

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476 (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

by Erik Mason, Mark Chapin,
Gary A. Steffens
Shell Deepwater Exploration
Houston, Texas

Great White Prospect and the Perdido Fold Belt— New Petroleum Province in Ultra Deepwater, Alaminos Canyon, Gulf of Mexico

Announced discoveries at Great White, Trident, Tobago, Silver Tip and Tiger have established the Perdido fold belt, Gulf of Mexico, as a significant new ultra-deepwater petroleum province in the initial stages of evaluation. Great White Prospect was drilled to 19,907 ft and is beneath approximately 8,000 ft of water. The play has now moved beneath salt with the recent Diamondback prospect test. Three additional subsalt exploration tests are planned for 2005 and 2006 at prospects called Leopard, Whale and Ontario.

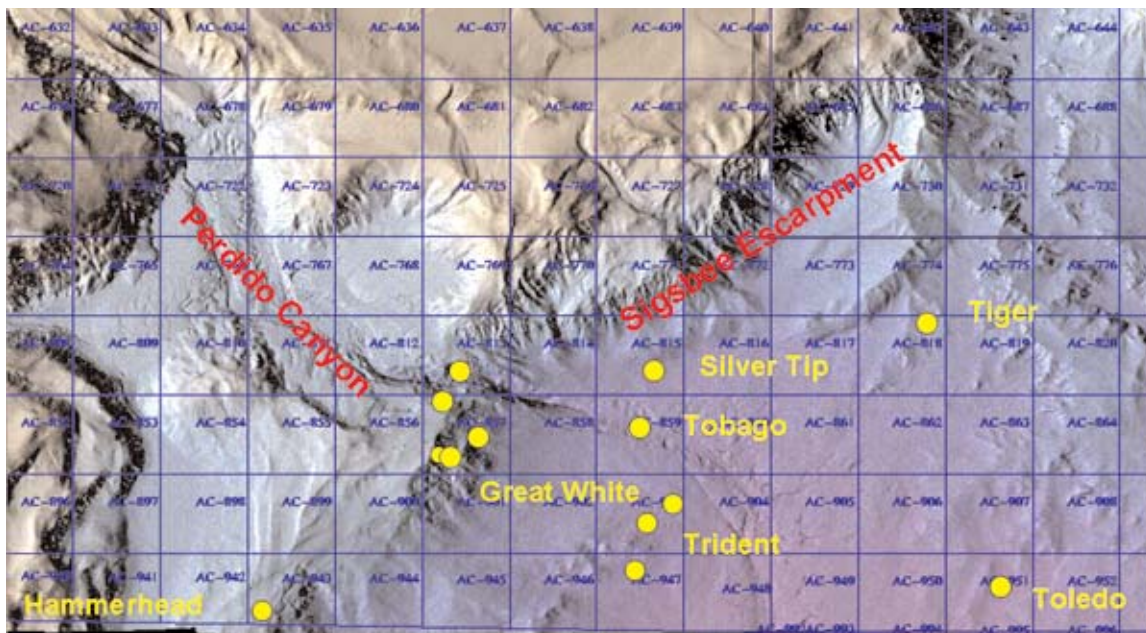
Prospect Baha (Alaminos Canyon Block 600), a high-relief four-way closure drilled in 2001, detected residual oil in multiple Oligocene and Paleogene turbidite sands and established the presence of an active petroleum system. Prospect Trident, the first Perdido discovery drilled in 2002, encountered multi-

ple pay-bearing Paleogene sands trapped in a low-relief four-way closure. Great White (Alaminos Canyon 857), also drilled in 2002, found oil in three different Oligocene and Paleocene to Eocene turbidite sand packages that are trapped in within a moderate-relief, four-way closure. Tobago prospect (AC 859) encountered hydrocarbons in a Paleocene age stratigraphic trap.

Key appraisal challenges include understanding variable reservoir quality as well as hydrocarbon distribution and connectivity in the various fault blocks.

Perdido folds trend northeast-southwest. These folds are segmented along strike by low-relief saddle, and appear to have autochthonous salt cores. In a dip direction, folds deepen from west to east and are separated by deep synclines. Folds diminish eastward as autochthonous salt becomes thin. Much of the play is covered by tabular allochthonous salt. Shell geologists can identify three distinct play segments—

“Eastern Subsalt,” “Western Subsalt” and “Outboard” (no allochthonous salt). The Perdido area has a high geothermal gradient causing rapid degradation of porosity and permeability with depth, the prediction of which is a key to risking and ranking Perdido prospects.



HGS General Dinner
Meeting

continued on page 29

The Great White Prospect

Great White is a large, doubly-plunging, thrust-propagation fold with numerous crestal collapse normal faults. Three main pay intervals exist, including a stacked sand series in the Frio, a single pay sand in the Eocene Upper Wilcox and a thick sand sequence, partially pay bearing, in the Paleocene Lower Wilcox. All the sands comprise low- and high-density turbidites with minor debris flow components, but the composition, texture and diagenesis vary markedly. Reservoir porosities range from near 40% shallow to less than 10% near TD.

Oil properties also vary significantly among the reservoirs at Great White ranging from low-API crude shallow to high-API crude deep. The interval is largely hydro pressured, with an interpreted pressure leak point on a large structure to the west, providing a protected trap. Key appraisal challenges include understanding variable reservoir quality as well as hydrocarbon distribution and connectivity in the various fault blocks. ■

A Special Poster Session will be presented at the Dinner Meeting: "Great White Discovery and Appraisal Challenges" by Mark Chapin.

Biographical Sketches

ERIK MASON is area exploration manager for the Western Deepwater Gulf of Mexico. Erik received a BA degree in geology from Principia College and MS degree from Oklahoma State University. Erik has been with Shell for 17 years with assignments in both production and exploration in New Orleans and Houston.



MARK CHAPIN is team leader of the Great White Appraisal and Development team. Mark received a BS degree in geology from Wheaton College and MS and PhD degrees in geology from Colorado School of Mines. He has been with Shell for 15 years and had assignments in New Orleans, London, The Netherlands and Houston.



GARY A. STEFFENS is a senior staff geophysicist working in exploration in the Gulf of Mexico. Gary received BS and MS degrees in physics from the University of Illinois. After receiving his Bachelor's degree Gary entered the Army where he spent two years, before going back to school and completing an MS. He has been with Shell for 27 years with assignments in processing, exploration and production. He has worked South Texas, the Rocky Mountains and Alaska. His experience includes several years spent working on the Perdido fold belt at Shell.



3-D images so real you'll be amazed!

The cutting edge... Volume Pro enabled, real-time interactive 3-D visualization capabilities and the power of Intel® Xeon™ Processors. RCL Systems will configure the latest technology into your Geophysical Workstation to keep you in the pay zone.

RCL SYSTEMS

Call us at 1-800-758-1771 or 281-240-2777 or visit us on the web at www.rcl.com

Intel and Intel Inside Logo are registered trademarks of Intel Corporation.

ENDEAVOR NATURAL GAS, LLC

Seeking Drill-Ready Prospects

Texas and Louisiana Gulf Coast
East Texas • North Louisiana

Contact: Bruce Houff

(O) 713 658-8555 • (F) 713 658-0715

(Email) [bhuff@endeavorgas.com](mailto:bhouff@endeavorgas.com)

1201 Louisiana, Suite 3350 • Houston, Texas 77002