



The Oligocene Play of the Perdido Fold Belt Trend, Deepwater Mexico

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ABSTRACT

The Oligocene interval in the western Gulf of Mexico deepwater area was first established as a viable petroleum play trend by the Great White / Silvertip discoveries in the U.S. sector over 10 years ago. Subsequently, Pemex has found similar productive intervals in multiple traps within the Mexican sector. Extensive 2D and 3D depth-migrated seismic data and well penetrations are now available to build a broader regional picture of the Oligocene trend within the Mexico Perdido Fold Belt and salt canopy areas.

The Oligocene reservoir interval in the Perdido deepwater area corresponds to a large regional influx of clastics related to the Laramide Orogeny of the Western Cordillera. Rio Bravo / Rio Grande drainage systems brought this sediment to the Burgos Basin, where erosion and bypass of the ancient Oligocene shelf margin transported sands and shale down the paleo slope. Sandy turbidites filled confined salt canopy minibasins in mid slope areas and then spilled out onto the lower slope where turbidite fan complexes accumulated in less confined salt nappe valleys and weakly confined / unconfined settings at the base of slope. There are possibly four subtrends of Perdido Oligocene play areas having similar reservoir facies characteristics and trap styles: (1) the western salt canopy minibasin area, (2) the central intra-salt valley area, (3) the southeast Eocene shale detached fold area, and (4) the northeast autochthonous salt cored detached fold area.

Well-imaged large structures, shallow burial depths and high pore volumes of available reservoir are all favorable geologic aspects of this trend. Key uncertainties related to the timing of top seal effectiveness, column height capacity, and oil versus gas migration history will be important for future prospect assessments.