

# HGS DINNER MEETING

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## Prospect Mars: Realization of Deepwater Potential in the Gulf of Mexico

by Mike Mahaffie

**HGS DINNER MEETING - October 11, 1993**

**Social Period, 5:30 p.m., Dinner and Meeting, 6:30 p.m.**

**Post Oak Doubletree Inn**

Prospect Mars, drilled under a joint partnership with Shell Offshore Inc., and British Petroleum Inc., represents a significant oil discovery made in the deep water portion of the Gulf of Mexico. The prospect, lying in 3100 feet of water, is located 130 miles southeast of New Orleans and is centered about Mississippi Canyon Blocks 807 and 763. Five appraisal wells and 3D seismic mapping have identified fourteen significant, amplitude-supported intervals ranging in depth from -10,000 to -19,000 feet. Reservoirs comprise deep water turbidite sands with average porosities of 30 percent and permeabilities ranging from 500 millidarcies to over 2.0 darcies. Six of the reservoir intervals have observed mapped column heights exceeding 2000

feet, with four intervals approaching 3000 feet.

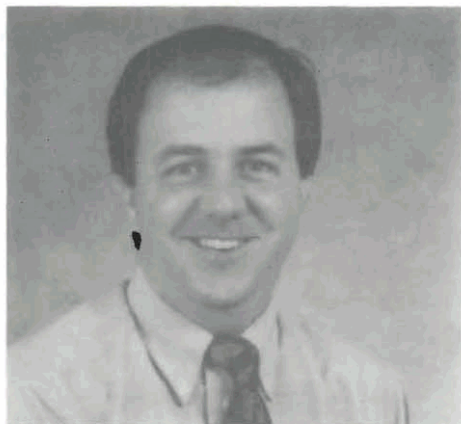
The geologic setting of the central Mississippi Canyon area is characterized by a series of salt canopies and isolated salt diapirs, formed when deep salt was remobilized by the depositional loading of Early Tertiary sediments. Prospect Mars is located within a chalk-floored sedimentary basin rimmed by several of these remobilized salt bodies. Depositional fill patterns and eventual trapping configurations have been profoundly influenced by the interaction of sedimentary processes in conjunction with ongoing salt movement. Early fill patterns indicate laterally extensive turbidite sheet sands which entered the basin from multiple entry points between

and around isolated salt-cored highs. Traps for these deeper horizons appears to result from stratigraphic onlap onto the basin margin or truncation of the reservoirs by later remobilized salt. Younger sediments appear to have entered the basin from fewer entry points due to progressive evolution and coalescence of salt rimming the basin. These shallower turbidite fan systems commonly exhibit strong components of erosional truncation which help to serve as important trapping elements for these intervals.

Development plans for the discovery are currently being formulated. Field development would likely occur in phases with an initial TLP (Tension Leg Platform) as the possible system of choice.

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### MIKE MAHAFFIE - Biographical Sketch



Mike Mahaffie is currently a senior geologist within the Production Department, Deepwater Division, Shell

Offshore Inc. Mike received his Bachelor's and Master's degrees in Geology from Southwest Missouri State University and Louisiana State University, respectively. He joined Shell in 1985, initially working on various exploration assignments in the onshore and offshore coastal basins of Southern California. In 1990, Mike was transferred to New Orleans to assist in pre-development and appraisal studies of Prospect Mars, a recently announced Shell/BP deepwater discovery located in Mississippi Canyon Blocks 807-763. His work on the project has focused on detailed seismic sequence stratigraphy and geologic evaluation of turbidite reservoir systems comprising the prospect. He is a member of the New Orleans Geological Society and AAPG.