COMPARISON OF QUARTZ AND CARBONATE SHALLOW MARINE SANDS, CRETACEOUS FREDERICKSBURG, CENTRAL TEXAS[1]

C. H. MOORE, JR.
Shell Development Company (A Division of Shell Oil Company) Exploration and Production Research Division, Houston, Texas.

K. G. MARTIN
Pan American Petroleum Corporation, New Orleans, Louisiana.

ABSTRACT

The lower Fredericksburg Cretaceous of central Texas contains two shallow-marine sand deposits of similar shape but of contrasting lithology, genesis, and porosity trend.

The lower sand (Paluxy Sandstone) is part of the initial clastic phase of the lower Fredericksburg depositional cycle and is composed predominantly of quartz sand and clay. It occurs as a tongue which projects southward from the main body of the formation. The Paluxy tongue was deposited by longshore currents, modified shoreward by wave swash and tidal action, in a coastal near-shore marine environment. The trend of the tongue is controlled by the position of the shoreline and by the configuration of the sea floor.

The upper sand (Whitestone Member of the Walnut Formation) is the terminal phase of the lower Fredericksburg cycle and is composed entirely of carbonate grains. The Whitestone is an elongate, mound-shaped body of lime sand trending northwest; it was deposited in an agitated, offshore, shallow-marine environment by northwest-southeast trending marine currents which were modified locally by surge channels normal to this trend. The trend of the mound is controlled by linear shoal areas.

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