

**PETROPHYSICAL EVALUATION OF ZAMZAMA GAS
FIELD, SOUTHERN INDUS BASIN, PAKISTAN**



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the requirement for the degree of M.S in Geology

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ABSTRACT

The main purpose of the study is to evaluate hydrocarbon potential of the Zamzama gas field and correlation among the wells. Zamzama gas field has been evaluated on the basis of well logs. In this research study the well data of Zamzama 02, Zamzama 03 and Zamzama 04 (located in Southern Indus Basin) was acquired from Land Mark Resources (LMKR), Pakistan with prior permission from Directorate General of Petroleum Concession (DGPC). Sonic Log, Neutron Log, Density Log, Gamma ray Log, SP and Resistivity Logs were analyzed for petrophysical analysis.

The methodology adopted to accomplish this task include; the measurements for the Shale volume by using Gamma Ray Log, Porosities of the Reservoir zone by Density and Neutron Log, Resistivity of water, Saturation of water in the zone of reservoir and Hydrocarbon saturation using Archie equation. Based on these studies, it is concluded that Pab Formation is hydrocarbon bearing.

On the basis of the stratigraphic correlation better quality sands are expected in the southern portion because thickness is increasing towards north. In this correlation pab sandstone is pinching out towards south. Reservoir quality sand (Pab sandstone) is thick in the north and thins towards south.

Structural correlation is used to interpret the structures like folds and faults which shows the anticlinal structure of the borehole. Zamzama 02 and Zamzama 04 wells are on the crestal part of Zamzama anticlinal structure. While the Zamzama 03 is targeting the southernmost part.

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