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## A surfactant/polymer flood potential in a typical Middle Eastern reservoir

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An integrated full-field reservoir simulation study has been performed to determine the reservoir management and production strategies in a mature sandstone reservoir. The reservoir is a candidate for an enhanced oil recovery process or otherwise subject to abandonment. Based on its characteristics, the reservoir was found to be most suited for a surfactant/polymer (SP) flood. The study started with a large data gathering and the building of a full-field three-dimensional geological model. Subsequently, a full field simulation model was built and used to history match the water flood. The history match of the water flood emphasizes the areas with remaining high oil saturations, establishes the initial condition of the reservoir for an SP flood, and generates a forecast of reserves for continued water flood operations. A sector model was constructed from the full field model and then used to study different design parameters to maximize the project profitability from the SP flood. An economic model, based on the estimated recovery, residual oil in-place, oil price, and operating costs, has been implemented in order to optimize the project profitability. The study resulted in the selection of surfactant and polymer concentrations and slug size that yielded the best economic returns when applied in this reservoir. The study shows that, in today's oil prices, surfactant/polymer flood when applied in this reservoir has increased the ultimate oil recovery and provide a significant financial returns.

### Biography

Ridha Gharbi is presently working in Kuwait Oil Company, Kuwait.

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