

Reservoir Geology of the Subclarksville 'A' Sandstone in the BSR Field, East Texas, Through an Integrated Sedimentology, Ichnology, Petrography and Reservoir Properties Data Analysis

Henk, Bo,¹ Shaver, Scott O.,² Pemberton, S. George,¹ and Hickey, James J.³

¹University of Alberta, Edmonton, Alberta

²Barrow Shaver Resources, Tyler, Texas

³Applied Reservoir Petrology, Dallas, Texas

Abstract

The BSR oil field, in Madison County, East Texas is a stratigraphically trapped oil accumulation of 20 MMBOIP discovered in 1994 by Barrow Shaver Resources (BSR) and produces from the Subclarksville 'A' Sandstone. Two sandstone intervals, each ranging from 6 to 12 feet in thickness, are initially artificially fractured and IP's of 150-200 BOPD are standard. Current field production is at 400 BOPD per well and there are 27 producing wells in the field. To increase production a horizontal drilling program is in the planning stages and a detailed reservoir evaluation was undertaken to facilitate this program. Twenty four (24) cored wells and have been described and analyzed for this study.

The lower interval consists of fine grained quartzose sandstone and is interpreted as a thoroughly bioturbated distal lower shoreface dominated by *Teichichnus* and *Palaeophycus* and the upper interval consists of medium grained sandstone and is interpreted as a proximal lower to middle shoreface characterized by low angle to planar and parallel cross-stratification and contains ichnogenera of *Asterosoma*, *Palaeophycus*, *Diplocraterion* and *Ophiomorpha*. A transgressive surface and lag deposit, separating the two reservoir intervals, is tight and contains Fe-stained ooids, bioclasts, chlorite, and glauconite pellets.

Reservoir properties within the upper sand, in part, are diminished by calcite cement and grain-coating chlorite whereas the lower sands contain much less calcite cement and grain coating chlorite. The finer grain size and bioturbation may have played an important role in preserving the reservoir properties of the lower sand.