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Play Analysis of Major Oil Reservoirs in the Permian Basin, West Texas

The Permian Basin of West Texas and southeast New Mexico, the largest petroleum-producing basin in the United States, contains an estimated 23% of the proved oil reserves in the United States. This region has the biggest potential for additional oil production in the country, containing 29% of estimated future oil reserve growth. Only 28% of the estimated 106 Bbbl of original oil in place in the Texas part of the basin has been produced. Play-based analysis of reservoir characteristics and preferred management practices in Permian Basin oil fields should have a substantial impact on domestic production.

A project is under way to (1) develop an up-to-date, digital portfolio of oil plays in the Permian Basin of West Texas and southeast New Mexico, (2) study key reservoirs from some of the largest or most active plays to incorporate information on improved practices in reservoir development in the portfolio, and (3) widely disseminate the play portfolio to the public via CD, the Internet, and other techniques. The play portfolio will group into plays all reservoirs in the Permian Basin having cumulative production >1 MMbbl and summarize key reservoir characteristics and preferred management practices of each play.

Approximately 1,000 reservoirs in the Texas part of the Permian Basin had produced 1 MMbbl of oil through 2000. These reservoirs have been grouped into 25 geologic plays. The plays with the highest cumulative production are the Northern Shelf Permian Carbonate, the Grayburg (Upper Permian) Platform Carbonate, and the Pennsylvanian Horseshoe Atoll plays.