

Sedimentation of Salt-lake Basin in Paleogene and New Exploration Domain of Lithologic Reservoir, Qaidam Basin

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Lithology combination, Paleontology and Trace elements show that Qaidam basin is a salt-lake basin in Paleogene. The Paleogene salt-lake basin of Qaidam underwent complete water into and tides cycle and multi-stage sub-cycles. The providence of detrital material and salts in different periods various with the salinity of water in lake, and trade-offs between the detrital material and salts, which result in the vicissitude of concentrated areas. The extension of freshwater, transition zone and salt water district controlled the distribution of clastic, interbeds and salt rock. The edges of salt-lake basin mainly are sedimentation of clastic rock, and Shizigou in the depocenter mainly are chemical rock, plaster rock of fine clastic and mixed sediments of mud dolomite. In littoral and shallow lake, there are distinct density differences between the stream waters carrying terrigenous clastic and salt water in lake, which result in the formation of thin sheeted sand bodies because of the development of density flows. In the littoral and shallow lake with the background of underwater low uplift, if the water is clear, salinity is moderate and sunshine is enough, they are benefit to the formation of reservoir of algal limestone having favorable porosity and permeability. The sedimentation of salt-lake basin controlled the distribution of different reservoirs. The new domains of lithologic reservoir exploration include the sheeted sandstone in littoral and shallow lake formed by the density flows and algal limestone formed in the background of underwater low uplift besides the sand bodies in delta and fan-delta fronts of edge clastic depositional system.