Play Analysis in the U.S. Sector of the Deepwater Gulf of Mexico Basin in the Framework of Tectonic Development and Depositional Systems

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ABSTRACT

The deepwater Gulf of Mexico (DWGoM) Basin is one of the most prolific basins in the world. By year-end 2010, the proven and probable (2P) recoverable reserves totaled about 23 Bboe, based on the IHS database. This study analyzes more than 800 reservoirs in 293 fields/discoveries in the deepwater (water depth greater than 400 m) Gulf of Mexico, in the framework of tectonic development and depositional systems, resulting in the establishment of 16 major play types. Among these plays, the Upper Miocene Structural, Lower Tertiary Structural, Lower Miocene Structural, Middle Miocene Structural, Pliocene Structural, and Pliocene Stratigraphic-Structural plays are the most prolific, holding 84% of the total 2P recoverable reserves. The Miocene group plays hold 65% of the 2P recoverable reserves, of which the Miocene structural plays hold almost half of the reserves. Structural-dominated plays hold about 86% of the reserves, and pure stratigraphic plays account for only 1% of the reserves. The distribution of these established major plays is mapped out based on discoveries, structural provinces, and depositional systems. Regional geology and seismic data indicate some prospective plays, which include the Cretaceous/Tertiary boundary stratigraphic-unconformity, Lower-Middle Jurassic structural, and Cretaceous ,tructural plays. In addition, this study compares plays in the DWGoM Basin with global deepwater plays in order to highlight the play characteristics in the DWGoM Basin.

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