The Gulf of Mexico Sedimentary Fill: A Lesson in Depositional Evolution with Practical Applications*

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ABSTRACT

The Gulf of Mexico basin is one of the most prolific hydrocarbon-producing basins in the world, with an estimated endowment of 200 billion barrels of oil equivalent. This presentation provides a short but comprehensive overview of the basin-sedimentary fill history, spanning the USA, Mexico, and Cuba. We include discussion of conventional and unconventional reservoirs, source rocks and associated tectonics, following the basin evolution from Mesozoic to Cenozoic Era, and different regions of the basin from mature onshore fields to deep-water subsalt plays. Cores, well logs, and seismic lines illuminate local, regional, and basin-scale insights. Scientific implications of seminal events in the basin history are also covered, including deposition of the Louann Salt, rise and decline of Mesozoic reefs, source rock development, basin-wide effects of the Chicxulub impact event at the end of the Cretaceous, and Cenozoic sandstone source to sink processes leading to submarine fan evolution. All of these depositional evolutionary events have important practical applications in this petroleum domain with three super basins.

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