

**AAPG Annual Convention  
Salt Lake City, Utah  
May 11-14, 2003**

Karen D. McLinjoy<sup>1</sup>, Janok P. Bhattacharya<sup>2</sup>, Russell K. Davies<sup>3</sup> (1) University of Texas at Dallas, Richardson, TX  
(2) University of Texas at Dallas, Richardson, TX (3) Rock Deformation Research, USA Inc, McKinney, TX

**Comparison of Listric Normal Faults in a Pennsylvanian Delta Front of the Mingus Formation, Bennett, Texas and Cretaceous Ferron Sandstone**

Small-scale, normal faults in a vertical exposure of the Pennsylvanian Mingus Formation near Bennett, Texas have been interpreted as classic growth faults. Our study demonstrates that although the faults are listric, the growth occurs only locally within a 30m upward-coarsening, mudstone to sandstone facies succession. A similar succession was interpreted as pre-growth strata associated with faults in the Ferron sandstone in Utah. Growth of poorly exposed overlying channel mouth bar sands in the Mingus formation is inconclusive whereas the load of the mouth bar sands in the Ferron sandstone drives the faulting process. At both locations, the succession records progradation of a delta lobe. In the Mingus, four fault zones occur 5 to 10 meters apart across the outcrop. Sand and shale smears and termination of faults within the succession show that faults were active during deposition. The fault zones were active at different times. In the hangingwall of one of the through-going fault zones, the sand is eroded near the fault and filled with a heterolithic sand and shale section. Offset along the faults ranges from 0.5 meters near fault terminations to 6 to 8 meters across longer faults. The base of the faults in both locations occurs in prodelta muds, but soft-sediment deformation is only observed in the Ferron sandstone. The faults in the Mingus Formation are more similar to slumps associated with the failure of a continental slope, versus growth faults that are initiated by deposition of thick sands in the hangingwalls as in the Ferron sandstone.