DEDICATION

This dissertation is dedicated to our parents, teachers and family members to whom we owe everything.

Acknowledgment

In the name of Allah, the most Beneficent, the most Merciful. All praises to Almighty Allah, the creator of universe. We bear witness that Holy Prophet Hazrat Muhammad (P.B.U.H) is the last messenger, whose life is a perfect model for the whole mankind till the Day of Judgment.

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Abstract

The main purpose of the study is to evaluate hydrocarbon potential of the well named Tolanj 01, Kohat Sub-Basin, KPK, Pakistan. This has been achieved by using complete suite of wire line logs and available well data. This complete set of data is issued by Land Mark Resources, Pakistan with the prior permission of Directorate General of Petroleum Concessions, Pakistan.

To complete the above mentioned task, all logs were correlated to mark the horizon of interest. In our case, the zone of interest was from Lockhart (Paleocene age) to Samanasuk Limestone (Late Jurrasic age). After the demarcation of interested zone, each zone (i.e Lockhart Limestone, Darsamand/Kawagarh Formation, Lumshiwal Formation and Samanasuk Limestone) were evaluated in detail for the hydrocarbon potential using different sets of equations.

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, Neutron and Sonic Logs, Resistivity of water by using Spontaneous potential log , Saturation of water and Hydrocarbon saturation in the zones. Then mechanical properties of rocks were analyzed to understand the trends of elastic parameters in the zones, as well as to establish the relationships of elastic parameters and velocities. The relationships between the Vp, Vs, Porosity, Density, Vp/Vs and elastic parameters of interested zones helped to understand the changes in trends and reasons for these changes.

The results for the dissertation were then displayed in the form of graphs and excel sheets for the better approach towards the task.

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