

Reservoir Souring; Modeling the Interplay Among Souring, Scaling, and Corrosion

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The presence of microbial activities in the hydrocarbon reservoir and wells may highly contribute to scale precipitation and corrosion. First, there is a competition between souring and sulfate scales (e.g., barite) on the consumption of sulfate ions. Therefore, an effective nitrate treatment to overcome souring may result in higher barite formation around production. Furthermore, Microbially Induced Corrosion (MIC) may take place in tubulars, in which various types of microorganisms can use the iron metal as electron donor and cause considerable localized corrosion. Moreover, the presence of hydrogen sulfide, as a product of souring, in the production wells can directly contribute to an increased corrosion.