

Dedicated To Our

Parents

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ABSTRACT

The main objective of this research is to delineate the subsurface structure and to study the causes of Kalachitta-01 well failure lying in Potwar sub-basin (Basal area), Pakistan. For these purposes, reinterpretation of four seismic lines O/981-BSL-14 (Strike line), O/981-BSL-20, O/905-BSL-110 and O/905-BSL-109 (Dip lines) was carried out. One prominent reflector, the target horizon of Chorgali Formation (Top Eocene) was marked. Petrophysical analysis of the well has also been done and Time contour as well as depth contour maps were constructed. Average Velocities was used to find the time of the formation from the Seismic section. The Petrophysical analysis indicated the presence of water wet formation. The seismic section showed that the area was structurally deformed due to compressional tectonic movements. The study of the 3-D modal and time sections has showed that the major causes for popup structure have been the Main Boundary Thrust and Khairi Murat thrust fault (KMF). In Basal Area the prospective zone for hydrocarbons are the anticlines. However according to this research the “off structure drill” can be the cause of dryness of the well. During this study software “GEOPROD” was developed having potential to calculate the volume of shale, sonic and density porosity.

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