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**Evolution and Architecture of Base of Slope Stratigraphic Pinch Outs, Lower Brushy Canyon Formation,
Delaware Mountains, West Texas**

As deep-water stratigraphic traps become more important exploration targets, it is increasingly important to understand the geologic processes controlling pinch-out geometry and reservoir quality. Outcrop studies are essential since pinch-out architecture is always below seismic resolution. One type of pinch out occurs where pre-existing topography controls depositional limits. In gravity-flow deposits, this often occurs as a lithology change from sand to silt/mud across the topography due to the segregation of the high and low-density part of flows.

The lower Brushy Canyon Formation contains four large-scale stratigraphic pinch outs that result in 62 m of sandstone thinning over 6 km. The pinch outs record an evolution from ponded to tapered styles related to the filling and annealing of pre-existing topography in the underlying Cutoff Formation. Ponded pinch outs are related to the filling of local lows (roughness) on the top of the Cutoff Formation. Debris flow deposits and abrupt sandstone terminations with narrow facies transitions are common.

Tapered pinch outs are associated with the progressive burial of a regional Cutoff high. These 10-20 m pinch outs consist of multiple meter-scale packages that change upward from abrupt pinch outs with minor facies variation, to broad pinch outs with non-tractive to tractive facies transitions.

The Brushy pinch outs represent the simple case of a rigid substrate with no synsedimentary deformation. In mobile substrate settings where doming, thrusting and folding are active, the ponded and tapered types alternate as a function of the relationship between sediment supply and rate of growth of the structure.