

**2D SEISMIC INTERPRETATION AND PETROPHYSICAL
ANALYSIS OF BHANGALI FIELD AREA, UPPER INDUS
BASIN, PAKISTAN**



BY

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2019

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ACKNOWLEDGEMENTS

We would like express the deepest appreciation for Prof. Dr.Tehseen Ullah Khan (Head of Department, Earth and Environmental Sciences, Bahria University) and his entire team under dynamic supervision, guidance and encouragement, we were able to gain professional exposure. We are extremely thankful to the efforts of our supervisor Ms.Urooj Shakir, We also thank our all teachers especially Mr.Saqib Mehmood for their support and guidance throughout our research. We would like to pay tribute and give huge thankfulness to our parents and family members for their prayers and unsurpassed wishes. As without their encouragement and cooperation it would not have been possible for us to compile our research work.

ABSTRACT

Bhangali oilfield is located approximately 50 km south-east of Islamabad in Gujjarkhan District, Rawalpindi, and tectonically lies in area of Potwar sub-basin which is hydrocarbon rich. In the structural traps of Potwar area, hydrocarbons reserves are present. Bhangali anticline is the potential area and it is main target for the oil exploration. The objective of this study is to understand the subsurface structures present in study area for accumulation of hydrocarbon through seismic data interpretation and to calculate reservoir rock properties through petrophysical analysis. Four seismic lines, including one strike line and three dip lines are used for structural interpretation of study area. To calculate reservoir properties of reservoir formations, petrophysical data obtained include formation logs data, resistivity logs data and density logs data. There are three Formations important in study area for the exploration and production. Two Formations are of Eocene age known to be Chorgali Formation, and Sakesar limestone and the third one, Lockhart Formation, is of Paleocene age. On seismic sections, two formations namely Chorgali Formation and Sakesar limestone along with four major thrust faults and one minor thrust fault, are marked. The structures that are resulted in response of thrusting in study area and then marked on seismic sections are called pop-up structures.. The interpreted seismic sections and the contour maps showed that the area was structurally deformed due to salt decollement and compressional tectonic movement. Petrophysical logs are used in study to determine porosities, saturation of water and saturation of hydrocarbon in Bhangali-01 well. Results obtained after petrophysical analysis include 56% average saturation of water, 43% average saturation of hydrocarbon with 15% average effective porosity and 42% average volume of shale in reservoir Chorgali formation.