

Sequence stratigraphic characterization of petroleum reservoirs in Block 3013, deep water Orange Basin, South Africa

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ABSTRACT

“What’s next” for hydrocarbon exploration in South Africa’s Frontier Basin- the Orange Basin? Remaining one of the largest under explored basins in the world, (Pickford, 2001), exploration has concentrated on the shelf, in water depths of under 500m with numerous gas/condensate discoveries and one oil discovery. The potential of the deep water is so far untested, with clear indications that suitable reservoirs, source rocks and traps exist.

This research in an attempt to show that the lowstand reservoir components (often developed in down dip deepwater and slope paleoenvironments) of the Orange Basin should hold unexplored/untapped massive hydrocarbon resources. It is geared at exploration Play Analysis of the deepwater Orange Basin of South Africa from a Sequence Stratigraphic Perspective.

A *modus operandi* is developed which uses the integration of a range of tools and techniques including sequence stratigraphy and seismic reflection analysis. These are in turn linked with core and outcrop study/analyses of the exceptionally exposed Permian submarine fans (3 and 4) of the Tanqua sub basin (Karoo Basin) to constrain the range of possible fan types, reservoir architecture and pinch out which are very valuable in appraisal, development and production.