

UNSTABLE SEEPAGE LAW OF LOW PERMEABILITY DOUBLE DEFORMABLE MEDIUM RESERVOIR

Wang Meinan, Zhang Juntao, Zhang Hongyou, Long Ming & Chen Xiaoqi
Bohai Oilfield Research Institute of CNOOC Ltd.-Tianjin Branch, Tang Gu

Tianjin 300459, CHINA

ABSTRACT

Based on the starting pressure gradient and double Deformable Medium of the fractured low permeability reservoir, the influence of the quadratic gradient term and deformable media on the filtration equation was considered, unsteady seepage mathematical model of low permeability double deformable medium reservoir was built, which was solved by finite difference method. The correlated pressure dynamic curve was drawn, unstable seepage law was analyzed. The results of the study show that, The influence of starting pressure gradient and deformation on the pressure characteristic curve is mainly manifested in the late period. The bigger the value was, the greater the range of the pressure and the pressure derivative curves going up was. The parameters for the characterization of double medium were interporosity-flow coefficient and elastic storage ratio. The bigger the interporosity-flow coefficient was, the time of "concave" appearance was earlier; The smaller the elastic storage ratio was, the width and depth of the "concave" was bigger.

Keywords: Low permeability reservoir; dual porosity media; deformable media; interporosity-flow coefficient; elastic storage ratio.