*by F. C. Snyder, C. D. Burge, R. L. Nagy, and L. H. Purnell*
*Phillips Petroleum Company, Houston, Texas*

# Subsalt Turtle Play, Walker Ridge Area, Deepwater Gulf of Mexico

The Miocene section under the Sigsbee Escarpment salt in Walker Ridge offers several plays with large reserve potential. Plays include the western edge of the Mississippi Canyon fold-belt trend extending under the salt, large salt pillows showing minor compressional effects, and finally turtle structures that exist upslope and landward from the folds and pillow structures.

Turtle structures formed in Miocene sediments as a result of autochthonous Jurassic salt withdrawal. Broad elliptical low areas formed during Late Cretaceous and Paleogene time, flanked by low-relief salt pillows and ridges. Sand-prone Early—Middle Miocene turbidite sediments ponded between the salt highs, accentuating the height of the salt ridges. Collapse of the flanks of the salt ridges during late Miocene time flexed the edges of the Miocene depocenters creating turtle features. Large volumes of salt escaped through near-vertical feeders above the salt ridges forming an extensive, thick, salt canopy system above the Miocene section. Many of the vertical salt feeders formed above basement fault trends, indicating an inter-relationship of the rift geometry and later salt mobilization. During Pliocene—Pleistocene time, large suprasalt mini-basins developed above the salt canopy, substantially modifying the allochthonous salt distribution and masking much of the subsalt geometry.

Drilling these structures will be challenging. Water depths range from 6,000 to 7,500 feet. Salt sheet thickness varies from 7,500 to over 20,000 feet. Drilling depths of up to 30,000 feet are necessary to reach the prospective intervals. However, reserve potential is high ranging form 200 to 900 MBOE per structure.

## Biographical Sketch

Rick Nagy is a senior geologist with Phillips Petroleum Company currently assigned to its Deepwater Exploration Group as regional mapping team leader. He has over 19 years of exploration experience in many domestic basins including onshore and offshore Alaska, offshore California, and the entire Gulf of Mexico region. Prior assignments were in the Regional Studies Group with projects in many areas of the Gulf both onshore and offshore, and then in the Sub-Salt Exploration Group. His recent experience has been in the Gulf of Mexico deepwater trend, where responsibilities include regional geological synthesis of deepwater depositional systems and salt tectonics, play generation, and prospect evaluation. He has a B. S. degree in geology from San Diego State University. □

HGS Luncheon Meeting • Wednesday, September 29 • Hyatt Regency Downtown • Social 11:15 a.m., Lunch 11:45 a.m.