

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



BY

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Bahria University, Islamabad

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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CRETACEOUS KAWAGARH FORMATION KHAWRI KHWAR SECTION,
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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 biostratigraphy, microfacies analysis and diagenetic study of Kawagarh formation. Overall three (03) microfacies has been identified that includes; Mudstone, Bioclastic mudstone and Radiolarian-bioclastic wackstone. The species of Globogerinelloids (*bari*, *blowi* and *ferrolensis* species), Macrolobogerinelloid *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 diagenesis 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.

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