

**RESERVOIR CHARACTERIZATION OF LOWER GORU B
SANDS USING ADVANCED SEISMIC TECHNIQUES FOR
MIANO AREA, CENTRAL INDUS BASIN, PAKISTAN**



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ABSTRACT

One of the major hydrocarbon producing fields of the Central Indus basin is Miano area. Major objective of this research was to characterize reservoir potential and to exploit the channel reservoirs of Lower Goru B Sands. These channel sands always put a challenge in front of geoscientists to exploit the channeled reservoirs in such a terrain for the evaluation of hydrocarbon potential. To resolve this issue, this research work utilizes the advanced seismic techniques like seismic inversion and seismic attribute analysis along with the support of seismic interpretation and petrophysical analysis of Miano area, Pakistan. Negative flower structure (strike slip component) and horsts with normally faulted grabens and tilted fault blocks in NE-SW orientation with two way dip closure exists at the level of Lower Goru B Sands. NW-SE, trending faults have played a vital role in compartmentalization of a reservoir. Petrophysical analysis showed that atleast one reservoir zone of significant thickness and hydrocarbon saturation in each Miano well is potentially sound enough to produce commercially. Spectral decomposition allows comparison of various frequency ranges versus Lower Goru B Sands response, depicting inverse relation of frequency with sands bed thickness. Clear zones of sand bodies with channel geometries are indicated by spectral decomposition technique and presence of bright spots is demarcated by instantaneous amplitude attribute at the level of Lower Goru B Sands makes it a potential reservoir zone of Miano area. Velocity inversion suggests the intrusion of competent lithology in Lower Goru B sands manifested by velocity pull-ups. Various seismic inversion techniques on the basis of acoustic impedance variation over the study area and porosity computation clearly enhanced the sweet spots in eastward direction at Lower Goru B Sands level which is reliable for further development of this field.

DEDICATION

I dedicate this research work to my beloved parents.

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