

عنوان مقاله:

Polymer Injection for water production control through permeability alteration in fractured reservoirs

محل انتشار:

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خلاصه مقاله:

Water production is one of the major technical, environmental, and economical problems associated with oil/gas production. Problems associated with water production can be seen from two view points. First from oil recovery and extraction view point and second from environment view point. From the first view point, water production can limit the productive life of the wells and can cause several problems including corrosion of tubular, fines migration, and hydrostatic loading. Also from the second view point produced water represents a source containing several hazard elements threatening the live organism's life. Instead of treating produced water at the surface, another approach can be used. Water production from the reservoir can be avoided by adopting several techniques. Some are new drilling practices such as drilling horizontal, deviated or infill wells. Different well completion designs also offers a mean to manage water production through selectively perforate dry zones, placing a liner or installing multiphase down hole flow separation equipment. Moreover, chemical treatment arises as one of the promising water-shut-off techniques through polymer flooding. The proposed chemical technique examines two types of treatment, polymer/gel flooding, and cement squeeze. Water treatment process was carried out through permeability alteration principle. The permeability modification technique was tested using cores that simulate Berea sandstone reservoir that is characterized by presences of channels. The results show the significant reduction in permeability using polymer/gel and cement treatments. The study also shows the applicability of the technique in heterogeneous reservoirs dominated by channels and fractures.

کلمات کلیدی:

Fractured Reservoir, Polymer Injection, Water Production

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