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Brian Panetta, University of Alabama, Tuscaloosa, AL

Reservoir Characterization and Modeling, North Blowhorn Creek Oil Field, Lamar County, Alabama

North Blowhorn Creek Oil Field is located in northeastern Lamar County, Alabama. It was discovered in 1979. The field was unitized and a water flood project was started in 1983. In 1992, a microbial permeability profile modification (MPPM) project began as a result of continued declining production. The original oil in place was estimated to be 16 million barrels, and to date, the field has produced nearly 6 million barrels of oil. Production is from the Mississippian Carter sandstone. Two previous depositional models have been proposed for the Carter sandstone at North Blowhorn Creek. One model interpreted the sandstone as having been deposited in a distal bar to distributary channel environment. The second interpreted the Carter sandstone as having been deposited as a barrier island spit complex. The depositional model proposed by this study interprets the Carter sandstone as having been deposited in a barrier island spit complex. However, this model differs from the previous barrier island model in that seven depositional facies were identified, and no washover fan facies was identified. Facies were identified by describing 20 well cores. They include: restricted bay facies, lower shoreface facies, foreshore/upper shoreface facies, intertidal/subtidal, intertidal facies, marsh facies, and open shelf facies. This model proposes that the Carter sandstone at North Blowhorn Creek Oil Field was deposited as a prograding beach/barrier complex in a restricted marine environment characterized by spit accretion and later drowned and covered by open shelf deposits. 3-D computer modeling aided in devising and validating the depositional model.