

# Waterflooding in a Tight Oil Formation with a Secondary Fracture Network

## Research Themes

Waterflooding is a common practice in conventional reservoir, but more recent efforts to apply waterflooding to tight oil formations have not met much success: several pilot wells in Bakken formation showed no sign of production increment after water injection. We proposed a waterflooding pattern using horizontal well with hydraulic fractures. The purpose of this research is to investigate the role of natural fractures during the well stimulation execution in water flooding process under this specific pattern.

## Recent Accomplishments

Analytical modeling in a homogeneous reservoir is accomplished.

## Issues

Pilot tests in Bakken wells have shown early water breakthrough caused by the fracture network consisting of hydraulic fractures and natural fractures. The well patterns used in reported pilot tests showed virtually no production improvement. Very likely direct connection between propped fractures in adjacent wells significantly accelerated water breakthrough in production wells. Our proposed well pattern is designed to avoid this, but we acknowledge the possibility that networks of unpropped secondary fractures may produce lower recovery than that predicted from the homogeneous analytical model.



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