

Monday, March 17, 2008

Westchase Hilton • 9999 Westheimer  
Social Hour 5:30–6:30 p.m.  
Dinner 6:30–7:30 p.m.

Cost: \$30 Preregistered members; \$35 non-members & walk-ups

The HGS prefers that you make your reservations on-line through the HGS website at [www.hgs.org](http://www.hgs.org). If you have no Internet access, you can e-mail [reservations@hgs.org](mailto: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#).

# HGS International Explorationists Dinner Meeting

## Caspian Night Vertical and Lateral Distribution and Continuity of the Balakhany VIII Formation of Azeri Field, Offshore Azerbaijan

by *Eldar Baghirov, Don Van Nieuwenhuise (speaker), Janok Bhattacharya, John Castagna and Jeffrey Yarus*

The Azeri Field forms part of the ACG (Azeri, Chirag, Gunashli) megastructure, which is located 75 miles (120 km) offshore Azerbaijan. The reservoirs are multilayered sandstones forming traps within a major anticlinal structure. Proven crude oil reserves are estimated to be 5.4 billion barrels of oil.

In this study, fluvial/fluvio-deltaic reservoir sandstones have been correlated using more than 40 wells, approximately 1525 ft (465 m) of core from three wells, seismic data and outcrop analogs. Even though previous lithofacies descriptions and basic interpretations of the Balakhany VIII formation are sound, the stratigraphic interpretation of this interval is considerably improved through the utilization of several quantitative and semi-quantitative methods. There are several methods for estimating the geometry of channel belts: measurement of outcrop analogs, well-to-well correlation, empirical equations (involving maximum channel depth and channel belt width) and amplitude analysis of 3D seismic data.

Outcrop analogs show that the width of the channel belts ranged from 2000 to 3300 ft (600 to 1000 m). Core data was used to estimate the maximum and mean channel thickness, which appears to be within 15–24 ft (5–7 m) and 8–11 ft (2.5–3.5 m) in TST (true stratigraphic thickness), respectively. Applying empirical equations from Bridge and Mackey (1993), channel belt widths were predicted to be 690–3500 ft (210–1067 m). 3D seismic volumes were provided to perform seismic interpretation and construct appropriate maps, which allowed the analysis of interpreted horizons to clarify the width of channel belts directly. The widths of these channel belts are 2000–3300 feet (600–1000 m), the same range as seen in outcrop analogs.

Once the dimensions of the channel belts were established and correlation was completed, 2D models of the Balakhany VIII

Formation were constructed. Wells were proportionally spaced in these models and, using the dimensions of channel belts previously obtained from analogs, the channel belts were interpolated between wells. This provides a more complete interpretation of the Balakhany VIII Formation. The interpolation of channel belts was further constrained by the net-to-gross ratios from adjacent wells. ■

### Biographical Sketch

**DONALD S. VAN NIEUWENHUISE** is currently Director of the Professional Geoscience Programs, a Research Associate Professor in the Department of Geosciences and an Adjunct Professor in the Petroleum Engineering Program at the University of Houston. He teaches a number of courses including Petroleum Geology, Integrated Reservoir Characterization, Applied Biostratigraphy and other specialized topics in stratigraphy and sedimentology. His industry experience includes 18 years at the Amoco Research Center in Tulsa, where he conducted stratigraphic research and worked on stratigraphic applications and in management. Assignments included fields and prospects within the US and more than 45 other countries. He was a geologist for MOBIL in New Orleans and adjunct professor in Petroleum Engineering at Tulane University, and prior to that he worked on Cretaceous through Recent stratigraphic problems of the US Gulf and Atlantic coastal plains with the USGS at the Smithsonian Institution. Dr. Van Nieuwenhuise received a BS in geology from the University of South Carolina in 1972, MS in geology from the University of Houston in 1977 and PhD in geology from the University of South Carolina in 1978.

