Wednesday, October 26, 2005

Petroleum Club • 800 Bell (downtown)
Social 11:15 a.m., Lunch 11:45 a.m.

Cost: $30 with advance reservations, $35 for walk-ins, space available ($15 for Emeritus and Honorary).

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 **Todd Greene** (speaker)**, Brian O'Neill, Peter Gamwell, Todd Butaud, Andrew Pink, Michael Golden, David Jones, James Parr, Michael Taylor and Istvan Barany***
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Depositional Model for Deepwater Miocene Reservoirs in the Jubilee and Spiderman Gas Fields, Eastern Gulf of Mexico

Accurately predicting how fluid will flow through the reservoir in order to characterize the degree of compartmentalization and to locate the position of flow baffles and barriers is a critical factor in making sound economic decisions during field development. Devising a good reservoir characterization model for deep-water sands, as a fundamental framework to a reservoir simulation model, can improve our ability to predict how the reservoir will perform over the life of the field. Defining the internal geometry of geobodies and relating them to calibrated rock properties is critical to 3D reservoir characterization. However, predicting how fluid will flow during production becomes very challenging for those areas remote from well control in a field that has sparse well penetrations and where the wells are often spaced thousands of feet apart.

Our team interprets a basin-floor setting, where the stratigraphic architecture reflects the interplay of a variety of deep-water depositional processes

To address this uncertainty, we were able to utilize all available data, including high-resolution seismic, wireline log analysis and whole core data, to develop a 3D facies-based model that distributes petrophysical properties (porosity, permeability, water saturation, shale volume) with statistical ranges of uncertainty throughout the volume of the field. The model can then be scaled up to a dynamic scale appropriate for reservoir flow simulation that will ultimately be calibrated to field production data.

We present the depositional facies model for two newly discovered Miocene-age deep-water gas fields in the eastern Gulf of Mexico: Spiderman and Jubilee Fields, De Soto Canyon (DC) Blocks 620/621 and Atwater Valley (AT) Block 349 respectively (Figure 1). Data collected from 180 feet of whole core from the Spiderman Field and 90 feet of core from the Jubilee Field has strongly influenced interpretation of the reservoir architecture.

At both fields, our team interprets a basin-floor setting, where the stratigraphic architecture reflects the interplay of a variety of deep-water depositional processes, including high-density sandy turbidite flows, suspension deposits, mass transport complexes, low density turbidites and channelized deposits. The irregular sea floor created by Miocene erosional mass

HGS General Luncheon Meeting *continued on page 25*

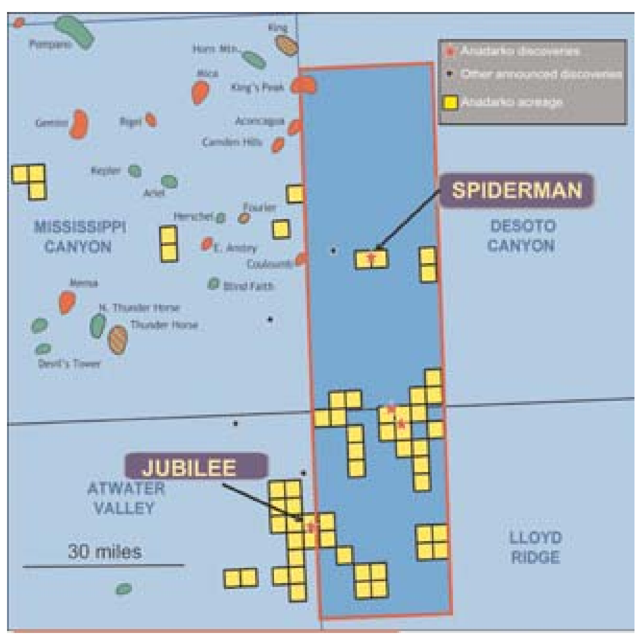

Figure 1. Location map of eastern Gulf of Mexico oil and gas fields, showing the location of the Spiderman (DC 620/621) and Jubilee Fields (AT 349).

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transport complexes, along with deeper episodic salt movement, also played an important role in the lithofacies distribution of these deposits.

The Spiderman Field (DC 620/621) is located in 8,100 feet of water. The total depth of the cored well is 17,210 feet true vertical depth (TVD). The shallowest interval, termed the MM9 (Middle Miocene) sequence, contains three interconnected, stacked sand bodies that were deposited in a confined, amalgamated sand-filled low-relief channel complex. The deepest interval, termed the MM7 sequence, also appears interconnected and was deposited as more unconfined sheets within a frontal splay complex that was then overlain by a channel/levee complex.

The Jubilee Field (AT 349) is located in 8,830 feet of water. The total depth of the cored well is 17,800 feet TVD. Three interconnected stacked sand bodies, termed the UM1b (Upper Miocene), were deposited as compensatory stacked, amalgamated and layered sheets that are overlain by erosive mostly mud-filled channels.

Acknowledgments

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Biographical Sketch

TODD GREENE has a BS degree in earth sciences from the University of California at Santa Cruz and a PhD in geological sciences at Stanford University. His dissertation focused on tectonics, sedimentology, organic geochemistry and petroleum systems of the Turpan-Hami basin of northwestern China. He is currently employed as a senior geologist at Anadarko, where he is part of a petroleum systems geoscience technology team consulting on a number of sedimentologic and stratigraphic projects in the deepwater Gulf of Mexico, mid-continent, and a variety of international arenas.