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by **Ted Godo**  
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## Norphlet Aeolian Dunes in the Deep Water Gulf of Mexico

The prolific Norphlet aeolian sand play, sealed and sourced by the basal Smackover, has been exploited for its oil and gas reserves both onshore and in the offshore Gulf of Mexico waters. The onshore trend extends from near Jackson, Mississippi, at the Pisgah anticline, southeastward over Hatter's Pond field in Alabama and into the Florida panhandle at Flomaton/Jay field. The offshore gulf trend begins in the waters of Mobile Bay and extends offshore southeast into the Destin Dome area offshore Florida and southward into the Desoto Canyon protraction area. Norphlet exploration in the Destin Dome protraction area was active from the mid 1980s through the early 1990s. Despite some success the prospects were never commercialized owing to poor economics and environmental reasons. The last federal lease sale that included this area was held in 1988.

In December 2001, Federal Lease Sale 181 opened a small area of the eastern gulf encompassing 100 Outer Continental Shelf (OCS) blocks in the Desoto Canyon and Lloyd Ridge protraction areas. In anticipation of this sale, Shell initiated a regional geologic and geophysical interpretation, which indicated that Norphlet aeolian sands would very likely occur in the northern portion of the Sale 181 area. Prospect Shiloh was mapped in Desoto Canyon in 7500 feet of water and geologically positioned downdip of the Cretaceous shelf/Florida escarpment edge. Shiloh's exploration targets were stacked Jurassic age objectives of the Cotton Valley, Haynesville and Norphlet Formations in a four-way dip closure.

This presentation focuses on the characteristics of the Norphlet oil discovery at Shiloh and its impact on the regional understanding of this play. Just as in the onshore trend, the Smackover

provided the source rock and seal. A Norphlet whole core was found to be composed entirely of an aeolian dune complex with chlorite-coated grains that had better porosity than fields in Mobile Bay. Detailed petrography revealed interesting similarities and differences with other segments of this play. Verification of the Norphlet presence, quality and charge in the deep water has opened up a new play in the Gulf of Mexico. Further exploration in Desoto Canyon is scheduled for 2007. ■

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### Biographical Sketch

TED GODO is the lead geologist for Shell's exploration efforts in the Eastern Gulf of Mexico. Ted received his BS and MS in geology at Ohio State University in 1977 and 1979. He has worked for Shell for over 27 years in exploration as a regional geologist and prospect generator. His exploration experience has been primarily in the Rocky Mountain and Ouachita fold and thrust belts. Other basins worked include the Ardmore, Anadarko, Arkoma and the gulf coast. Since being transferring to the offshore Gulf of Mexico, Ted has been involved in several shelf discoveries. He recently published a paper in a special publication of the Royal Geological Society of London on subtle amplitude anomalies associated with stratigraphic traps in Miocene turbidites of the Main Pass area. For Lease Sale 181 in the far eastern Gulf of Mexico, Ted co-led a regional study of the Mesozoic opportunities that led to the drilling of two frontier wildcat exploration wells. Ted's presentation focuses on one of those prospects, Shiloh, where the objective was the Norphlet aeolian sand.

