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Use of polymers to control extra produced water from an oil field

Generally, produced water from oil reservoirs must be controlled to be able to increase produced oil from these reservoirs. Previous studies have shown that produced water control method based on polymer gel injection into porous media to increase oil recovery is an efficient method. Methods, uncertainties, errors and geographical conditions of each area and dynamic developing process of technologies are factors which force us to continue these research activities.

Nowadays, extra produced water from oil and gas reservoirs is one of the serious problems. This is one the most important factors which can affect oil and gas production rate from producing wells. Extra produced water from oil and gas reservoirs, can cause serious problems such as operational cost increasing, increasing the cost of facilities and equipment's which are needed to lift this extra produced water, increasing produced oil and water separation cost (bigger separators and pumps will be needed), increasing cost of discharge and removing this extra produced water, corrosion cost due to hydrogen sulfide which is produced along water and sand production due to extra water production.

To prevent extra production of water, there are several methods. Knowing the reasons of extra water production is essential for choosing the best method to control it. Generally, controlling methods for extra water production are divided into two types, chemical and mechanical. Mechanical methods are horizontal drilling, deviation drilling, and using tubing in production passages of water and well head separation facilities. Chemical methods are divided into: cement, gel, resin, foam and polymer. Today's, among chemical methods, using polymer gels is a known method. Based on these experiences, in this research project, we will try to find a suitable polymer gel to prevent extra water production from an oil reservoir. We must find a polymer gel which has a lot effects on water permeability and little effect on oil permeability..

Biography

Prof. Dr. Abdollah Esmaeili graduated in petroleum and chemical engineering. He has more than 30 years of industry expertise in the Middle East, among others as Senior Petroleum Engineer at Oil and Gas Companies and course lecturer for Petroleum Engineering at universities in the Middle East, Europe, Asia and Africa. Furthermore, he is leading international workshops and master classes and has presented numerous papers as expert speaker at international conferences throughout the Middle East, Asia, Europe, America and Africa. He is author of numerous articles published in international journals covering the wider range of oil and gas production, exploration, and processing in great depth. Abdollah is a member of the Society of Petroleum Engineers, and member of the Scientific Research and Development (R & D) Committee of Oil and Gas Company and has been awarded for his contributions and achievements by several companies and universities worldwide.

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