

Scale Formation in Oil Reservoir During Water Injection at High-Salinity Formation Water

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Abstract: This study presents the results of Laboratory experiments carried out to investigate the formation of calcium and strontium sulfates in sandstone cores from mixing injected sea water and formation water contain high concentration of calcium and strontium ions at various temperatures (50 and 80°C) and differential pressures (100 and 200 psig). The morphology of scaling crystals as shown by Scanning Electron Microscopy (SEM) is presented. Results show a large extent of permeability damage caused by calcium and strontium sulfates deposit on the rock pore surface. The rock permeability decline indicates the influence of the concentration of calcium and strontium ions.

Key words: Scale deposition, solubility of scale, concentration of calcium and strontium ions, temperature, pressure
