

## Numerical Simulation of Different Enhanced Oil Recovery (EOR) Scenarios on a Volatile Oil Reservoir

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**Abstract :** Enhance Oil Recovery (EOR) can be considered as an undeniable action in reservoirs life period. Different kind of EOR methods are available, but suitable EOR method depends on reservoir properties, like rock and fluid properties. In this paper, we nominated fifth SPE's Comparative Solution Projects (CSP) for testing different scenarios. We used seven EOR scenarios for this reservoir and we simulated it for 10 years after 2 years production without any injection. The first scenario is waterflooding for whole of the 10 years period. The second scenario is gas injection for ten years. The third scenario is Water-Alternation-Gas (WAG). In the next scenario, water injected for 4 years before starting WAG injection for the next 6 years. In the fifth scenario, water injected after 6 years WAG injection for 4 years. For sixth and last scenarios, all the things are similar to fourth and fifth scenarios, but gas injected instead of water. Results show that fourth scenario was the most efficient method for 10 years EOR, but it resulted very high water production. Fifth scenario was efficient too, with little water production in comparison to the fourth scenario. Gas injection was not economically attractive. In addition to high gas production, it produced less oil in comparison to other scenarios.

**Keywords :** WAG, SPE's comparative solution projects, numerical simulation, EOR scenarios

**Conference Title :** ICPPE 2015 : International Conference on Polymer Products and Engineering

**Conference Location :** London, United Kingdom

**Conference Dates :** February 16-17, 2015