An Emerging Play in the Eastern Gulf of Mexico Shelf

Peter Mullin[1], J. Coggins[2], and J. Kuhla[2]

[1]Werrus
[2]Consultant

Abstract

The Cretaceous is a classical productive play in the onshore Gulf Coast, but while present and proven hydrocarbon-bearing offshore, it is generally at great depth, with consequent high costs and limited reservoir potential. Facies maps previously shown by McMoran, among others, suggest that the Cretaceous clastic fairway is primarily present in the central Gulf of Mexico, where sub-commercial discoveries such as Davy Jones (McMoran) and Tiber Deep (BP) were made. By contrast, the much shallower eastern Gulf of Mexico was considered to be dominated by shales and marls.

A deep subsalt well recently drilled in Main Pass, testing a salt flank feature, disproved this facies model: the well had reservoir and pay at multiple levels, including 25 ft net good porosity pay in the Tuscaloosa, and thick albeit rather low porosity reservoir in deeper Cretaceous clastics. As documented by J. Snedden (GeoGulf 2021) the well lies within a significant additional clastic feeder system extending into the deepwater Mississippi Canyon. Two very recent wells in Mississippi Canyon have tested the play: Silverback and Galapagos Deep. The results of these wells have not been disclosed, but in Silverback at least MDTs are believed to have been acquired indicative of some success, while Galapagos partner Hess has indicated ‘encouragement.’

It is possible that reservoir quality is an issue in Silverback. However, in the Main Pass area the combination of much shallower water depth, reducing drill and facilities costs, the very high pressures, and the likely gas-condensate charge, should provide commercial potential. The presence of proven moderate porosity reservoir in the subsalt well, with pay, significantly derisks the play in this area.

Werrus has carried out extensive mapping on 3D data in the Main Pass area demonstrating the presence of large simple Cretaceous traps in well-imaged turtle features, similar in geometry and size to the Silverback closure.