

by Jeff A. Spencer and Elliott Barrett  
Black Pool Energy

## Exploration History of the Northern Mustang Island Gulf of Mexico, Texas State Waters

During the last fifty years, Texas state waters in the northern Mustang Island protraction area of the Gulf of Mexico have experienced renewed periods of successful exploration about every ten years. The first state leases in the area were awarded in 1953, and initial exploration on these tracts resulted in the discovery of the two largest fields in the area, Mustang Island Block 889-S/883-S Field (150+ bcfge; 1955) and Mustang Island Block 904-S Field (130+ bcfge; 1957). Subsequent periods of drilling success occurred in 1969–74, 1981–90 and 1998–2005. In addition to field step-out and deeper pool discoveries, significant new fields were found including Mustang Island Block 772-L (42 bcfge) and Mustang Island Block 749-L/746-L (64 bcfge) Fields. An extensive 3D seismic grid, shot in the mid-1990s, helped initiate the most recent period of drilling activity. Exploration using 3D amplitudes and AVO has been fairly successful in the area’s Middle Frio sands and in defining the northern edge of this thick fluvial-deltaic system.

Major reservoirs include Upper Frio thin shelf sands and Middle Frio thick, stacked fluvial-deltaic sands. Production ranges from about 7500 to 15,000 feet. All of the Frio reservoirs are in or very near the top of the geopressed section. Surprisingly, the first shallow normally-pressured Miocene discovery occurred in 2006. The traps are predominantly high-side fault closures, but down-thrown fault closures, subtle four-way closures and small combination structural-stratigraphic traps occur as well.

Production in the area includes a high-rate oil reservoir (MT-2 Sand, Mustang 904-S), low-resistivity/low-contrast log pays (Mustang 904-S and 883-S) and a single zone completion gas well that has been producing for sixteen years (32 bcfge at Mustang 746-L). ■

### Biographical Sketch

JEFF SPENCER is a Vice President and founder of Black Pool Energy GP LLC. Before joining Black Pool, he was Vice President and Chief Geologist of Osprey Petroleum from 2000 to 2005. He is a Registered Petroleum Geologist with exploration and exploitation experience in the onshore Gulf Coast of Texas and Louisiana and offshore Gulf of Mexico. He has worked for Amoco Production Company (1981–1998), Unocal (1998–2000) and Samson Resources (2005).



Mr. Spencer received a BS in geology from the University of Cincinnati and an MS in earth sciences from the University of New Orleans.

*Major reservoirs include Upper Frio thin shelf sands and Middle Frio thick, stacked fluvial-deltaic sands.*

ELLIOTT BARRETT is a Vice President and founder of Black Pool Energy GP LLC. Mr. Barrett was a Vice President and founder of Osprey Petroleum, where he worked from 1999 to 2005. He had previously worked at Team Invest, Inc. (1997–98) and for Amoco Production Company (1979–1997). His areas of exploration interest include the onshore Gulf Coast of Texas and Louisiana, the offshore Gulf of Mexico and East Texas.



Mr. Barrett received his MS in geology from the University of Tennessee.