Enhanced Oil Recovery Field Development: Process Flow of EOR Selection for Sandstone Formation

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Abstract

At present, the world-wide production statistics indicate that the average ultimate recovery from light and medium gravity oils by conventional (primary/secondary) methods is around 25-35% of the Oil Initially in Place (OIIP), while from heavy oil deposits on the average, only 10% OIIP is recoverable. Hence, this lead to a substantial percentage of oil in place left unrecoverable by the conventional methods.

The research for tomorrow's oil reserves has directed the efforts of the energy industry to frontiers beyond the conventional exploration and production strategies. Frontier defined not by geography or geology but rather by technology. This frontier is a collection of technologies that involve the use of thermal, gas and chemical means for producing more oil that fall under the broad umbrella called Enhanced Oil Recovery (EOR). The results of successful application of this new technology will have a decisive impact on the energy conservation program of any oil producing country.

Developing technologies for enhanced oil recovery (EOR) from existing oil fields would supply the world’s energy needs for several decades. The application of EOR in many major oil-producing countries remains in its conceptual stage. Every oil reservoir has a unique ionic environment that changes naturally and by human intervention, which makes it difficult to identify recovery mechanism(s) in EOR methods. This study updates the EOR selection criteria and presents new EOR screening tools based on dataset distribution, incremental recovery and deterministic modeling.

This project presents a methodology for the selection of the enhanced oil [illegible] to some group of fields using [illegible]. The methodology will be integrated into a process flow in order to make repetitive analysis in an easier way. The methodology incorporates oil and rock properties and the reservoir current conditions, besides the specific knowledge of the reservoir generalities and history

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