

Great White Discovery and Appraisal Challenges

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The Great White discovery well (AC 857-1) in the Perdido Basin, western Gulf of Mexico) was drilled in 2002. It marked a significant milestone in ultra-deep water development in the Gulf of Mexico. In addition to the remoteness and water-depth (8000+ ft), several aspects are different to other deepwater Gulf of Mexico developments of the past. The stratigraphic interval is significantly older, encompassing the Oligocene Frio to the Paleocene Wilcox equivalents onshore. There are three main pay intervals, including a stacked sand series in the Frio, a single pay sand in the Eocene Upper Wilcox, and a thick sand sequence, partially pay bearing, in the Paleocene Lower Wilcox. All the sands comprise low- and high-density turbidites with minor debris flow components, but the composition, texture and diagenesis vary markedly. Oil properties also vary significantly among the reservoirs. The interval is largely hydropressured, with an interpreted pressure leak point on a large structure to the west, providing a protected trap. The enclosing structure is a large thrust-propagation fold, with numerous crestal collapse normal faults. Key appraisal challenges include understanding variable reservoir quality as well as hydrocarbon distribution and connectivity in the various fault blocks.
