

SHAPES, SCALES AND SPACING OF CHANNEL-BELT SAND BODIES IN ANCIENT AND EXPERIMENTAL AVULSION-DOMINATED ALLUVIAL BASINS

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Channel-belt clusters seen in alluvial basin fills are common features in the Lance and Ferris formations (latest Cretaceous) of Wyoming. These deposits are statistically clustered, as opposed to random or regularly spaced. Comparisons of cluster sizes from across Wyoming suggest that cluster size (width and thickness) is scaled to paleoflow depth of formative rivers. As such, scaling of size, connectivity and drainage can be estimated before developing the reservoir. The lack of cross correlation of channel body spacing with other aspects of the depositional system (including grain size distribution, paleocurrent direction, composition and channel paleoflow depth) suggest that these features may have formed by autocyclic, avulsion, processes.

Conceptual model of likely autocyclic origin of channel-belt sand bodies formed by common, local channel avulsion superimposed on infrequent, but larger scale, regional avulsion.

