INTEGRATED TIME-LAPSE SEISMIC ANALYSIS OF THE TWO G-SAND FACIES, POPEYE FIELD, GREEN CANYON BLOCK 116, GULF OF MEXICO

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ABSTRACT

Amplitude changes between seismic surveys shot in 1990 and 2000 are used to image drainage of gas-condensate from the G-sand reservoir in the Popeye Field (Green Canyon 116, Gulf of Mexico). Drainage of the massive G-sand facies is imaged with a broad zone of amplitude decrease, the fluid contact is interpreted to move parallel to structural contours. In contrast, the overlying laminated G-sand facies exhibits amplitude brightening. Inefficient and incomplete drainage of this facies may drive this behavior. Gassmann fluid substitution and reservoir simulation support downdip amplitude dimming and updip amplitude brightening. However, brightening within the RM reservoir laminated facies is much larger than predicted. The two facies are imaged by one seismic loop that shows laminated facies characteristics at the top and massive facies characteristics at the base.