

Formation of Mineral Scales due to Incompatibility of Injection/Formation Waters in NF Oilfield, Libya.

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Abstract.

This paper presents an extensive procedure for testing the compatibility between injection and formation waters and studying the scale formation phenomena in NF oilfield. Five water samples are analyzed and tested where, different scale deposits are observed as a result of incompatibility between injection/formation waters under surface and reservoir conditions of temperature and pressure. Also, sodium chloride is observed in lab work and oil well G251-51. Scanning electron microscope technique (SEM.EDAX) was used to identify the crystal morphology and elemental composition of mineral scale samples. The amount of total scale was determined and found to be dependent on mixing ratios and production conditions. Scale prediction was carried to measure the potential of scale formation and substantiate the laboratory tests at different conditions.

In NF oilfield radiation (NORM) was detected in pipes and oil/water separators and for safety precautions, laboratory work were performed by reconstructing injection and formation waters.