

HGS GENERAL MEETING HORS D'OEUVRES NIGHT

Hydrocarbon Systems in the East Texas Basin: A Basin Modeling Approach

HGS Dinner Meeting, May 9, 1994

Poster Session and Hors d'Oeuvres 5:30 p.m., Speaker Presentation, 6:30 p.m.

Post Oak Doubletree

by William A. Wescott and William C. Hood

The East Texas basin is a prolific, mature hydrocarbon province, producing oil and gas from several reservoirs and a variety of trap types. Much of the liquid hydrocarbon discovered in the basin is trapped in structures related to movement of the underlying Louann Salt. By determining the structural evolution of the basin, a framework was constructed to model the generation and migration of hydrocarbons in the basin. Geochemical data indicate that there are

three major source horizons; Smackover Formation (Jurassic oil), shales in the Pearsal Group (Lower Cretaceous oil), and the Eagle Ford Shale (Upper Cretaceous oil). The Jurassic source is mature throughout the basin and began to expel oil approximately 88 Ma. The distribution of Jurassic oil in Cretaceous reservoirs shows that vertical migration routes predominated. Lower Cretaceous source rocks are mature only in the deep, central portion of the basin where

expulsion commenced around 47 Ma. Distribution of this oil type suggests that Lower Cretaceous source rocks occur only in localized areas of the East Texas basin. The Eagle Ford Shale is immature in the main part of the basin, but it is mature south of the Angelina-Caldwell flexure where it reached peak oil generation approximately 20 Ma. Lateral migration explains the distribution of this oil type. Migration routes to the giant East Texas Field are 60 miles or greater.

BILL HOOD -

Biographical Sketch



William C. "Bill" Hood holds a B.S. from the University of Missouri, Columbia, Missouri, and a Ph.D. from the University of Montana, Missoula, Montana. As a geologist with Amoco Production Company, he has held a variety of technical and management positions over the past 12 years, working in both the domestic and international parts of the company. Prior to joining Amoco, Bill was a professor at Southern Illinois University, Carbondale, Illinois.