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SPE International
London Section

SPEREVIEW LONDON

- Letter from the Chair Elect
- Stop! What kind of uncertain are you?
- Applications for Coiled Tubing Drilling
- Women in Energy: the 12th annual seminar
- PLUS: Events, Jobs

Contents

ABOUT US

The Society of Petroleum Engineers (SPE) is a not-for-profit professional association whose members are engaged in energy resources, development and production. SPE serves more than 143,000 members in 141 countries worldwide. SPE is a key resource for technical knowledge related to the oil and gas exploration and production industry and provides services through its global events, publications, events, training courses and online resources at www.spe.org, as well as local chapters such as the SPE London section.

SPE London section publishes SPE Review London an online newsletter, 10 times a year, which is digitally sent to its 3000+ members. If you have read this issue and would like to join the SPE and receive your own copy of SPE Review London, as well as many other benefits – or you know a friend or colleague who would like to join – please visit www.spe.org for an application form.

CONTACTS

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Information

At SPE Review London, we strive to provide knowledge and information to navigate our changing, and challenging, industry. We trust the July 2018 issue of SPE Review London will be useful, actionable and informative.

On *page 4*, **Olga Bradulina** the new SPE London Chair (who takes up her post in September) offers her thoughts in a **Letter from the Chair Elect.**

In the first of this issue's two technical features, '**Categories of Uncertainty**', **Burney Waring** discusses (*page 5*) uncertainty in decision-making, and bias in decision-making.

The second of this issue's technical features **'Applications for Coiled Tubing Drilling'** starts on *page 11*, where Clare Miszewska-Hall outlines reasons for using Coiled Tubing Drilling

David Mahoney reports from the **12th Women in Energy seminar**, starting on *page 9*.

Our regular features include: Meet the people **'Behind the Scenes'**, The SPE Review Editorial Board (*page 3*) and the **SPE London Board** (*page 13*). The new Board will be in our September issue.

Make sure to keep up to date with **industry events and networking opportunities,** and the **Job Board** (thanks to Jared Hammond of oneoiljobsearch.com for providing the monthly job statistics)**,** all on *page 14*.

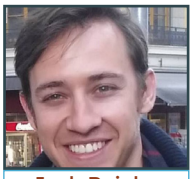
And don't forget to check out our social media pages: Facebook, Twitter, and Linkedin.

This is the final summer issue of SPE Review London, as we don't publish in August. So we wish you all a wonderful summer –and see you again in September!

Behind the Scenes: SPE Review Editorial Board

Jonathan Ovens
Chief Editor

- Ph.D in Physics at Cambridge University.
- Joined Shell in 1986. Reservoir Engineer – hydraulic fracturing, pressure transient analysis and reservoir simulation.
- 1997 - 2012: independent consultant covering the North Sea, North Africa and the Middle East.
- Experience ranges from Exploration and Development planning through to Reserves Evaluation.
- 2013: Senior Reservoir Engineer at JX Nippon E&P (UK) Ltd.
- 2009 and 2015 served with SPE Europec Technical Committee.
- Member of the SPE London Board.



Josh Beinke
Editor

- Graduated from University of Adelaide with degree in Petroleum Engineering.
- 10 years prior experience with Chevron Corporation, Origin Energy and Santos, including as Production Engineer on the Gorgon Field during First Gas.
- Following move to Europe in 2016, consulted on European and African assets (specialising in data room and field development advisory).
- Now working out of Amsterdam as a Production/ Exploitation Engineer with Vermilion Energy.

Ffion Llwyd-Jones
Designer

- Editor and business writer, with 15+ years experience in North America and the UK.
- Editor for several trade and consumer magazines (print and/online).
- Provides industry-related case studies, and detailed, research-driven B2B reports and technical white papers.
- Accomplished photographer, and videographer.
- Educated in Canada, and in the UK.
- Fluent in Welsh and English.
- BA (Hons) from The Open University.

Letter from SPE London Chair Elect

Olga Bradulina
SPE London Chair Elect

Dear SPE London members and colleagues,

It is a great honor and pleasure for me to serve as the new Chair of SPE London and write my first Letter for our online magazine.

While I am very excited to start my work with the Section from September 2018, I would like to reflect on another great operational year led by Carolina Coll, our past Chair.

The London Section serves a wide community including E&P operator and service companies, technical and management consultancies, global financial services and Universities. The various events held throughout the year enabled us to fully deliver on our mission to share technical knowledge and help members advance their potential.

The monthly **Technical Dinner Programme** provided members with lectures from leading industry and academia experts. We covered a wide range of industry issues on reservoir, drilling, projects and operations. The events' format, which consists of technical presentations followed by networking and a refreshments buffet, provides guests with a valuable opportunity to connect with their peers.

Continuing Education included the **Annual Introduction to the E&P Seminar** and **Career in Transition** events. The former attracted much attention from the non-technical community eager to find out more about the many, varied aspects of the Oil & Gas Industry, while the **Members in Transition** (MiT) event was aimed at exploring options when considering a change from current technical roles. This MiT seminar proved inspirational, and encouraged networking in potential new areas of employment.

The section also held a series of quarterly **Business Development** seminars, reaching out to the Oil & Gas Financial Services sector. Started in 2016, such seminars are very popular and always sell-out extremely fast. This year's topics included: **Oil and Gas M&A**, **Private Equity in Oil & Gas**, and **Investment interest in Eastern Mediterranean** hydro carbon and infrastructure assets.

SPE London Women in Energy Committee held another very successful one-day seminar in June, which attracted more than 150 delegates and leading industry speakers. Such an event has already become a landmark event for the London Section. The focus of the seminar was on promoting the gender balance in the energy industry with a panel session on unconscious biases – how to acknowledge and avoid them. (See David Mahoney's article on page 9.)

The Young Professionals' committee was also busy this year, arranging site visits to service companies' laboratories (**EXPRO PVT lab**) and offices (Schlumberger Technology Centre, IHS Markit Technical Day, and BCG Intro to Management Consulting in Oil & Gas).

We continued to support seven Student Chapters in Universities across the country, providing funding, support with the Student Paper contest, and discount pricing on Section events.

All the above would have been impossible without the support from volunteers who dedicated their time and efforts to deliver on the SPE mission. Please visit our website www.spe-london.org/ to find out more about the board and our officers.

We always welcome new volunteers to help us in various aspects of SPE London activities. Some of these roles may require investing a substantial portion of your time, such as representing the section governing body (the Board), chairing one of our committees or maintaining the Section accounts. However, other roles may be relatively light in terms of time investment – for example, helping one of our committees in developing our seminars and conferences. If you are interested in getting involved with us – please contact us on: SPELondon@spemail.org. Or get in touch through our social media channels: Facebook (www.facebook.com/SPELondon), Linkedin (www.linkedin.com/company/spe-london-section), Twitter (twitter.com/spelondon).

I wish you all a great summer holiday and hope to see you at our upcoming events!

Best regards,
Olga Bradulina, SPE London Chair

Stop! What kind of Uncertain are You?

Burney Waring

Burney Waring, formerly Director of Retirement Testing at the Waring Retirement Laboratory, discusses uncertainty in decision-making, and the potential problems of bias in decision-making.

Introduction

I have quite a bit in my book (Waring B, 2016)[1] about uncertainty in decisions, including how to justify collecting additional data to reduce uncertainty and how to minimize measurement uncertainty.

Those are two different categories of uncertainty. These two categories of uncertainty are described in the paper 'Distinguishing two Dimensions of Uncertainty' (Fox and Ulkumen, 2011)[2] that goes into detail about how we think about and deal with these uncertainties in very different ways. As you might have noticed from my prior writings, I'm interested in bias in decision-making. Understanding human nature (ourselves and others) is always valuable, and this case is no exception.

In the paper the two categories of uncertainty are defined as:

Epistemic Uncertainty: Uncertainty resulting from missing knowledge. You are forced to make a decision that could give different results depending on the 'truth', i.e. the actual status of a situation where you lack full knowledge. There is a chance that it could go wrong, but you could avoid (some of) this chance, if you only knew more in order to make a better decision. (The complement to this type of uncertainty is 'confidence'.)
The uncertainty here usually appears in situations where you think you have some control, e.g. you could get more data if you wanted to do so (given time, cost, and reasonable risk). People usually say things such as, "I am 90% certain" when describing epistemic uncertainty.

Aleatory Uncertainty: Uncertainty resulting from the stochastic/random/luck nature of the universe, where you can repeat the exact same experiment and get different results. The uncertainty here appears in situations where you think you have no control, e.g. the data is sufficient to tell you the odds of things going one way or the other. People usually say things such as, "I think there is a 90% chance" when describing aleatory uncertainty.

Bayesian inference tries to quantify epistemic uncertainty. Statistics try to quantify aleatory uncertainty.

Here is a test for you. Imagine you are in front of two machines.
Machine 1: You are asked to put last month's pay into a machine that will triple it, if you push a button and the button turns green. No other information is immediately available. The button might turn green or it might not.
Machine 2: You are asked to put last month's pay into a machine that will triple it, if you push a button and the button turns green. The odds of the button turning green are 50%, based on the record of the last 1000 people to use the machine.

Continued on page 5

Stop! What kind of Uncertain are You?... continued

Which machine would you select? Why?

The answer is that in both cases the probability of success is 50%. They have the same expected payout. They are mathematically identical cases. However, people will overwhelmingly select Machine 2 (aleatory uncertainty). Why?

[I gave this test to my son. He kept explaining that Machine 2 was the only rational choice because the odds were known. If you are in the same situation, remember that Machine 1 could pay out 90% of the time just as likely as 10%, based on the (lack of) information given. It could pay out every time, or never. That's why, rationally, you should treat it as a 50% probability of success.

Why do people perceive these as highly different scenarios? Because, epistemic and aleatory uncertainty are handled in different parts of the brain (as seen in brain imaging), and those parts of the brain rely on different information, weighting, and thinking processes. So, we shouldn't expect to reach the same conclusion or feel the same way about them.

An oilfield example of uncertainty:
You need to decide if you will work over a well. The last well test gave a high water cut, but a recent production log gave a low water cut. You wouldn't work over a well like this with a high water cut, but you would happily invest the money in a work over of a low water cut well like this. This decision involves epistemic uncertainty. The decision is seen as more subjective, with a right or wrong outcome. Rare events (lacking much probability information) are thought of as epistemic. Apparently, human nature is that we are more often overconfident in these decisions once we have made them. But, we are reluctant to make such decisions at all.

We would rather make decisions where the odds are established than where the odds are unknown, even if we judge them to have the same probability. Which is illogical, but there we are with this bias. And, we are especially reluctant to make a decision where we think that there are others betting against us that have information we don't have, even if it doesn't change our odds.

We also commonly think of epistemic decisions as having been less certain after the fact than before. This behavior is known as "hindsight bias". We don't have hindsight bias in decisions where we are given the odds from past experience.

Another difference: People tend to be overconfident in assessing probabilities that they will be able to make the correct decision upfront (epistemic), and underconfident that their decisions were correct after the fact (aleatory). For example, making a prediction of how you think you will do (for example on a test you have not taken) has epistemic uncertainty – we are usually too confident. Making a prediction after the test (having seen all the questions and attempted to answer them) is mainly aleatory – we are usually too hard on ourselves.

Typical decisions involve both kinds of uncertainty, e.g. the decision to work over a well where the water cut is unclear plus the well has a retrievable packer to remove.

Epistemic uncertainty is reducible by gathering more information (e.g. get a larger liquid sample for the water cut plus a longer well test). Aleatory uncertainty cannot be reduced, as you assume you have enough information already. When should you conclude you have enough information? There are a couple of strategies mentioned, you can explore scenario results by varying your decisions (for example in proportion to the previous outcomes), or you can try to maximize results by sticking with the decision that has previously yielded the best result. In my experience, people will just go with what has worked best previously (even with scant data). How many times have you been asked "What do other people do and does it seem to work?" But, as you might guess, exploration across many scenarios is more likely to detect non-random patterns, information that can yield more successes, and therefore the possibility of improving.

When things go wrong, they can go wrong for a number of reasons. It could be the process used to make the decision. It could be the information used to make the decision. Or, it could be simply the random nature of the task/project results. To stand a chance of improving future decisions, the process and information quality needs to be understood. Reducing uncertainty has real and substantial value in terms of reducing the cost of making an incorrect decision (e.g. not doing a workover on wells with old retrievable packers) or improving the potential value of correct decisions (e.g. using the stimulation technique that works best in a situation).

Continued on page 7

Stop! What kind of Uncertain are You?... continued

Another oilfield example of uncertainty:
You need to work over a well. The well has a 'retrievable' packer that was installed 20 years ago. From long experience, the probability of removing the packer using the best technique is 30%. That is aleatory uncertainty. The decision is seen as more objective, the outcome a result of luck, in the hands of fate. Apparently human nature is that we are more often underconfident in these decisions, so usually the odds are better than we remember. And, we would rather make this type of decision than the other.

The oilfield is rife with epistemic uncertainty. We deal in a world of sparse data-sets and complex inter-dependencies. This uncertainty costs us a significant fraction of potential profits. We should be doing what is profitable to reduce it. My book (Waring B (2016) Practical Optimisation of Petroleum Systems) has a section on Value of Information estimation and how to justify collecting more data to reduce epistemic uncertainty. There is another section on reducing the error (random and systematic bias) in measurement systems. The industry knows about these problems, but has been reluctant to make improvements, in my experience. This paper may explain some of this.

Humans are apparently overconfident in our abilities to correctly make decisions with insufficient data. I think that this is amplified in the oilfield because we are forced to make some huge decisions with very little data (e.g. exploration and buying leases), so we get used to doing that. There is no excuse for making such decisions when we could justifiably acquire additional data or improve the existing data. Managers also punish people when decisions go wrong due to hindsight bias and loss aversion, even where those decisions were agreed upfront by those same managers. We are also risk-averse, possibly because some incorrect decisions can lead to existential disaster (e.g BP Macondo, Piper Alpha). Again, that is no excuse for not exploring reality by varying decisions in non-critical cases and seeing what happens.

If you are a decision-maker and are criticized or punished for a bad decision, an honest way to improve your situation is to go back to the process and information, and to discover what went wrong. Do after-action reviews of all significant work. Reduce the epistemic uncertainty of the next such decision, yours or your colleague. In some cases, you may collect enough data to make it into an aleatory decision, which is much easier to make, and less painful when a decision goes wrong.

A philosophy of "Well, that was a failure. Let's never take that chance again!" is not a recipe for long-term value maximization. I remember once I had a series of eight work overs in a rig plan. When the first three failed, my management wanted to pull the plug on the rest of the plan, as they suddenly judged the probability of success at 0%.

I helped/forced them back to the process and the information, had them recognize again the inherent uncertainty and how there was no information gained from the first three jobs that would increase the uncertainty of the next five. Finally, we proceeded as originally planned.

It would have helped me to have spent more time upfront agreeing the information that would be available at each step and decision-making process, as well as the nature of the uncertainties and their causes. I think this would have avoided most of my management's panic. It's hard to be upset when you recognize someone is doing exactly what they said they would do, in a way you already agreed.

I hope this information helps understand uncertainty better and helps you avoid some problems of bias in decision-making.

References:
1: Waring B (2016) Practical Optimisation of Petroleum Production Systems.
2: Fox C, Ulkumen G (2011) Distinguishing two dimensions of uncertainty. In Perspectives on thinking, judging and decison making.

Burney practiced and studied Production System Optimization for 29 years, becoming one of Shell's top 120 Upstream engineering experts, and then an independent global optimization consultant. He has taught thousands of new and experienced engineers, and led a wide variety of global projects and asset reviews. Burney is the author of Practical Optimization of Petroleum Production Systems (available on Amazon). Now retired, he is fascinated with optimization and bias in decision-making, and dabbles in art, sailing, software development, and writing.
www.waringworld.com

London Decision Quality Group

SOCIETY OF DECISION PROFESSIONALS
Clarity & Insight for Decisive Action

EDPN
EUROPEAN DECISION PROFESSIONALS NETWORK

London Decision Quality Conference 2018

The London Decision Quality Group, European Decision Professionals Network and Society of Decision Professionals are convening a multi-industry conference in London this year, under the theme.

"Decision Quality: Making Good Outcomes More Likely"

Behavioural science suggests that human nature favours decisions that satisfy *(eg just meets threshold targets)* rather than those that optimise. Often, value gets left on the table and worse still, may get destroyed, particularly when risks & uncertainties are involved.

This conference provides you with access to the knowledge and experience of internationally recognized Decision Professionals, who can help you master practical approaches which deliver quality decisions, thus enabling you to optimise rather than just survive.

The conference is followed by a short course on

"Leading Decision Quality"

sponsored by the Society of Decision Professionals.

Location:	Geological Society London, Burlington House, Piccadilly, Mayfair, London, England, W1J 0BD
Dates:	**Conference:** 5th & 6th November 2018 **Short-course:** 7th November 2018
To Register:	http://www.edpn.org/wp/?page_id=571

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The 12th Women in Energy Seminar – Challenge Bias

David Mahoney

David Mahoney, WiE committe member and Executive Search professional, provides an overview of speeches, panel discussion, workshops and networking at the WiE seminar on 15 June, 2018.

Introduction

The 12th Women In Energy (WiE) was a well-attended event and the attendees, inclusive of the speakers, largely remained throughout the day. The day was split into three main segments, a set of speeches in the morning, a panel in the late morning, then workshops after lunch, with networking drinks at the end. Here is a brief account.

The event started with excellent welcoming speeches by the LSBU and the Co-Chair of the SPE Women in Energy group, Catriona McGill. This was followed by Beverley Smith, a Director at POWERful Women, who spoke about the current state of the industry from a gender balance perspective. It focussed on the still significant distance we must travel and how this progress has stalled in recent years.

Overview of panel discussion and audience

Dr Nic Hammarling then spoke about the ways in which businesses are engaging on the topic of unconscious bias giving some examples of bias she had witnessed. Nic also gave some good insights into how unconscious bias can impact decision making, but through its identification and naming can be stopped.

This was followed by the UK Chair of Shell, Sinead Lynch, who spoke a little about what Shell are doing, but concentrated much of her discussion on the bias she has witnessed, how her own thinking on this topic has developed and how she has dealt with bias she has witnessed practically.

A networking break was followed by a panel discussion, hosted by David Mahoney.
The panel included:

- Tessa Collinson (MD of SAFT)
- Tania Gandamihardja (HR Compliance and Quality Manager, Schlumberger)
- Leigh-Ann Russel (Head of Upstream Procurement and Supply, BP)
- Parminder Kohli (GM Business Development, Shell Retail Solutions)
- Lesley Maxwell (Head of HR, Sasol E&P)

We had a wide-ranging and lively debate across several themes. We talked about how far the industry has come since the 1990s and 1980s, and discussed which practices today would be looked at in the same way as we looked at those from those decades. We also discussed inclusion versus diversity and how many of the issues that impact negatively on women impact everyone. It was also pointed out how few men we had in the audience and how, for change to be affected quickly, this also should change. The discussion was opened to the floor, which yielded questions and opinions on how best to practically deal with bias in the workplace.

At the networking lunch, the panel and most of the speakers mingled with the attendees.

Following lunch, there were three workshops and two fireside chats.

Continued on page10

The 12th Women in Energy Seminar – Challenge Bias cont.

Workshops

- Understanding and Tackling Unconsious Bias, Pearn Kandola
- Performance through Inclusion, Shell
- Presentation Skills, KPMG

Fireside Chats

- Having an impact, BP
- Career transitions, Energise Consultancy

David Mahoney addresses panel discussion members. L-R: Tessa Colinson, Tania Gandamihardja, Leigh-Ann Russel, Parminder Kokli and Lesley Maxwell.

Isabel Asenjo (WiE Chair) thanks Gulrukh Khan for her speech.

I attended the workshop by Dr Nic Hammerling of Pearn Kandola, which first demonstrated how we all hold bias when considering any information. She also spoke about how companies act as networks and how people can disempower others through their use. The feedback we received on the others was very good, with particular mention to Leigh-Ann Russel who continued to impress many of those who attended her fireside chat.

Gulrukh Khan's final speech asked us to be adventurous and urged us to look at other industries other than our own when seeking to learn about diversity. She also urged women to embrace what comes our way as we can then learn to do new things, or approach old things with a different perspective.

Overall, it was a well-attended event in which the speakers, panel and audience were honest in the stories that they shared. Interestingly, gender pay reporting featured but was not as prominent a point of discussion as many of us on the organising committee had envisaged.

It is my view, however, that some of the honesty within the room may have been driven by the stark message driven by this data. It seemed the picture was clear that energy businesses, though they should be proud of how far they've come, should be doing more. The agreement across all the sessions was that we need to be engaging men in thedebate and that more momentum needs to be created around this issue.

It seems that although there has been progress and the direction of travel is good, perhaps the pace of change has reduced, and new momentum should be sought.

Applications for Coiled Tubing Drilling


C Miszewska-Hall

Clare Miszewska-Hall, Head of Global Sales & Marketing at Antech discusses reasons for using Coiled Tubing Drilling to improve recovery.

With over 70% of the world's oil and gas production being produced from mature fields, it's not surprising that operators are looking at ways in which they can increase a well or field's recovery beyond its natural decline curve. It's becoming more and more of a focus each year. There are many ways in which an operator can improve recovery such as artificial lift, drilling and completing infill wells, gas or chemical injection. For this article, we are going to focus on the applications for Coiled Tubing Drilling.

The primary reason to use Coiled Tubing Drilling is its ability to re-enter depleted wells quickly and cost-effectively but there are some parallel reasons that sometimes get overlooked.

Underbalanced drilling (UBD)

True underbalanced drilling or even managed pressure drilling is only possible with Coiled Tubing Drilling. Unlike conventional drilling, there is no need to make connections which disturbs the pressure equilibrium or underbalance conditions. Coiled Tubing offers a closed system to control the pressure downhole, creating the perfect conditions to achieve at balance or underbalance. Underbalanced drilling also allows the well to produce while drilling, making the payback period much shorter for an operator.

Thru-tubing

It may not be possible to pull the completion before re-entering the well. Coiled Tubing Drilling is capable of being run through tubing and exiting a completion with a whipstock or a cement plug. The former is generally costlier but often more reliable than a cement plug and therefore the costs may be recouped quickly in efficiency of operation.


AnTech field team and COLT BHA.

Lost circulation zones

Lost circulation is usually one of the main reasons for an operator wanting to perform managed pressure drilling (MPD) or underbalanced drilling and given that CTD is the only way in which you are able to truly create these types of downhole conditions, it is a great technology for this type of problem. Whether you use MPD or UBD will depend on what you expect the reservoir to produce while you are drilling. MPD may be more appropriate if the equipment is not able to cope with large volumes but the great thing with CTD is that you are able to make adjustments on the fly even if you aren't able to predict this ahead of time.

Unconventional gas shales

Tight shales do not produce naturally and the 'go-to' method of extraction is often fracturing. However, there have been many cases where the need to fracture these tight shales has been completely removed if underbalanced drilling is performed instead, reducing the cost per well substantially. By decreasing the pressure in the wellbore, it allows the gas to flow from the surrounding fractures more easily and avoids any skin damage that may be caused by drilling in overbalanced conditions where the pressure is forcing drilling fluids, fines, clays or cuttings into the rock matrix resulting in the oil and gas flow being impeded.

Accessing bypassed reserves and multi-laterals

It used to only be conceivable to produce from vertical wells, but in 2015, according to the EIA, in the US, 77% of wells producing more than 400bopd and 42% of wells producing between 15 and 400bopd were drilled horizontally. Directional Coiled Tubing Drilling not only allows you to drill horizontally, it also allows you to drill many laterals all accessing different zones of the reservoir that were previously bypassed when the well was drilled vertically or even horizontally.

Continued on page 12

Applications for Coiled Tubing Drilling... continued

High pressure zones

Because Coiled Tubing Drilling is an enclosed pressure system that can be controlled, if you were to drill through a highly pressurised zone, expectedly or unexpectedly, any change in downhole pressure conditions would be safely controlled by adjusting the choke at surface and circulating out. Additionally, with e-line running down the centre of the CT, any changes sensed by the CTD BHA will be immediately reported back to surface giving you warning of the changes. These are two of the advantages over conventional drilling, making the operation much safer for people on the rig floor.

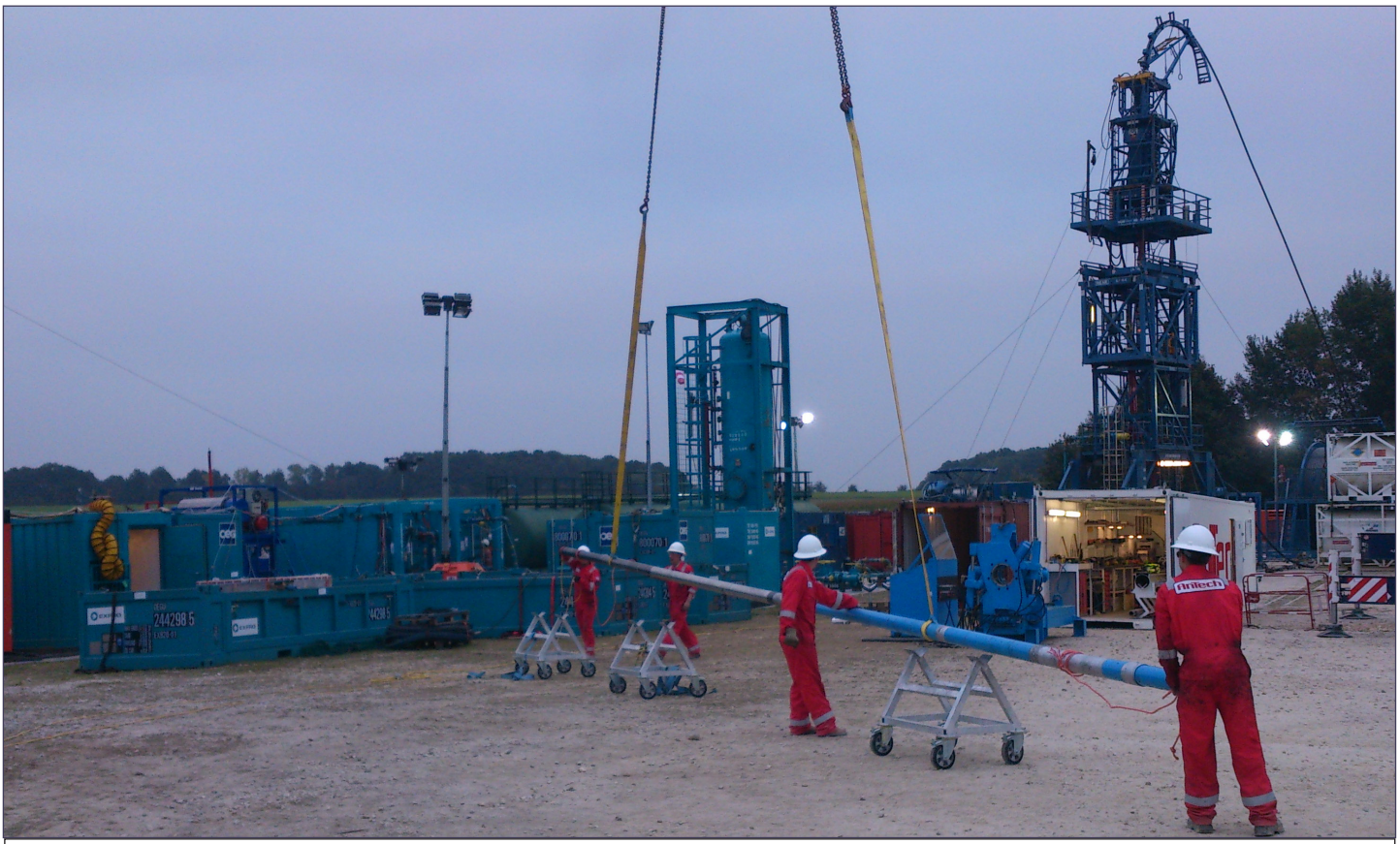
Gas storage wells

The economics of gas storage wells depends very much on the ability to absorb and produce gas at a high rate. Care must be taken to protect the well from drilling damage as this skin can dramatically affect flowrates. In situations where rates are declining, it might be appropriate to extend wells or add extra laterals. Underbalanced drilling with Coiled Tubing is ideal for this because it allows the well to be kept on-stream while drilling and avoids damage to the wellbore.

Coal bed methane extraction (CBM or CSG extraction)

CBM extraction is a method used for extracting methane gas from a coal deposit. The methane can be extracted by drilling wells into the coal seam. With Coiled Tubing Drilling, the bottom hole circulating pressure can be controlled from surface allowing you to decrease the pressure in the well bore and can avoid the risk of fracturing the coal seam at the same time. The objective is to decrease the water pressure by pumping water from the well and the decrease in pressure allows the methane to be unloaded from the coal and flow as a gas up the well to surface.

While CTD may not be suitable for every drilling situation, is it a very attractive application for the above scenarios.



Performing a Coiled Tubing Drilling job using AnTech's POLARIS BHA.

Clare Miszewska-Hall is the Head of Global Sales & Marketing and leads AnTech's business development activity, sales strategy, and the creative direction of the business. She has been instrumental in establishing AnTech's Coiled Tubing Drilling services, enabling oil companies to economically extract more value from their existing assets. Before joining AnTech, she worked in the FMCG sector in a variety of engineering and marketing roles. Clare's expertise has been key to strengthening the AnTech brand and the launch and expansion of CTD services in the ME and USA. Clare holds a First Class degree in Mechanical Engineering from Cardiff University.

Meet the SPE London Board

As of July 2018

SPE is a non-profit professional society with 164,000 members in 143 countries. The SPE London Section, with average 2000 members and seven associated student chapters, is an active section with an aim to connect, engage and promote exchange of knowledge within London energy community of technical and commercial professionals. The SPE London Board is the policy-making and governing body consisting of volunteers who devote their time to oversee many of SPE London's administrative and operating responsibilities.

Carolina Coll
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Richa

Miles Cudmore
Past Chair

Olga Bradulina
Secretary/Comms Co-chair

Cleone Butler
Treasurer

Maxim Kotenev
Comms Co-Chair

Tim Lines
Programme Chair

Adrian Southworth
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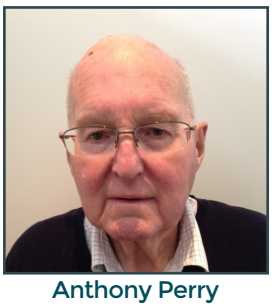


Anthony Perry
Director

Arnaud Mille
Long Term Planning

Alain Gringarten
Director

EVENTS: Upcoming global events 2018

27-29 August 2018 **(Bangkok, Thailand)**
IADC/SPE Asia Pacific Drilling Technology Conference and Exhibition
Reshaping for a Smart and Sustainable Future
Since 1996, the IADC/SPE Asia Pacific Drilling Technology Conference and Exhibition has established itself as the region's leading drilling event. Rotating biennially within Asia Pacific, it provides the opportunity for operators, suppliers, contractors, and service company professionals to meet, discuss, evaluate, and share ideas to advance drilling operations, promote solutions to common problems, and improve overall efficiency and profitability.
For more information, and to register: https://bit.ly/2MHcBFK

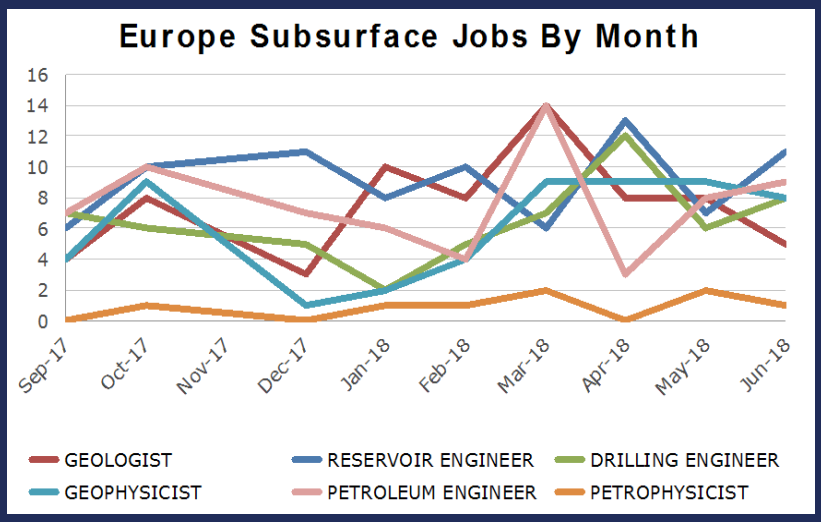
28-30 August 2018 **(The Woodlands, Texas)**
SPE Artificial Lift Conference and Exhibition - Americas
The SPE Artificial Lift Conference and Exhibition-Americas will bring together E&P innovators from major IOCs, NOCs, and independent operators to exchange ideas to advance technical knowledge in artificial lift applications for unconventional shale developments.
For more information, and to register: https://bit.ly/2llLsvK

4-6 September 2018 **(Aberdeen, Scotland)**
Engenious Symposium & Exhibition For Upstream Innovation
A new event, for your digital era...
We are ENGenious. Our goal is to drive radical transformation across the upstream oil and gas industry. Join us at the first ever global event focused specifically on what innovation means for the onshore and offshore upstream oil and gas industry. Help your company thrive with new technological advances aimed at keeping you ahead.
For more information, and to register: https://bit.ly/2AeWVDR

18-19 September 2018 **(London, England)**
SPE Workshop: Petroleum Reserves and Resources Estimation
Members of the SPE Oil and Gas Reserves Committee and industry experts will gather in an open forum to discuss the revised classification, definitions and guidelines included in the 2018 SPE/WPC/AAPG/SPEE/SEG/SPWLA/EAGE Petroleum Resource Management System, recently submitted for SPE board approval.
For more information, and to register: https://bit.ly/2lotmcB

23 October 2018 **(London, England)**
SPE London Conference
The program is designed for a mix of technical, commercial, and financial professionals and investors to address key topical issues that each stakeholder faces while making business, investment, and policy decisions.
For more information, and to register: https://bit.ly/2lFLdvP

PETROLEUM SUBSURFACE JOBS - EUROPE



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