

# WAVELAND FIELD, A UNIQUE STRUCTURAL AND STRATIGRAPHIC TRAP

Torstein Sanness<sup>1</sup> and E.D. Minihan<sup>2</sup>

## ABSTRACT

Waveland field, located in Hancock County, Mississippi, is currently being developed, but was discovered in 1965 by Humble Oil and Refining Company in their Gas Unit #1, Section 22, T8S-R15W. One additional field well was drilled, a northwest diagonal in Section 16, T8S-R15W. After these two field wells were completed and put on production, the field lay dormant with no additional development until 1975, when lease blocks were assembled by Phillips Petroleum, Saga Petroleum, Marshall R. Young Oil Co. and others.

There is no massive deposition of Ferry Lake Anhydrite in the area. Actual definition of the formations of the Trinity Group of Lower Cretaceous age is difficult to impossible. However, it is interpreted that the primary reservoir of Waveland is the Mooringsport Formation, a porous limestone.

The Mooringsport limestone reservoir is depositionally extremely complex due to the influence of the large, regional carbonate bank to the south. For convenience, the Mooringsport porosity zones are lettered A, B, C, D, E, F and G. To date, the A and B zones are the primary contributors to production. The B zone may be subdivided within the field proper.

The reservoir rock is best described as a two-porosity system — matrix porosity (range 6 - 12%) and vugular porosity (range 7 - 16%) directly related to the mineralogy, lithology and diagenetic history. Matrix permeability is generally low, not exceeding 2 md and usually less than 1 md. Fractures are essential for good productivity and intense fracturing is observed in all the higher crestal positions.

The Waveland field comprises the crestal 19,000 acres (productive) of a north-south elongated nose having no apparent closure or north dip at the Mooringsport limestone level. Structural elevation assumes a major role in determining hydrocarbon saturation but no direct relationship has been found between pore throat size, rock type, porosity, structural elevation and hydrocarbon saturation. The Waveland field is a complex, combined structural and stratigraphic trap.

---

<sup>1</sup>Saga Petroleum U.S., Inc., Houston, Texas 77027

<sup>2</sup>Marshall R. Young Oil Co., Fort Worth, Texas 76102