

# **Reservoir Connectivity in Fluvial/Deltaic Depositional Environments: South Timbalier 26 Field Study**

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The key to successful development planning is an understanding of reservoir compartmentalization and the distribution of reservoir physical properties. The basis for this understanding is a combination of stratigraphic, structural, and attribute analysis, summarized in geologic models. In producing fields, injector and producer wells provide important information to test and refine the geologic models. We present the results of a reservoir connectivity study in fluvial/deltaic depositional environments based on the South Timbalier 26 field, Gulf of Mexico.

Analysis of the production history of the field, coupled with existing geologic model of the “O” sand was used to define depositionally-controlled reservoir compartments and connectivity. An important characteristic of the “O” sand is the presence of a sandy highstand represented mostly by deltaic sub-environments of a prograding delta. An unconformity (sequence boundary) separates these deltaic deposits from sediments related to the lowstand (fluvial channels, splays and bay muds). Differentiation of these intervals is important to predicting reservoir connectivity and performance.

Production information from wells completed in delta front facies of the HST of the “O” sand suggests that these environments have limited extent and aquifer support. On the other hand, production information from LST fluvial channels and HST distributary channels suggests that both of these sub-environments have good aquifer support and are not well connected to the delta front facies.