

## Oil Displacement by Water in Hauterivian Sandstone Reservoir of Kashkari Oil Field

**Authors :** A. J. Nazari, S. Honma

**Abstract :** This paper evaluates oil displacement by water in Hauterivian sandstone reservoir of Kashkari oil field in North of Afghanistan. The core samples of this oil field were taken out from well No-21<sup>st</sup>, and the relative permeability and fractional flow are analyzed. Steady state flow laboratory experiments are performed to empirically obtain the fractional flow curves and relative permeability in different water saturation ratio. The relative permeability represents the simultaneous flow behavior in the reservoir. The fractional flow approach describes the individual phases as fractional of the total flow. The fractional flow curve interprets oil displacement by water, and from the tangent of fractional flow curve can find out the average saturation behind the water front flow saturation. Therefore, relative permeability and fractional flow curves are suitable for describing the displacement of oil by water in a petroleum reservoir. The effects of irreducible water saturation, residual oil saturation on the displaceable amount of oil are investigated through Buckley-Leveret analysis.

**Keywords :** fractional flow, oil displacement, relative permeability, simultaneously flow

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