

SPE review

magazine of the Aberdeen and London sections
of the Society of Petroleum Engineers

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Society of Petroleum Engineers
Aberdeen and London Sections

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DEVEX DOES IT AGAIN!



An upbeat audience at DEVEX 2013, Aberdeen - report on page 4

UNIQUE CONFERENCE UNITES WIDER OIL AND GAS COMMUNITY

Growing opportunities – and the accompanying challenges – in Africa and the UK were the hot topics at the second annual SPE London Conference and Exhibition.

Held on May 22-23 at the Institution of Engineering and Technology, in central London, **'Managing Oil and Gas Portfolios in Uncertain Markets'** united the global upstream oil and gas industry with the financial sector, attracting over 200 delegates.

Senior figures from oil and gas companies, including GDF Suez, Shell, BG Group, Afren, Cairn Energy and Statoil, spoke alongside financial institutions such as KPMG, Lloyds and Boston Consulting Group, while the Department of Energy and Climate Change (DECC) gave the government view.

SPE London Section Chair Renu Gupta said: "I am delighted to receive very positive feedback from our sponsors and delegates about the unique nature of our annual conference, which brought together the wider oil and gas and financial communities."

Full conference report and pictures - next month's issue.



New North Sea Regional Director

SPE London Section Board Secretary and Membership Officer, Carlos Chalbaud, has been appointed 2015 SPE North Sea Regional Director - see 'Get to Know', page 2.

SPE review

The Society of Petroleum Engineers (SPE), a not-for-profit professional association of 104,000+ members from more than 123 countries worldwide, is a key resource for technical knowledge related to the oil and gas exploration, drilling and production industry.

The SPE provides services through its global events, publications and website at www.spe.org.

SPE Review is published 10 times per year by the Aberdeen and London sections of the Society of Petroleum Engineers. It is sent to over 5,000 UK SPE members, and quarterly to an additional 7,000+ European members.

If you have read this issue and would like to join the SPE and receive your own copy of **SPE Review**, 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.

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CONTACTS

Communications Management Committee: Mohammad Khan, Abhimanyoo Kohok, Gbenga Oluyemi, Wonuola Scott

For queries about editorial contributions to **SPE Review** or to book advertising space, please contact:

Editorial: Judy Mackie, M&M Media, +44 (0)1224 318088,

spe.editor@mmm-media.co.uk

Advertising: Allan Montgomery, M&M Media, +44 (0)1224 318088, spe.advertising@mmm-media.co.uk

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If you need to change any of your membership details, please visit the **Update your profile** link at the foot of the homepage at www.spe.org.

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SPE PEOPLE



Get to know...

This month we meet SPE London Board Secretary and Membership Officer, **Dr Carlos Chalbaud**, who has just been appointed as 2015 SPE North Sea Regional Director.

When and why did you join the oil and gas industry and what's been your career path to date?

I joined in 2002 with an engineering internship in the enhanced oil recovery department of Intevep, the research institute of PDVSA. As my first contact with the E&P industry, it really opened my eyes to opportunities in the industry, mainly thanks to the excellent people I had the chance to work with. I then decided to continue my studies with an MSc in Petroleum Engineering, followed by a PhD in Reservoir Engineering, both at IFP-School. I was hired by GDF Suez E&P in Paris, where I worked from 2007 as a Reservoir Engineer providing technical support to the New Ventures team and later assisting the Reserves Manager. I was transferred to our UK affiliate in 2011.

What does your current role involve?

I am Reservoir Engineer for the GDF Suez SNS Juliet (operated) asset and also for the CNS non-operated HPHT Jackdaw asset, working in a wide variety of areas such as production forecasting, development planning, well location, reservoir simulation and well test analysis.

Have you had any mentors during your career?

I have had different technical mentors at different stages of my career, who have been helpful in guiding me through the many options that this industry offers and also showed me the importance of being rigorous. I have also had mentors who don't work in the industry and they have been particularly helpful. I am very grateful to all of them.

When and why did you join SPE? Has it lived up to your expectations?

I joined as a member of the IFP-School Student Chapter. I started volunteering when I joined GDF Suez, essentially because I needed to get the big picture of the industry and wanted to work with people from all around the world, and SPE offers that. The experience has gone far beyond my expectations. I have learned a lot in technical and non-technical areas and worked with exceptional people, both SPE staff and members.

What does being SPE London Board Secretary and Membership Officer involve?

As Board Secretary I assist the Section Chair in the organisation of the Board meetings and minutes, and in any other area related to the functioning of the Section in which the Chair requires my assistance. As Membership Officer I have focused my efforts in helping members to become volunteers for any of our activities. I also welcome new and transferred members and encourage them to attend our events.

How do you feel about being appointed SPE North Sea Regional Director?

First of all, honoured by being selected by the Nominations Committee and by the support people I highly respect gave to my nomination. I also feel a strong sense of responsibility and willingness to dedicate my time and energy to the Region.

What do you think are the strengths and challenges for the North Sea Region?

The Region is very dynamic and is always adapting itself to a fast-changing world. It has a large young membership and hosts a wide variety of nationalities and cultural backgrounds. All these factors make the North Sea Region a very open place to new people and new ideas. I think that the communication and collaboration between Sections can be improved. Leon (Beugelsdijk) made efforts in this area, but I think there is still room for improvement. There are excellent initiatives in some sections that take a long time to be implemented by other sections.

Any thoughts yet on what will be your priorities when you take up the position?

As well as focusing on improved communication and collaboration between sections, I will provide as much support as possible to young professionals and students both in the Region and worldwide.

I will try to visit as many sections as possible during my first year in this position in order to improve my understanding of what the Region needs and how I can support them. I will work on the implementation of initiatives that have become very popular in other Regions but haven't really found their place here.

How do you choose to switch off from work?

Road cycling and playing with my kids. A good movie or book are also excellent ways to switch off from work.

Which three words do you think best describe you?

Perseverant, pragmatic and observant.

Any life-changing moments you'd like to share?

I have lived in three different countries and each move and settling into a new country has been a life-changing moment. Also, the first meetings with people who are now very good friends have been in many cases life-changing moments.

Who (from history or the world today) inspires you most and why?

John Paul II, because of his honesty, leadership and courage.

What would you like to be doing in 10 years' time?

Honestly, I always struggle with this question. Things go very fast and too much planning can prevent people from realising the many different options they have. I am not saying that I don't make plans but you also need to be open and flexible to benefit from the opportunities that will eventually arise.

Premier European well abandonment forum highlights UK and Norway developments

SPE Aberdeen's 4th European Well Abandonment Seminar (18 April, Aberdeen Exhibition and Conference Centre) attracted a record-breaking 220 delegates this year, as oil and gas professionals gathered to discuss issues surrounding the abandonment and suspension of wells and to learn about the updated regulations affecting UK and Norwegian operations.

The scene was set by keynote speakers Paul Dymond, of Oil & Gas UK, and Andrew Carr, of the Department of Energy and Climate Change (DECC), and a number of international operators and service providers, including Shell UK, Talisman, Apache, Chevron, Perenco, Wintershall, Conoco Phillips, BP, Island Offshore Subsea and Baker Hughes, presented developments in plugging and abandonment and new technologies, as well as discussing case studies and lessons learned.

A particular highlight was a presentation from the Oil & Gas UK Well Suspension and Abandonment workgroup on the 2012 changes to regulations affecting well abandonment. The presentation also discussed new guidelines introduced last year for the qualification of materials and for cost estimation.

The Seminar, which was kindly sponsored by Schlumberger, was accompanied by a well-attended exhibition of the latest technology and services supporting the fast-growing well abandonment sector.

Following the event, Seminar Chair Graeme Rae, of Chevron Upstream Europe, said: *"This is the 4th Well Abandonment Seminar I have been involved in and it was the best. The quality of presentations, mix of attendees and open dialogue were great. The safe and effective abandonment and suspension of wells in the UKCS and Norway requires close collaboration between operators, service providers, contractors, UK Oil & Gas, and regulatory agencies (DECC, HSE), and this seminar has provided a platform for that dialogue to take place. The feedback shows that it was an event of value, and the next one is planned for April 2015."*

Graeme concluded: *"I would like to extend my deep appreciation to the organising committee, especially Jules Schoenmakers (Shell), Tom Leeson (Halliburton) and Ian Calder (GE), who led the sessions, and to SPE Continuing Education (CE) for their support, especially CE Chair Michael Heaney and Jane Rodger, of Rodger and Co, who did all the organising."*



Those who attended said...



"I came to see progress within the companies presenting here with regards to well integrity and changes to legislation and standards. It's been very good to see companies open up about what they've been doing to meet the challenges post-Macondo. New concepts presented regarding the establishment of permanent barriers for abandonment were enlightening." **Sue Redshaw, NRG Well Examination Ltd**



"It's the third time I've attended this event. I'm responsible for a project that concerns light well intervention and plugging and abandonment, and so I came here to learn, get experience and network. I've particularly enjoyed finding out about the UK's sector's whole experience with P&A. People are very open about the challenges they are facing - and some also share the solutions they've found!" **Silje Sletteboe, Statoil**



"We're exhibiting here and I also gave a presentation, a case history on planning for abandonment by constructing the well using some unique stage cementing technology. It's been a really positive event for us. Operator involvement this year has been in excess of 30%, which is excellent." **Ian Bayfield, Tam International**

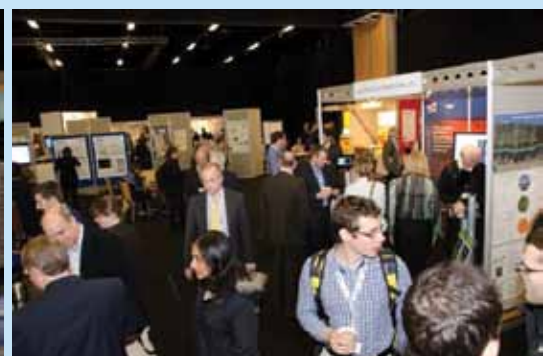


"We have a retirement problem in our industry, we have strong growth in well abandonment, and we have inexperienced people coming on board. One of the key points today was how the new guidelines are essential for giving new people a fast ramp-up on the learning curve for understanding what they need to do for well abandonment. The event is also about networking and helping people to make contacts and develop an information circle so that they can build on their knowledge base. This Seminar has grown and evolved year-on-year and we're now looking at whether we need to also hold workshops which are more interactive, to help people go through procedures and understand case histories and learn from them." **Ian Calder, CBMC Ltd and event Session Chair**



10th Annual DEVEX Conference generates best-ever buzz and bustle!

DEVEX 2013



Around 480 scientists and oil and gas experts from across the UK and Europe gathered at Aberdeen Exhibition and Conference Centre last month for DEVEX 2013 European Production and Development Conference.

Now in its 10th year and renowned as a key knowledge-sharing event, DEVEX 2013 attracted a mix of geologists, geophysicists, petrophysicists, reservoir engineers, petroleum engineers, production technologists, well engineers and drilling engineers from Scotland, Europe and beyond. The conference theme, **'Maximising Our Diverse Resources'**, enabled leaders to pass on their experience and knowledge of innovation and entrepreneurialism, while a busy exhibition encouraged delegates to find out more about the range of leading-edge products and services available in the marketplace.

Rebecca Nye, DEVEX 2013 Chair, says: "There was a refreshing bustle about DEVEX 2013 and the event is continuing to grow. I believe this is representative of a thriving UK oil and gas market. This year there was a particular buzz about encouraging new talent into the industry, especially in the North Sea."

This is a reassuring theme for all those already well-established in the UK. DEVEX also welcomed the topic of unconventional resources, which seemed to spark an interest among those professionals usually tied to conventional reservoirs in the North Sea. Overall, it was another successful year for DEVEX and I wish all the best to next year's Chair, Peter Brand."

The major annual two-day event is run jointly by SPE Aberdeen, the Petroleum Exploration Society of Great Britain (PESGB) and the Aberdeen Formation Evaluation Society (AFES).

During DEVEX 2013, the Young Professionals from each organisation joined forces to hold a highly-successful interactive panel discussion, **'Is Your Future in Energy?'**. Look out for their report in next month's issue.

SPE Aberdeen announces Student Bursary Award Winners

SPE Aberdeen is delighted to announce that the winners of this year's Student Bursary Awards are:

£2,500 awards

Kahyin Ng	BEng Pet Eng	Aberdeen
Tom Brawley	BEng Chem Eng	Strathclyde
Mircea Calarasu	BEng Mech Eng	RGU

£500 awards

Adam Cawood	BSc Geology	Aberdeen	Francis Agyekum	MSc Energy Econ	Dundee
Glen McNiven	MEng Mech Eng	Aberdeen	Molly Bedrock	MSc Pet Eng	Aberdeen
Santino Piccoli	MSc Pet Geoscience	Heriot-Watt	Daniyar Doskaliyev	MSc Pet Eng	Aberdeen
Sayed Shariatipour	PhD Pet Eng	Heriot-Watt	Eugene Lanquaye-Mills	MSc Pet Eng	RGU
Harry Renshaw	MSc Pet Eng	Heriot-Watt	Jalal Fahimpour	PhD Hydr Recovery	Heriot-Watt
John Mills	PhD Pet Eng	Heriot-Watt	Hazel Wright	MSc Pet Eng	Heriot-Watt
Klinchev Dmitriy	BEng Pet Eng	Aberdeen	Gillian Bates	MSc Pet Eng	Heriot-Watt
Shubham Shashwat	MSc Pet Eng	RGU			

The annual awards apply to current universities affiliated to SPE Aberdeen, ie Aberdeen, Dundee, Heriot-Watt and The Robert Gordon University, and are presented to students with studies relevant to and plans to work in the oil and gas industry, and who demonstrate academic merit and involvement with the SPE.

On naming the winners, SPE Aberdeen Section Chair Anthony Onukwu said: "Congratulations to all our winners. Our judges feel that a strong disciplinary mix of recipients has been achieved across all possible qualification levels and that this is a great reflection on the strength of graduate output that SPE Aberdeen seeks to champion. We hope to retain all this talent within the SPE family, wherever our recipients take their careers, and we wish them all the best for the future."

Industry experts engage in frank discussion on high-risk locations

By Alejandro Primera, SPE London Continuing Education Chair and Seminar Moderator

Crime, terrorism, war, piracy, political uncertainty and corruption are nowadays factors that companies have to balance in their investment and operating decisions around the globe.

Global majors and local small independents alike are facing the risk of kidnapping at their facilities, sabotage and other interruptions to their daily operation, and the side-effects of post-war instability. With vast remaining energy resources and substantial profits, the option is not to 'walk away', but instead to mitigate and control the inherent risks, as well as manage the impact on reputation and losses that disruptive events could cause.

Our Regional Focus Seminar, **'Industry considerations in high risk areas'**, aimed to understand these challenges and to introduce the experts who enable investment and operations in such areas.

William Libby, Control Risks Key Accounts Director, set the scene with definitions and examples of political, security, integrity and reputation risk. The different levels of insurance companies and assets can obtain was explained by Ruppert Cutler, NMB Insurance. Carlos Edward, Director and General Manager of Salama Fikira, travelled directly from Kenya to reveal the complexity of starting/sustaining operations in remote and conflicted areas. *"Anyone will tell you at the airport that they know the right people to introduce you to at all political levels, right up to Energy Ministers,"* Carlos said.

During the afternoon session, the discussion focused on communication and negotiation as the key to success in these high-risk areas. Eric Oudenot presented several international experiences from Boston Consulting Group, where a stakeholder management system promotes a clear understanding of external actors and their objectives. *"Alignment during planning is critical to successful execution of projects in these areas,"* commented Eric. Simon Haselock, Albany Associates co-founder and Director, continued the afternoon session with a presentation on how the so-called 'soft power', mainly communication, strategies could help to influence and control conflict situations, with interesting case studies on how Albany Associates engaged to resolve conflict situations.

The event rounded off with an informative interactive panel session involving Communications expert Ella Minty, Jem Thomas, of Albany Associates, William Libby and Carlos Edwards.

Our speakers and panellists were very open during the Seminar, providing personal insights in a closed-door environment that were of great benefit to the audience. The overall conclusion was that the experience and reputation of the security, negotiation and insurance providers, together with on-the-ground knowledge, are key to managing/mitigating risk and avoiding reputation damage in challenging areas.



Panel Session (l-r): William Libby, Jem Thomas, Carlos Edwards and Ella Minty



SO WHAT WAS DIFFERENT?

By Jacqui Spalding, Dancy Dynamics Ltd

This year's Annual SPE Women In Energy Seminar, **'Celebrate the Differences'** (London South Bank University, 9 May), played host to well-known speakers from the oil and gas industry, as well as to inspirational workshop leaders from a diverse range of backgrounds.

The conference was organised by Maya Hussain, of Serica Energy, and Tracey Dancy and Andrea Harrison, of Dancy Dynamics. Maya introduced the three keynote speakers: Iman Hill, General Manager of Sasol; Oonagh Werngren MBE, Operations Director of Oil and Gas UK, and Sarah Cook, Project Director of Fluor, who each spoke on the conference theme and gave their perspective on the qualities they believe women bring to the workplace, as well as describing their own routes to the top.

The talks were informative, entertaining and complementary, providing a provocative foundation for the panel session, chaired by Tracey. The panel members were: Hamish Wilson, Technical Director of SLR; Jane Christopherson, of The Curzon Partnership; Jim Ayton, Technical Services Director of OPC Ltd, and Deirdre O'Donnell, Managing Director of Working Smart. The decision to include men on the panel made for opportunities to compare male and female points of view on the strengths that women bring. The discussion proved lively and engaging, particularly around the issues of whether there should be quotas for women in management, and dealing with the pressures of balancing family life and work.

It was clear from the keynote speakers and the panel members that both men and women appreciated working in a mixed-gender

environment and that women generally picked up better on the moods of others and were better able to deal with their teams in a holistic manner.

After lunch there were five workshops on offer: **'WILD women in leadership development – why purr when you can ROAR'** (Tiffany Macedo-Dine); **'Goal mapping – work out what really matters to you and how to get there'** (Stephanie Saphin); **'Career planning and development'** (Anita Edmonds); **'Communication and assertiveness – how to be heard'** (Helen Toogood), and **'On the move – working and living in a globalised world'** (Claire Snowdon). Participants were able to choose two of the five to attend and feedback from these was very positive.

The day finished with a drinks reception and a chance to network, sponsored by Geologix. The buzz in the room showed how rewarding the delegates had found the event.

SPE London would like to thank OPC, Geologix, Sasol, Dancy Dynamics, Baker Hughes, Upstream and LSBU for their kind sponsorship of this event.



COMMITTEES ARE US!

Expanding our knowledge across the industry

SPE Section Committees provide a valuable contribution to the oil and gas industry in a variety of ways, from mentoring school and university students to providing stimulating opportunities for networking and continuing professional development. This series showcases the inspirational activities of some of the SPE Aberdeen and London Committees, whose ongoing success relies on the skills, experience and enthusiasm of dedicated Section volunteers. This month we focus on the Continuing Education Committees.

Whether it's well intervention and abandonment, or managing conflict in challenging locations; artificial lift innovations, or addressing the gender balance; sand management, or career development skills...if it's a subject of sufficient interest to our members, you can be sure our SPE Aberdeen and London Continuing Education (CE) Committees will come up with a tailored event that provides a platform for knowledge-sharing and professional development within that arena.

The primary aim of SPE CE is to deliver highly relevant information to keep the membership abreast of advances across the oil and gas industry. See pages 3, 4 and 5 for a flavour of some of the most recent events organised by our Aberdeen and London Sections.

ABERDEEN

"CE is the engine of our Section," says SPE Aberdeen CE Chair Michael Heaney, of Benchwhistler Associates. "It's more than just an outreach to our members - it is also a means of delivering funds to ensure the continuing success and growth of the Section and funding its activities such as awarding student bursaries and supporting the expansion of STEM (science, technology, engineering and mathematics) activities, which are the feedstock of our industry. If we identify a new trend, or innovations in technology, we often hold events to explore them and in this way, and by fine-tuning our established events, we develop and evolve to stay current."



DEVEX



SPE ICoTA

In Aberdeen, each CE event is organised by a technical committee of volunteers, supported by Rodger and Co, who have provided SPE Aberdeen with professional event management, administrative and logistical support for more than 15 years. Principal Jane Rodger explains: *"Our aim is to make it happen. We realise SPE members are busy people and we're here to do the legwork for them. We fully support SPE - it's a very worthwhile professional association with admirable aims and objectives. I believe the CE events are successful because they are non-commercial and run by volunteers with a genuine interest in their subject and genuine desire to share knowledge. They are very generous with their time and they usually have great expertise - they're practising professionals at the sharp end."* Regular major conferences organised annually or biennially by SPE Aberdeen - often in association with other industry bodies - include the SPE ICoTA European Well Intervention Conference; EuALF - European Artificial Lift Forum; SPE SMN Sand Management Forum, and DEVEX. There are also interim one-day Summit Series seminars, which provide a rapid response to industry issues as they arise.

LONDON

With the long-standing support of professional event management organiser Kate McMillan, SPE London's CE Committee successfully delivers a series of focused, mainly one-day, seminars tailored to the needs of its wide-ranging membership, which includes significant representation from the oil and gas business community. Events such as the Regional Focus series of seminars and the annual Women in Energy Seminar have grown and developed year on year, addressing a range of topical business, technical and career development issues and providing valuable networking opportunities for younger and more experienced members alike.

Supported by Maya Hussein, of Serica Energy, CE Chair and former YP Committee Chair Alejandro Primera (ENI UK), has had a strong foundation to build on. He says: *"CE in London has delivered four seminars this session, starting with our 'Introduction to E&P' (to increase the awareness of non-technical staff regarding operations and daily activities of engineers and geoscientists in the industry), where we achieved a record-breaking audience and are now planning to move the event to a larger venue. Our Technical Seminar focused on the life extension of North Sea assets, covering existing and new technologies that are making possible the addition of new reserves. We also covered a non-technical event, featuring international guest speakers*

presenting on the difficult aspects of investment and operations in areas post conflict. To end the session, we continued the strong legacy of the Women in Energy Seminar for the seventh year in a row, attracting a remarkable attendance of more than 150 delegates.



London Technical Seminar



Women in Energy

Alejandro concludes: *"Volunteering is key to sustaining, incrementing and improving our events. We want to make sure that we deliver value to our members with regard to both technical and non-technical subjects and we are constantly seeking for new ideas to produce memorable seminars. Your help is needed!"*

For the latest CE events information, please visit www.spe-uk.org and <http://london.spe.org>.



"Volunteering with SPE is a classic case of 'the more you put in, the more you get out.' SPE has always given me access to personnel at a senior level in the industry, and there's a tremendous amount of value in that, particularly for a young professional. You also get to hear about what it's like to work for other companies, what the career and training prospects are, perspectives on working in other countries - really practical things like that. At the same time, you are giving something back: I feel privileged working in this industry and I want to help to raise its profile in a positive way. Volunteering on the CE and other SPE committees enables me to do that." **Dave Cox, Services Marketing Leader, Subsea Systems, GE Oil and Gas**

Dates for the diary



SPE Aberdeen & ICoTA *****
19th SPE ICoTA European Well Intervention Conference
 13th & 14th November 2013 Aberdeen, Scotland

Aberdeen Exhibition & Conference Centre


CALL FOR ABSTRACTS - deadline 12 July: abstracts of up to 200 words plus the speaker's biography should be submitted online at www.rodgerandco.com

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SPE Summit Series Seminar:
New frontiers in flow monitoring and control in wells

October 2013, Aberdeen
(date will be confirmed online at www.spe-uk.org)

There is international interest in this new one-day Summit Series Seminar, which will include presentations and time for open forum discussion on topics such as advances in sensing, distributed sensing and multiphase flow metering, virtual metering and advances in flow control.



6th SPE SMN Sand Management Forum 26-27 March 2014

A committee of SPE and Sand Management Network members is planning this joint biennial event. If you would like to submit an abstract for presentation or register your interest in exhibiting, please contact: spe@rodgerandco.com

EuALF 2014 11-12 June 2014

The biennial SPE Aberdeen European Artificial Lift Forum has evolved in line with the increasingly important role artificial lift is playing in the mature North Sea. Planning is kicking off now. If you would like to be involved on the steering committee, please contact: jane.rodger@rodgerandco.com

Are you interested in drilling rig automation and new builds/upgrades?

The Continuing Education Committee is considering a new event in 2014. If you would like to be involved or to find out more, please contact: jane.rodger@rodgerandco.com



Call for Volunteers

CONTINUING EDUCATION COMMITTEES




WHY: Our CE Committees actively seek to increase the SPE community's technical and non-technical knowledge through relevant and engaging events.

WHAT: Meet subject matter experts, develop new skills, put your experience on the table to help organise successful SPE seminars and conferences.

HOW: Simply email us at:

alejandro.primera@eniuk.co.uk (London Section)
 and spe@rodgerandco.com (Aberdeen Section)



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August 26 – 28
 Introduction to Petroleum Engineering (IC01)

August 26 – 29
 Management of Upstream Facilities Projects (PBM12)

August 26 – 30
 Advanced Reservoir Simulation Technologies (RE06)
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Aberdeen

PC 'goes with the flow' to deliver enhanced FEED support



A resounding **"FACT"** was the conclusion to Colin Smith's presentation **'Integration of flow assurance & production chemistry benefits all: fact or fiction?'** to SPE Aberdeen members at the Douglas Hotel, on 24 April.

In his enlightening talk, Colin, a Senior Production Chemist with Maxoil Solutions Ltd, explored

the relationship between production chemistry and flow assurance engineering, demonstrating how close collaboration between the two disciplines can benefit development projects between the stages of Concept Select and Define (FEED). In doing so, he drew on his 25+ years of industry experience, which began in the scale, wax, hydrates and asphaltene laboratories of the BP Research Centre, Sunbury, followed by on-site and desktop technical troubleshooting at various oilfield consultancies.

Colin began by defining the scope of each discipline. **Flow assurance** broadly covers ensuring the successful and economical flow of hydrocarbon streams from reservoir to the point of sale, and the multiphase hydrocarbon fluid transportability and simulation/modelling of topics such as: thermo-hydraulic analyses; operability characteristics; PVT & rheology; slugging/flow regime; fouling/blockages/restrictions to flow, mechanical integrity, system performance (reliability/availability), and mitigation, eg hydrate inhibitors.

Production chemistry is the management of the chemical properties of fluids that can impact production, product value, asset integrity or environmental/HSE compliance. This includes: understanding production fluids interactions; risk-assessing production problems related to fouling, physical properties of fluids, plant integrity and environment/economic

FA / PC Issues



factors; influencing production system designs and operation, and preventing production problems relating to facilities design, operational practices and deployment of treatment chemicals.

The two fields of expertise share a broad cross-discipline network and their integration has been described by Chevron Senior Flow Assurance Advisor Jeff Creek in the following way: *"Flow assurance has come to mean the coupling of multiphase flow and production chemistry to manage the interface between the reservoir and topsides processing... before, a flow assurance evaluation would have discussed hydrates, wax, scale, asphaltenes and corrosion; now it includes network modelling and transient multiphase simulation to determine the operability of the designed facility."* (Offshore, June 2005).

Colin then demonstrated a number of real-life project examples of how such integration can be used to successfully tackle various flow assurance challenges using fit-for-purpose system design, early preparation of correct operational practices and suitably designed chemical management systems.

He summarised the benefits of using an integrated production chemistry/flow assurance approach as:

- Stronger influence 'together' on design team decisions
- Robust joint risk assessments making fit-for-purpose systems that are easier to operate
- Minimising unexpected problems such as flow line blockages
- Minimising risk of umbilical blockages
- Robust start-up/shutdown designs, procedures and strategies covering issues that can be brainstormed by the team
- Integrated/holistic solutions that are cost-effective
- A production chemistry link to existing operations is a useful interface.

On the other hand, Colin said that in his experience, lack of such integration can contribute - and has led - to: subsea lines being blocked by hydrate plugs or having wax deposit restrictions; production wells with asphaltene deposit restrictions; wells and flow lines with scale deposit restrictions; composite deposit restrictions subsea; loss of system integrity due to corrosion; wells that are difficult to produce/lift; chemical, design or operational solutions that solve one problem but create another; avoidable lost oil/production losses... in other words "nasty, unwanted surprises".

You can download Colin's presentation from the Aberdeen Past Events page at: www.spe-uk.org

SPE Aberdeen's monthly meetings programme is kindly sponsored by Archer and Shell.

London

Deep dive into Decision and Risk Analysis

Adam Mitchell, Principal, StrategicFit, shares his perspective on the pre-dinner presentation at SPE London's evening meeting, at the Geological Society, on 30 April.

Chevron's Mike Benefiel presented the use of 'Decision Quality' (DQ) and led a lively discussion. Mike explained Chevron's approach to Decision and Risk Analysis and how they have established a deeply ingrained culture of quality decision making across the company.

The E&P business is decision-intensive, characterised by frequent, high-stakes bets. Chevron made a first move in the early 1990s to consistently apply DQ to big projects. Mike described how, two decades on, DQ is deeply embedded in the approach, language and team interactions at all levels of decision making at Chevron. For the first 10 years adoption was voluntary while application grew.* On becoming Chairman and CEO in 2000, David O'Reilly made DQ mandatory for all capital expenditure over \$50m.

Mike described the framework and approach that has become the core to DQ in Chevron. He set out the six elements they use to guide projects to quality decisions: 1) appropriate frame, 2) creative, doable alternatives, 3) meaningful, reliable information, 4) clear values and trade-offs, 5) logically correct reasoning, 6) commitment to action. As projects progress to major decision gates, each element is checked for quality and completeness. The quality of the decision is set by 'the weakest link' - all six elements are critical to get right. The discussion explored the power of this framework.

"To what sort of decisions does this framework apply?" At the smallest scale it is effective for kicking off project meetings to agree where effort will add value to the decision. Decision makers are trained to assess the quality of each DQ element. This sets major projects up for frank dialogue between project teams and decision makers.

"Is there a risk of process and analysis taking over?" DQ is embedded in Chevron culture. This context enables teams to judge what level of rigour to apply and the option of support and facilitation from in-house experts. It's key to find the appropriate balance between addressing organisation complexity and analytic complexity.

"What does this mean in practice?" Mike's example was testing DQ by getting teams to agree a concise statement of what it would take to change your mind to ensure alternatives are discussed and understood. He highlighted the importance of avoiding a rigid process, the risk of over-emphasis on analysis, or being driven by analytic tools. The elements of DQ are used to structure and focus conversations, rather than quantify and track decision quality. Chevron finds it more useful to track whether "we did what we agreed to do" and whether outcomes are within the forecast uncertainty ranges.

"As a decision professional in Chevron, when do you get involved in projects?" On smaller projects it can be effective to have a DQ expert facilitate a decision review meeting. This helps resolve misunderstanding or misalignment between decision makers and align on priorities and next steps. Participating in up-front framing, and facilitating and driving the process forward to the final investment decision greatly increases the effectiveness of the process and quality of the decision.

"How do you deal with situations where multiple large projects are interconnected and have many stakeholders?" This isn't uncommon in E&P where JVs are the norm. Big decisions are particularly challenging where an area has many operators and large exploration uncertainties are unresolved. Mike said there wasn't a simple answer, but the DQ framework helps keep interaction structured and focused. These situations gain particular value from involving DQ expertise. A consistent structure and language builds confidence with partners and encourages open and efficient dialogue.

The discussion highlighted that quality decision making is at the heart of any successful business and that DQ requires application of both analytical and behavioural approaches.

StrategicFit (www.StrategicFit.com) were pleased to be sponsors of the event. Scan the QR to watch our animation on strategic decision making.

*"Chevron Overcomes the Biggest Bias of All," by Carl S Spetzler of SDG, 2011. The paper outlines the history of the adoption of DA and DQ in Chevron.



Innovation in heavy oil sands core analysis



In his after-dinner talk, **'Heavy oil: identification and exploitation'**, Jean-Valery (JV) Garcia, of Guildford-based Kirk Petrophysics - a Reservoir Group member - focused on the efficiency challenges and innovations associated with heavy oil sands core analysis.

After highlighting the strong significance of oil sands within the overall global energy mix, JV talked the audience through the three laboratory-based core analysis techniques available to determine the saturation of oil within recovered core samples. These are: Dean Stark (DS) - the single-sample solvent distillation method most commonly used by the Canadian oil sand industry; Low field Nuclear Magnetic Resonance (LNMR), and an alternative solid phase multi-sample solvent extraction method, CEPSSat™, which is now being developed as a rapid and economical oil recovery tool.

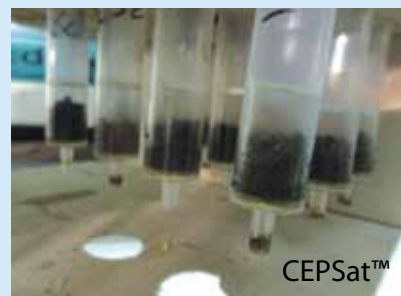
JV discussed the pros and cons of each method. Dean Stark delivers accurate results, but these take time (between six and 24 hours for each extraction). Another issue is the sheer scale of the equipment required: a single DS occupies a fume hood space of approximately 20x20cm and most oil sands laboratories in Canada have at least 100 of these performing around 200 DS per day in two 12-hour work shifts. While LNMR is said to be fast, non-destructive and inexpensive, it cannot be used as a standalone device, requires particle size analysis and corrections by technical personnel, and does not recover the oil, as DS or CEPSSat™ do. CEPSSat™ has attractive time and cost-efficiency benefits, but does require: greater sample handling care due to the small amount of sample used; optimal operating conditions, with room temperature control; good quality solvent, and regular



Oil Sands

control, especially if the technique is used in a remote area with potential contamination or impure solvent.

JV explained that Kirk Petrophysics first encountered the new technique in Madagascar, where they were asked to carry out comparison



CEPSSat™

testing against the DS technique for a TOTAL E&P onshore heavy oil project. During the campaign, more than 15,000 CEPSSat™ tests were carried out against 800 DS measurements on 16km of core, demonstrating that the new tool could not only achieve the same results as DS, but could do so 10 times faster, using a significantly smaller laboratory footprint. Kirk's study also concluded that CEPSSat™ was capable of quantifying and isolating petroleum products from any core sample.

Following the Madagascar campaign, Kirk embarked on a further study to find a correlation between the new technique and other grades of oil sands found elsewhere in the world. The study focused on samples of high, medium and low grade oil sands from different North American locations. It concluded that the technique could efficiently extract all the bitumen out of the core to the same degree as DS. Using DCM solvents, a unique correlation could be established for medium and high grade ore, while, for low grade ore, the solvent was not good enough to overcome the clay and organic content. The CEPSSat™ has shown great potential with studies having concluded that the extraction process is effective. Further study will be carried out to investigate the effect of different solvent on the rate of extraction.

JV told the audience: *"The CEPSSat™ method for oil extraction is a powerful tool for the oil exploration industry. Its main goal is its capability to run multiple analyses in a relatively short time - we have demonstrated that a lab equipped with two units can run up to 400 samples per day. This efficiency allows stricter control on the exploration operations."*

Kirk Petrophysics will present their study findings at the Symposium of Core Analysis, Napa Valley, in September this year.

You can download a copy of JV Garcia's presentation from the Resources/Downloads section at: <http://london.spe.org>

A memorable visit to Wytch Farm oil field and the Jurassic Coast

A report on the Annual SPE YP London Field Trip, by Adam Abubakar, Graduate Process Engineer, Aston University, Birmingham

SPE YP London's one-day field trip to Dorset, in May, was led and coordinated by Dr Maxim Kotenev (Geoscientist, Robertson CCG), who was accompanied by a mix of geophysicists, reservoir engineers and students. Although weather reports predicted a deluge of rain, we experienced a dry, but blustery day. During the trip we visited Perenco's famous Wytch Farm Field, Steve Etches' legendary fossil collection, and we also got to see first-hand the source rocks of the North Sea hydrocarbon deposits.

Our day began with a site visit to Wytch Farm, around 17 miles from Poole, which holds the prestigious title of Europe's largest onshore oil field. Perenco took over ownership of the field from BP in 2011. Wytch Farm consists of three reservoirs - Sherwood, Frome and Birdport, with Sherwood by far the largest. Currently, the field has a production rate of 19,000 barrels per day, with a water cut of

discovery well and although we also looked out for the famous deer that inhabit the surrounding area, we didn't catch a single glimpse of our four-legged friends!

Wytch Farm is famous for its stringent environmental design, which balances operational needs with strict conservation measures. Examples include: the depropanizer, which is split into two different vertical sections to reduce its height, since no equipment is allowed to be visible above the tree line of the surrounding area; camouflaging paint that blends the facility with the surrounding forest, and extensive screen fencing. The field has set many precedents in the global oil and gas industry, including being the first site for bi-directional drilling and setting a new world record, when well M16 broke the 10km barrier in June 1999 to reach a horizontal displacement distance of 10,728m and a total length of 1127m and depth of 1638m.

En route to our next destination, we took in the wonderful countryside of rolling hills and tight rural roads, and lunched at a strikingly quintessential English restaurant.

We then visited the fossil museum in the house of world-renowned fossil collector Steve Etches, who for the past 30 years has made a series of remarkable finds, including a new species of prehistoric flying reptile, ancient ray fish, complete with cartilage, and the first-ever set of ammonite eggs found anywhere in the world. During our visit we learned a great deal about



Shale rock sampling



98%. Most of the 148 staff on site are ex-BP workers who decided to stay on. Our group toured the facilities, starting at the gathering station and ending at the latest rig, which was installing a water injection system into one of the wells. We were fortunate enough to see the field's



Steve Etches

the recent discoveries and the intricacies of their preservation. After a thorough discussion regarding the geology of the area, we embarked on a light hike across the local coastline to see the Kimmeridge Clay Formation - where all Steve's discoveries were made - and collected samples of some of the rock types present, including shale rocks.

Our trip was well-organised and of excellent educational value, while giving SPE YP London members the chance to network and socialise. On behalf of all those who attended, I would like to thank SPE YP London and Maxim Kotenev for all the hard work they put into making the event a success. I am already looking forward to next year's field trip!

Pictures: Maxim Kotenev



YP Aberdeen Update

By Ross Taylor, Maersk Oil

Subsea 7's 'sci-fi' presentation

On 9 May, at the University of Aberdeen, Lee Wilson, of Subsea 7, gave an entertaining and impressive talk, 'Autonomous Inspection Vehicles (AIVs) - a new dimension in life of field operations'.

The topic introduced the Aberdeen YPs and Student Chapter members to this specialist oil and gas industry technology, and the presentation - a blend of technical explanation and real-time videos - proved as exciting as a CGI animation in any sci-fi movie!

Lee told the multi-discipline audience that regular inspection data of risers, pipelines and seabed equipment can be gathered using a single AIV operating directly from an offshore facility. A more rapid assessment of a field can be made using multiple systems operating together from a single support vessel. He explained how Subsea 7 had developed the technology from a challenging concept to a fully-commercialised product awaiting sea trials, within only a few years.

The presentation was followed by a very involved Q&A session, with questions including: "Why is this needed?", "Who will use it?" and "How does Subsea 7 encourage new concepts such as AIVs?"

All the attendees agreed that the event - the latest in YP Aberdeen's 'Simplified' series - was excellent.

JUNE Happy Hour!

Our next Happy Hour Drinks event will take place on 20 June, at the Dusk Cocktail Bar, 10 Bon Accord Square, Aberdeen AB11 6DJ. The event will start at 6.30pm and there will be a free drink from 7-8 pm. For more information, please contact Ross Taylor (ross.taylor@maerskoil.com) or George Grangeon-Amaral (George.Amaral@ge.com).

CO₂ Technical event

Our June YP Aberdeen technical event will be on the subject of CO₂ and its use in the offshore industry. Please check the Aberdeen Events page at www.spe-uk.org for further details.

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SPE YP London Technical Crossword

Here's a great opportunity to test your technical knowledge and win a prize.

Our crossword is brought to you by SPE London's Young Professionals Committee and is kindly sponsored by Senergy. To enter, please email your answers, name and contact details to: speypcrossword@gmail.com before the closing date of **Monday 17 June**. The first correct entry chosen at random will win a personalised SPE mug. The answers and winner's name will be published in the July-August **SPE Review**. Good luck!



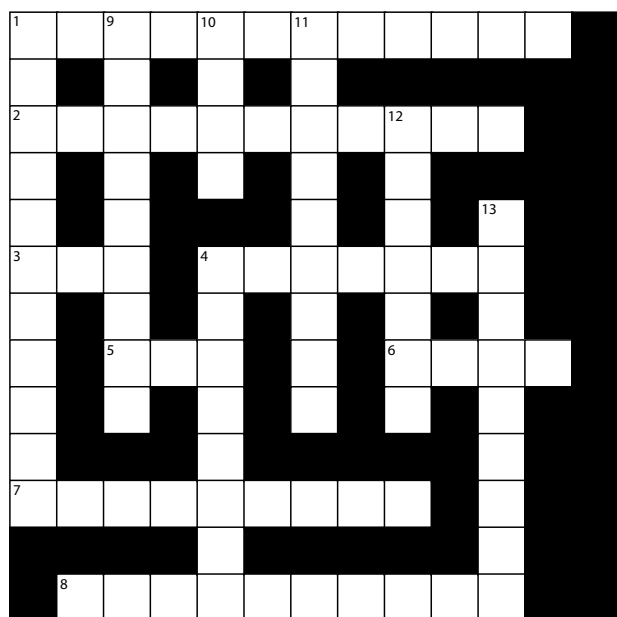
Congratulations to last month's winner, **Marcus Davidson**, of Baker Hughes, who won a free place at the SPE London 2nd Annual Conference and Exhibition, on 22-23 May.



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Last month's answers: **Across:** 1. contaminants; 2. neutron; 3. trend; 4. relative; 5. lateral; 6. open; 7. public; 8. wave; 9. EDTA; 10. brent; 11. TOTAL. **Down:** 1. conventional; 7. plant; 12. neutral; 13. acrylate; 14. active; 15. sonar; 16. tar; 17. vlcc; 18. douglas; 19. ambient; 20. error; 21. inert.

Across

- 1 Fraction of the oil in place that is swept from a unit volume of the reservoir during waterflood is ____ efficiency (12)
- 2 For economic analysis usually ____ hydrocarbon resources are used (11)
- 3 Abbreviation for a depth that is opposite to measured depth? (3)
- 4 Oil-water ____ is important for estimating the oil in place (7)
- 5 Drilling abbreviation used to describe the connection and lowering of the pipe into the borehole (3)
- 6 A cylindrical sample of geologic formation, taken during or after drilling a well (4)
- 7 State of natural gas at cryogenic temperatures? (9)
- 8 A pump that can handle complete production from a well? (10)

Down

- 1 Type of drilling that involves an intentional deviation of a wellbore from the path it would naturally take (11)
- 4 In geophysics an event that shows continuity from trace to trace (8)
- 9 A recovery process during which an external fluid such as water or gas is injected into the reservoir (9)
- 10 Oil containing dissolved gas in solution that may be released from solution at surface conditions (4)
- 11 Sedimentary rock which is commonly formed through processes of precipitation or the activity of organisms such as coral and algae (9)
- 12 In drilling a point at which the forces acting on a tubing string suspended in a live wellbore are equal (7)
- 13 Mathematical technique that requires an algorithm or equation to be repeated until a condition is met (9)

Crossword compiled by Nurzhan Kairbayev, Reservoir Engineer, Senergy

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- 13-14 November: SPE ICoTA 19th European Well Intervention Conference

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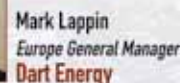
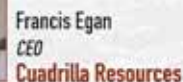
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