Characterizing and forecasting the fractures of the low permeability sand reservoir at Xinli field

Jianguo Wang
Enhanced Oil Recovery Research Center, University of Petroleum (Beijing)
Beijing, P. R. China, Fox_mail822@yahoo.com.cn

The XinLi field is a giant oil field located in the SongLiao depression of China. Now, The XinLi field is facing the high water saturation and rapid output regression because of the low permeability, the small throats, the high content of clay, the high saturation of restrained water, the indescribable reservoir heterogeneity, and the abundant fractures. To provide a scientific geological basis for the improvement of field of all this kind, it is urgent to carry out the following research works:

(1) To install the primary model of the fractural distribution, researching the fractural kind, size, tendency, interval, density, the scale of the opening, the predicament of the injection, the degree of the incision, extensibility, engendering epoch by observating and invesgating the fracture of the core and similar outcrop.

(2) Utilizing the DCA , FIM, and routine log(CNL,AC,DEN,CAL,RLLD,RLLS,RLLM) to identify the segment of the fracture.

(3) On the base of identifying the segment of the fracture, using the RLLD and RLLS to reckon the porosity and permeability of the fracture, researching the relation among the fracture density,the lith and the thickness, researching the connection between the permeability and the power of the production.

(4) Applying geological statistical stochastic modeling technique to forecast the distribution of the fracture among the wells, constituting the three-dimensional model of the fractural parameter.

The achievements of this research work will provide scientific geological basis for the improvement of the development effect of the low permeability reservoirs.