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Integrated Exploration Scheme for Lower Wilcox Coalbed Methane in Central Louisiana

Gravity data, magnetic data, lineaments and facies patterns derived from well-log data strongly correlate in West-Central Louisiana. The Lower Wilcox distributary facies and interdistributary coal facies are stacked, correlating with gravity and magnetic lows and highs, respectively. Surface lineaments also correlate with the potential field data and the facies patterns.

A structural/depositional model that explains these correlations involves basement fractures along which topography developed during deposition of the Lower Wilcox strata. The developing topography constrained the locations of the delta plain distributaries and the interdistributary coals.

To explore efficiently for the coal and coalbed methane, surface lineaments, geophysical data and well-log data should be integrated within the structural/depositional model to locate the stacked distributaries and consequently the interdistributary coals.