FLUVIAL MEGAFANS, THEIR FACIES, ARCHITECTURE AND IMPLICATION OF RESERVOIR PREDICTION

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Various large fluvial fan systems have been recognized in the geological record. Yet their sedimentologic and stratigraphic differences are unclear. Understanding the stratigraphy and sedimentology of these systems is significant for reservoir predictions, as well as for understanding the autogenic and allogenic controls. This study aims to recognize the Early Eocene Green River Formation in the Uinta Basin and the Cretaceous Williams Fork Formation in the Piceance Basin as fluvial megafans, as seen by their lateral extent, internal architecture, and lateral and vertical facies transitions. Outcrop measured sections and photomosaics with GPS survey are to be integrated with areal mapping of channel dimensions, channel to floodplain ratio, and sedimentary facies variability. Core and well logs will also be used to quantity facies proportions and distributions. Facies architectural variability in fluvial megafan systems will be evaluated and a three-dimensional stratigraphic model will be developed, to show that lateral and vertical facies associations vary with channel avulsion style and position within a fan. The study tests the hypothesis that both systems to be sediment supply driven rather than accommodation driven, regardless of sea level or lake level control.