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Process-Oriented Modeling of Inclined Heterolithic Stratification and Channel Infill Deposits in McMurray Formation

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We present a process-oriented modeling (POM) approach to build 3-D reservoir models of Inclined Heterolithic Stratification (IHS) and channel infill deposits, with a test example in McMurray Formation. The POM method reproduces key components of point bar formation processes, such as lateral and downstream accretions. The layers in the reservoir grid are preserved depositional and erosional surfaces, instead of interpolated from key horizons based on op-comfortable, bottom-comfortable, or proportional relationships. A facies grid is generated at the same of simulating depositional surfaces, based on the stratigraphic locations. Conditioning to seismic data is achieved by digitizing channel central lines or boundary lines IHS and the general channel infill features observed in 3-D seismic data can be incorporated in the POM method.