Monday, September 9, 2002

Westchase Hilton • 9999 Westheimer
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 Nonmembers & Walk-ups

Make your reservations now by calling 713-463-8920 **(5-0-1)** or by e-mail to Joan@hgs.org (include your name, meeting you are attending, phone number, and membership ID#).

HGS General
Dinner Meeting

*by C. Yeilding**
BP
Houston, Texas

The History of a New Play: Thunder Horse Discovery, Deepwater Gulf of Mexico

The Thunder Horse discovery is an accumulation of over one billion barrels of oil in the deepwater Gulf of Mexico. This test led to the discovery of a new play and challenged traditional exploration philosophies in the GOM. After early success in the amplitude-driven deepwater play, pool sizes were declining, and the success rate was flat at best. After multiple exploration failures in the conventional attribute-driven play, we adopted a "back to basics" exploration philosophy, focused on the geologic elements of the basin, while ignoring seismic attributes. We also focused on exploring from the source rock up. These concepts changed the way we viewed prospectivity in the GOM, and steered us toward targeting older stratigraphy in previously untested deeper structures.

Analysis indicated that south central Mississippi Canyon held promise as a top area to test this new play concept, and two structures were prepared for testing. Both prospects were turtle structures with primary targets in Miocene strata.

Regional work indicated that the Mississippi Canyon protraction area was a top place to focus our exploration efforts. Existing discoveries highlighted the presence of a world-class petroleum system, and large structures with significant fetch areas were present. Our subregional analysis focused on high-grading structural accumulations with the best fetch areas and well-developed reservoir, which led us to focus on Mississippi Canyon. Analysis indicated that south central Mississippi Canyon held promise as a top area to test this new play concept, and two structures were prepared for testing. Both prospects were turtle structures with primary targets in Miocene strata.

Before we could drill, several major hurdles had to be overcome. The acreage position had to be secured, and rigs with the ability to drill in these water depths had to be accessed. Three-D seismic surveys and depth-imaging breakthroughs were required to describe the prospect elements and position a well. Depth imaging was especially important, as it provided a much better structural image for prospect description and well positioning. When we finally tested the two top prospects in the play, one (Thunder Horse) was successful, and one (MC 911-1) was a failure. Post-appraisal of these wells helped us understand the potential and risks of this new play, although each new well in the play continues to teach us new lessons and keep us humble.

The process of continued focus has led us to this success. In building a regional framework for the northern Gulf of Mexico basin, then focusing our subregional analysis and prospect in the interpreted sweet spots, we were constantly high-grading . While the regional and subregional work were very efficient in terms of cost and time, prospect maturation and drilling were extremely cost and team intensive.

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* *with co-authors B. L. Yilmaz, D. I. Rainey, G. E. Pfau, R. L. Boyce, W. A. Wendt, M. H. Judson, S. G. Peacock, S. D. Duppenbecker, A. K. Ray, R. Chen, R. Hollingsworth, and M. J. Bowman.*

Biographical Sketch

CINDY YEILDING is the Global Geoscience Technology Manager for BP in Houston, Texas. She received a BS in geology from SMU in 1982 and an MS in Geology from the University of North Carolina in 1984. Prior to her current position, Cindy had been a subsurface team leader for the GOM, Venezuela Exploration, and Geophysical Research and Development groups. ›

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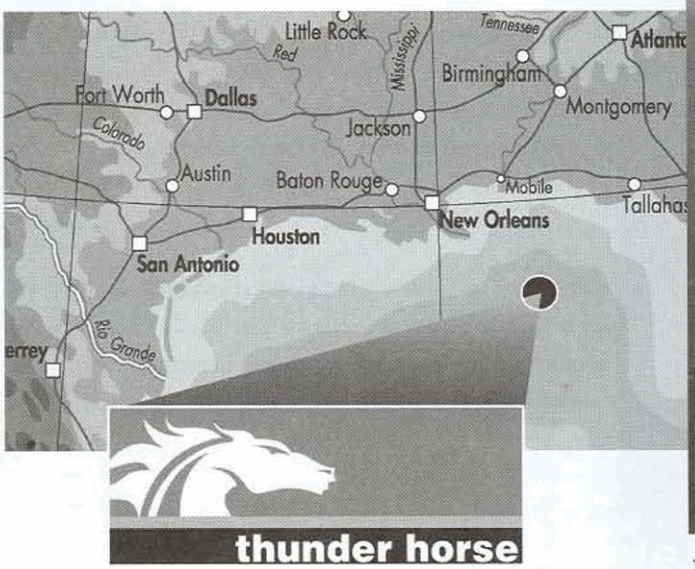
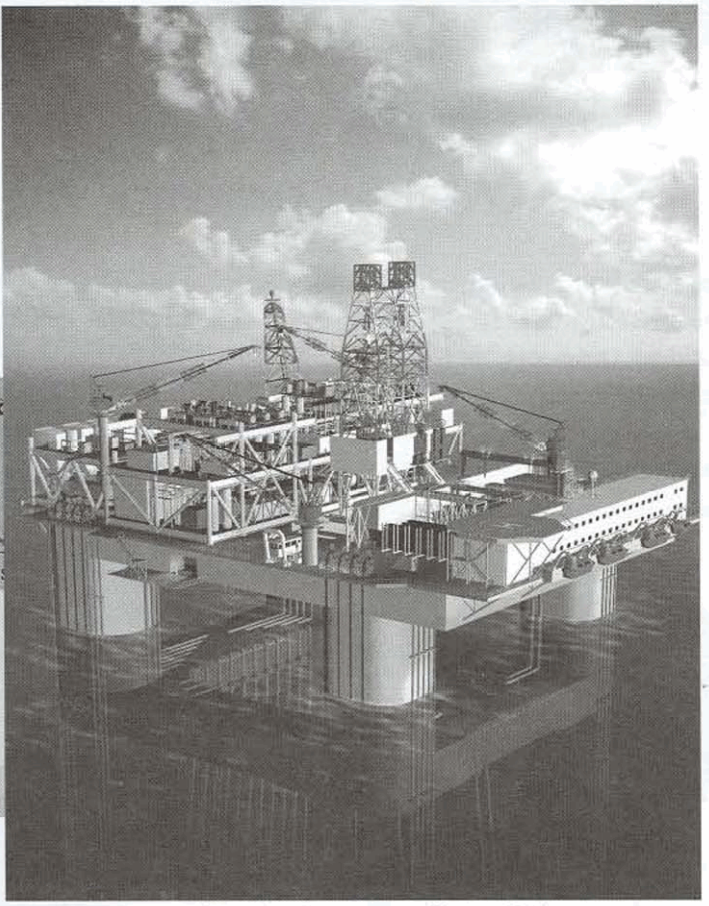
Her areas of research include stratigraphy, sedimentology and regional/subregional integrated geoscience. Her interests include the relationships of structure and sedimentation such as salt-sediment interactions, and deepwater clastic deposystems. She has developed and led short courses and field seminars in deepwater clastics, salt/sediment workshops, and basic petroleum geosciences. Cindy has also chaired numerous AAPG sessions and presented over 20 technical AAPG, SPE, and GCSSEPM talks. She is currently a 2002-2003 AAPG Distinguished Lecturer.





Artist's conception of the Thunder Horse production platform