

SMACKOVER PLATFORM SAND BODIES: A BAHAMAS MODEL

Lawrence R. Baria¹

ABSTRACT

Stave Creek Field, a potential multimillion barrel Smackover oil field in Clarke County, Alabama, owes much of its prolific production to an extensive, one hundred foot thick buildup of porous ooid and peloid grainstones.

Seismic profiles and residual gravity maps indicate that the field is located on the edge of a large, Jurassic-aged, northeast tilted block of some 12 square miles in plan (20 sq. km.). The block, which formed a shallow platform for Late Jurassic deposition, is bounded on the west by an older component of the Jackson Fault and slopes eastward into the present graben complex of the Gilbertown and West Bend Faults. This location placed the platform in a position between the mouth of the Manila Embayment and the eastern edge of the Mississippi Interior Salt Basin. Tidal fluctuation

between basins and the open marine conditions to the west had a strong influence on sedimentation across the platform.

Cores from the area indicate a pronounced westward trend in increased carbonate grain stability and sediment winnowing. Smackover sediments from the deeper east side of the platform are composed primarily of peloidal lime mudstones and wackestones. Those of the central platform are peloidal and oncoidal wackestones and packstones. Those of the western edge form a high-energy facies of well-sorted ooid and oncoidal grainstones, e.g. the Stave Creek Field reservoir.

A modern analog to the deposition on this Jurassic platform is found along the margins of the Great Bahama Bank, and specifically the north Andros-Joulters Cays area.

¹Jura-Search, Inc., Jackson, Mississippi