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**Couvinian Reservoir Characterization of Ahnet-Timimoun Basin**

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The Ahnet-Timimoun basin is located in the southern part of the central Sahara. Sediment thickness is about 4000m. In the south, the Devonian reservoirs are gas-prone.

The Couvinian reservoir is the main target. It is characterized by a silicoclastic fluvio-estuarine sediments. Integration of logs, biostratigraphic, core description and outcrop data led to the identification of distal and proximal deposits. They are respectively located North-West of Timimoun and South-East of Ahnet, where good reservoirs are found.

Paleogeographic framework reveals that at the end of the Emsian period an eustatic level fall occurred probably controlled by basement structures, such as the Djoua Ridge and the Mekerane Sud transfer fault. The tectonic movement caused several local emersions or uplifts which created “incised valleys” in both Ahnet and Timimoun basins. However, a major regional unconformity (SB/TS) occurred during this period. We believe it is probably a forced regression. It is always characterized by a Glossifungites surface.

During the Couvinian marine transgression (a transgressive system tract - TST) from the North-West, there was a filling of the incised valleys. This system oriented North to South. It is characterized by retrograding deposits, showing very coarse to medium, trough cross, planar bedded sandstone with mud drapes and mud clasts. These sandstone bars are associated with a rich shell debris marker and important burrows of vertical type. The Maximum Flooding Surface (MFS) is indicated by offshore bioclast shales above this Couvinian Bar.

The sequence stratigraphic interpretation of Couvinian reservoir in detail shows several stratigraphical pinchouts. They are located in different areas, such as Djoua Ridge, Ahnet basin and the Timimoun basin. This reservoir exhibits good porosity and permeability around the Ahnet basin.