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Study on the distribution characteristics of in-situ stress of Chang 7 reservoir in Ordos Basin

Tuesday, 31 May 2022 17:00 (15 minutes)

In the Ordos Basin, the Chang 7 shale oil reservoir in northern Shaanxi is superimposed with multiple lithologies in the longitudinal direction. There are differences in the interlayer stress of the thin sand-shale-shale interbeds. The internal stresses in small layers are changeable, resulting in high hydraulic fractures and short extension distances. The effective reconstruction volume did not meet expectations. Based on the Kessel in-situ stress test to test the in-situ stress of key layers, finely interpret the in-situ stress logging results of a single well to obtain the distribution of longitudinal multi-interbed and different lithological in-situ stress, aiming at the characteristics of the 3 small reservoirs in the Chang 7 member of the Xin'anbian area in northern Shaanxi Based on the geological, structural, and sedimentary characteristics of the block, a three-dimensional in-situ stress regional model of complex lithological reservoirs based on fine geological bodies was established, which simulated the distribution of in-situ stress in the sand-soil-shale interbedded lithology region, and mastered the geological stress. The difference between horizontal and vertical stress field space. The calculation results show that the overall three-dimensional stress of the block is $\sigma_V > \sigma_H > \sigma_h$, the maximum principal stress range between layers in the longitudinal direction is 35~58 MPa, the minimum principal stress range is 28~54 MPa, and the horizontal stress difference range is 6~8 MPa, the stress value of the sandstone in the lateral upper layer is greater than the stress value of the shale and the stress value of the mudstone. Through the analysis of the in-situ stress distribution of the different interlayer depth and bedding lithology, it provides parameter guidance for the fracture height design of the complex lithological reservoir layer of the Chang 7 member in northern Shaanxi, Ordos Basin.

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Time Block Preference

Time Block A (09:00-12:00 CET)

Participation

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