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# The depositional patterns of the late cretaceous siliciclastic reservoirs : Case Study of the Orange Basin, Offshore South Africa

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The assessment of reservoir quality parameters are mostly centered on porosity and permeability but may include measures of clay content, cementation, grain size and other factors that affect the storage and deliverability of fluids in the reservoir. In this study we showcase the influence of sedimentary structures and the effects of diagenesis(clay and cementation) on the quality of the reservoir. Three key reservoir intervals were identified which could be followed from the shelf to the deepwater. These reservoirs were critically examined within the Lower Cretaceous age. Poor to moderately crystalline kaolinite verms locally illitised, block the pore throats in some of the reservoir intervals. In reservoir 2 which was defined by a very fine, well sorted laminated sandstone which lies at the base of a dewatered sandstone was identified and is affected by grain rimming. This is as a result of the illite and smectite that bridges the pore throats and coalesces at the grain margins. The presence of chlorite, kaolinite and calcite are evident in this region however with very low influence on the reservoir. A notable increase in chlorite, smectite and illite was identified in most reservoirs. The quality of the reservoirs and under performance of it can be constrained to the clay alteration and cementation of the pores in these key intervals.