

4th INTERNATIONAL EARTH SCIENCE, GEOLOGY, OIL AND GAS CONFERENCE

December 02-03, 2019 | Kuala Lumpur, Malaysia

An Experimental Study of Matrix Acidizing in Fractured and Un-Fractured Sandstone Reservoirs

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Acidizing job has been considered a vital process to treat and stimulate hydrocarbon reservoirs since damages or permeability reduction, where it is located around wellbore of hydrocarbon zone, can be occurred using drilling mud.

In this paper, there have been done several experiments which contain different factors to influence in the acidizing job such as acid injection in fractured with 45 degree and unfractured cores, damaged and undamaged cores and oil flow after acidizing job under 50 °C. Berea sandstone and n-decane represent the reservoir formation and oleic phase respectively. 5% ammonium chloride is utilized as pre-flush and post-flush stages and drilling mud is injected inside core to initiate damage. The main acid is composed of 15% acetic acid and 2% HF acid and this mixture can be less corrosion rather than mineral acid. In conclusion, the porosities of all cores after acidizing job are enhancement due to removing the solid materials from cores. In addition, the permeabilities of unfractured cores are improvement, on the other hand, the permeability reduction in fractured core since it is observed that acid bypasses drilling mud in the injection face and it flows through the fracture.

Biography

Ali AlNetaifi is an Assistant Professor at King Saud University, Saudi Arabia