BIOSTRATIGRAPHIC AND MICROFACIES ANALYSIS OF LATE CRETACEOUS KAWAGARH FORMATION KHAWRI KHWAR SECTION, NIZAMPUR, KHYBER PAKHTUNKHWA, PAKISTAN

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2017

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A thesis submitted to Bahria University, Islamabad in partial fulfillment of the requirement for the degree of MS in Geology

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CERTIFICATE OF ORIGINALITY

This is to certify that the intellectual content of the thesis

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Signature: _____ Date: 17/05/2018

Name of the Research Candidate: Muhammad Khubab

Dedicated.,

To my Mother and Brother,

(Engr. Azmat Ali Khan)

Muhammad Khubab Khattak

ABSTRACT

The Kawagarh formation is located at Khawri Khwar section that is the part of Nizampur sub-basin. The study area is surrounded by Indus River to the east, FR Peshawar to the west, while Jehangira village and Khairabad, Attock Khurd villages are located to its north and south respectively. In study area, eight stratigraphic rock units has been dated from Late Jurassic to Eocene rocks covered with alluvium at different places. Datta Formation is being the oldest strata while, the youngest one is the Patala Formation. The Hangu Formation of Paleocene age is missing at the proposed study area. The Cretaceous age rocks are overlain unconformably by Jurassic rock units which in turn are overlain unconformably rocks of Paleocene age. The present study is primarily focused on the biostrtatigraphy, microfacies analysis and diagenetic study of Kawagarh formation. Overall three (03) microfacies has been identified that includes; Mudstone, Bioclastic mudstone and Radiolarian-biolclastic wackstone. The species of Globogerinelloids (bari, blowi and ferrolensis species), Macroglobogerinelloid bolli, Globotruncana (lapparenti and linneiana species) Hedbergella gorbachikae, Heterohelix (carinata, normani and straiate species), Radiolaria and Calcisphere are identified. On the basis of dominant mudstone microfacies, radiolarian fossils and low percentage of planktonic bioclasts, deep marine burial environment is assigned to the Kawagarh formation. The tectonic activities that had taken place in past have greater effect over the diagensis and reservoir properties especially porosity and permeability. Major diagenetic features recorded in the Kawagarh Formation are; neomorphism, dissolution, cementation, compaction both physical and chemical and pyrite precipitation. The reservoir properties of the formation is substantially decreased by physical and chemical compaction, neomorphism and dissolution, which depict that this formation doesn't act as a good reservoir at study area.

ACKNOWLEDGMENTS

The great help, assistance and encouragements from many individuals and organizations facilitated the completion of this work. It is a great pleasure for me to express my gratitude for the guidance, supervision and encouragement of my supervisor Mr. Mumtaz Ali Khan, Senior Lecturer Department of Earth and Environmental Sciences, Bahria University Islamabad. His constructive criticism and availability during this work has been invaluable. Very special thanks, of course, go to Mr. Saqib Mehmood Assistant Professor, Head of Department Prof. Dr. Tahseenullah Khan and Prof. Dr. Muhammad Zafar, Postgraduate Research Coordinator.

I would like to thank the authorities of Bahria University Islamabad for allowing me to carry out this research work and National Center of Excellence in Geology Peshawar for allowing me to use their lab for detail Petrographic Study. I am thankful to Mr. Rasheed (Dept of Geology, UOP) for his contribution by preparing the thin sections.

I am deeply indebted to my friends Syed Irfan Hashmi, Ibrahim Safi. Abdullah Khan, Majid Ullah Wazir, Aizaz Kakar (University of Peshawar), Saad Ahmad Mashwani and Shah Faisal Zeb (Bahria University Islamabad), who supported this work in variety of ways. They are thanked for providing their technical help, support, nice company and precious time during field work. Without their help, I might not be able to accomplish this work awesomely.

My deepest thanks to my all family members and relatives whose encouraging attitudes have always added to my strength requiring to complete this thoughtful project, especially my loving Mother and elder brother Engr Azmat Ali Khan, Uncle, Cousins Feroz Khan and Hashim Khan.

Last but not the least I am thankful to all my friends especially Adil Saleem (OGDCL), Shabbir Hussain, Majid Ullah, Arif Khattak, Sami Khattak, Shahid Rafique, Zohaib Afridi and Shehbaz Ali Junejo (University of Sindh Mirpurkhas), for their understanding and encouragement in my many moments of crisis. Your friendship make my life a wonderful experience.

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