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The complete SPE technical papers featured in this issue are available free to SPE members for two months at www.spe.org/jpt.
Drilling and Completion Fluids

Badrul Mohamed Jan, SPE, Researcher and Academic Lecturer, University of Malaya

This year marked the second year after completing my tenure as the deputy director of the University of Malaya (UM) Center of Innovation and Commercialization (UMCIC). UMCIC is the technology-transfer office in the UM, which is responsible for protecting UM’s inventions through intellectual-property registration such as patents and copyrights. Despite that, this year remained a busy year for me because it is time to restructure my research and teaching endeavors. What I miss the most is that I am still not able to invest in more relaxing rounds of golf.

As an academic lecturer and researcher in a Malaysian public university, I am often asked about the future of the upstream oil and gas industry. Most students are worried about the uncertainty of the industry. With unstable and low oil prices, which has led to massive job cuts for companies to stay afloat and remain relevant, many students are skeptical about pursuing petroleum engineering degrees. Not long ago, petroleum engineering bachelor’s degrees promised a bright and well-paid career. It used to bring in a six-figure salary. Unfortunately, now the luster has vanished with the slide in oil price. The rest, as they say, is history.

Gail Tverberg, who is an actuary interested in finite world issues, has listed 10 reasons that a severe drop in oil price is a problem. At the top the list is, “If the price of oil is too low, it will simply be left in the ground.” Low oil prices translate to a rapid drop in production. They will also lead to a series of secondary effects such as debt defaults from deflation, loss of jobs, collapse of oil exporters, and loss of credit needed for exports. These will eventually lead to a rapid decline in oil production. In addition, secondary and tertiary recovery, specifically enhanced oil recovery (EOR), will be out of reach. I feel the industry needs to reinvent itself. It needs to think out of the box and make use of novel ideas and technology to maneuver during the challenging time.

This year, the Federal Institute for Geosciences and Natural Resources, which is based in Germany, in its annual report, highlights a fascinating microbial EOR (MEOR) project that uses microorganisms in a conventionally depleted reservoir. It is a pilot reservoir project south of Beijing to determine “what microbes occur in the deposit and what metabolites they secrete (i.e., the substances that improve oil solubility).” The contemplation of MEOR process marks a distinct departure from conventional wisdom. One of the major findings from the pilot project shows that microbes are normally undesirable intruders in oil reservoirs. They transform hydrocarbons into tar-like heavy fuel oil. In addition, oil producers ought to productively make use of something that is in the reservoir to begin with. It makes the tertiary-recovery process more environmentally friendly and, under specific conditions, perhaps even less costly.

So, is petroleum engineering a sunset industry? If Tiger Woods can change his game, why not we?

I hope you enjoyed and benefited from the selected and highlighted papers. There are other interesting papers on the recommended-reading list. For further reading, the OnePetro online library has additional papers. JPT

Recommended additional reading at OnePetro: www.onepetro.org.

IPTC 17801 Innovative Nonaqueous-Fluids Technology Improves Drilling Efficiency Significantly in Dealing With Divalent Complex Salt Formation Under HP/HT Conditions by Da Yin, PetroChina, et al.

IPTC 17913 Successful Application of Customized Fluid Using Specialized Synthetic Polymer in High-Pressure Wells To Mitigate Differential-Sticking Problems by M.S. Al-Muhailan, KOC, et al.


IPTC 18217 Successful Application of Innovative Technology Improves Lubricity of High-Performance Water-Based-Mud Systems in Challenging Environments by A. Maliardi, Eni, et al.

Badrul Mohamed Jan, SPE, is a researcher and academic lecturer attached to the Department of Chemical Engineering, UM, Malaysia. He holds BS, MS, and PhD degrees in petroleum engineering from New Mexico Institute of Mining and Technology. Jan’s research areas and interests include the development of superlightweight completion fluid for underbalanced perforation and ultralow-interfacial-tension microemulsion for EOR. He has published numerous technical-conference and journal papers. Jan has participated in the SPE mentor/mentee volunteer program for 2 years. He is also the current adviser to the SPE-UM student chapter and a member of the JPT Editorial Committee. Jan was the deputy director of the UMCIC.
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