

# Sequence Stratigraphy, Biostratigraphy, Depositional Environments, and Reservoir Compartmentalization of the Mid-Miocene Queen Bess Field, Jefferson Parish, Louisiana

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Queen Bess is a mature, multi-reservoir gas field with a large number of wells but with older data comprising SP and resistivity logs with some core data. From examination of the core data and log signature patterns a depositional framework was constructed and integrated into the sequence stratigraphy correlations for two of the reservoir intervals, the A and B sands. The correlations are constrained by the biostratigraphic framework. The B sand appears to be deposited as amalgamated lower delta plain distributary channels with evidence of tidal influence. The A sand is widespread throughout the field and is interpreted to represent reworking of the lower delta plain sediments into a relatively thin sheet sand across the lower

delta plain during a marine transgression with increased accommodation space.

Channel body geometry impacts reservoir compartmentalization. Channel boundaries, even if they form sand-on-sand contacts, can produce permeability baffles or barriers, particularly in reservoirs containing heavier hydrocarbons.

Ancillary studies of clay mineralogy documented the presence of chlorite. This indicates that acidization of the reservoirs should be formulated to limit development of any pore-plugging gels which could impede reservoir performance.