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Overview and current status of cyclic steam stimulation projects to enhanced oil recovery from Sudanese oil fields

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Enhanced Oil Recovery (EOR) is a generic term for techniques for increasing the amount of crude oil that can be extracted from an oil field. It is also called as improved oil recovery or tertiary recovery, sometimes the term quaternary recovery is used to refer to more advanced, speculative. Using EOR techniques 30 to 60% or more of the reservoir's original oil can be extracted, compared with 20 to 40% using primary and secondary recovery. Thermal EOR is any process in which heat is introduced to reservoir in order to reduce the oil viscosity, mobility as well as the recovery factor. There are three thermal EOR projects in Sudanese oil fields namely two EOR projects in petro-energy company (Cyclic Steam Stimulation (CSS) in FNE oil field and Steam Flooding (SF) project in FNE oil field) and one (CSS) EOR project-bamboo west oil field thermal in Greater Nile Operating Company (GNPOC). The CSS projects are under implementation phase; meanwhile the steam flooding projects are under designing and preparation. In this paper there will be an overview of thermal EOR projects in Sudanese oil fields, the current status and way forward of this project as well as a main challenge for the different types of thermal EOR projects in various phases in Sudan. The results showed that the CSS projects are very successful and almost reward double production from 130 bbl/day to 300 bbl/day in FNE oil field and from 280 bbl/day to 471 bbl/day in bamboo oil field.

Biography

Husham A Elbaloula is a Simulation Engineer at Petro-Energy E&P and a PhD candidate, Lecturer and Researcher in Sudan University of Science and Technology. He has more than nine years of diverse experience in oil and gas field development planning, performance review, reservoir simulation, reservoir management and IOR/EOR. He has completed his BSc and MSc in Petroleum Engineering from Sudan University of Science and Technology, College of Petroleum Engineering and Technology and currently he is a Petroleum Engineering PhD candidate in the same college. He has participated in more than 15 local and international technical workshops, conferences and symposium in (Sudan, KSA, UAE, India, Bahrain, Morocco and Canada). He has published eight journals and conference papers, Reviewer for SPE and IEOM and has participated in five enhanced oil recovery projects in Sudanese oil fields and conduct more than 15 training courses in the area of IOR/EOR for different training centers and companies.

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