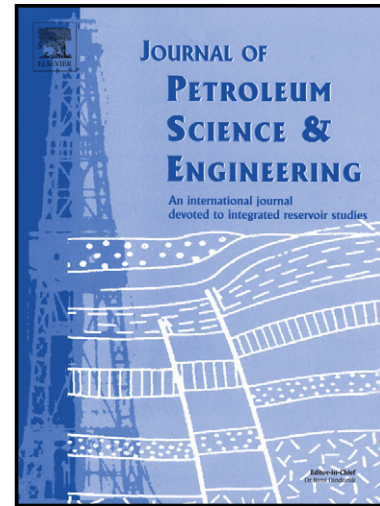


Author's Accepted Manuscript

Water Shut Off in a Horizontal Well: Lab Experiments with Starch Graft Copolymer Agent

Tang Yongqiang, Hou Jirui, Li Chenghui



www.elsevier.com/locate/petrol

PII: S0920-4105(13)00108-3
DOI: <http://dx.doi.org/10.1016/j.petrol.2013.04.007>
Reference: PETROL2405

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

Received date: 8 November 2012
Accepted date: 28 April 2013

Cite this article as: Tang Yongqiang, Hou Jirui, Li Chenghui, Water Shut Off in a Horizontal Well: Lab Experiments with Starch Graft Copolymer Agent, *Journal of Petroleum Science and Engineering*, <http://dx.doi.org/10.1016/j.petrol.2013.04.007>

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 galley proof before it is published in its final citable 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.

Water Shut Off in a Horizontal Well: Lab Experiments with Starch Graft Copolymer Agent

Tang Yongqiang^{a,b,c,*}, Hou Jirui^{a,b,c}, Li Chenghui^{a,b,c}

^a China University of Petroleum, Beijing (CUP), Research Institute of Enhanced Oil Recovery, Beijing, China

^b Key Laboratory of Enhanced Oil Recovery, CNPC(EOR Theory and Application in Low Permeability Reservoirs), China

^c Key Laboratory of Oilfield Developments (China University of Petroleum, Beijing), Ministry of Education, China

Abstract

A kind of starch graft copolymer (SGC) water shut off agent, a novel, efficient and economic crude macromolecular plugging agent, has been applied to some oilfields. In this paper, a three dimensional physical model of horizontal well was designed for the water shutoff with an edge water simulating the edge water driving reservoir and with a higher permeability band imitating the preferential paths. Using the model and X-ray computed tomography (CT), the effect of blocking the water channeling paths on the model taken by starch strong gels blocking agent was tested. The result showed that the agent was selective and got a good effect. Besides, a simple Computer Modelling Group (CMG) model was used to deduce the development process of the water breakthrough, channeling, and flooding, so as to explain previously what had happened in the physical model. Finally, compared to field experiment, the advance of the model lies in that it can be used in performance appreciation of water shut off agent well.

Key words: higher permeability paths; edge water; horizontal wells; starch graft copolymer

1 Introduction

* Author Name: Zoro Tang; Tel.: 0086-182-1014-5414; E-mail: tangzai@126.com

Download English Version:

<https://daneshyari.com/en/article/8127413>

Download Persian Version:

<https://daneshyari.com/article/8127413>

[Daneshyari.com](https://daneshyari.com)