

Barium Sulfate Scale Formation in Oil Reservoir During Water Injection at High-Barium Formation Water

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Abstract: This study presents the results of laboratory experiments carried out to investigate the formation of barium sulfate in sandstone cores from mixing injected sea water and formation water contain high concentration of barium at various temperatures (50 and 80°C) and differential pressures (100, 150 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 barium sulfate deposits on the rock pore surface. The rock permeability decline indicates the influence of the concentration of barium ions.

Key words: Scale deposition, solubility of scale, concentration of barium ions, temperature, pressure
