

Recommended Practice for Experimental Evaluation of the Seepage Sensitivity Damage of Coalbed Methane Reservoirs

Authors : Hao Liu, Lihui Zheng, Chinedu J. Okere, Chao Wang, Xiangchun Wang, Peng Zhang

Abstract : The coalbed methane (CBM) extraction industry (an unconventional energy source) is yet to promulgated an established standard code of practice for the experimental evaluation of sensitivity damage of coal samples. The existing experimental process of previous researches mainly followed the industry standard for conventional oil and gas reservoirs (CIS). However, the existing evaluation method ignores certain critical differences between CBM reservoirs and conventional reservoirs, which could inevitably result in an inaccurate evaluation of sensitivity damage and, eventually, poor decisions regarding the formulation of formation damage prevention measures. In this study, we propose improved experimental guidelines for evaluating seepage sensitivity damage of CBM reservoirs by leveraging on the shortcomings of the existing methods. The proposed method was established via a theoretical analysis of the main drawbacks of the existing methods and validated through comparative experiments. The results show that the proposed evaluation technique provided reliable experimental results that can better reflect actual reservoir conditions and correctly guide future development of CBM reservoirs. This study is pioneering the research on the optimization of experimental parameters for efficient exploration and development of CBM reservoirs.

Keywords : coalbed methane, formation damage, permeability, unconventional energy source

Conference Title : ICFFGG 2021 : International Conference on Fossil Fuels and Greenhouse Gas

Conference Location : Istanbul, Türkiye

Conference Dates : June 28-29, 2021