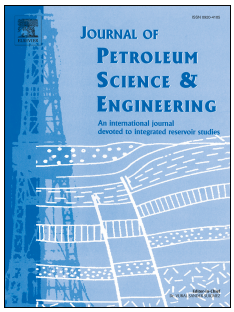
Accepted Manuscript



Flow model of a multi-stage hydraulic fractured horizontal well based on tree-shaped fractal fracture networks

Xiao-Hua Tan, Li Jiang, Xiao-Ping Li, Ben-Jian Zhang, Xu-Cheng Li

PII: S0920-4105(18)30492-3

DOI: 10.1016/j.petrol.2018.06.008

Reference: PETROL 5015

To appear in: *Journal of Petroleum Science and Engineering*

Received Date: 11 May 2017

Revised Date: 7 March 2018

Accepted Date: 3 June 2018

Please cite this article as: Tan, X.-H., Jiang, L., Li, X.-P., Zhang, B.-J., Li, X.-C., Flow model of a multi-stage hydraulic fractured horizontal well based on tree-shaped fractal fracture networks, *Journal of Petroleum Science and Engineering* (2018), doi: 10.1016/j.petrol.2018.06.008.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Flow Model of a Multi-stage Hydraulic Fractured Horizontal Well Based on Tree-Shaped Fractal Fracture Networks

Xiao-Hua Tan[1, *], Li Jiang[1], Xiao-Ping Li[1, *], Ben-Jian Zhang[2], Xu-Cheng Li[2]

1. State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu, P.R.China

2. Petrochina Southwest Oil&Gas field Company, P.R.China

*Corresponding Author.

Email: xiaohua-tan@163.com (X.-H. Tan) and ncixphm@163.com (X.-P. Li)

Abstract

Multi-stage hydraulic fractured horizontal wells (MHFHWs) are used to develop low permeability reservoirs. A flow model of the MHFHW is proposed based on tree-shaped fractal fracture networks (TFFNs) considering the tree-shaped fractal network and the hydraulic theory of fracture. Then, a physical model of the MHFHW is established by several TFFNs, including the physical model, generating rules, and numbering rules of the TFFN. A coupling mathematical model is presented by combining the flow and seepage models for the TFFN of the MHFHW. The iterative method is used to solve the mathematical model, and the distributions of pressure, flow rate, and seepage rate in the MHFHW are obtained. The proposed model provides a new method to simulate the flow of the MHFHW considering the tree shape and the fractal characteristics of fractures in the MHFHW.

Download English Version:

https://daneshyari.com/en/article/8124590

Download Persian Version:

https://daneshyari.com/article/8124590

Daneshyari.com