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A Comprehensive Review of Foam Assisted Water Alternating Gas (FAWAG) Technique: Foam Applications and Mechanisms

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Abstract : In the last few decades, much focus has been placed on enhancing oil recovery from existing fields. This is accomplished by the study and application of various methods. As for recent cases, the study of fluid mobility control and sweep efficiency in gas injection process as well as water alternating gas (WAG) method have demonstrated positive results on oil recovery and thus gained wide interest in petroleum industry. WAG injection application results in an increased oil recovery. Its mechanism consists in reduction of gas oil ratio (GOR). However, there are some problems associated with this which includes poor volumetric sweep efficiency due to its low density and high mobility when compared with oil. This has led to the introduction of foam assisted water alternating gas (FAWAG) technique, which in contrast with WAG injection, acts in improving the sweep efficiency and reducing the gas oil ration therefore maximizing the production rate from the producer wells. This paper presents a comprehensive review of FAWAG process from perspective of Snorre field experience. In addition, some comparative results between FAWAG and the other EOR methods are presented including their setbacks. The main aim is to provide a solid background for future laboratory research and successful field application-extend.

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