Utilization of seismic and petrophysical data for hydrocarbon potential evaluation of Bijnot-01 Well, Fort Abbas Area Central Indus Basin, Pakistan

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Migrated seismic lines 944-FABS-39, 40, 41, 44 and 931-FABS-11 of Fort Abbas area, Punjab Platform and well logs of well Bijnot-01 are used for seismic interpretation and petrophysical evaluation respectively. In this research, four reflectors are identified with Top Jurassic, Top Cambrian, Top Infracambrian, and Top Basement. Only one fault is interpreted on the seismic sections on the basis of the breakup of reflectors. The time and depth contour maps are also generated to delineate the lateral extension of the reservoir and its closure. The Fort Abbas area lies in the extensional regime resulting in horst and graben structures, however, the prospective zone for hydrocarbons are mostly found in horsts. Petrophysical evaluation of well Bijnot-01 is carried out to highlight the reservoir area. Well log data of the Gamma Ray, Spontaneous Potential, Density, Neutron and Sonic Logs are used for identification of lithology, calculation of volume of shale and Porosity, saturation of hydrocarbons, and water and finally the reservoir estimation. On the basis of petrophysical evaluation, it is noted that clastic reservoir Jodhpur Sandstone has good shows of oil. The major reason for well failure is its location as it was drilled downdip making it unsuccessful. According to current studies, Bijnot-01 has a very good trap and seal for the accumulation of hydrocarbons. For good economic potential of hydrocarbons like in the Baghewala-01 well of the Bekaner Nagur Basin, India, an updip drilling of the Bijnot-01 well is suggested.