

## **The Trident Discovery: Play Opener of the Perdido Foldbelt, Deepwater Northwestern Gulf of Mexico**

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The successful drilling and discovery of significant hydrocarbons during 2001 at the Trident #1 wildcat in the Perdido Foldbelt of the Alaminos Canyon area proved the exploration viability of this deepwater frontier in the northwestern Gulf of Mexico. The well also set a new world record for water depth, at 9,687' (2,953m), and was the first announced discovery in the Paleogene of the deepwater Gulf. Trident #1 reached a measured depth of 20,500' (6,248m) in hemipelagic shales of the Lower Paleocene Midway Formation.

The Perdido Foldbelt is characterized by water depths reaching more than 10,000' (3,000m) and difficult drilling conditions exacerbated by a low pore pressure to fracture gradient margin in some prospects. The successful drilling of Trident helped to increase industry's understanding of how to effectively manage the drilling of these features.

Geologic insights gained from Trident #1 include the discovery of high-quality light oil, the recognition of multiple hydrocarbon source rocks, the age of key seismic markers, and the presence of abundant and well-developed deep-marine sandstone reservoirs in the Upper Paleocene portion of the Wilcox Formation. Pre-drill prediction of reservoir presence utilized several seismic-based techniques which have since been refined and improved with the calibration of well log data to the seismic response.

Exploration activity in the Perdido Foldbelt has steadily increased over the past three years and additional discoveries have been made. Because of the extreme water depths, remote location, and technological challenges, cooperation amongst all operators will help ensure the economic development of this prolific trend by the end of the decade.

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