HGS Luncheon Meeting, January 29

Trap Types vs. Productivity of Significant Wilcox (Early Eocene) Gas Fields in the Listric Growth Fault Trend of South Texas and the Divergent Origin of Its Two Largest Producers

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Detailed mapping and analysis of 23 Wilcox fields in the subject trend indicate that gas production is related to trap type. Of the total cumulative production of 3.5 TCFG, approximately 67% is from upthrown fault blocks, implying very effective fault seals due to down-faulted shale juxtaposed against gas reservoirs, differential pressures, and probable clay smears.

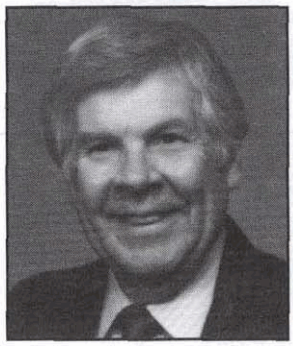
NE Thompsonville and Bob West fields have produced 650 and 200 BCFG, respectively, with 400 BCFG remaining reserves in the latter. Traps of these fields are not attributed to listric growth faulting, as is suggested by their trend location.

NE Thompsonville is a 9-mile-long (14.5 km) turtle structure that originated through depositional loading of an upper slope basin, followed by tilting, and eventual collapse of a sediment squeeze-up mound due to gravitational instability. These events provide an excellent example of basin evolution through sediment loading accompanied by evacuation of a salt substrate; the basin flanks are defined by basinward-dipping listric faults that accommodated subsidence and merge beneath its floor.

Bob West field lies along the edge of the Laramide fold belt. The 1.5 by 4 mile (2.4 x 6.4 km) field anticline adjoins a deep-seated fault that slices over and across a buried structural ridge of probable Cretaceous age. Uplift of the latter, immediately following deposition of more than 23 stacked, shelf-bar producing sands, upwarped the fault plane and resulted in rollover growth of the Wilcox anticline. The fault does not show the downward decrease in dip that is typical of listric growth faults. NE Thompsonville and Bob West fields both produce upthrown along crestal faults.

This analysis indicates that "high side" closures, irrespective of diverse origins, have achieved head-of-the-class stature as Wilcox gas producers.

Biographical Sketch



Fred L. Stricklin, Jr. attended Louisiana State University where he received a Ph.D. with a major in Geology in 1953. After teaching for one year at Baylor University, he joined Shell Development Company, where seven years of field work in the Central Texas "Hill Country" were directed primarily toward reconstruction of Lower Cretaceous carbonate depositional models. Numerous professional papers and publications resulted from these efforts. Subsequently, as an exploration geologist with Shell Oil Company for 13 years, he worked extensively on Lower Cretaceous and Jurassic carbonates throughout the Gulf Basin, as well as in the Tertiary sand provinces of onshore and offshore Texas.

After joining Banner Petroleum for six years in the "boom era", Dr. Stricklin participated as a member of a small exploration team in the discovery of several small oil and gas fields in Texas and the very exciting discovery of the giant Tuscaloosa Moore-Sams gas field in South Louisiana. Fred became an independent geologist in 1982 and is currently President of Wilcox Exploration Enterprises, a small company involved in generation and sales of in-depth exploration analyses of Gulf Coast oil and gas trends. The scheduled luncheon talk, presented earlier at the 1996 GCAGS Convention in San Antonio, is based on six years of work in the Wilcox trend of South Texas.