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The Research of Influence on Pore Development of Tight Sandstone Reservoir of Fuyu Reservoir in Daan Oilfield

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Daan oil field is located in the secondary belt of Daan-Honggang terrace of the central depression area in the south of Songliao basin, and the study area is located in the deepest sub sag in Daan-Honggang terrace. Fuyu reservoir is the main layer series of development of the oilfield. The main influence factors of the pore development of the tight sandstone reservoirs of the Fuyu reservoir in Daan oilfield are studied based on measurements normal thin-sections, cast thin-sections, logging data, some other laboratory analysis data and previous research.

Results show: (1)Fuyu reservoir is fluvial-dominated shallow water deltaic depositional system controlled by northwest sources. Distributary channel is the main reservoir. Fuyu reservoir in Daan oilfield mainly developed debris-feldspar and feldspar-debris sandstone, which have the high content of cuttings and feldspar and low content of quartz. The compositional maturity and texture maturity of sandstone are both low. The reservoir is the typical tight sandstone pore type reservoir, which porosity have a good correlation with permeability.(2)The bigger size of the rock grain size, the higher content of the

rigid mineral, the better development of primary pore is. And it is good for the development of secondary pore. The higher content of the soluble minerals is also good for the development of secondary pore.(3)Diagenesis have a decisive influence on reservoir pore development, compaction and cementation are the main factors of reservoir density, strong mechanical compaction made mineral grains crushed and plastic mineral bending deformation, the particles were closely packed, and the primary pore is obviously damaged. The carbonate and clay cements formed by cementation further blocking the pore and the material properties are poor. Dissolution has some improvement to the property of the reservoir, the dissolution of feldspar, debris particles and some carbonate cements can easily form secondary dissolution pores and micro pores to improve reservoir property, which is the key factor of the formation of high quality reservoir in tight reservoir. The distributary channel sand bodies have coarse grain size, large pore throat, strong dissolution. The primary and secondary pore were developed which had good physical properties.

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