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Shallow Miocene and Oligocene gas potential: Southeastern Louisiana's Florida Parishes

In the Louisiana coastal areas south of Lake Pontchartrain and in the offshore waters to the east, deep Miocene - Oligocene sands have been prolific producers of hydrocarbons. Also, the subsurface of southeastern Louisiana's "Florida Parishes" area north of Lake Pontchartrain and east of the Mississippi River is known for its Upper Cretaceous (Tuscaloosa) production. However, little attention has been given to the gas potential of the Miocene interval located beneath the thick (2000-3500 feet or 610-1067 meters) Plio-Pleistocene fresh water aquifer and above the Oligocene *Heterostegina* limestone and Frio interval.

Preliminary regional mapping of the Miocene interval shows that it thickens to 4000 feet (1220 meters) in a southerly direction. The interval, consisting mostly of fluvio-deltaic, stacked distributary channels, has a high sand/shale ratio (>60%). By applying standard log correlation techniques, the Miocene sequence is divided into 4 correlatable units each of which contains gas reservoir sands. The underlying Oligocene Frio interval consists mostly of shallow water marine deposits and its uppermost sand is a gas reservoir. Both Miocene and Upper Oligocene gas appear to be biogenic methane similar to that found up-dip in Mississippi and in coastal Alabama. The methane source is from interbedded lignites located within this interval. Reported production from the sands has ranged between 100 and 600 thousand cubic feet per day (3-18 thousand cubic meters per day). The overall geologic framework is presented with particular emphasis placed on illustrating the depositional environments and trapping mechanisms associated with these shallow gas reservoirs. These mechanisms are mainly stratigraphic in nature with a minor structural component in some areas.