

Study of the Responding Time for Low Permeability Reservoirs

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Abstract : One of the most significant parameters, describing the effect of water flooding in porous media, is flood-response time, and it is an important index in oilfield development. The responding time in low permeability reservoir is usually calculated by the method of stable state successive substitution neglecting the effect of medium deformation. Numerous studies show that the media deformation has an important impact on the development for low permeability reservoirs and can not be neglected. On the base of streamline tube model, we developed a method to interpret responding time with medium deformation factor. The results show that: the media deformation factor, threshold pressure gradient and well spacing have a significant effect on the flood response time. The greater the media deformation factor, threshold pressure gradient or well spacing is, the lower the flood response time is. The responding time of different streamlines varies. As the angle with the main streamline increases, the water flooding response time delays as a "parabola" shape.

Keywords : low permeability, flood-response time, threshold pressure gradient, medium deformation

Conference Title : ICOGPE 2015 : International Conference on Oil, Gas and Petrochemical Engineering

Conference Location : Paris, France

Conference Dates : April 27-28, 2015