Monday, Febuary 25, 2008

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

Cost: $28 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. 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 ***James R. Geary***

Controls on Hydrocarbon Entrapment and Reservoir Distribution: The Pennsylvanian Oswego Limestone and Big Lime Limestone in the Putnam Field Area, Anadarko Basin, Oklahoma

Putnam Field, located along the northern margin of the Anadarko Basin and extending through Custer and Dewey counties in western Oklahoma, USA, has produced over 400 bcf and 13 mmbo from the Pennsylvanian (Desmoinesian) Oswego Limestone and Big Lime. Hydrocarbons are stratigraphically trapped within phylloid algal mound complexes that are isolated within shallowing-upward parasequence sets. Mound complexes generally trend west-east across the study area parallel to the northern structural margin of the Anadarko Basin. Reservoir quality within phylloid algal mounds is controlled by variations in the abundance of moldic, vugular and fracture pore types (average porosity = 2%, median permeability = 0.2 md).

Hydrocarbons are stratigraphically trapped within phylloid algal mound complexes

Eleven parasequence sets occur within the study interval. From the section base to its top these sests stack progradationally within the Oswego Limestone and aggradationally to retrogradationally within the overlying Big Lime. The change from progradational to retrogradational stacking of parasequence sets most likely reflects an accelerating rate of subsidence during deposition that was induced by thrust-loading along the Ouachita Foldbelt. Furthermore, retrogradational stacking within the Big Lime suggests that undiscovered hydrocarbon reserves may exist updip (northward) of the Putnam Trend in slightly younger deposits.

Detailed maps of structure, facies, gross pay and pore volume were generated for each parasequence set and compared with the spatial distribution of producing wells and their associated drainage radii. From these attributes, a geologic risk assessment was completed across the Putnam Trend to determine the most prospective areas for future step-out development. ■

Biographical Sketch

Jim Geary received both his BS (2001) and MS (2004) degrees in geology from Baylor University in Waco, Texas. His graduate thesis, "Controls on Hydrocarbon Entrapment and Reservoir Distribution: The Pennsylvanian Oswego Limestone and Big Lime Limestone in the Putnam Field Area, Anadarko Basin, Oklahoma, "was initiated as part of his 2002 summer internship at Apache Corporation in Tulsa, Oklahoma. In 2004, Mr. Geary joined Anadarko Petroleum Corporation, where he developed coalbed methane potential within the Powder River, Hanna, and Green River basins of Wyoming as well as unconventional gas reservoirs within the Cretaceous and Jurassic formations in the East Texas Basin. Mr. Geary joined Hess Corporation in March 2007 as a geologist in the deepwater Gulf of Mexico exploration team.