PETROLEUM POTENTIAL OF MARWAT AREA, KOHATBANNU SUB BASIN – AN ASSESSMENT THROUGH REGIONAL UPLIFT STUDY

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Seismic velocities have always been extensively used for extracting some valuable subsurface information for exploration. In this study maximum depth of burial has been predicted from seismic velocities and the amount of uplift by a regression method. This methodology for determining regional uplift differs from conventional structural interpretation and uses geophysical well logs (Sonic, SP and GR) and a statistical concept of regression.

There are a number of anticlinal structures exposed on the surface in the study area e.g.; Marwat Anticline, Marwat –Kund Anticline, Manzai Anticline and Surkamar Anticline. A number of wells have also been drilled in the area which has provided data control for this study. The drilled stratigraphy resembles Kohat- Potwar area and includes Paleozoic, Mesozoic, Tertiary and Quaternary sediments. The stratigraphic sequence is marked by major unconformities. Surface oil seepages are also present in the area confirming hydrocarbon generation in the area.

The study has successfully predicted depths of burial of potential source rocks and the timing of uplift of the potential reservoir layers and connected hydrocarbon generation to the migration and accumulation in multiple reservoirs in thrusted anticlinal traps present in the area. The study indicates that like other producing areas of the Kohat-Bannu sub basin, the structural leads in Marwat Area should also yield hydrocarbons in multiple reservoirs by properly defining the existing traps.