

2-D SEISMIC INTERPRETATION AND
PETROPHYSICAL ANALYSIS OF BHANGALI
FIELD



Omer Kamal Shah

Department of Earth and Environmental Sciences,
Bahria University, Islamabad

*IN THE NAME OF ALLAH,
THE MOST BENEFICIENT, THE MOST
MERCIFUL*

DEDICATED TO

This thesis is the result of the relentless efforts of my parents who always believed in me and made me believe in myself. It's only because of their hard work and conviction that I have been able to reach this far in life. Out of all my accomplishments thus far in life this is perhaps the most important and yet again like all the previous times the credit goes to my parents who have provided me with everything I ever wanted and always provided me with the best living conditions no matter what problem they were facing themselves. From giving me an existence to making me bold and confident enough to face the world , making me believe that I could do anything , providing for me so that I would not feel less than the people around me and so much more that this thesis would be overshadowed by their efforts and deeds if I went into more detail. I would like to congratulate both my parents i.e. Major Mohammad Akram and Robina Akram for this degree is as much theirs as it is mine.

I would also like to thank my two sisters Aaishah and Sarah for always being by my side and taking care of me. Always being there when I needed someone to talk to and being the sources of sound advice for me. We are three besties for life.

“ All for one, One for all”.

Lastly I would like to dedicate this thesis to the victims of terrorism in Pakistan. You all have been killed unjustly by a coward enemy but know that you are still alive in our thoughts despite your physical absence while your killers are worse than dead even though they walk on this planet. You will get your justice in this world or the next and we will overcome this curse sooner or later INSHALLAH

ACKNOWLEDGEMENT

I would like to acknowledge my loving sister Sarah Akram who is also my friend and teacher. Without her untiring effort this thesis would not have been what it is.

ABSTRACT

The seismic lines OX-S88-20, OX-S88-23, OX-S88-36 and Bhangali-01 well, obtained from Directorate General of Petroleum Concessions (DGPC), was shot by Occidental of Pakistan Inc. in the area of Bhangali (Eastern Salt Range/Potwar Plateau). The direction of the dip lines is NorthWest to SouthEast and that of the strike line is SouthWest to NorthEast. Two prominent reflectors namely Chorgali Formation and Basement were marked on the seismic section on the basis of observed reflection events. A fault was marked which continued along the Pre-Cambrian basement. Two more thrust faults were marked which show a fault-propagating fold in the form of the anticline of Bhangali. The TWT picked from the seismic section was posted on the base map to make a time contour map of the Upper Eocene Chorgali Formation, as it was continuing throughout the area. The seismic velocities (V_{rms}), given in the velocity windows on the seismic section, were used to find the average velocities of the Upper Eocene Chorgali Formation and the Pre-Cambrian basement. These average velocities were then used to find the depths of the formation for the depth contour map of the Upper Eocene Chorgali Formation. Well data of Bhangali-01 was used to mark the thicknesses of the individual formations and to perform petrophysical evaluation. The interpreted seismic sections and the contour maps showed that the area was structurally deformed due to salt decollement and compressional tectonic movements. Traps for hydrocarbons were developed in the anticlines as they truncated against the basement fault. Salt probably moved into these anticlines due to compressional movements. The Bhangali anticline is the prospective zone and is the primary targets for oil exploration, where the depth of the Upper Eocene formation is almost 3600m, favorable for drilling.

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