

by Edward Feragen (speaker),
Douglas Millman, Robert Bierley,
Howard Feldman, Manuel
Berumen and Shirley Perkins

South Texas Sub-Regional Evaluation: Area-Wide Integrated Structural and Stratigraphic Framework of the Frio and Vicksburg Yields New Plays and Leads

NOTE: (Some of this material was first presented at the 2006 AAPG convention in Houston)

ExxonMobil recently completed an area-wide evaluation of the South Texas Oligocene Frio and Vicksburg Formations. This evaluation resulted in the identification of new plays and leads within this mature gas-producing region. The foundation of the evaluation was the development of an integrated structural and stratigraphic framework. This framework was developed through integrated interpretation of extensive well, 2D and 3D seismic, and biostratigraphic data.

Due to the influence of growth faults during a time of high sedimentation rates, the Frio and Vicksburg stacking patterns generally do not reflect the global sea level curves for most 3rd-order assemblages. The extensive use of biostratigraphic data, integrated with well and

seismic interpretations, led to this paradigm change in the approach to framework development here.

Growth faults in the early Oligocene (Lower Vicksburg) were initiated by loading and subsequent failure of the Eocene (Jackson) shelf margin. The growth fault systems continued to be a primary control on sedimentation through the Vicksburg and Frio. Mapping indicates that throughout the Frio and Vicksburg sand-prone delta systems are spatially related to active, age-equivalent fault systems. Additional prospectivity was identified through recognition of sand-prone deltaic assemblages associated with growth faults down-dip of shaled-out packages, emplaced via bypass over portions of the shelf.

Detailed EOD evaluations led to the identification of Frio upper slope sands, which may offer a new play type in South Texas. These fan deposits appear to be fed by large (>500 ft. deep), up-dip submarine canyons. ■

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Biographical Sketch

ED FERAGEN supervises ExxonMobil's exploration efforts in South Texas. Ed received his BS and MS in geology from San Diego State University. Since 1987, Ed has worked for ExxonMobil in various prospect generation, planning and supervisory roles. His experience includes East Texas, South Texas, California, Germany and Brazil.



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