SUBSURFACE FACIES OF THE GLAUCONITIC SANDSTONE, MANNVILLE GROUP, SOUTHERN ALBERTA

I. BANERJEE
Institute of Sedimentary and Petroleum Geology
3303 - 33rd Street N.W., Calgary, Alberta T2L 2A7

The Glauconitic Sandstone, a well defined stratigraphic unit in the Mannville Group of Southern Alberta (Townships 1 to 45, Ranges 1 to 20W4), shows three distinct facies on the basis of gamma ray log signature and lithologic sequences exhibited in cores and cuttings.

Facies 1 is defined by a 'blocky' gamma ray pattern and a typical 'fining-upward' channel sequence, beginning with a crossbedded sandstone and ending in most cases with a thin coal seam. Facies 2 is a typical 'coarsening-upward', offshore bar sequence with characteristic gamma ray pattern. Environments indicated by sedimentary structures and trace fossils in the sequence, change from offshore at the base to foreshore at the top. Facies 3 shows a 'coarsening-upward/fining-upward' gamma ray pattern with minor indentations. Bioturbated mudstones at the base of the sequence coarsen upward to a zone of gravels, interbedded with fine sandstones; the latter containing possible hummocky cross-stratification. The sequence becomes finer again towards the top, leading to mudstone and coal. Sedimentation seems to have started below storm-wave base and ended up in a coastal swamp.

Copyright © 2009 by the Canadian Society of Petroleum Geologists.
Memoir 9 (1984)