THE ALLUVIAL ARCHITECTURE OF CHANNEL BELT MARGINS OF THE MISSISSIPPI RIVER, FALSE RIVER REGION, LOUISIANA

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ABSTRACT

The term alluvial architecture refers to the spatial arrangement and stratigraphic relationship between fixed channel belts (shoestring sands) and finer-grained intervening flood basin deposits. Overbank sub-environments associated with an active channel belt of the Mississippi River including the levee, crevasses and splay deposits, the upper point bar, and abandoned channels were cored using a standard vibracorer and Giddings Rig Soil probe. As a result of this study, it is proposed that two end-member types of transition zones exist between channel belts and flood basins at an instant in time for a simple, sine-wave-shaped stream meandering in a fixed channel belt: 1) a levee to backswamp transition zone (Type A), and 2) an upper point bar to backswamp transition zone (Type B). Type A transition zones which consist of interstratified crevasse channel-fills, crevasse splay sheet sands, and fine-grained material of the natural levee have greater potential for preservation than do Type B transitions because crevasse splay deposits may extend for kilometers out into flood basins (Type A) while pre-existing point bar deposits are destroyed during channel migration within the channel belt (Type B). In Type B transition zones a sharp, erosional contact between the backswamp and upper point bar sub-environments exists because of lateral migration of the point bar through pre-existing facies within the fixed channel belt.

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