Lacustrine Sequence Stratigraphy and Its Application in Lithostratigraphic Hydrocarbon Trap Exploration

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A comprehensive procedure for studying lacustrine sequence stratigraphy and relevant techniques has been developed based on the recent field application in the lithostratigraphic hydrocarbon trap exploration within the China National Petroleum Corporation (CNPC). The procedure comprises six steps including (1) background sedimentary analyses, (2) sequence division and correlation, (3) sequence boundary interpretation, (4) facies analysis, (5) seismic lithology prediction and (6) stratigraphic trap appraisal within sequence frameworks. Such an investigation procedure emphasizes that the lacustrine sequence stratigraphic analysis should pay particular attention to the unique geological features in non-marine basins, and the utilization of seismic data and modern seismic interpretation methodologies to improve the accuracy of lithology prediction and stratigraphic trap appraisal. Successful examples from the Songliao Basin and the Erlian Basin, northeastern China, demonstrate that this comprehensive sequence stratigraphic analysis approach is particularly useful in lithostratigraphic hydrocarbon trap exploration.