

# Study of a Salt Dome Associated Field in Southern Louisiana

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## EXTENDED ABSTRACT

Salt domes in the Gulf of Mexico Basin serve as excellent hydrocarbon traps. Structures adjacent to salt domes can be extraordinarily complex. Thorough mapping using all available data types is required to create a precise interpretation of the structure around a salt dome.

This study re-evaluated a previously interpreted structural trap on the north flank of a salt dome in southern Louisiana. After drilling a successful well (well 1) within a north flank fault trap, a second well (well 4) was drilled north of the successful well in an attempt to test a second interpreted fault trap. This offset well was unsuccessful and it became necessary to further study the area before attempting a third well. The original interpretation (Fig. 1) indicated that there was a fault block created by the yellow and pink faults. Well 4 tested this trap with unsuccessful results. Using a 3D prestack time migration volume, a seismic coherency (Fig. 2) rendering of the same volume and well logs from the area, this study yielded a more exhaustive interpretation of the north flank (Fig.3).

Detailed mapping combining these three types of data found that the original interpretation overextended the faults in the area. The original interpretation created the appearance of a nonexistent fault block, which led to a dry hole. The horizon extracted coherency display assisted 3D seismic interpretation confirmed that the faults were overextended. This conclusion was corroborated by well log cross-sections tied to arbitrary seismic lines through the area. Integration of these datasets led to the determination that the north flank is not as structurally complex as was originally thought. (Fig. 3) The success of the first well was due to a much larger, simpler structure with a thick hydrocarbon column terminating at the salt dome. This comprehensive interpretation of the area has resulted in a proposed offset well with a high probability of finding hydrocarbons.

... (Note: The full version of this extended abstract, including complete text, illustrations, and references, will be made available at a later date on both the 2014 GCAGS convention website [[www.gcags2014.com](http://www.gcags2014.com)] and AAPG Search and Discovery website [[www.searchanddiscovery.com](http://www.searchanddiscovery.com)]).