Webinar
Talk on Water Shut Off in Oilfield Operation - Application of Novel Nano-Clay for Sustainable Downhole Water Management

CPD Hours : 2 CPD Ref No : IEM23/HQ/249/T (w)

Organised by: Oil, Gas and Mining Technical Division

SYNOPSIS

Water production is one of the largest waste streams during hydrocarbon production. The demand for sustainable water management is becoming more challenging in-terms of treatment and water disposal especially in an off-shore environment. Producing a barrel of water requires more energy that creates major economic impact on the profitability of an oil-field project. Through recent research work, Nano-Clay was invented and has been validated through a pilot water shut off project in one of Malaysia oilfield; Field A (Well B03-SS). The main pilot objective was to assess the Nano-Clay performance as part of production enhancement effort to reduce water production from 90% to 50% (water cut) and to accelerate the oil production. We discussed the overall workflow, pilot execution, challenges and best practices including the laboratory results performed during research and development stage. The well treatment consists of bull-heading a pill of pre-flush of treated sea water for injectivity test, followed by Nano-Clay injection, shut in for 24 hours and flowing back the well. The pilot execution at Well B03-SS was completed successfully and safely. Early post treatment results showed water cut trending has reduced to ~50% as compared to pre-job water cut at ~80%. Monitoring results post Nano-Clay treatment indicated instantaneous oil gain about 219 stb/d from 171 stb/d to 390 stb/d. After one year of monitoring, the water cut still maintained with expected water cut reduction range in between 10% to 50% from the baseline. The application of Nano-Clay at Field A concluded the overall pilot success and replication in other field is currently in progress.

SPEAKER

Dr Siti Rohaida M Shafian

Dr Siti Rohaida Mohd Shafian is a Principal Researcher of PETRONAS Research Sdn Bhd. Beginning her career as PETRONAS executive in 2004, Siti has been involved in multiple research and projects in flow assurance, oilfield stimulation, conformance control, production enhancement and enhanced oil recovery that include research collaboration with world class institutes. She has authored numerous publications in these areas. She holds a Patent on organic deposition chemical named SolidClenz where the technology has been deployed in more than 60 wells across PETRONAS assets. She earned Bachelor's Degree in Petroleum Chemistry from Universiti Putra Malaysia, Master's Degree and Doctor of Philosophy in Petroleum Engineering from Universiti Teknologi PETRONAS (UTP). She is an active researcher with current interest in formation damage for CO2 injectivity for CCS projects.

Tuesday I 11 July 2023 I 3PM – 5PM

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