
Stratigraphic Styles of the Drinkard (Leonardian Trend on the Northwest Shelf, Lea County, New Mexico): Finding Oil in a Mature Area

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ABSTRACT

Recent Drinkard discoveries in Lea County, New Mexico provide insights into the stratigraphy and depositional environments of the Leonardian age Drinkard formation (Lower Clear fork) and permit the development of an exploration trend along the mature Northwest shelf margin of the Delaware Basin. Vacuum Drinkard, West Knowles, Garrett, and East Garrett Fields have been studied using a variety of electric logs, core, drill cuttings, and seismic. The results show two types of stratigraphically controlled reservoir facies associated with the underlying Abo Reef trend. The first is Vacuum Drinkard Field, a patch reef and crinoid-fusulinid grainstone facies developed shoreward of the underlying Abo Reef trend. The second is a fore-slope oolite shoal facies developed basinward of the underlying Abo Reef trend and is productive at west Knowles, Garrett, and East Garrett Fields. These same general Lower Permian depositional models were documented in outcrop by Fitchen (1995, 1996) and the Sierra Diablo range of West Texas. Using these depositional models as a guide, strategies were developed to define additional locations and size of the fields. Some of the strategies include mapping the Abo Reef structure, constructing isopach maps of the Drinkard and overlying Tubb Formation, and utilizing seismic inversion techniques.