PETROPHYSICAL EVALUATION WITH SPECIAL EMPHASIS
ON FRACTURE ANALYSIS OF CARBONATE ROCKS OF
TURKWAL DEEP-1 AND TURKWAL DEEP-X2 OF UPPER
INDUS BASIN, PAKISTAN**



By

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**Petrophysical evaluation with special emphasis on fracture analysis
of carbonate rocks of Turkwal deep-1 and Turkwal deep-X2 of
upper Indus basin, Pakistan**



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ABSTARCT

The study area is located in Potwar plateau bounded by Main Boundary Thrust in the north and Salt Range Thrust in south; whereas left lateral Jhelum fault in the east and western boundary of the plateau marked by the right lateral Kalabagh fault. Potwar plateau is the result of compressional tectonics at the northern margin of the Indian plate by continent-continent collision between Indian and Eurasian plates in Tertiary time period. The purpose of the study is to understand geological setting of the area and to execute the petrophysical analysis to evaluate the reservoir rocks of Turkwal Deep-1 and Turkwal Deep-X2 wells of Potwar plateau. Turkwal Deep-1 is exploratory well is drilled into Sakesar Limestone of Eocene age and in that well the subthrust sheet is penetrated but the hydrocarbon potential of lower sheet remain untested. The area constitutes thick deposit of sandstone from Cambrian to Cretaceous and thick carbonate deposits from Paleocene to Eocene time period. The carbonates of Chorgali Formation and Sakesar Limestone comprise important oil and gas producing reservoirs in the Potwar plateau. In present study an attempt has been made to understand the development of fractures within the carbonate of the formations. The carbonates are mostly tight in the outcrop, however pore spaces observed in surface and subsurface of the area. These open pores are secondary in origin and almost occur within carbonates. The major constituent that improves the porosity and permeability is the fracturing of carbonates of the formation. The fracturing in carbonates are the results of intense structural deformation in the Potwar plateau. This is the reason that Chorgali and Sakesar carbonates are producing oil and gas in this part of the Potwar plateau.

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