InterPore2018 New Orleans



Contribution ID: 296

Type: Poster

A systematicstudy flow on microscopic pore structure and fluid flow mechanism of tight gas reservoir

Wednesday, 16 May 2018 18:30 (15 minutes)

As one of the most important energy resources, improving the recovery of tight gas reservoir will be great significance. However, the complicated pore structure and special fluid flow mechanism makes it difficult to study with usual experiment methods. To address this problem, a systematic experiment procedure is proposed and applied to Sulige tight gas field. First, the pore structure is obtained with the method of low-resolution CT scan which can get pores diameters above 1 and high-resolution focused ion beam scanning electron microscopes (FIB-SEM) which can reconstructe 3D structure using mathematical method. Mercury intrusion porosimetry (MIP) with a detection range from 3 to 1000. This combination makes sure that the measure can cover the whole range of pore size distribution. Then, pressure sensitivity, water-sensitive damage and water-gas flow experiments are applied to estimate the flow characteristic and supply data to complement numerical study. After this, the pore network model is extracted from the digital core. Tight gas flow mechanism is studied through Lattice-Boltzmann method which can supply the relative permeability and capillary curve. This case study provides a work flow to analysis pore structure and pore-scale flow of tight gas rock and will be helpful to the development of tight gas reservoir.

References

Acceptance of Terms and Conditions

Click here to agree

Primary authors: Mr ZHANG, wenjie (china university of petroleum); Mr YANG, yongfei (china university of petroleum)

Presenters: Mr ZHANG, wenjie (china university of petroleum); Mr YANG, yongfei (china university of petroleum)

Session Classification: Poster 3

Track Classification: MS 1.24: Pore structure characterization and micro-scale effect on fluid flow in unconventional reservoir