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Influence factors of single well's productivity in the Bakken tight oil reservoir, Williston basin

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To find out key factors of productivity enhancement quickly and precisely in design and operation of horizontal well fracturing, three methods including, information amount theory, gray correlative method and orthogonal experimental design, were used to calculate and check the productivity parameters of fractured horizontal wells in the Bakken tight oil reservoir, so as to identify their correlations and influences on productivity. The results reveal stages of fracturing, fracture length, horizontal section length and permeability as primary parameters, and formation pressure, porosity, fracture width and subsurface oil viscosity as secondary parameters. The controllable parameters should be considered firstly. Similar influences are obtained from these three methods, indicating that they are extremely practical and consistent. Therefore, all three methods are effective to calculate and check the influences of fractured horizontal wells' productivity parameters in tight oil reservoirs.

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