

SEISMIC INTERPRETATION OF KADANWARI AREA



By

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ABSTRACT

The Purpose of this study is to unveil the reservoir properties of Lower Goru sands of Kadanwari area in order to estimate the reservoir potential by carrying out Formation Evaluation technique, supported by computer generated attributes, and understand the general structural framework deciphered through integrated approach of seismic interpretation. The Kadanwari area belongs to the Middle Indus Basin where the stratigraphic sequence ranges from middle Jurassic to upper Pliocene ages. The area has been subject to complex deformation and declared to be evolved in three main tectonic events i) The Cretaceous uplift of Kadanwari area towards north and west. ii) The sets of basement-rooted wrench faults oriented in north-west to southeast fashion in late Paleocene to early Eocene age. iii) The large scale basin inversion associated with basement related structural elements. The study area is structurally derived by normal and transtensional nature of forces which exhibits deep rooted and vertical to sub-vertical faults that emerges in negative flower structure at shallow level. Although the quality of the seismic data is not effective enough to resolve discrete geological features at deeper level due to complex structuration and dynamic forces, but the seismic signatures somehow reveal very critical discontinuities among the Goru reservoirs when aided by seismic attributes. The petroleum system in the area is proven and productive as there are several producing fields nearby. A base map of scale 1:50000 meters have been produced using Geoframe2012/Petrel seismic workstation in order to carry out the seismic interpretation and attribute analysis. Due to data quality constraints, only K-3 well data have been used to run the petrophysical analysis of the study area. The horizons marked are G Sands, E Sands, and D Sands (Based on ENI nomenclature of Lower Goru sand intervals). Time and depth maps have been prepared to acknowledge the extent and dynamics of the structure at reservoirs level which shows that the horizons are deepening towards east and west of the study area and general trend of the faults lie in north-west to south-east direction over the study area making structural-cum-stratigraphic traps. The Isopach map of G sand suggests that the area is variable in thickness from north-west to south-east. The seismic attributes show that E sand has the satisfactory amplitude and frequency response that is required to meet the criteria of any gas bearing zone within the formation.

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