STRUCTURAL INTERPRETATION OF 2-D MIGRATED SEISMIC LINES OF CHAK NAURANG AREA, EASTERN POTWAR, PAKISTAN

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ABSTRACT

The geophysical study based on the 2-D seismic lines; O/782-CW-24, O/782-CW-26, O/855-CW-01, O/855-CW-02, and O/855-CW-03, was carried out in the Chak Naurang (Potwar Sub basin) area. The objective of this study was to delineate the subsurface structure and assess the processes and forces responsible for the trends observed. The interpretation carried out on the above mentioned lines indicated the presence of three prominent reflectors, marked R1, R2 and R3. Correlation with well data expressed these reflectors to be Chorgali Formation, Khewra Sandstone and the Basement respectively. A major fault was marked on each of the line sections displaying the same orientation. In lines O/782-CW-24, O/782-CW-26, and O/855-CW-01 the fault extended all the way to the Pre-Cambrian basement. Two-way travel times (TWT) were picked against shot points (SP) on all the seismic sections. These times were then posted on the base map to generate time contour map of the Upper Eocene Chorgali Formation, as it was the reservoir formation continuing throughout the area. Average velocities for the three formations were calculated using seismic RMS velocities given in the velocity windows on the seismic sections. The average velocities and the one-way travel times were used to calculate depth values of the formations. The seismic section showed that the area was structurally deformed due to salt decollement and compressional tectonic movements. Trap for hydrocarbons was developed in the anticline as it truncated against the basement fault. Salt movement was probably due to compressional movements. The Chak Naurang anticline was the prospective zone and the primary target for oil exploration.