

Prospect evaluation and fault seal analysis of reservoir potential massive sands with Seismic and well log data in Sinjhor, Pakistan

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Abstract

The Sinjhor concession is prolific gas-producing block situated on the eastern limb of the Lower Indus Basin in Pakistan. It contains several development and production (D & P) leases, which are producing gas from cretaceous rocks. The present study aimed is to prospect evaluation in the massive sands of the Lower Goru Formation using a 2D seismic and well log data study area Sinjhor in Pakistan. A time & depth structure map of the massive sands were generated, which depicted horst and graben structures oriented predominantly in a NNW-SSE direction. These normal faults are deep seated and potentially provide a vertical primary migration pathway to hydrocarbon flow. A prospective lead was identified in the northwestern portion of the structural map, which could be explored further. Our study revealed that the reservoir quality sands are deposited in the eastern portion of the study area. The identified lead is also located on a fair to good level of sand body which is producing from the well drilled to the south of the prospective area. Additionally, it is strongly recommended to conduct an infill seismic survey over and around the newly identified prospect in order to validate its existence and aerial outspreads. During the petrophysical study prospective zone is identified, showing promising results for hydrocarbon presence. Fault Seal analysis has been made which reveal that fault is acting as a good seal for the identified lead. The prospects are to be calculated for the P_10, P_50 & P_90.