

Late Palaeozoic Clastic Deposits of Kuwait; a Stratigraphic Revision Based on a Multidisciplinary Approach

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ABSTRACT

Palaeozoic deposits of Kuwait are a new target for subsurface exploration. The limited availability of subsurface data still hampers the accuracy of geological models. This is even more problematic for the deep clastic successions, such as those recorded below the Upper Permian Khuff carbonates. In these coarse clastic settings, conventional biostratigraphic approaches are strongly compromised. We therefore adopted an integrated approach based on a combination of biogenic silica stratigraphy, carbon isotope stratigraphy and palynology for age-dating these deposits. We here present the results of an integrated stratigraphic study of the clastic deposits recovered below the Upper Permian Khuff carbonates in Kuwait, providing a more detailed chronostratigraphical framework for these deposits in Kuwait. The results of this study imply a major update of the stratigraphy of the Palaeozoic of Kuwait. The clastic deposits from a cored section below the Khuff carbonates were previously interpreted as equivalent of the Unayzah Fm. in Saudi Arabia. Our results in contrast imply that these deposits correspond to the Basal Khuff Clastics interval of the “Tectonic Mega Sequence AP 6”. This finding implies that the Basal Khuff Clastics are locally much more expanded than previously assumed. When considered in a regional context, it appears that the development of incised valley systems at the Basal Khuff lowstand in Kuwait started earlier than in e.g. onshore Saudi Arabia. These findings have major implications for the understanding of development of Late Palaeozoic reservoir-systems in Kuwait.