

# THE UNIVERSITY OF UTAH SPE STUDENT CHAPTER

Volume 1 / Issue 1

## UPCOMING EVENTS

### **SPE Lecture** by Sid Green

November 17th, 2015

Time: 11:30am – 1:00pm

Place: Parlor A meeting room in the A. Ray Olpin Student Union Building. Lunch Provided.

### **Upcoming SPE Training Courses:**

<http://www.spe.org/training/courses>

### **AAPG Lecture** by John

Holbrook, November 10th, 2015

Time: 9:30am – 10:30am

Place: FASB 303

## WELCOME TO A NEW YEAR

Welcome to the first newsletter of The Society of Petroleum Engineers, University of Utah Student Chapter! I would like to thank you, our members, for your support and participation in past events. As the chair person and on behalf of all board members, I am committed to bringing you the resources, information, and experience that SPE offers to all its members right here on our campus. We cannot wait to see all of you at our events throughout the school year. Join us!



*Luanjing Guo, Chair*

## INTERVIEW WITH PROFESSOR STEFAN Z. MISKA



**Stefan Z. Miska** is currently a Jonathan Detwiler Endowed Chair Professor of Petroleum Engineering and Director of Tulsa University is Drilling Research Projects (TUDRP) at The University of Tulsa (TU).

He has published over 190 technical papers and contributed to several books such as “Fundamentals of Drilling Engineering”, a book many of us are very familiar with. He has also made considerable contributions to the development of new buckling concepts and axial force transfer in extended reach drilling. His current research interests focus on wellbore hydraulics, mechanics of tubulars and geomechanics. He has been the recipient of two SPE international awards: the 2000 Distinguished Petroleum Engineering Faculty Award recognizing his many years in academia and the 2004 Drilling

Engineering Award. He is also an SPE Distinguished Member.

### **Q: What does a knowledge of geomechanics contribute to in drilling?**

Drilling for oil and gas is done in the earth. Consequently, drilling personnel must be knowledgeable in many areas such as rock and formation fluid properties under down-hole conditions and states of stresses for wellbore stability management, to mention a few. They must also be well practiced in making accurate predictions of formation pore and fracture pressure gradients. In particular, great attention must be paid to loss of circulation while crossing geological faults. Sizeable losses of oil-based or synthetic fluids to the fault may result in earthquakes.

### **Q: What are the key requirements on all horizontal and sidetracking operations?**

Great attention must be paid to the selection of BHA (including MWD etc.) components, drillbits, types and properties of drilling fluids as well as an adequate flow rate for effective cuttings transportation.

### **Q: From a downhole perspective what are the common challenges faced during horizontal drilling? What kinds of tools or technology can help in those cases?**

Effective horizontal drilling will require improvements in drillbits such as having proper control of the drillbit face and side cutting ability. Perhaps new titanium, composite materials or aluminum drillstring components can help in this process.

**Q: How can an operator minimize their conventional horizontal drilling and sidetracking costs?**

Mostly by learning from offset wells and minimizing non-productive time (NPT).

**Q: Regarding the current low price of oil, what outlook do you envision for the oil and gas industry in the future? And, what is the impact of that on careers for petroleum engineering students?**

The low oil process will not last forever. With that said, the service and oil companies should reduce expenses and accept a loss of profits. After all, they have enjoyed several years of great prosperity. I feel sorry for the PE students that are scheduled to graduate in December. It will be difficult to get a job in the oil industry.

**Q: Are there any words of advice you would like to leave for the students studying petroleum engineering?**

Students need to stay focused on their courses, learn as much as possible and place emphasis on good understanding of what they study. All students know Newton's 2nd law of motion but very few can apply it correctly for solving problems in fluid and solids mechanics. If I were a PE student now I would seriously consider getting a minor in geophysics or mechanical engineering. To avoid earthquakes we need to have better educated PEs and make changes in the current technology. In short, there are many challenges ahead of us and the solutions will require smart and well educated PEs.

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*"Where oil is first found is in the minds of men" -Wallace Pratt*

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## INDUSTRY INNOVATIONS

Technology is increasing the ability to discover and access hydrocarbon resources once thought to be inaccessible or unrecoverable. Various companies are developing new tools in order to improve the processes. In this regular section, we will introduce and discuss various innovations in petroleum technology. We are not advocating for any organizations or services. These are just products we find interesting.

### Halliburton's SmartPlex® Downhole Control System<sup>1</sup>

The oil and gas industry has been seeking solutions to address the efficiency of multi-zone completions; to improve reservoir performance and reduce costs related to installation and control. Halliburton has successfully carried out the first installation of their SmartPlex® Downhole Control System. This system activates valves significantly faster than current direct hydraulic control systems.



Smartplex® Downhole Control System

The SmartPlex® downhole control system enables remote actuation of downhole control devices using electro-hydraulic control lines from the surface. The multi-drop system provides simple and reliable zonal control of up to 12 interval control valves in a single wellbore, using a minimum number of control lines, per Halliburton's website. The new system also assists in achieving improved reservoir performance and increased ultimate recovery. A key advantage of the SmartPlex® over current hydraulic control systems is the ability to selectively open and close different sets of valves, reducing uncertainty and allowing for multi-zone completions with a high degree of reliability.

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<sup>1</sup> Source: <http://www.halliburton.com/en-US/ps/default.page?node-id=hgeyxsr1>