

## **Sedimentological Model Construction of the Pab Formation Sandstone –Case Study from the Kirthar Range, Pakistan**

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### **ABSTRACT**

The Pab Formation is a siliciclastic unit that crops out within the Kirthar foreland belt of Pakistan; additionally this unit has been penetrated by several wells in areas close to this foreland belt. Numerous fault blocks are present in the area and structures offer a combination of structural-stratigraphic trapping potential for hydrocarbons within the Pab Sandstone producing as a tight gas reservoir from wells Rizq-1, Rehman-1 and Rehman-2 of Polskie Górnictwo Naftowe i Gazownictwo (PGNiG) in Pakistan. Relatively low porosity and permeability values may indicate short migration pathways giving an indication of close located source rocks to the Pab Sandstone. Due to drilling difficulties, boreholes have stability issues along with variable core recovery percentages leading to a patchy coverage of the Pab Sandstone were drilled. Here, based on disparate cores recovered from 3 wells, the jigsaw pieces are placed in geological context, such that a vertical stratigraphic sequence can be constructed and understanding of the depositional environment within this fault block improves. So far, depositional environments have been interpreted as terrestrial playa-fluvial, over deltaic to slope deposits. First indications of different provenances ranging from volcanic, craton interior to recycled orogen might have an impact on reservoir quality beside diagenetic signatures. Integrated petrographic studies in tandem with the sedimentological input provide insight into the diagenetic overprint of these low porosity sands and trigger further information on provenance areas. Initially based on 3 wells, this study is expected to be ongoing and updated periodically as further well data are added.