
Well-Log Sequence Stratigraphy of the Ultra Deepwater Shell #1, Alaminos Canyon Block 557 in the Gulf of Mexico

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ABSTRACT

The oldest sediments in the Shell 557 #1 well in Alaminos Canyon block 557 in the Gulf of Mexico range in age from Albian to late Campanian of the Late Cretaceous. Seven maximum flooding surface events were identified. These sediments are unconformable below the thin Paleocene sediments of the "Midway Formation." This major unconformity is present at 16,780 feet at the Cretaceous (Cam9) 72.78 Ma sequence boundary. Paleocene/lower Eocene sediments of the Midway and Wilcox have been divided into 3rd order sequences bounded by unconformities and assigned a numerical age including: Sel1 (60.21 Ma), Sel2/Th1 (59.32 Ma), Th2 (58.23 Ma), Th4 (57.23 Ma), Th5 (56.57 Ma), and Lu1 (47.47 Ma). Sediments representing the upper Wilcox from 49.95 Ma (Yp9) sequence boundary to the 56.27 Ma (Th5) sequence boundary have been eroded in this well and additional onshore wells in Matagorda County, Texas. The Reklaw Formation is bracketed by two maximum flooding surfaces, the 49.95 Ma (Yp9) and 47.03 Ma (Lu1). Third order sequences, their sequence boundaries, and maximum flooding surfaces can be used for correlation from onshore to offshore to ultra deepwater wells in the Gulf of Mexico. Using biostratigraphy, well logs, sequence stratigraphy, and seismic sequence stratigraphy make it possible to delineate specific chronostratigraphic intervals at a level of resolution and reliability beyond that generally associated with biostratigraphic correlations.