

**2D INTERPRETATION FOLLOWED BY ATTRIBUTE AND
PETROPHYSICAL ANALYSIS OF SINJHORO AREA,
LOWER INDUS BASIN, PAKISTAN**



By

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A thesis submitted to Bahria University, Islamabad in partial fulfillment of the requirement for the degree of M.S in Geophysics

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2017

CERTIFICATE OF ORIGINALITY

This is to certify that the intellectual contents of the thesis

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BASIN, PAKISTAN**

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ABSTRACT

The main objective of this research was delineation of subsurface structures favorable for hydrocarbon accumulation and attributes analysis. It interprets 2D seismic reflection data of selected seismic lines of Sinjhor area, Lower Indus Basin, Pakistan. This area is situated in the Sanghar District of Sindh Province and is licensed to Oil and Gas Development Corporation Limited (OGDCL). The seismic data for this research was provided by the Land Mark Resources (LMKR), by the permission of Directorate General of Petroleum Concessions (DGPC). The data comprised six seismic lines, well tops of well CHAK 66-01, RESHAM-01. The names of the six seismic lines obtained are: (20017-SNJ-01, 20017-SNJ-03, 20017-SNJ-05, 20017-SNJ-06, 20017-SNJ-22, 20017-SNJ-23 and 20017-SNJ-24). Three horizons are marked and named after correlating with well tops of CHAK 66-01, after well to seismic tie these horizons are correlated in whole area. In time structure maps, it was found that the area is under the extensional tectonic regime. After Cretaceous only single major fault extends up to Chiltan Formation of Jurassic age. The lower Cretaceous shale of Sembar Formation is proven source for oil and gas discovered in the Lower Indus basin, The Basal sands of Lower Goru Formation are the main zones of interest in this area the Upper Goru Formation as well as shale within the Lower Goru Formation serves as cap rock for the underline sandstone reservoir. Time and depth contours were generated for structural delineation. Seismic attributes are applied to identify the lithological distribution, structural deformation of the strata and for identifying the presence of hydrocarbon in the area. Instantaneous frequency attributes are used for the purpose of identifying the lithological distribution and their lateral discontinuities. Variance attribute is used for identification of the structural deformation, whereas envelope attribute is used to mark the possible location for hydrocarbon presence. The hydrocarbon potential of CHAK66-01 and RESHAM-01 is calculated by evaluating petrophysical analysis of the Well logs.

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