



Guest Editorial

From the Editor of Special Issue

This special edition of the Journal of Energy Resources Technology is to highlight nine papers that were presented in Honolulu, Hawaii at the 28th International Conference on Ocean, Offshore, and Arctic Engineering, better known as OMAE 2009, held from May 31st to June 5th. My fellow symposium chair Mr. Glenn MacDonald of Stress Engineering and I coordinated the Petroleum Technology Track for the conference. We had seven different sessions with 28 papers presented ranging from Flow Assurance, Drilling Engineering and Operations, Enhanced Oil Recovery, Subsea Processing, Multiphase Flow, and Description and Optimization of Well Performance. Our session chairs were Dr. Faruk Civan of the University of Oklahoma, Dr. Cem Sarica of the University of Tulsa, Mr. Mike Stratton of Multiphase Solutions (now with Hess), and Dr. Gabor Takacs of the Abu Dhabi Petroleum Institute.

When we were approached at creating a special edition for the Journal of Energy Technology, we were tasked with choosing nine papers in total. This was a serious challenge. The session chairs, my co-chair, and I chose the papers in this edition, not only by engineering strength as many of the papers that were not included were strong but also rather by the wide ranging subject matter that showed the breadth of the symposium. We have encouraged the authors, whose papers are not represented in this special edition to submit their papers through the standard ASME review process.

In this edition, we chose the following papers to represent the various sessions at the conference.

- (1) *Experimental Visualization of Two Phase Flow Inside an Electrical Submersible Pump Stage*: This is the continuation of the previous paper on two phase flow in an electrical submersible pump. This paper shows the experimental validation of the model developed in the previous paper.
- (2) *Modeling Two Phase Flow Inside an Electrical Submersible Pump Stage*: This is another two set paper that starts with the models for two phase flow patterns inside the impeller of an electrical submersible pump. The idea is to be able to predict when stagnant bubbles form inside the intake. The model allows for the prediction of surging.
- (3) *Sensitivity of Slug Flow Mechanistic Models on Slug Length*: This paper reviews various closure relationships for slug lengths. It is shown that frequently used models are relatively insensitive to slug length.
- (4) *A Modular Differential Dielectric Sensor (DDS) for Use in Multiphase Separation, Process Measurement and Control—Part I: Analytical Modeling*: This is a paper on the use of a differential dielectric sensor for measuring water cuts in oil production streams. It is the first paper of two that investigates a theoretical analytical model of the sensor.
- (5) *A Modular DDS for Use in Multiphase Separation, Process Measurement and Control—Part II: Experimental Investigation*: This paper is a continuation of the previous one that

shows the experimental validation of the previous model. It explains the testing procedure and the results of tests on the differential dielectric sensor.

- (6) *Non-Darcy Binomial Deliverability Equations for Partially Penetrating Vertical Gas Wells and Horizontal Gas Wells*: This paper explains new binomial deliverability equations that describe radial non-Darcy flow for both vertical and horizontal wellbores.
- (7) *Analysis of Postbuckling Drillstring Vibrations in Rotary Drilling of Extended-Reach Wells*: This paper is a theoretical analysis of drillstring dynamic behavior for extended-reach wells. It incorporates a three-dimensional model for lateral, torsional, and axial motions.

The following two papers were erroneously published in the September 2011 issue. Please see the publisher's note.

- (8) *Transient Wax Gel Formation Model for Shut-In Subsea Pipelines*: In this paper, the nature of wax deposition is explored and analyzed. It takes into account heat and mass transfer transient effects.
- (9) *Experimental Evaluation of Separation Methods for a Riser Dilution Approach to Dual Density Drilling*: Dual gradient deepwater drilling systems are coming to drilling operations. However, there are problems to resolve. One is the surface separation of the dual fluids used to accomplish the gradient change. This paper examines multiple approaches to solving that issue.

In closing, although the OMAE conference is the responsibility of the Ocean, Offshore, and Arctic Engineering Division (and one they do well), the Petroleum Division was invited to place a symposium track in the conference. And both divisions, as well as the Pipeline Systems Division, are all under the umbrella of the International Petroleum Technology Institute of the American Society of Mechanical Engineers. As a past chair of the Petroleum Division, I am grateful for the opportunity to contribute something to the success of the IPTI, OMAE, and PD. In addition, the financial support of the Petroleum Division assisted in making the Petroleum Technology Symposium a reality. Thank you one and all.

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