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SEQUENCE STRATIGRAPHIC FRAMEWORK OF ALO AND IGBARIAM WELLS, ANAMBRA BASIN SOUTHEASTERN NIGERIA

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Abstract:

The sequence stratigraphic analysis of Alo and Igbariam wells in Anambra Basin was carried out to define the depositional systems in the study area. This research was based on the integration of wireline logs (gamma ray and resistivity) and biostratigraphic data. The results show that one maximum flooding surface (68.2Ma at 1845m) and two sequence boundaries (67.5Ma at 1560m and 68.89Ma at 2200m) were identified in Alo well while three maximum flooding surfaces (61.1Ma at 680m, 68.2Ma at 2620m and 69.14Ma at 3200m) and two sequence boundaries (67.5ma at 2520m and 68.89Ma at 2830m) were identified at Igbariam well. The depositional sequences as observed in both wells comprise of transgressive, lowstand, and highstand systems tract. The potential reservoirs identified in both wells were found in the lowstand systems tract which comprises of massive sand bodies believed to be the Ajali Formation. This is capped by thick shales which serve as seal. In both wells, Nkporo Formation was found at the base with Mamu Formation lying conformably at the top of it. This is in turn overlain by Ajali Sandstone which is covered by Nsukka Formation. At the topmost of the wells, Imo Shales were identified. The depositional environment of sand units A, B, C, D, E, F & G were found to be basin floor fan, distributary mouth bar, offshore bar, channel sand, turbidite channels or deltaic distributaries, alluvial sands, braided streams, fluvial channels or point bars, and tidal sands or fluvial channels respectively.

Keyword: Sequence boundary, Maximum flooding surface, Biofacies, Stacking pattern, Systems tract.