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### **Exploitation of Thin Basin-floor Fan Sandstones, Navarro Formation (Upper Cretaceous), South Texas**

During thirty years of industry drilling in the Paleocene Lobo Trend of South Texas, thin sandstones of the Upper Cretaceous Navarro Formation have been regarded as a high-risk secondary objective that occasionally pays the cost of drilling an additional 1000' to test it. Several recent completions have yielded impressive sustained flow rates in excess of 1 million cubic feet of gas per day (MMCFGPD) per vertical foot of reservoir, therefore justifying an effort to better understand its occurrence.

The Navarro reservoir in southern Webb and northern Zapata Counties is a thin sporadically-occurring sand encased in deep-water shales that occurs basinward of the Cretaceous shelf margin. It is interpreted as a basin-floor fan based on log character and paleontologic bathymetric analysis. The sand averages 10 feet in thickness and can not be resolved seismically as a discrete event. However, areas favorable for sand accumulation can be predicted using attributes derived from 3-D volumes.

Where the sand thickness exceeds 15 feet a good correlation exists with the amplitude value of the seismic peak associated with the sand top. However, in most areas the sand is thinner, and accommodation space in subtle intrabasinal depressions can be inferred by 3-D isochron mapping. Most areas that have Navarro sand correlate with isochron thicks, however not all isochron thicks have sand, most likely because the available sediment supply was much smaller than the available accommodation space. These attributes should be applicable in other areas in which seismic resolution of a sand body is difficult.