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SEISMIC TECHNIQUES REVITALIZE STRIPPER WELLS

Artificial seismic recovery techniques, which consist of low-frequency vibration to enhance recovery, are described. Earthquakes (even weak ones) give us insight into the possibility of using artificial vibration to stimulate oil production.

The results obtained in the laboratory and in the field indicate that (1) water-cut decreases in the field (by ~40%), (2) relative permeability to oil increases, (3) degassing occurs, and (4) viscosity of oil decreases.

Increases in the oil production in several oilfields studied are presented, together with theoretical analysis. The effective depth and radius of vibration are about 1300 m and 1000 m, respectively.

The designs of several tools are presented. Application of some tools results in the removal of asphaltenes, paraffins and scales from the region near wellbore (~1 m), and formation of scales is prevented.