MEETINGS

HGS DINNER MEETING— OCTOBER 8, 1990

JAMES E. GEITGEY—Biographical Sketch

Jim Geitgey, with ARCO Oil and Gas Company, is currently completing a two-year staff assignment as Coordinator, Exploration Recruiting and Training at the company's headquarters in Dallas. He graduated with B.S. and M.S. degrees in Geology from the Ohio State University.

Mr. Geitgey joined ARCO Oil and Gas Company in 1984 and completed an initial assignment at the company's Plano facility. In 1986 he was assigned as an Exploration Geologist to ARCO's Southern District office in Houston. During three years in Houston he worked in the Offshore Plio-Pleistocene group, on Louisiana shelf and deep-water projects, as well as the Miocene group of Offshore Texas.

EVALUATION OF UNTESTED STRATIGRAPHIC TRAPS IN A PLEISTOCENE CANYON-FILL COMPLEX, OFFSHORE LOUISIANA

Eugene Island Block 390, located approximately 100 miles offshore Louisiana, was acquired by ARCO Oil and Gas Company in 1983 in order to test upper Pleistocene amplitude anomalies located on the faulted northwest flank of a diapiric salt structure. While drilling has established the presence of oil and gas in that original objective section, an attempt to delineate further reserve potential on the block was made by evaluating additional amplitude anomalies located downflank, in an adjacent syncline.

Seismic stratigraphic analysis indicates that the anomalies are located within the confines of an erosionally incised submarine-canyon complex, approximately three miles wide and five hundred feet deep. A number of high-amplitude events located in the upper portion of the fill complex are indicative of relatively coarser-grained sandstone bodies, in contrast to the majority of the fill which is thought to be fine-grained. In map view the high-amplitude events are axially-elongated, dip-trending bodies that were deposited laterally adjacent to one another.

Velocity and density data for equivalent shales, and water, oil, and gas-bearing sands in offsetting wells were used as input for simple two-dimensional modeling of amplitude strength and character. The modeling suggests that the highest amplitude events in the canyon-fill sequence are most similar in character to models of hydrocarbon-bearing sands, not thick water-bearing sands. Additionally, amplitude versus offset analysis of the highest amplitudes is positive for the presence of hydrocarbons.

In the deepest portions of ARCO's #1 well, stratigraphically below their original objective, approximately fifty net feet of oil saturated but very low permeability silt and shale were encountered. Examination of the well location on seismic data indicates that the #1 well T.D.'d in the canyon flank, updip (presently) from and laterally adjacent to the high-amplitude events. The interpretation is that the oil saturated section penetrated in the #1 well is representative of the seal facies, deposited along the flank of the canyon.

The integrated analysis outlined above suggests that the highest amplitude events identified in the seismic data are associated with hydrocarbon-bearing turbidite sands deposited within a submarine canyon-fill sequence. However, concerns about reservoir quality and heterogeneities, as well as total reserve size of the accumulations, led ARCO to elect to not test the turbidite sands.