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by *Michael G. Moore and  
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## Play Concepts in an Emerging Major Hydrocarbon Province in the Ultra-Deep Water Gulf of Mexico

A major hydrocarbon province has been opened up in the four corners area of southwestern Atwater Valley, southeastern Green Canyon, northeast Walker Ridge, and northwest Lund in the ultra-deep water Gulf of Mexico. Since 1995, 11 hydrocarbon accumulations have been discovered with a reserve potential of more than two billion barrels. Two major plays exist in the trend; a Middle and Lower Miocene submarine fan sand reservoir play and a Pre-Miocene distal submarine fan sand reservoir play.

The first play type is amalgamated and layered sheet sands, of Middle and Lower Miocene age deposited by submarine fan systems. The two main trap types are large salt-cored faulted, compressional anticlines and faulted 3-way closures against salt. There are currently eight discoveries in this play type.

The second play type consists of distal submarine fan sheet sands of Pre-Miocene age deposited on the abyssal plain and trapped on salt pillow structures. This play type has yielded three discoveries in the area.

Both plays are sourced by hydrocarbon generated from Upper

Jurassic to Lower Cretaceous carbonates and marls. Significant hydrocarbon accumulations are still being discovered in this prolific frontier province as improved seismic imaging allows exploration under the shallow Sigsbee salt canopy. ■

*Since 1995, 11 hydrocarbon accumulations have been discovered with a reserve potential of more than two billion barrels.*

### Biographical Sketch

MIKE MOORE was born and raised in New Hampshire. He developed an interest in geology by cracking open rocks left behind by retreating Pleistocene glaciers. He graduated from the University of New Hampshire in 1976 with a BS degree in

Geology. Mike went on to attend the University of Alaska at Fairbanks where he mapped Carboniferous limestone turbidites along the Yukon River in east-central Alaska for his thesis. He graduated in 1979 with an MS degree in Geology and went to work for Exxon in New Orleans, where he held several exploration and development positions, mainly in the Gulf of Mexico. Mike joined BHP in 1993 and has been involved in the exploration and appraisal of the Western Atwater Foldbelt since 1995, including the discoveries at Atlantis and Mad Dog fields. For the last two years Mike has served as the Geological Advisor to BHP Billiton's Gulf of Mexico exploration program.

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