Comprehensive Study of the Reservoir Sand and Depositional Setting of Garden Banks Field 236, North-Central Gulf of Mexico

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ABSTRACT

Garden Banks Field 236, also known as Pimento Field, is part of the lower middle Pleistocene submarine-fan deposits in the northern Gulf of Mexico. Hydrocarbon exploration and production of these deposits has yielded one of the largest gas producing trends in the Gulf of Mexico continental shelf-slope break. Reservoir sands were deposited in minibasins created through salt movement. As the minibasins were filled sediment spilled in to more distal ones. Channel complexes further modified these deposits as the depositional systems migrated over the shelf-slope break to the basin floor.

Pimento Field is composed of seven Outer Continental Shelf blocks (OCS). Data were available for six of these blocks. The study area encompassed 54 sq. mi (140 sq. km). Public domain data, downloaded from the Minerals Management Service, and donated proprietary 3D seismic data were used to explore and map the depositional setting of the producing reservoir rock in the field. Additionally, the overall depositional setting of the field was investigated. Multiple mapped horizons revealed the overall structural elements of the field including fill and spill facies of the minibasin that directly influence the framework of the field. This study further investigated the 4,500 ft reservoir sand in the field using side-wall core data, well log data, and seismic interpretations. The 4,500 ft reservoir is one of only two producing resevoirs in the field. The investigation indicates that the 4,500 ft reservoir is a channel-levee complex along the edge of a minibasin. A potential exploration target that is located in block 193 was also identified and mapped. This target is a substantial amplitude anomaly on seismic data and does not appear to have been penetrated to date.

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