GEOPHYSICAL MODELLING WITH THE HELP OF WELL AND SEISMIC DATA OF THE PART OF SANGHAR AREA, SINDH PROVINCE, PAKISTAN

By

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ABSTRACT

This research work is centered on 2D seismic reflection data and well logs of Sanghar area, Sindh province, Pakistan. Seven seismic sectionshaving line numbers **(**856-SGR-54, 856-SGR-58, 856-SGR-63, 856-SGR-55, 856-SGR-53, 856-SGR-65 and 856-SGR-67) along with base map were used. Out of these seven seismic lines, two seismic lines; 856-SGR-54 and 856-SGR-58 are dip lines. The remaining lines are strike lines. Root mean square and interval velocities of some sections are also provided with the seismic section at selected Common Depth Points (CDP's) and were used for the calculation of average velocities to convert the given time into depth. Synthetic seismogram of Bobi-01 well was made to match the reflectors on the seismic section. Four formations were correlated with seismic section. Khadro Formation was matched at 0.5 sec, Parh Limestone at 0.7 sec, Top of Lower Goru at 1.2 sec and Chiltan Limestone at 2.4 sec. The ratio of the best correlation between seismic and synthetic was 0.094. On the basis of the synthetic seismogram the reflectors were marked which further confirm the well tops. Due to the prominent reflection on the seismic sections, four reflectors were marked. For each reflector the two way travel time structural map has been drawn and depth contour map of probable reservoir has also been drawn by using velocity and one way travel time. This study shows Horst and Graben structure along with step faults. On the basis of attribute analysis bright spots are identified for the well location. The petrophysical evaluation of Bobi-01 splits into four zones every zone has shown different petrophysical result but all of these zones have good hydrocarbon saturation like zone-01 with 37% and zone-03 with 45% hydrocarbon saturation. The zones are marked on the basis of clean formation which further confirms the presence of sand in these zones. The maximum porosity in these zones is 20 to 24%. Well correlation of Al-Hakeem-01 and Bobi-01 shows that there is thinning effect from south to north and also the maturity level in Bobi-01 is more than that of Al-Hakeem-01 and also there is a gap in Al-Hakeem-01 as two formations are missing in this well.

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