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Lateral Salt Flow: Two Examples from Southwest Louisiana

by J.A. Spencer and C.L. Sharpe

The interpretation of seismic, gravity, and well data in two areas of southwest Louisiana suggest that lateral salt flow has influenced each area's structural evolution, depositional patterns, and hydrocarbon migration.

The Gillis–English Bayou–West Manchester area of eastern Calcasieu Parish is underlain by an extensive salt sheet of over thirty square miles at depths of 14,000' to 20,000'. Loading and extension shaped the salt sheet resulting in two salt highs or at West Manchester and Gillis–English Bayou Fields. Associated with this salt movement is a significant erosional event underlying West Manchester Field where over 1,200' of Vicksburg section is absent. The faulting associated with the salt withdrawal provide hydrocarbon pathways and shallower traps.

Swiss Lake Field, in northern Cameron Parish, overlies a large allochthonous salt mass that was once part of a large ancestral salt ridge extending from Hackberry to Big Lake Fields. Nine wells which encountered the top of the salt and several seismic lines help to define a detached salt feature underlying over twenty square miles at depths from 8,500' to 18,000'. Salt withdrawal in the Hackberry–Big Lake area influenced the depositional patterns of the Oligocene lower Hackberry channel systems and contributed to the expansion of the *Marginulina–Miogypsinoides* section near Sweet Lake.

High quality 2–D and 3–D seismic data will continue to enhance the regional understanding of salt movement in the onshore Gulf Coast. Additional examples of lateral salt flow will be recognized, and some may prove to have subsalt hydrocarbon potential.

Biographical Sketch

Jeff Spencer is a Staff Geologist in Amoco Production Company's Southeast Business Unit. His current responsibilities include the exploitation and development of Amoco's southern Louisiana oil and gas fields and the evaluation of Amoco's extensive southwest Louisiana fee lands.

Jeff received a B.S. in Geology from the University of Cincinnati in 1980 and an M.S. in Earth Sciences from the University of New Orleans in 1982. Jeff joined Amoco's New Orleans office in 1982 and transferred to their Houston office in 1989. He has worked exploration projects in several south Louisiana and south Texas trends, as well as development studies in several south Louisiana and offshore oil and gas fields.

Jeff is a certified petroleum geologist with AAPG as well as a member of the HGS and the New Orleans Geological Society.

Jeff Spencer