

**Structural Geology and Tectonics in the Albert Mines-Taylor Village Area,
Moncton Subbasin, Southeast New Brunswick, Canada.**

By

Paul Wilson

University of New Brunswick, Department of Geology, Fredericton, New
Brunswick, Canada (wilsontown@hotmail.com)

Recent onshore petroleum exploration in the Moncton Subbasin of southeast New Brunswick has focussed on an area straddling the Petitcodiac River in the vicinity of Albert Mines in the west and Taylor Village in the east. This area is structurally complex and is cut by a number of fault sets with multiple periods of movement. A knowledge of timing of initiation, timing of reactivation, sense of movement, and fluid-flow behaviour of these fault sets is critical for the advancement of exploration efforts. Detailed field observations, study of published geological maps, and microstructural data have been integrated with the aim of elucidating the structural geology of this area.

Recent interpretations of the tectonic evolution of the Moncton Subbasin have emphasised the role of dextral pull-apart on northeast-trending faults followed by dextral transpression and basin inversion during the period between Horton Group and Windsor Group deposition. However, detailed field observations and map evidence indicate that some northeast-trending faults show evidence for a late period of sinistral movement following deposition of Cumberland Group rocks. Thus source and reservoir rocks may exhibit sinistral offsets across northeast-trending faults. Field and microstructural observations indicate that different rock types in the study area respond in different ways to deformation, leading to considerable spatial variation of fault zone characteristics. Microstructural evidence indicates that faults in the area are in general sealed at levels below the water zone, and that elevated permeabilities associated with deformation events were transient.