

Executive Summary

Welcome to the August 2020 issue of *SPE Production & Operations*. Due to the resurgence of COVID-19 cases, governments and educators are struggling on whether and how to reopen the schools after summer, parents and students are stressed to determine whether to continue the education in person or online over the next unknown duration of time. The quality of the online educational tools and contents will become more and more important. SPE publications are one of the most relied information sharing venue in the oil and gas industry. It is crucial to continue improving the published articles. This task depends not only on the authors but will even more so depend on the reviewers. Thanks to all the dedicated technical editors, who volunteer their time to contribute to this important mission.

One of the characteristics of a quality paper is that it stimulates readers to challenge the status quo. The paper **Systematic Approach to Well Productivity Evaluation To Determine the Significance of Formation Damage for Wells Drilled in a Depleted Reservoir without Bridging Particles: Oseberg Main Case History** is one of such type. Conducting coreflooding experiments has always been considered a best practice to determine potential formation damage by drilling and other well treatment fluids. Rarely, if ever, are people bold enough to claim that this “best practice” may be irrelevant, at least in certain situations. After thorough and broad production data analyses, the authors rationally defined when these types of tests are needed and when they are not going to provide much benefit. The authors are not at all suggesting that coreflood testing is not important but do promote looking at a larger picture. There are many factors influencing well productivity. Reservoir quality, completion type, fluid formulation, and operation procedure are all contributing to the production result. Not all these processes can be closely studied by coreflooding experiments, or by any laboratory methods. However, there are significant improvements to be made in our industry in terms of the experimental process. To achieve such improvements, the first things to examine are the fundamentals and assumptions that link the laboratory experiments to the real world. How do we translate the laboratory results to field applications? Properly simulating the field conditions does not simply mean matching the temperature and pressure. Scaling parameters such as sample size, flow velocity, and flow geometry are more difficult to simulate in the laboratory, if even possible. A short linear core may help compare amongst fluid formulations for their formation damage potentials, but it cannot determine whether the filter cake can be uniformly cleaned up along a long horizontal lateral. More integrated and rigorous testing protocol and modeling (with correctly collected data) will be needed to string all the factors together to better predict the well response.

Another example of a coreflooding experiment and data interpretation method that requires critical examination is the pore volume to breakthrough in carbonate acidizing. Carbonate dissolution in the reservoir creates a linear flow in a radial geometry. Though many theoretical and analytical efforts were made to extrapolate the pore volume to breakthrough in a core to predict the wormhole penetration in a reservoir, attention has been paid predominantly to the effect of interstitial velocity. Rarely has attention been given to the fact that pore volume to breakthrough is also a function of pressure and the core length; in addition, what is the fluid velocity from the well to the reservoir and after it penetrates into the reservoir? So, our best practice for acidizing has always been pumping as fast as possible. Coreflooding has also been used to infer acid retardation in carbonate stimulation, even including acid fracturing. Acid-carbonate reaction is a mass transfer limited reaction. Not knowing the relation between the laboratory injection rate vs. the field injection rate will lead to wrong conclusion in fluid selection and treatment design. Many other examples, such as sand consolidation and rheology for proppant transport, are all routine laboratory tests but used for making critical engineering and operation decisions. Researchers should be innovative, not only in developing new products and technologies but also in more relevant and broader covering test protocols. We appreciate the authors of this paper for their openness in sharing their data and analyses. The paper is valued beyond its content if it triggers a new wave of critical thinking in the research and development and technical support organizations to make the upstream laboratory experimental setups, procedures, and interpretation more relevant and informative.

There are four main technical domains published in this issue of the journal, including artificial lift, heavy oil, flow assurance, and production analysis. I hope you enjoy reading them.

Artificial Lift

- *A Methodology of End-of-Tubing Location Optimization for Horizontal Shale Gas Wells with and without Deliquification*, R. C. Dinata, C. Sarica, and E. Pereyra
- *Development of a Control Strategy for a Smart Sucker Rod Pump*, G. B. F. F. Oliva, H. L. C. Galvão, R. E. Silva, R. O. Costa, P. R. D. Carratore, A. L. Maitelli, and C. W. S. P. Maitelli

- *Surrogate-Based Optimization for the Design of Rotary Gas Separator in ESP Systems*, G. Abbariki, A. Riasi, and A. Rezghi
- *Performance Improvement of Helical Downhole Gas-Oil Separator Using Experimental Approach*, S. Najafi, E. Hajidavalloo, A. Ghanbarzadeh, H. Gerami, and S. M. Alavi
- *An Efficient Downhole Oil/Water-Separation System with Sucker-Rod Pump*, M. Jiang, T. Cheng, K. Dong, J. Liu, and H. Zhang

Heavy Oil

- *Experimental Correlations for the Performance and Aperture Selection of Wire-Wrapped Screens in Steam-Assisted Gravity Drainage Production Wells*, J. D. Montero Pallares, C. Wang, M. Haftani, and A. Nouri
- *Steam Conformance along Horizontal Well with Different Well Configurations of Single Tubing: An Experimental and Numerical Investigation*, X. Dong, H. Liu, N. Lu, K. Wu, K. Wang, and Z. Chen
- *Nonlinear Model Predictive Control of Steam-Assisted-Gravity-Drainage Well Operations for Real-Time Production Optimization*, R. G. Patel and J. J. Trivedi
- *Experimental Investigation on Separation Behavior of Heavy-Oil Emulsion for Polymer Flooding on Alaska North Slope*, H. Chang, Y. Zhang, A. Dandekar, S. Ning, J. Barnes, R. Edwards, W. Schulpen, D. P. Cercone, and J. Ciferno
- *Study and Pilot Test of Multiple Thermal-Fluid Stimulation in Offshore Nanpu Oilfield*, X. Han, L. Zhong, Y. Liu, J. Zou, and Q. Wang

Flow Assurance

- *Frictional Factor Correlation for Laminar High-Viscosity Oil/Gas Flow in Horizontal Pipes*, A. Al-Sarkhi, K. Abdelbasit, and H. Bahaidarah
- *Modeling of Smart Pigging for Pipeline Leak Detection*, C. Thiberville, Y. Wang, P. Waltrich, W. Williams, and S. I. Kam
- *An Integrated Genetic-Algorithm/Artificial-Neural-Network Approach for Steady-State Modeling of Two-Phase Pressure Drop in Pipes*, M. Chaari, J. Ben Hmida, A. C. Seibi, and A. Fekih
- *Annelida, a Robot for Removing Hydrate and Paraffin Plugs in Offshore Flexible Lines: Development and Experimental Trials*, H. F. L. Santos, E. A. Perondi, A. V. Wentz, A. L. Silva Júnior, D. A. C. Barone, M. Galassi, B. B. de Castro, N. R. S. dos Reis, E. D. Basso, H. L. da C. P. Pinto, A. M. G. Ferreira, and L. H. T. Ferreira

Production Analysis

- *Flow-Regime-Based Inflow-Performance Relationships of Unconventional Fractured Reservoirs*, S. Al-Rbeawi
- *Systematic Approach to Well Productivity Evaluation To Determine the Significance of Formation Damage for Wells Drilled in a Depleted Reservoir without Bridging Particles: Oseberg Main Case History*, N. Fleming, E. Moldrheim, E. Teigland, and A.-M. Mathisen
- *Prediction of Multilateral Inflow Control Valve Flow Performance Using Machine Learning*, M. Aljubran and R. Horne

Frank Chang, SPE Prod & Oper Executive Editor,
Aramco Americas Company

Editorial Notes.

- *SPE Production & Operations* offers a selection of 17 papers covering topics from artificial lift to production analysis. In his issue summary, Executive Editor Frank Chang highlights *SPE-199266-PA—Systematic Approach to Well Productivity Evaluation To Determine the Significance of Formation Damage for Wells Drilled in a Depleted Reservoir without Bridging Particles: Oseberg Main Case History* for broadening the scope of coreflooding best practice and spurring a new wave of critical thinking regarding its benefits.
- *SPE Journal* offers a special spotlight section on pressure and rate transient analysis in addition to 30 papers covering enhanced oil recovery and reservoir simulation.
- *SPE Reservoir Evaluation & Engineering* provides a diverse grouping of papers covering eight topics that range from uncertainty assessment and formation evaluation to petrophysics and phase behavior.

Journal Impact Factors. Clarivate Analytics released the 2020 Journal Citation Report (JCR) in June and once again it reflects a positive trend for SPE journals in the most recent impact factors: *SPE Journal* (3.372), *SPE Reservoir Evaluation & Engineering* (2.013), *SPE Production & Operations* (1.875), *SPE Drilling & Completion* (1.053). While it is important not to overly depend on impact factors for research assessment, the JCR has a reputation of excellence and integrity for its meticulous selection of top journals.

In Scopus, *SPE Journal* ranked No. 4 out of 189 journals in Geotechnical Engineering and Engineering Geology (placing it in the 98th percentile for its subject area).

For more information, read the recent article published in *JPT*.

Smart Proof. Papers accepted for publication in *SPE Journal* are being edited using **Smart Proof**, an intuitive cloud-based proofreading tool designed to speed up online publication and enhance the proof editing experience. After manuscripts are accepted for publication, copyedited, and typeset, SPE will email corresponding authors a link with instructions to proofread. **Learn more about Smart Proof.**

In Memoriam. It is with sorrow and respect that SPE acknowledges the passing of Dr. Hisham A. Nasr-El-Din. A prolific contributor to SPE conference and journals content, Dr. Nasr-El-Din was an awarded volunteer, achieving SPE Distinguished Membership in 2007 and A Peer Apart status in 2011, among other noteworthy accomplishments. More information regarding his admirable career in both industry and academia can be found at <https://pubs.spe.org/en/jpt/jpt-briefs-detail-page/?art=4428>.