PETROPHYSICAL ANALYSIS OF BAHAWALPUR EAST-01 WELL USING WIRELINE LOGS

Khalid Nazir

Muhammad Naeem

DEPARTMENT OF EARTH & ENVIRONMENTAL SCIENCES
BAHRIA UNIVERSITY ISLAMABAD

DEDICATED

TO

OUR BELOVED PARENTS

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ABSTRACT

The main purpose of the study is to evaluate hydrocarbon potential of a well named Bahawalpur East-01, Punjab Platform, Central Indus Basin, 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 the all logs were correlated to mark the zone of interest i.e. reservoir zone. In our case the reservoir is lying in Salt Range Formation of Precambrian age. After the demarcation of reservoir (Salt Range Formation), this zone was then divided into sub zones according to the quick look interpretation.

These zones were evaluated for the hydrocarbon potential in detail using set of equations. The methodology adopted to accomplish this task includes; the measurements for the Shale volume by using Gamma Ray Log, Porosities by Density & Neutron Log, Resistivity of water by using R_{wa} method, Saturation of water in the zone of reservoir and Hydrocarbon saturation using Archie equation.

The results for the dissertation were then displayed in the form of excel sheets and graphs for the better approach towards the task. These all displayed results show that the Salt Range of Bahawalpur East # 01 is 100% water bearing and has no considerable amount of hydrocarbon.

ABBREVIATIONS

d_h	Borehole diameter
di	Average diameter of invaded zone
dj	Average outer diameter
h	Bed thickness in meters
R_m	Resistivity of the mud
R_{mf}	Resistivity of the mud filtrates
R_{mc}	Resistivity of the mud cake
R_w	Resistivity of the formation water
R_{wa}	Apparent resistivity of the formation water
R_t	Resistivity of the formation (uncontaminated zone)
R_o	Resistivity of the formation when 100% water filled
R_{xo}	Resistivity of the flushed zone
S_{xo}	Water saturation in flushed zone or invaded zone
R_i	Resistivity of invaded zone
V_{sh}	Volume of shale
R_{mfeq}	Equivalent mud filtrate resistivity
R_{weq}	Equivalent formation water resistivity
S_w	Saturation of water
S_h	Saturation of hydrocarbon
Ø	Porosity

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