

INTEGRATED SEQUENCE STRATIGRAPHY OF JHELUM GROUP KHEWRA GORGE, SALT RANGE, PAKISTAN

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Abstract

The Jhelum group of the Cambrian age which consists of Khewra Sandstone, Kussak Formation, Jutana Formation and Baghanwala Formation has been investigated for lithofacies, petrography and sequence stratigraphy. Based on the lithofacies analysis the Khewra sandstone consisted of inter-bedded shale and sandstone lithofacies, channelized sandstone lithofacies, planner bedded sandstone lithofacies, channelized sandstone interbedded with shale lithofacies and conglomerate lithofacies, based on the lithofacies, the delta plain to delta front depositional environment is suggested for the Khewra Sandstone. The Kussak Formation consisted of glauconitic sandstone and shale interbedded lithofacies, borrowed glauconitic sandstone lithofacies, based which a shallow marine depositional settings is suggested. The Jutana Formation consisted of algal laminated dolostone lithofacies, glauconitic sandstone lithofacies, thick bedded dolostone lithofacies, sandy dolostone lithofacies and shale lithofacies, based on the lithofacies a shallow marine depositional setting is suggested. The Baghanwala Formation consisted of shale lithofacies, variegated siltstone lithofacies and reddish sandstone lithofacies, based on these lithofacies, the Baghanwala Formation represented fluvial dominated deltaic depositional setting. Based on the petrographic studies, using Gilbert (1982) classification of sandstone the rock type identified from the Khewra Sandstone is quartz wackes and feldspathetic wackes. The rock type identified in Kussak Formation is quartz wackes and feldspathetic wackes, while the Baghanwala Formation is represented by quartz wackes and mud rock. Under sequence stratigraphy investigation, three sequences have been identified from the Jhelum Group. The deposition of Khewra Sandstone is represented by three regressive system tracts and three transgressive system tracts. The Kussak Formation is deposited during two transgressive and three regressive system tracts. The Jutana Formation is deposited during two transgressive system tracts and three regressive system tracts, while the Baghanwala Formation represents overall regression while the base of the formation is marked by first transgression.

Keywords: Sequence stratigraphy, Lithofacies, Paleoenvironments, Jhelum Group, Cambrian