

Integrated study of microfacies, XRD supported by SEM, wire line logs of Jutana Dolomite at Khewra Gorge, Salt Range Punjab, Pakistan

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Abstract

The current investigation related to integrate the microfacies, XRD data complimented with SEM along with wireline logs of Jutana Dolomite of middle-late Cambrian age in Khewra Gorge in Eastern Salt Range is carried out. The deposition of Jutana Dolomite is primary on carbonate plate form in peritidal environments, ranging from supratidal to subtidal; however, later on the diagenesis has obliterated most of its primary feature, and thus makes its primary origin doubtful. This can be understood by classifying the microfacies into four types as (a) Siliciclastic Algal laminated Dolomite Breccia (MJD-1), (b) Burrowed Sandy Ferroan Dolomicrite (MJD-2), (c) In-situ Medium-Coarse grained Dolomicrite-Dolosparite (MJD-3), (d) Fine grained Micaceous Crackled Sandy Dolosparite (MJD-4). This study is further supported by XRD analysis, which suggests that the Jutana Dolomite is nearly stoichiometric and less ordered, such kind of the dolomite are interpreted as early diagenetic. This is supported by the presence of anhydrite under SEM. The data obtained from wireline logging is in close comparison with previous data. In this case four facies were introduced by interpreting the cross plot data obtained from neutron porosity log and total formation value. The environment for Jutana Dolomite is interpreted by cross plot graph and it ranges from subtidal to intertidal.