

عنوان مقاله:

Experimental Evaluation of Effective Parameters on Formation Damage due to Clay Swelling

محل انتشار:

هفتمین کنفرانس بین المللی مهندسی شیمی و نفت (سال: 1400)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Oil and gas industries have been facing various difficulties in well drilling and production operations due to shale hydration and swelling as a result of physical contact with water. Swelling and displacement of clay minerals lead to formation damage and reduction of permeability of petroleum reservoirs. In the last decades, many studies have been carried out to investigate the mechanisms of clay swelling to provide solutions which may prevent or reduce formation damage. In this study, the effects of different parameters including pH, salinity and temperature on clay swelling were investigated experimentally for better comprehension of clay swelling mechanisms. To reduce the number of experimental tests, the experiments were designed in Minitab software using L-16 Taguchi method. Results indicated that salinity is the most effective parameter on clay swelling index, while pH has a little effect. The impact of temperature on clay swelling was negligible.

کلمات کلیدی:

formation damage, clay swelling, salinity, design of experiments

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