



Society of Petroleum Engineers

SPE Asia Pacific Unconventional Resources Conference and Exhibition

The New Energy Age: Building on Success

9 to 11 November 2015 | Brisbane Convention & Exhibition Centre, Brisbane, Australia



CONFERENCE PREVIEW

MESSAGE FROM CONFERENCE CHAIRMAN



Dear Colleagues,

On behalf of the Queensland Section of the Society of Petroleum Engineers (SPE) as well as the programme and conference organising committees, please accept my invitation to attend the SPE Asia Pacific Unconventional Resources Conference and Exhibition (URCE) to be held 9 to 11 November 2015 in Brisbane, Queensland, Australia. The theme for the conference is **"The New Energy Age: Building on Success"**.

As reflected in the theme, the conference builds on the success of the previous 2013 Asia Pacific URCE, also held in Brisbane, with the theme of **"Delivering Abundant Energy for a Sustainable Future"**. In that two year period, a lot has happened in the evaluation and development of unconventional resources in the region. Attending this conference will update you as well as keep you abreast of the technical and technology advances.

A notable advance is the world's first large commercialisation of Coal Seam Gas (CSG) for LNG from CSG fields located west of Brisbane – there will be an informative Panel Session on this subject. In addition, there are a number of other Panel Sessions with local and internationally invited speakers that will address data analytics for unconventional reservoirs, the emerging plays in the region, the use of formation evaluation and geomechanics, the importance of sweet spots as well as an executive perspective on unconventional resources development.

The response to the Call for Papers was extraordinary. This has resulted in an excess of 20 technical sessions with as many papers again being presented via e-posters, a short interactive session with the author being held at stations in the exhibition hall. Technical sessions have been grouped into functional topics and case histories allowing attendees their choice to attend their topic of interest.

As part of SPE's promotion of the industry and professional development, a Young Professionals Workshop will be held on 8 November before the conference commences, as well as Education Day on 10 November, Teachers' Day on 11 November, and training courses following the conference from 12 to 13 November.

As an aside, I encourage you to attend the conference dinner on Tuesday evening and various social events to catch up with colleagues and make new acquaintances in a social environment with refreshments.

On a final yet important note, the recent downturn in oil price has been challenging our industry. To meet this challenge, it is imperative that the industry and its professional keep technically advancing to maintain its competitiveness, and attending this conference will help you to achieve this. One never knows what innovative idea may come from listening to the speakers, interacting with them, informal conversations with colleagues or discussions with exhibitors.

I look forward to welcoming you at the conference.

A handwritten signature in black ink, appearing to read 'S. Kelemen'.

Stephen Kelemen
Conference Chairman
Santos Ltd.

TECHNICAL PROGRAMME COMMITTEE

TABLE OF CONTENTS

Co-Chairmen



Tom Blasingame
Texas A&M University



Ray Johnson Jr.
Unconventional Reservoir
Solutions

Committee Members

Usman Ahmed, Baker Hughes
Gabriel Amorer, Santos Ltd.
Bruce Anderson, BG Group
David Anderson, NCS Multistage
Luis Baez, BG Group
Mark Burgoyne, Santos Ltd.
Peter Burrows, Weatherford
Russell Byfield, Strategy Central
Natalie Chadud, Origin Energy Ltd.
Chen Chih Cheng, Kappa
Craig Cipolla, Hess Corp.
C.R. Clarkson, University of Calgary
Luke Connell, CSIRO Petroleum
Marcel Croon, Weatherford
Bernadette Cullinane, Accenture Australia Ltd.
Frank Dennelle, Royal Dutch Shell
Doug Elliott, ProTechnics, a Division of Core Laboratories, L.P.
Mark Emanuele, Chevron Energy Technology Pty. Ltd.
Thomas Flottman, Origin Energy Ltd.
Hans-Christian Freitag, Baker Hughes
David Fulford, Apache Corp.
Thomas Gan, Arrow Energy Pty. Ltd.
Mike Gatens, Unconventional Gas Resources Canada
Daniel Taylan Georgi, Aramco Service Co.
Carlos Gilardone, FDC de Argentina Srl
Ian Gray, Sibra Pty. Ltd.
Guo Quan, M-I SWACO
Chad Hartman, Weatherford Laboratories
Dilhan Ilk, DeGolyer and MacNaughton
Rob Jeffrey, SCT Operations
George J. Koperna Jr., Advanced Resources International, Inc.
Tony Kourakis, Origin Energy Ltd.
Ted Lafferty, Schlumberger
Lau Hon Chung, Shell (China) Projects and Technology
Marie Louise Lees, Santos Ltd.
Jody Lowry, BHP Billiton Petroleum
Saikat Mazumder, Arrow Energy Ltd.
Jim McGowen, Halliburton
Kent F. Perry, RPSEA
Mark Pitkin, Beach Energy Ltd.
Sheik Rahman, University of New South Wales
Muthukumarappan Ramurthy, Halliburton
Jim Stannard, PETRONAS Australia
Emma Tavener, Santos Ltd.
John Thompson, NCS Multistage
James J. (Jim) Venditto, Trican Well Service
Sau-Wai Wong, Shell International E&P
Mike Zuber, Schlumberger

Message from Conference Chairman	2
Technical Programme Committee	3
Conference Sponsors	4
Conduct Committee	4
Schedule of Events	5 - 6
Opening Session	7
Executive Plenary Session	7
Panel Sessions	8 - 11
Young Professionals Workshop	12
Education Day	12
Teachers' Day	12
Conference Programme Schedule	13
Technical Sessions	14 - 18
Knowledge Sharing ePoster Sessions	19 - 23
Exhibition and Sponsorship	24
Conference Dinner	24
Registration and General Information	25
Conference Advance Registration Form	26
Hotel Reservations Form	27

Scan to visit the event website
www.spe.org/events/urce/2015



CONFERENCE SPONSORS

(Additions/changes made after 31 July 2015 will be reflected in the Conference Programme.)

The Society of Petroleum Engineers wishes to gratefully acknowledge the contributions and support of the following companies towards the 2015 SPE Asia Pacific Unconventional Resources Conference and Exhibition.

Principal Sponsors



Name tag Lanyards

Gold Sponsor



General Sponsors



Pens



Conference Satchels



Exhibitor Visitor Passes



*Afternoon Tea Break
(Monday, 9 November)*

Official Supporter



CONDUCT COMMITTEE



From left to right: Amir Farmahini, Stephen Kelemen (Conference Chairman), Andrew White, Karni Sudana, Matthew Loth and Parimal Raj.

Matthew Loth, Schlumberger – Conduct Committee Chairman

Andrew White, Santos GLNG – Exhibition and Sponsorship

Parimal Raj, Accenture – Exhibition and Sponsorship

Rod Bresnehan, CFT Energy – Exhibition and Sponsorship

David Baker, BreitBurn Energy Co. – Conference Dinner

Seamus O'Conner, Santos Ltd – Conference Dinner

Danielle Richards, BG Group – Conference Dinner

HamidReza Pourabed, Schlumberger – Training Courses

Anargul Kushkarina, SRK Consulting – Training Courses

Karni Sudana, Santos Ltd – Young Professionals Workshop

Amir Farmahini, University of Queensland – Young Professionals Workshop

Remzi Kaya, CS GAS – Young Professionals Workshop

Jacob Dellit, Santos Ltd – Education Days and Teachers Day

Sarah Bishop, Origin Energy – Social Media

SCHEDULE OF EVENTS

(Additions/changes made after 31 July 2015 will be reflected in the Conference Programme. All functions, unless otherwise specified, are scheduled at the Brisbane Convention & Exhibition Centre)

Saturday, 7 November

0700-1800 hours	Exhibitors Move-In	Great Hall 1, 3 & 4
-----------------	--------------------	---------------------

Sunday, 8 November

0900-1700 hours	Exhibitors Move-In	Great Hall 1, 3 & 4
1200-1700 hours	Registration	Main Foyer
1200-1700 hours	SPE Headquarters	Meeting Room M8
1200-1700 hours	Speaker/Author Check-In	Meeting Room M9
1200-1700 hours	Speaker AV Preparation Room	Meeting Room M10
1300-1700 hours	Young Professionals Workshop	Meeting Room M1

Monday, 9 November

0730-1730 hours	Registration	Main Foyer
0730-1730 hours	SPE Headquarters	Meeting Room M8
0730-1730 hours	Speaker/Author Check-In	Meeting Room M9
0730-1730 hours	Speaker AV Preparation Room	Meeting Room M10
0900-1000 hours	Opening Session	Great Hall 2
1000-1030 hours	Coffee Break	Great Hall 1, 3 & 4
1000-1830 hours	Exhibition	Great Hall 1, 3 & 4
1030-1230 hours	Executive Plenary Session	Great Hall 2
1230-1400 hours	Networking Luncheon and Knowledge Sharing ePoster Session 1	Great Hall 1, 3 & 4
1400-1530 hours	Panel Session 1: Executive Perspective on Unconventional Development	Great Hall 2
1400-1530 hours	Technical Sessions	
	Session 1: Shale Formation Evaluation I	Meeting Room M1
	Session 2: Shale and Tight Gas Hydraulic Fracturing I	Meeting Room M2
1530-1600 hours	Coffee Break and Knowledge Sharing ePoster Session 2	Great Hall 1, 3 & 4
1600-1730 hours	Technical Sessions	
	Session 3: Technical Advances From Shale/Tight Reservoirs I	Great Hall 2
	Session 4: Coal Seam Gas Reservoir Engineering I	Meeting Room M1
	Session 5: Well Construction I	Meeting Room M2
1730-1830 hours	Happy Hour and Knowledge Sharing ePoster Session 3	Great Hall 1, 3 & 4

Tuesday, 10 November

0730-1730 hours	Registration	Main Foyer
0730-1730 hours	SPE Headquarters	Meeting Room M8
0730-1730 hours	Speaker/Author Check-In	Meeting Room M9
0730-1730 hours	Speaker AV Preparation Room	Meeting Room M10
0830-1000 hours	Panel Session 2: Emerging Strategies in Data Analytics	Great Hall 2
0830-1000 hours	Technical Sessions	
	Session 6: Unconventional Formation Evaluation	Meeting Room M1
	Session 7: Shale/Tight Gas Reservoir Engineering	Meeting Room M2
	Session 8: Maintaining the Social License to Operate	Meeting Room M3

SCHEDULE OF EVENTS

0830-1200 hours	Education Day	Meeting Room M4
0830-1830 hours	Exhibition	Great Hall 1, 3 & 4
1000-1030 hours	Coffee Break and Knowledge Sharing ePoster Session 4	Great Hall 1, 3 & 4
1030-1200 hours	Panel Session 3: Integrating Formation Evaluation Data	Great Hall 2
1030-1200 hours	Technical Sessions	
	Session 9: Coal Seam Gas Reservoir Engineering II	Meeting Room M1
	Session 10: Geomechanics and Hydraulic Fracturing	Meeting Room M2
	Session 11: Managing Your Business in Unconventional Reservoirs	Meeting Room M3
1200-1400 hours	Networking Luncheon and Knowledge Sharing ePoster Session 5	Great Hall 1, 3 & 4
1400-1530 hours	Technical Sessions	
	Session 12: Technical Advances From Shale/Tight Reservoirs II	Great Hall 2
	Session 13: Shale/Tight Gas Reservoir Performance	Meeting Room M1
	Session 14: Coal Seam Gas Reservoir Modelling	Meeting Room M2
1530-1600 hours	Coffee Break and Knowledge Sharing ePoster Session 6	Great Hall 1, 3 & 4
1600-1730 hours	Technical Sessions	
	Session 15: Technical Advances From Shale/Tight Reservoirs III	Great Hall 2
	Session 16: CSG Reservoir Development Strategies	Meeting Room M1
	Session 17: Shale and Tight Gas Hydraulic Fracturing II	Meeting Room M2
1900 hours	Conference Dinner (Organised by SPE Queensland Section)	Meeting Room M3 & M4

Wednesday, 11 November

0730-1530 hours	Registration	Main Foyer
0730-1530 hours	SPE Headquarters	Meeting Room M8
0730-1530 hours	Speaker/Author Check-In	Meeting Room M9
0730-1530 hours	Speaker AV Preparation Room	Meeting Room M10
0830-1530 hours	Exhibition	Great Hall 1, 3 & 4
0830-1500 hours	Teachers' Day	Meeting Room P1
0900-1030 hours	Panel Session 4: Sweet Spot Identification	Great Hall 2
0900-1030 hours	Technical Sessions	
	Session 18: Coal Seam Gas Hydraulic Fracturing	Meeting Room M1
	Session 19: Production Analysis and Forecasting	Meeting Room M2
1030-1100 hours	Coffee Break and Knowledge Sharing ePoster Session 7	Great Hall 1, 3 & 4
1100-1230 hours	Panel Session 5: Geomechanics Influence in Hydraulic Fracturing	Great Hall 2
1100-1230 hours	Technical Sessions	
	Session 20: Pore Scale Effects	Meeting Room M1
	Session 21: Emerging Resources and Recovery Technologies	Meeting Room M2
1230-1400 hours	Networking Luncheon and Knowledge Sharing ePoster Session 8	Great Hall 1, 3 & 4
1400-1530 hours	Panel Session 6: "Mega Projects": Past, Present and Future	Great Hall 2
1400-1530 hours	Technical Sessions	
	Session 22: Pore-Scale Modelling and Visualisation	Meeting Room M1
	Session 23: Multi-Stage Hydraulic Fracturing Completions	Meeting Room M2
1600-2000 hours	Exhibition Move-Out	Great Hall 1, 3 & 4

OPENING SESSION

Monday, 9 November • 0900-1000 hours • Great Hall 2



Stephen Kelemen

Conference Chairman and Manager
Unconventional Resources Growth, Santos Ltd.



Janeen Judah

2017 SPE President and General Manager
Southern Africa Business Unit, Chevron

Stephen Kelemen, Conference Chairman, Manager Unconventional Resources Growth, Santos Ltd.; **Janeen Judah**, 2017 SPE President, General Manager, Southern Africa Business Unit, Chevron; and a Senior Government Official; will open the conference.

Attendance at this event will include senior management from major petroleum related companies, representatives from Government Ministries and departments, engineering and technical industry professionals.

EXECUTIVE PLENARY SESSION

Monday, 9 November • 1030-1230 hours • Great Hall 2



David Knox



Vello Kuuskraa



Rudy Ryacudu



Jim Stannard

In the Asia Pacific region, the development of unconventional resources has undergone significant growth over the last decade and is poised to make a substantial impact on the future of energy in the region. Three large-scale LNG projects in eastern Australia have been developed with unconventional gas (coal seam gas, or CSG) providing the upstream gas resource base. As these projects have begun production, world oil and gas commodity prices, well performance, and other factors are impacting their economics. Looking forward, these and other project developers will have to adapt to changing market conditions and technical challenges to be successful. These Australian projects are the first in the world to rely almost exclusively on unconventional gas resources for their supply. A number of LNG projects in North America are also counting on unconventional gas for some or all of their supply volumes. Later this year, LNG shipments will begin from the US Gulf Coast with other projects on both Atlantic and Pacific coasts being planned to start service in the next 5 years.

This session will reassess the lessons learned over the last 2 years and the forward challenges for the Australian and North American projects which are counting on unconventional gas supplies. The senior executives on the panel will discuss key differences between North American and Asia Pacific projects in areas of stakeholder engagement, reservoir characterization, project economics, and project management.

Session Chairpersons:

Mike Gatens, Chief Executive Officer, Unconventional Gas Resources Canada

Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Mike Zuber, Advisor, Unconventional Resources, Schlumberger

Speakers:

- **David Knox**, Managing Director and Chief Executive Officer, Santos Ltd.
- **Vello Kuuskraa**, President, Advanced Resources International, Inc.
- **Rudy Ryacudu**, Director of Explorations, PT Pertamina Hulu Energi
- **Jim Stannard**, Chief Executive Officer and Managing Director, PETRONAS Australia

PANEL SESSIONS

PANEL 1: Executive Perspective on Unconventional Development

Monday, 9 November • 1400-1530 hours • Great Hall 2



Chris Faulkner



Mark Fitzgerald



J. Blair Goertzen

Over the past 10 years, most operators have moved a significant portion of their manpower and capital into unconventional resource development. However, with thin margins and high activity levels, unconventional resource development requires different workflows, processes and capabilities. This session will provide perspective from senior management on the changes required to be successful in this highly competitive and challenging sector. Specific topics to be discussed in this session will include:

- What are the keys to success in large scale unconventional development?
- What organizational changes were required to be competitive?
- What is the role of technology and innovation in achieving commercial results?

In addition to the above, operators will also provide an overview of their specific plays which will illustrate the magnitude of the activity levels and manpower requirements to undertake unconventional resource development on a material scale.

Session Chairpersons:

Mike Gatens, Chief Executive Officer, Unconventional Gas Resources Canada

Jim Stannard, Chief Executive Officer and Managing Director, PETRONAS Australia

Speakers:

- **Chris Faulkner**, Chief Executive Officer, Breitling Energy Corporation
- **Mark Fitzgerald**, Senior Vice President, Production & Facilities, Progress Energy
- **J. Blair Goertzen**, President and Chief Executive Officer, Enerflex

PANEL 2: Emerging Strategies in Data Analytics

Tuesday, 10 November • 0830-1000 hours • Great Hall 2



Steve Begg



James C. Erdle



Keith Holdaway

For the oil and gas industry, managing large arrays of data and applying the appropriate analytics is not new to decision making processes, that ranges exploration to full field development. In order to better understand the subsurface integration and assimilation of a wide range of data – from seismic to production data – while integrating drilling, completion, and reservoir related data we require high resolution visualisation tools to allow better interpretation of data trends.

As we enter the world of unconventional resource exploitation and development, the level of uncertainty in reservoir subsurface properties increases by orders of magnitude. Hence, it is important that we implement appropriate and optimised algorithms, efficient manipulation of data, and proper analytical methods that result in concluding analytics, which ultimately, will allow optimal exploitation and development of unconventional resources.

In this panel we strive to achieve this goal by assembling experts in data mining (e.g. seismic, completion, stimulation and reservoir), data analysis and modelling methods. Panellists will discuss improved methods to manage and interpret large arrays of data to facilitate better informed decision-making in unconventional reservoir.

Session Chairpersons:

Usman Ahmed, Vice President and Chief Reservoir Engineer, Baker Hughes

Ray Johnson Jr., Principal, Unconventional Reservoir Solutions

Speakers:

- **Steve Begg**, Professor, University of Adelaide
- **James C. Erdle**, Vice President – USA & Latin America, Computer Modelling Group
- **Keith Holdaway**, Advisory Industry Consultant and Principal Solutions Architect, SAS Global Oil & Gas Business Unit

PANEL 3: Integrating Formation Evaluation Data

Tuesday, 10 November • 1030-1200 hours • Great Hall 2



Pat Lasswell



Rick Lewis



Randall S. Miller

Over the last few years, ever-increasing hydrocarbon production from unconventional resources or source rock reservoirs, especially in North America, has significantly altered the global energy supply and demand supply landscape.

Meanwhile, the last 10 years has also seen significant advances in the efficiency of wellbore construction and formation stimulation. However, our understanding of what “makes unconventional plays work” has not progressed at the same pace.

Most unconventional resource plays in Asia Pacific are in early stages of development compared to conventional reservoir systems. However, based on the multi-level scale of the reservoir and processes, both physical and in time, multiple analysis methods must be combined in order to develop a clearer understanding of unconventional resource plays.

Understanding unconventional plays requires a multi-disciplinary approach to formation evaluation from a petrophysical, geological and geomechanical point of view. Data from core, cuttings, petrophysical, geological and well test investigation methods need to be integrated to provide a more accurate model of the subsurface. Such a model can be used not only to better forecast formation response to hydraulic stimulation, but also to better forecast well production. A combination of a number of analysis methods (static and dynamic) yield the most reliable results. In turn, the reliability of these methods gains importance in times of low oil prices.

The scales of interest for unconventional resources range from the nano-pore-scale through the well log-scale up to the reservoir (or SRV), which is many orders of magnitude. Integration of these different data sets and analysis methods (static and dynamic) is essential and complex.

In this session, recent advances in tools, testing and analysis methods to enable better evaluation of unconventional resources are presented and discussed.

Session Chairpersons:

Russell Byfield, Director, Strategy Central

Hans-Christian Freitag, Vice President, Integrated Technology, Baker Hughes

Marcel Croon, Senior Geophysicist, Weatherford

Speakers:

- **Pat Lasswell**, Senior Research Scientist, Weatherford
- **Rick Lewis**, Unconventional Petrophysics Technical Manager, Schlumberger
- **Randall S. Miller**, Vice President, Core Laboratories

PANEL 4: Sweet Spot Identification

Wednesday, 11 November • 0900-1030 hours • Great Hall 2



Mike Gatens



Khalil Rahman



Richard Salter

Unconventional reservoirs are inherently complex and well production performance typically varies widely across basins, fields, and even well-to-well. Commercial success depends upon finding and developing the “sweet spots” in unconventional reservoirs to maximise production and reserves.

Sweet spots are the optimal place to drill, complete and stimulate a well. Sweet spots exist at the basin, play, reservoir and well scale. Historically, sweet spots have been found with the drillbit and statistics. However, we can no longer afford to take this approach. This panel discussion will explore the challenges of finding sweet spots in unconventional reservoirs – at all scales – and the current technologies that industry is using to define and exploit them.

Session Chairpersons:

Usman Ahmed, Vice President and Chief Reservoir Engineer, Baker Hughes

Mike Zuber, Advisor, Unconventional Resources, Schlumberger

Speakers:

- **Mike Gatens**, Chief Executive Officer, Unconventional Gas Resources Canada
- **Khalil Rahman**, Geomechanics Advisor, Baker Hughes
- **Richard Salter**, Exploration and Appraisal Manager, URG, Schlumberger

PANEL 5: Geomechanics Influence in Hydraulic Fracturing

Wednesday, 11 November • 1100-1230 hours • Great Hall 2



**Ahmed
Abou-Sayed**



**Michael
Anthony Addis**



**Rob
Jeffrey**



**Sau-Wai
Wong**

Tectonic provinces in the Asia Pacific region are particularly prone to significant variability in stress magnitudes and Andersonian type stress geometries (strike-slip, normal and reverse regime) both vertically and laterally. This creates challenges of constructing one-dimensional to three-dimensional geomechanical models that adequately represent the interaction of stress, rock properties and rock fabric on hydraulic fracture growth, particularly in regimes of high horizontal stress.

The panel session will present a brief overview of the technical journey of geomechanics to its present day use in design interpretation and modelling of hydraulic fracture stimulations. Speakers will introduce specific case studies showing both success and ongoing challenges in the use of geomechanical concepts and their implementation in fracture completions – especially in high tectonic stress regimes.

This session aims to draw out the complexity in designing hydraulic fractures in the context of contrasting rock-physical properties and varying stress parameters. Of particular interest is the fit-for-purpose adaptation of geomechanical concepts to design stimulations in environments with highly contrasting rock properties (eg. shale, coal) in combination with stress regimes. This should be evaluated in the context of the capability and theory currently applied in frac simulators or frac design applications.

Through this session, practitioners in both geomechanics and hydraulic fracture modelling should better appreciate the implications of the stress regime in hydraulic fracture modelling and the limitations of current models to address these complexities.

Session Chairpersons:

Thomas Flottman, Principal Geologist, Origin Energy Ltd.

Emma Tavener, Team Leader Geomechanics, Santos Ltd.

Speakers:

- **Ahmed Abou-Sayed**, Founder, Advantek International
- **Michael Anthony Addis**, Director for New Technology, Middle East-Asia Pacific, Baker Hughes
- **Rob Jeffrey**, Consultant, SCT Operations
- **Sau-Wai Wong**, Technology Advisor, Unconventional Gas, Shell International E&P

PANEL 6: “Mega Projects”: Past, Present and Future

Wednesday, 11 November • 1400-1530 hours • Great Hall 2



Trevor Brown



Van Lineberger

The lesson-learned from the North American unconventional experience is that these plays cannot be exploited by small, incremental steps. If we are to be successful in developing these types of reservoirs, we have to use a “Mega-Projects” concept with dozens of wells to define a play, and hundreds of wells to develop a play.

A number of Asia Pacific unconventional gas “Mega-Projects” are near completion or are commencing deliveries. Successful delivery of these projects has depended on addressing key technical issues, project management challenges, political and community engagement issues. A panel of executives representing several of these successful projects are to share with the audience how each project fared in the “technical” metrics of a given “Mega Project,” including the following factors:

- scoping;
- cost management;
- scheduling and implementation; and
- achieving defined business objectives.

As well as sharing experiences relating to each panellist’s project, speakers will also provide insights into future “Mega-Projects” by addressing relevant questions based on their experiences, such as:

- What are the main impediments to such “Mega Projects” and what are some of the ways to overcome these impediments?
- With the risk profile and large capital costs, what is the impact of subsurface reservoir characterisation, prior to committing to development?
- What is the best way to acquire and manage resources (people, materials, and fabrication capacity)?
- How do we ensure that the development plan delivers the business objectives?
- What is the role of technology — as an enabler? As a game-changer?
- Do we have the project management skills and business climate required to ensure success of these projects at the current maturity of the unconventional market in the Asia Pacific region?

By hosting experienced executives on the “Mega-Projects” panel, the session aims to generate relevant and impactful discussions on key prerequisites for delivering mega-projects in the Asia-Pacific region in the past, as well as into the future.

Session Chairpersons:

Tom Blasingame, Professor, Texas A&M University

Ray Johnson Jr., Director, Unconventional Reservoir Solutions

Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Speakers:

- **Trevor Brown**, Vice President Queensland, Santos
- **Van Lineberger**, Chief Operating Officer (Integrated Gas, APLNG Operations), Origin Energy

YOUNG PROFESSIONALS WORKSHOP

Sunday, 8 November 2015 • 1300-1700 hours • Meeting Room M1

“Pathways With Petroleum”

As many Young Professionals are being placed with a higher level of responsibility in the industry, greater emphasis is being put on young employees to step into challenging technical and managerial roles. Equally important, Young Professionals have the responsibility to be proactively involved with the leadership development process as well as being creative and innovative in order to meet the challenges. To help address these issues, the Young Professionals Workshop is designed for graduates and young professionals in the oil and gas industry under the age of 35 with less than 10 years industry experience in any technical discipline. Industry executives, young professionals, and university students will have the opportunity to engage in discussions about the future directions for young professionals in the oil and gas industry.

Speakers:

- **Janeen Judah**, 2017 SPE President and General Manager, Southern Africa Business Unit, Chevron
- **Stephen Kelemen**, Manager Unconventional Resources Growth, Santos Ltd.
- **Tom Blasingame**, Texas A&M University
- **Andrew Garnett**, Centre for CSG, University of Queensland
- **Mark Stone**, Executive Petroleum Engineer, Department of Natural Resources and Mines

For further information, please contact the Workshop Coordinators, Karni Sudana, Tel: 61.7.3838.3588; Email: karni.sudana@santos.com or Amir Farmahini, Tel: 61.7.3365.4047; Email: a.farmahini@uq.edu.au

EDUCATION DAY

Tuesday, 10 November 2015 • 0830-1200 hours • Meeting Room M4

The Education Day is an initiative to introduce students to the discipline of petroleum engineering, and the industry in general. About 100 high school students with keen interest in science, who may consider majoring in Petroleum and related engineering programmes when they enter university, will be invited to attend.

A number of industry professionals have been invited to share their experience with students through talks on topics of general interest and relevance to the industry. Following the talks, the students will be given a guided tour of the exhibition area. They will be able to see first-hand the high-end technology used by engineers and the sophisticated software available for solving many engineering problems. It is hoped that they will leave the conference with a better understanding of what petroleum engineers do and their role in the broader community. Equally important, they will also become aware that a petroleum engineering career is full of challenges, teamwork and responsibilities.

For further information, please contact the Education Day Coordinator, Jacob Dellit, Tel: 61.7.3838.5715, Email: jacob.dellit@santos.com

TEACHERS' DAY

Wednesday, 11 November 2015 • 0830-1500 hours • Meeting Room P1

SPE, through its Energy4me program will present a one-day energy education workshop for 50 Brisbane-area science teachers. Educators will receive comprehensive, objective information about the scientific concepts of energy and its global significance while discovering the world of oil and natural gas exploration and production. A variety of free instructional materials will be available to take back to the classroom.

Activities will include a technology tour of the exhibitions, a keynote presentation and age-appropriate hands-on classroom activities.

For further information, please contact the Teachers' Day Coordinator, Jacob Dellit, Tel: 61.7.3838.5715, Email: jacob.dellit@santos.com

CONFERENCE PROGRAMME SCHEDULE

Date	Time	Great Hall 2	Meeting Room M1	Meeting Room M2	Meeting Room M3
Monday, 9 November	0900-1000 hours	Opening Session (Great Hall 2)			
	1000-1030 hours	Coffee Break (Great Hall 1, 3 & 4)			
	1030-1230 hours	Executive Plenary Session (Great Hall 2)			
	1230-1400 hours	Networking Luncheon and Knowledge Sharing ePoster Session 1 (Great Hall 1, 3 & 4)			
	1400-1530 hours	Panel Session 1 Executive Perspective on Unconventional Development	Session 1 Shale Formation Evaluation I	Session 2 Shale and Tight Gas Hydraulic Fracturing I	
	1530-1600 hours	Coffee Break and Knowledge Sharing ePoster Session 2 (Great Hall 1, 3 & 4)			
	1600-1730 hours	Session 3 Technical Advances From Shale/Tight Reservoirs I	Session 4 Coal Seam Gas Reservoir Engineering I	Session 5 Well Construction I	
	1730-1830 hours	Happy Hour and Knowledge Sharing ePoster Session 3 (Great Hall 1, 3 & 4)			
Tuesday, 10 November	0830-1000 hours	Panel Session 2 Emerging Strategies in Data Analytics	Session 6 Unconventional Formation Evaluation	Session 7 Shale/Tight Gas Reservoir Engineering	Session 8 Maintaining the Social License to Operate
	0830-1200 hours	Education Day (Meeting Room M4)			
	1000-1030 hours	Coffee Break and Knowledge Sharing ePoster Session 4 (Great Hall 1, 3 & 4)			
	1030-1200 hours	Panel Session 3 Integrating Formation Evaluation Data	Session 9 Coal Seam Gas Reservoir Engineering II	Session 10 Geomechanics and Hydraulic Fracturing	Session 11 Managing Your Business in Unconventional Reservoir
	1200-1400 hours	Networking Lunch and Knowledge Sharing ePoster Session 5 (Great Hall 1, 3 & 4)			
	1400-1530 hours	Session 12 Technical Advances From Shale/Tight Reservoirs II	Session 13 Shale/Tight Gas Reservoir Performance	Session 14 Coal Seam Gas Reservoir Modelling	
	1530-1600 hours	Coffee Break and Knowledge Sharing ePoster Session 6 (Great Hall 1, 3 & 4)			
	1600-1730 hours	Session 15 Technical Advances From Shale/Tight Reservoirs III	Session 16 CGS Reservoir Development Strategies	Session 17 Shale and Tight Gas Hydraulic Fracturing II	
	1900 hours	Conference Dinner (Meeting Room 3 & 4) - Organised by the SPE Queensland Section			
Wednesday, 11 November	0830-1500 hours	Teachers' Day (Meeting Room P1)			
	0900-1030 hours	Panel Session 4 Sweet Spot Identification	Session 18 Coal Seam Gas Hydraulic Fracturing	Session 19 Production Analysis and Forecasting	
	1030-1100 hours	Coffee Break and Knowledge Sharing ePoster Session 7 (Great Hall 1, 3 & 4)			
	1100-1230 hours	Panel Session 5 Geomechanics Influence in Hydraulic Fracturing	Session 20 Pore Scale Effects	Session 21 Emerging Resources and Recovery Technologies	
	1230-1400 hours	Networking Luncheon and Knowledge Sharing ePoster Session 8 (Great Hall 1, 3 & 4)			
	1400-1530 hours	Panel Session 6 "Mega Projects": Past, Present and Future	Session 22 Pore-Scale Modelling and Visualisation	Session 23 Multi-Stage Hydraulic Fracturing Completions	

TECHNICAL SESSIONS

(Additional/changes made after 31 July 2015 will be reflected in the Conference Programme)

Monday, 9 November • 0900-1000 hours

OPENING SESSION

Great Hall 2

- **Stephen Kelemen**, Conference Chairman and Manager Unconventional Resources Growth, Santos Ltd.
- **Janeen Judah**, 2017 SPE President and General Manager, Southern Africa Business Unit, Chevron

Monday, 9 November • 1030-1230 hours

EXECUTIVE PLENARY SESSION

Great Hall 2

Session Chairpersons:

Mike Gatens, Chief Executive Officer, Unconventional Gas Resources Canada

Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Mike Zuber, Advisor, Unconventional Resources, Schlumberger

Speakers:

- **David Knox**, Managing Director and Chief Executive Officer, Santos Ltd.
- **Vello Kuuskraa**, President, Advanced Resources International, Inc.
- **Rudy Ryacudu**, Director of Explorations, PT Pertamina Hulu Energi
- **Jim Stannard**, Chief Executive Officer and Managing Director, PETRONAS Australia

Monday, 9 November • 1400-1530 hours

PANEL SESSION 1: EXECUTIVE PERSPECTIVE ON UNCONVENTIONAL DEVELOPMENT

Great Hall 2

Session Chairpersons:

Mike Gatens, Chief Executive Officer, Unconventional Gas Resources Canada

Jim Stannard, Chief Executive Officer and Managing Director, PETRONAS Australia

Speakers:

- **Chris Faulkner**, Chief Executive Officer, Breitling Energy Corporation
- **Mark Fitzgerald**, Senior Vice President, Production & Facilities, Progress Energy
- **J. Blair Goertzen**, President and Chief Executive Officer, Enerflex

Monday, 9 November • 1400-1530 hours

TECHNICAL SESSION 1: SHALE FORMATION EVALUATION I

Meeting Room M1

Session Chairpersons:

Kent Perry, RPSEA

Marcel Croon, Weatherford

Chad Hartman, Weatherford Laboratories

Papers

- 176911 Advances in Flowback Chemical Analysis of Gas Shales**
A.Z. Sharak and H. Dehghanpour, U. of Alberta, and D. Bearinger, Nexen Energy ULC
- 176908 Pore Size Distribution From Water Adsorption Isotherm**
A.Z. Sharak and H. Dehghanpour, U. of Alberta, and D. Bearinger, Nexen Energy ULC
- 176971 An Innovative Technique for Estimation of Permeability of Shale Gas Reservoirs**
Y. Yuan, J. Wang, N.G. Doonechaly and S.S. Rahman, School of Petroleum Engineering, U. of New South Wales

Monday, 9 November • 1400-1530 hours

TECHNICAL SESSION 2: SHALE AND TIGHT GAS HYDRAULIC FRACTURING I

Meeting Room M2

Session Chairpersons:

Mark Pitkin, Beach Energy Ltd.

Gabriel Amorer, Santos Ltd.

Sau-Wai Wong, Shell Intl. E&P

Papers

- 176836 A Study of the Interaction Between Hydraulic Fractures and Natural Fractures in the Keshen Tight Gas Reservoir**
F. Zhang, PetroChina, and K. Qiu, Schlumberger
- 176863 Acoustic Based Methodology of Assessing Zonal Production Contribution, Hydraulic Fracture Productive Height, and Reservoir Fluid Type in Tight Gas Condensate and Oil Reservoirs**
L. Mohsin and N. Marmin, Oman Oil Co. E&P LLC
- 176970 Finite Element Simulation of a Hydraulic Fracture Interacting With a Natural Fracture**
Z. Chen, R.G. Jeffrey, X. Zhang and J. Kear, CSIRO Energy Flagship

Monday, 9 November • 1600-1730 hours

TECHNICAL SESSION 3: TECHNICAL ADVANCES FROM SHALE/TIGHT RESERVOIRS I

Great Hall 2

Session Chairpersons:

George Koperna, Advanced Resources Intl., Inc.

Craig Cipolla, Hess Corp.

Hans-Christian Freitag, Baker Hughes

Papers

- 176919 Mid-Field Fracture Complexity: Analysis Methodology and Signature Pressure Behaviour of Hydraulic Fracture Propagation From Horizontal Wellbores**
L.W. Bazan, Bazan Consulting Inc., and B.R. Meyer, Meyer Technologies, LLC
- 176984 Economic and Operational Analysis of Systematically Deploying New Technologies in Two US Unconventional Plays**
D. Snyder, Packers Plus Energy Services Inc.; S. Van Sickle, Louisiana State U.; and C. McClellan and J. Galloway, Chaparral Energy LLC
- 176855 A Computational Model for Simulating Pressure-Driven Proppant Transport Dynamics in Viscoelastic Fluids for Unconventional Treatments**
H. Wu, Halliburton Energy Services, Inc.; S. Madasu, Halliburton; and A. Lin, Halliburton Energy Services, Inc.

Monday, 9 November • 1600-1730 hours

TECHNICAL SESSION 4: COAL SEAM GAS RESERVOIR ENGINEERING I

Meeting Room M1

Session Chairpersons:

Thomas Gan, Arrow Energy Pty. Ltd.

Natalie Chadud, Origin Energy Ltd.

Ian Gray, Sibra Pty. Ltd.

Papers

- 176960 The Influence of Cleat De-Mineralisation on the Compressibility of Coal**
L.G. Turner and K.M. Steel, The U. of Queensland
- 176925 Novel Well Test Design for the Evaluation of Complete Well Permeability and Productivity for CSG Wells in the Surat Basin**
W.E. Bottomley and J. Schouten, QGC - A BG Group Business

177007 The Anisotropy and Inhomogeneity of Coal Permeability and Interconnection of Adjacent Seams
I. Gray, Sibra Pty. Ltd.

Monday, 9 November • 1600-1730 hours
TECHNICAL SESSION 5: WELL CONSTRUCTION I
Meeting Room M2

Session Chairpersons:

James McGowen, Halliburton

Guo Quan, M-I SWACO

Lau Hon-Chung, Shell (China) Projects and Technology

Papers

176987 Plugging Wells With Bentonite: A New Application of Industry Best Practice to CSG Well

A. Mortezapour, B.F. Towler and D. Hywel-Evans, The U. of Queensland

176923 A Mud Weight Optimisation Strategy for Drilling in Fractured Tight Sandstone Formation Using Oil-Based Fluid

M. Liu, Y. Jin, Y. Lu, M. Chen and X. Wen, China U. of Petroleum, Beijing

176820 Drilling and Completion Optimisation in Unconventional Reservoirs With Data-Driven Models

K.R. Holdaway, SAS Inst. Inc.

Tuesday, 10 November • 0830-1000 hours
PANEL SESSION 2: EMERGING STRATEGIES IN DATA ANALYTICS
Great Hall 2

Session Chairpersons:

Usman Ahmed, Vice President and Chief Reservoir Engineer, Baker Hughes

Ray Johnson Jr., Principal, Unconventional Reservoir Solutions

Speakers:

- **Steve Begg**, Professor, University of Adelaide
- **James C. Erdle**, Vice President – USA & Latin America, Computer Modelling Group
- **Keith Holdaway**, Advisory Industry Consultant and Principal Solutions Architect, SAS Global Oil & Gas Business Unit

Tuesday, 10 November • 0830-1000 hours
TECHNICAL SESSION 6: UNCONVENTIONAL FORMATION EVALUATION
Meeting Room M1

Session Chairpersons:

Thomas Gan, Arrow Energy Pty. Ltd.

Robert Befus, PETRONAS

Marcel Croon, Weatherford

Papers

176823 Formation Evaluation Logoff Results Comparing New Generation Mining-Style Logging Tools to Conventional Oil and Gas Logging Tools for Application in Coalbed Methane (CBM) Field Development

T. Gan, B. Balmain and M. Ward, Arrow Energy Pty. Ltd., and E. Murphy and L. Cook, Shell

176964 Rock Physics Relationships Between Compressional, Shear, and Density Logs in Unconventional Formations Including Deviated Wells

J.A. Quirein, Halliburton Energy Services Group, and M.E. Far, M. Gu, D. Gokaraju and N. Mekic, Halliburton

176874 Determination of Mechanical Properties From Drill Cuttings: A Combined Qemscan-Nanoindentation Approach

M. de Block, J. Ravestain and C. Rigollet, SGS Horizon B.V.; M. Power, SGS ARQS; and R. Haverkort and B. Bruins Slot, SGS INTRON

Tuesday, 10 November • 0830-1000 hours
TECHNICAL SESSION 7: SHALE/TIGHT GAS RESERVOIR ENGINEERING
Meeting Room M2

Session Chairpersons:

Dilhan Ilk, DeGolyer and MacNaughton

Marie Louise Lees, Santos Ltd.

Keynote Speaker

Randall S. Miller, Vice President, Core Laboratories

Papers

176955 Measurement of Shale Anisotropic Permeability and Its Impact on Shale Gas Production

Z. Pan, D.I. Down and M. Camilleri, CSIRO, and L. Connell, CSIRO Petroleum

176965 Modelling Slip Flow and Surface Diffusion in Nanopores of Shale Gas Reservoirs With Real Gas Effect-Adsorption-Mechanical Coupling

K. Wu and Z. Chen, U. of Calgary

Tuesday, 10 November • 0830-1000 hours
TECHNICAL SESSION 8: MAINTAINING THE SOCIAL LICENSE TO OPERATE
Meeting Room M3

Session Chairpersons:

George Koperna, Advanced Resources Intl., Inc.

Jim Stannard, PETRONAS Australia

Russell Byfield, Strategy Central

Papers

176901 Managing the Productive and Responsible Use of Energy Resources - The Role of the Regulator
M. Stone, Queensland Department of Natural Resources and Mines, and A. Troup, Geological Survey of Queensland

176941 Benefits for Rural Towns From Queensland's Onshore Gas Development

W. Rifkin, K. Witt, J. Everingham and V. Uhlmann, The U. of Queensland

176958 Can the Unconventional Gas Industry Maintain Their Social Licence?

R.M. Lightfoot, Casconsult Pty. Ltd.

Tuesday, 10 November • 1030-1200 hours
PANEL SESSION 3: INTEGRATING FORMATION EVALUATION DATA
Great Hall 2

Session Chairpersons:

Russell Byfield, Director, Strategy Central

Hans-Christian Freitag, Vice President, Integrated Technology, Baker Hughes

Marcel Croon, Senior Geophysicist, Weatherford

Speakers:

- **Pat Lasswell**, Senior Research Scientist, Weatherford
- **Rick Lewis**, Unconventional Petrophysics Technical Manager, Schlumberger
- **Randall S. Miller**, Vice President, Core Laboratories

Tuesday, 10 November • 1030-1200 hours
TECHNICAL SESSION 9: COAL SEAM GAS RESERVOIR ENGINEERING II
Meeting Room M1

Session Chairpersons:

Mike Zuber, Schlumberger

Ian Gray, Sibra Pty. Ltd.

Papers

176834 A Practical Workflow for Characterising Stress-Dependent Behaviour of Coal From Changes in Well Productivity

M.W. Burgoyne and R. Shrivastava, Santos Ltd.

176829 Temperature Dependent Langmuir's Model in the Coal and Methane Sorption Process: Statistics Relationship

X. Tang, Virginia Polytechnic Inst. and State U.

- 176944 Evaluating Dynamic Behaviour of a Complex In-Situ Gas Composition From a Coal Seam Reservoir - A Case Study From Fairview Early Permian Cattle Creek Coals**
G.E. Guillen Falcon, Santos Ltd.

Tuesday, 10 November • 1030-1200 hours
TECHNICAL SESSION 10: GEOMECHANICS AND HYDRAULIC FRACTURING
Meeting Room M2

Session Chairpersons:
Rob Jeffrey, SCT Operations
Thomas Flottman, Origin Energy Ltd.
Emma Tavener, Santos Ltd.

Papers

- 176978 Geomechanical Implications on Unconventional Reservoirs Fracturing in Saudi Arabia**
M.V. Oparin, Saudi Aramco; S. Khan, Schlumberger; A. Sadykov, Saudi Aramco SAOO; A.M. Al-Momen, Saudi Aramco; and R. Tineo and D. Bentley, Schlumberger Saudi Arabia
- 176912 Estimation of the Propped Volume Through the Geomechanical Modelling of Multiple Hydraulic Fractures Interacting With Natural Fractures**
Y.E. Aimene and J.A. Nairn, Oregon State U., and A. Ouenes, FracGeo
- 176839 Examining the Geomechanical Implications of Pre-Existing Fractures and Simultaneous-Multi-Fracturing Completions on Hydraulic Fractures: Experimental Insights Into Fracturing Unconventional Formations**
E.A. Alabbad, Saudi Aramco, and J.E. Olson, The U. of Texas at Austin

Tuesday, 10 November • 1030-1200 hours
TECHNICAL SESSION 11: MANAGING YOUR BUSINESS IN UNCONVENTIONAL RESERVOIRS
Meeting Room M3

Session Chairpersons:
Bernadette Cullinane, Accenture
Matthew Loth, Schlumberger

Papers

- 176856 Dynamic Production Targeting in Forecast Simulations With Complex Joint Venture Economics**
C.J. Coman, Z. Mohiuddin and N. Morozov, Schlumberger Information Solutions, and A. Harichandran, QGC - A BG Group Business
- 176867 Litigation Against Unconventional Gas Producers; Lessons From the US Experience**
R.M. Lightfoot, Casconsult Pty. Ltd.
- 176990 The Next Generation of Water and Fluid Management for Unconventional Exploration and Appraisal: Building on the Successes of Queensland Coal Seam Gas**
N. Hudson, Resource Energy Solutions

Tuesday, 10 November • 1400-1530 hours
TECHNICAL SESSION 12: TECHNICAL ADVANCES FROM SHALE/TIGHT RESERVOIRS II
Great Hall 2

Session Chairpersons:
Luis Baez, BG Group
Hans-Christian Freitag, Baker Hughes
Mike Gatens, Unconventional Gas Resources Canada

Papers

- 176828 Delaware Basin Bone Springs - A Study of the Evolving Completion Practices to Create an Economically Successful Play**
L.V. Lehman and R. Andress, StrataGen, Inc.; M. Mullen, Stimulation Petrophysics, LLC; and R. Johnson, Jr., Unconventional Reservoir Solutions

- 176936 Saudi Arabia's Emerging Unconventional Carbonate Shale Resources: Moving to Horizontals With an Integrated Engineering and Geosciences Approach**
N.I. Al-Mulhem, Saudi Aramco Exploration; A. Ahmed, Saudi Aramco; A. Hakami, Saudi Aramco Exploration; A. Sadykov and M. Korosa, Saudi Aramco SAOO; and K.S. Asiri, Saudi Aramco Exploration

- 177019 The Progression of Fracture Stimulations in Horizontal Wells Targeting the Montney Formation Within the Dawson, British Columbia Area of Western Canada**
K. Christie, Deloitte Australia, and J. Cantin, D.A. Russum and M.A. Clowes, Deloitte

Tuesday, 10 November • 1400-1530 hours
TECHNICAL SESSION 13: SHALE/TIGHT GAS RESERVOIR PERFORMANCE
Meeting Room M1

Papers

- 177024 Qualitative Analysis of Rate-Time Behaviour for US Gas Shale Plays**
D. Symmons, Wilcox Wiggins; P.K. Pande, Anadarko Petroleum Corp.; and T.A. Blasingame, Texas A&M U.
- 177025 Reservoir Engineering Aspects of Gas and Liquids-Rich Unconventional Reservoir Systems**
P.W. Collins, D. Ilk and N. Hosseinpour-zonoozi, DeGolyer and MacNaughton, and T.A. Blasingame, Texas A&M U.
- 176982 An Integrated Approach to Performance Analysis in a Low Permeability Gas Condensate Reservoir**
A.K. Gupta, S. Saurav, P. Shankar and S. Verma, Cairn India Ltd.

Tuesday, 10 November • 1400-1530 hours
TECHNICAL SESSION 14: COAL SEAM GAS RESERVOIR MODELLING
Meeting Room M2

Session Chairpersons:
Luke Connell, CSIRO Petroleum
Mark Burgoyne, Santos Ltd.
Christopher Clarkson, U. of Calgary

Papers

- 176862 Reservoir Modelling and Probabilistic Forecasting of the Walloons Coal Seam Gas Measures: Unique Challenges and Solutions to Regional CSG Reservoir Performance Prediction**
P.M. Weatherstone and P.E. Paris, Origin Energy Ltd.
- 176835 Reservoir Characterisation of the Spring Gully Coal Seam Gas Field**
J.X. Lin, Sinopec, and P.M. Weatherstone, Origin Energy Ltd.
- 176881 Integrated Production Modelling for CSG Production Forecasting**
A. Shields and S. Tihonova, Santos Ltd., and L.A. Saputelli, Frontender Corp.

Tuesday, 10 November • 1600-1730 hours
TECHNICAL SESSION 15: TECHNICAL ADVANCES
FROM SHALE/TIGHT RESERVOIRS III
Great Hall 2

Session Chairpersons:

Craig Cipolla, Hess Corp.

Kent Perry, RPSEA

Lau Hon-Chung, Shell (China) Projects and Technology

Papers

176884 Hydraulic Fracturing of Shale Wells With Degradable Materials - Case History of Barnett and Haynesville Wells

J.L. Garza, S. Kakadjian, A. Rodriguez and J. Vu, Trican Well Service Ltd.

177012 Geological and Petrophysical Characterisation of Tight Oil Reservoirs: A Case Study From Upper Triassic Yanchang Formation, Ordos Basin in North China

H.W. Zhao, China U. of Petroleum, Beijing, and Z.F. Ning, T.Y. Zhao and R. Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum

176931 Sweet Spot Identification and Prediction of Frac Stage Performance Using Geology, Geophysics, and Geomechanics - Application to the Longmaxi Formation, China

X. Yang and X. Wang, SCGC; A. Amares, Sigma Cubed; and A. Ouenes, FracGeo

Tuesday, 10 November • 1600-1730 hours
TECHNICAL SESSION 16: CSG RESERVOIR
DEVELOPMENT STRATEGIES
Meeting Room M1

Session Chairpersons:

Saikat Mazumder, Arrow Energy Ltd.

Mark Burgoyne, Santos Ltd.

Mike Zuber, Schlumberger

Papers

176890 Produced Gas Re-Injection Trial for a Coal Seam Gas Field

O. Thomas, Origin Energy Ltd.

176845 Impact of Varying Coal Continuity on Development Well Spacing in Surat Basin

V. Sharma, Arrow Energy Ltd.; X. Gong and T. Stephan, Arrow Energy; and S. Mazumder, Arrow Energy Ltd.

176904 Value Optimisation of Future Coal Seam Gas Field Developments Using Horizontal Wells

N.T. Xu and N. Alam, Origin Energy Ltd.; J.X. Lin, Sinopec Ltd.; and P.M. Weatherstone, Origin Energy Ltd.

Tuesday, 10 November • 1600-1730 hours
TECHNICAL SESSION 17: SHALE AND TIGHT GAS
HYDRAULIC FRACTURING II
Meeting Room M2

Session Chairpersons:

Rob Jeffrey, SCT Operations

James McGowen, Halliburton

Sau-Wai Wong, Shell Intl. E&P

Papers

176887 A Unique Hydraulic Fracturing Technique Utilising Dynamic Rock Behaviour and Temporary Changes in Geomechanic Stress Anisotropy to Optimise Hydrocarbon Recovery in Unconventional Formations

B.J. Lewis and J.B. Surjaatmadja, Halliburton

176851 Maximising Production in Multiple Zones Using Zipper Fracs in Small Acreages

G.G. Gutierrez Murillo, Pemex; E. Medina and C. Henriquez, Halliburton; and J.C. Salguero, CalFrac

176920 Investigation of Fracture Tip Behaviour in Visco-Elastic/ Visco-Plastic Shale Rocks and Its Effect on Fracture Propagation

H. Song, A. Gholami, G. Bazunu and S.S. Rahman, U. of New South Wales

Wednesday, 11 November • 0900-1030 hours
PANEL SESSION 4: SWEET SPOT IDENTIFICATION
Great Hall 2

Session Chairpersons:

Usman Ahmed, Vice President and Chief Reservoir Engineer, Baker Hughes

Mike Zuber, Advisor, Unconventional Resources, Schlumberger

Speakers:

• **Mike Gatens**, Chief Executive Officer, Unconventional Gas Resources Canada

• **Khalil Rahman**, Geomechanics Advisor, Baker Hughes

• **Richard Salter**, Exploration and Appraisal Manager, URG, Schlumberger

Wednesday, 11 November • 0900-1030 hours
TECHNICAL SESSION 18: COAL SEAM GAS
HYDRAULIC FRACTURING
Meeting Room M1

Session Chairpersons:

Muthukumarappan Ramurthy, Halliburton

Doug Elliott, ProTechnics, a Division of Core Laboratories, L.P.

Gabriel Amorer, Santos Ltd.

Papers

176895 Hydraulic Fracture Design Optimisation in Low Permeability Coals, Surat Basin, Australia

E. Kirk-Burnnand, Origin Energy Ltd.; V.J. Pandey, ConocoPhillips Co.; T. Flottman and R.L. Trubshaw, Origin Energy Ltd.; and S. Naidu, Origin Energy Resources Ltd.

176953 Laboratory Studies and Mathematical Modelling of Graded Proppant Injection Into Coal Seams

A. Keshavarz, A. Badalyan and T. Carageorgos, The U. of Adelaide; R.L. Johnson, Unconventional Reservoir Solutions; and P.G. Bedrikovetsky, The U. of Adelaide

176885 Mathematical Modelling of Pressure Drop in Coal Seam Gas Wells

M. Firouzi and B.F. Towler, The U. of Queensland

Wednesday, 11 November • 0900-1030 hours
TECHNICAL SESSION 19: PRODUCTION ANALYSIS
AND FORECASTING
Meeting Room M2

Session Chairpersons:

Dilhan Ilk, DeGolyer and MacNaughton

Tony Kourakis, Origin Energy Ltd.

Papers

176914 Downhole Naturally Convective Hydrocarbon Separating Production System to Avoid Unnecessary Water and Sand Production

J.B. Surjaatmadja and B.J. Lewis, Halliburton

176893 Why CBM/CSG Water Production is Often Overestimated and Compartmentalisation Underestimated?

J. Unterschultz, The U. of Queensland; I.J. Duncan, The U. of Texas at Austin; and A.J. Garnett, The U. of Queensland

176869 An Analytical Method for Forecasting Wells Completed in Undersaturated CBM Reservoirs

C.R. Clarkson and F. Qanbari, U. of Calgary

Wednesday, 11 November • 1100-1230 hours
PANEL SESSION 5: GEOMECHANICS INFLUENCE IN HYDRAULIC FRACTURING

Great Hall 2

Session Chairpersons:

Thomas Flottman, Principal Geologist, Origin Energy Ltd.
Emma Tavener, Team Leader Geomechanics, Santos Ltd.

Speakers:

- **Ahmed Abou-Sayed**, Founder, Advantek International
- **Michael Anthony Addis**, Director for New Technology, Middle East-Asia Pacific, Baker Hughes
- **Rob Jeffrey**, Consultant, SCT Operations
- **Sau-Wai Wong**, Technology Advisor, Unconventional Gas, Shell International E&P

Wednesday, 11 November • 1100-1230 hours
TECHNICAL SESSION 20: PORE SCALE EFFECTS
Meeting Room M1

Session Chairpersons:

Saikat Mazumder, Arrow Energy Ltd.

Rick Lewis, Schlumberger

Chad Hartman, Weatherford Laboratories

Papers

- 176870 The Effect of Rank on Wettability and Its Application to an Improved Relative Permeability Model in Coal Seam Gas**
 S.A. Mahoney, T. Rufford, V. Rudolph and K. Steel, The U. of Queensland
- 176999 Pore-Filling Nature of CH₄ Adsorption Behaviour in Kerogen Nanopores: A Molecular View Based on Full-Atom Kerogen Models**
 Y. Sawa, Y. Liang, S. Murata and T. Matsuoka, Kyoto U., and T. Akai and S. Takagi, Japan Oil, Gas and Metals National Corp. (JOGMEC)
- 177021 Effect of Wettability Alteration on Productivity Enhancement in Unconventional Gas Reservoirs: Application of Nanotechnology**
 S. Naik, Z. You and P.G. Bedrikovetsky, The U. of Adelaide

Wednesday, 11 November • 1100-1230 hours
TECHNICAL SESSION 21: EMERGING RESOURCES AND RECOVERY TECHNOLOGIES

Meeting Room M2

Session Chairpersons:

Marie Louise Lees, Santos Ltd.

Lau Hon-Chung, Shell (China) Projects and Technology

Russell Byfield, Strategy Central

Papers

- 176950 Taking the Heat Out of the Burning-Ice Debate: Potential and Future of Gas Hydrates**
 B. Decourt, S. Alias and R. Debarre, SBC Energy Inst., and P. Askew, Schlumberger Business Consulting
- 176954 Possibility of Bioelectrochemical Conversion of Carbon Dioxide Into Methane in Depleted Oil Fields**
 H. Maeda and M. Ikarashi, INPEX Corp., and N. Fukushima, H. Kobayashi and K. Sato, U. of Tokyo
- 176974 CO₂ Flooding in Unconventional Reservoirs, Case Study of Utica Shale**
 M.O. Eshkalak and K. Sepehrnoori, The U. of Texas at Austin

Wednesday, 11 November • 1400-1530 hours
PANEL SESSION 6: "MEGA PROJECTS": PAST, PRESENT AND FUTURE

Great Hall 2

Session Chairpersons:

Tom Blasingame, Professor, Texas A&M University

Ray Johnson Jr., Director, Unconventional Reservoir Solutions

Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Speakers:

- **Trevor Brown**, Vice President Queensland, Santos
- **Van Lineberger**, Chief Operating Officer (Integrated Gas, APLNG Operations), Origin Energy

Wednesday, 11 November • 1400-1530 hours
TECHNICAL SESSION 22: PORE-SCALE MODELLING AND VISUALISATION
Meeting Room M1

Session Chairpersons:

Sheik Rahman, U. of New South Wales

Pat Lasswell, Weatherford

Peter Burrows, Weatherford

Papers

- 177005 Multicomponent Flow of Hydrocarbons in Nano-Capillaries: A Non-Equilibrium Molecular Dynamics Study**
 F. Feng and I. Akkutlu, Texas A&M U.
- 176891 Massively Parallel Finite Difference Computation of Diffusive Time-of-Flight for Flow-Relevant Imaging of Hydraulic Fractured Unconventional Reservoirs**
 Y. Wang, Texas A&M U.; H. Song, U. of Science and Technology Beijing; and B. Yan and J.E. Killough, Texas A&M U.
- 176948 Applications of Multi-Scale Imaging Techniques to Unconventional Reservoirs**
 A. Fogden, Australian National U., and T.M. Olson, FEI

Wednesday, 11 November • 1400-1530 hours
TECHNICAL SESSION 23: MULTI-STAGE HYDRAULIC FRACTURING COMPLETIONS

Meeting Room M2

Session Chairpersons:

Muthukumarappan Ramurthy, Halliburton

Doug Elliott, ProTechnics, a Division of Core Laboratories, L.P.

Papers

- 176966 Impact of Multistage Fracturing on Tight Gas Recovery From Saudi Arabian High Pressure High Temperature Reservoirs**
 Z. Rahim and H.A. Al-Anazi, Saudi Aramco PE&D GRMD; A.A. Al Kanaan, Saudi Aramco PE&D; and R.E. Kayumov, Schlumberger Saudi Arabia
- 176994 An Evaluation of Coiled Tubing Fracturing as Compared With Traditional Completion Techniques in Horizontal Wells**
 B.J. Lewis, Halliburton, and A. Sharma, Halliburton Energy Services Group
- 176838 Interventionless Unconventional Multistage Hybrid Completion: Fracturing Longer Laterals in Cemented Applications**
 F.J. Ortega, Baker Hughes; A. Govorushkina, Baker Hughes Solutions; and C. Hendersen, Baker Hughes

KNOWLEDGE SHARING ePOSTER SESSIONS

(Additional/changes made after 31 July 2015 will be reflected in the Conference Programme)

An ePoster is an electronic version of the traditional poster, presented on a large digital flat screen. The electronic format offers the added benefit of animation and video to enhance the visual experience and provide greater interactivity between attendees and authors.

During the ePoster session, authors will present their technical papers at designated ePoster stations. Attendees are encouraged to attend the sessions for more knowledge sharing and networking opportunities. ePosters are also available for attendees' viewing at ePoster stations throughout the conference.

Papers

- 176822 Water Injection in Tight Shaly Sandstone Formation**
F. Ariessita, PT Medco E&P Indonesia
- 176824 Rapid Assessment Techniques for Unconventional Reservoir**
S.T. Dang, The U. of Oklahoma, and N. Drenzek, Statoil ASA
(Alternate paper in technical session 3)
- 176825 Characterising Natural Fracture Parameters in CBM Reservoirs for Dual-Porosity Simulation**
N. Bahrami, Curtin U.
- 176826 A Model for Oil Flow in Tight Oil Reservoirs Considering the Effects of the Pore Wall Roughness and Wettability**
K. Wu, U. of Calgary
(Alternate paper in technical session 7)
- 176827 An Innovative Cup Seal Isolation Open Hole Packer Which Can React to Wellbore Variations**
I. Adan, Weatherford
- 176832 First Successful Multistage Hydraulic Fracturing in Unconventional Oil Bearing Sand Horizontal Well in Barmer Hill, India**
A. Kumar and A. Nagar, Cairn India Ltd.
(Alternate paper in technical session 23)
- 176833 Prediction of Fracture Population and Stimulated Reservoir Volume in Shale Gas/Oil Reservoirs**
B. Guo and X. Cai, U. of Louisiana at Lafayette
(Alternate paper in technical session 23)
- 176837 New Al-Based Cross-Linkers to Form a Strong Gel for Hydraulic Fracturing Treatments**
K. Sokhanvarian and H.A. Nasr-El-Din, Texas A&M U., and T. Harper, Maxflo Oilfield Chemical Solutions
- 176840 The Relationship Between Geomechanical Response of Natural Fractures and Reservoir Productivity in KS2 Tight Sandstone Gas Field, Tarim Basin, China**
H. Yang, H. Zhang, Z. Cai, S. Chen, F. Yuan, X. Han and G. Yin, Research Inst. of E&D, Tarim Oilfield Co., PetroChina
(Alternate paper in technical session 17)
- 176841 The Influence of Mineral Matter Distribution on Desorption Characteristics of Australian Coals**
A. Salmachi, M. Rajabi, Z. Yarmohammadtooski and J.D. Darby, U. of Adelaide
(Alternate paper in technical session 9)
- 176842 Tight Sand Gas Reservoirs Microscopic Pore Structure Characteristics and Numerical Simulation: An Example From Sulige Gas Field, China**
Z. Sun, J. Yao, L. Zhang, H. Sun, Y. Xu and Y. Gao, China U. of Petroleum (East China)
(Alternate paper in technical session 22)
- 176843 A Coupled Model for Fractured Shale Reservoir With the Characteristics of Dual Continuum and Fractal Geometry**
Y. Wei, D. He and J. Wang, Research Inst. of Petroleum Exploration and Development
(Alternate paper)
- 176844 Proving the Concept of Unconventional Gas Reservoirs in Saudi Through Multistage Fractured Horizontal Wells**
A.M. Al-Momin, Saudi Aramco
(Alternate paper in technical session 21)
- 176846 The Contributing Factors of Stimulation Design to Incremental and Long-Term Productivity in Bakken Play**
F. Zhou and Y. Xue, China U. of Petroleum, Beijing; H. Qu, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; X. Qin, China U. of Petroleum, Beijing; and F. Zhou, Research Inst. of Petroleum Exploration & Development
- 176847 Geochemical Assessment of the Huntly Coalbed Methane (CBM) Field, New Zealand Using a Chloride, Bicarbonate, and Boron Ternary Diagramme**
H. Abu Bakar, U. of Auckland
(Alternate paper)
- 176848 A Novel Thermal-Resistance and Salt-Tolerance Gel With Low-Concentration Crosslinkers for Water Shutoff in Tahe Oilfield**
L. Chen, China U. of Petroleum (East China); G. Zhang, China U. of Petroleum, Beijing; and J. Ge, China U. of Petroleum (East China)
- 176850 Effect of Liquid Invasion Damage on Wireline Formation Tester Measurements in Tight Gas Reservoirs**
N. Bahrami, Curtin U., and H. Pourabed, Schlumberger
(Alternate paper in technical session 6)
- 176852 Evaluating Ion Effect on Residue Content of Fracturing Fluids**
D. Singh, Halliburton Energy Services (OK); E. Hampton, Halliburton Energy Services; and U.A. Inyang, Halliburton
(Alternate paper in technical session 12)
- 176853 Experimental Study of Controlling Factors of the Continental Shale Matrix Permeability in Ordos Basin**
H. Qu, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; F. Zhou, China U. of Petroleum, Beijing; Z. Pan, CSIRO; and Y. Xue, China U. of Petroleum, Beijing
(Alternate paper)
- 176859 Selection Criteria and Evaluation Technology for Casing Used in Shale Gas Wells in China**
J. Wang, CNPC Tubular Goods Research Inst.

- 176861 Technology Feasibility and Production Driver Study in the First Integrated Shale Gas Block in Sichuan Basin**
X. Zhou and Y. Shim, Schlumberger, and X. Liang, Y. Jiao, G. Wang, L. Zhang and Z. Chen, PetroChina ZheJiang
(Alternate paper in technical session 8)
- 176864 Solving 22" Roller Cone Endurance Issues Drilling Challenging Carbonates in Western Kuwait Sets New World Single Run Footage Record and Reduces Trip Time**
S.M. Jumah, M.S. Al-Mehailan, J. Ajareki and F. Juhail, Kuwait Oil Co., and S. Hassan, P. Nair, K. Beheiry and O. Ghoneim, Smith Bits, a Schlumberger Co.
- 176865 Reservoir Modelling for Pad Optimisation in Context of Hydraulic Fracturing**
P. Pankaj, Schlumberger
- 176868 Exporting USA Percussion Tools/Techniques to Australia: Underbalanced System Increases ROP by 700% on First Run Drilling Ultra-Hard/Abrasive Formation**
C. Rogers, R. Jangani and A. Spedale, Smith Bits, a Schlumberger Co.
(Alternate paper)
- 176871 Diffusion and Apparent Permeability in Tight Gas and Shale Gas Reservoirs**
A. Ziarani, Trican Well Service Ltd.; R. Aguilera, U. of Calgary; and A. Cui, Trican Well Service Ltd.
- 176872 A Model for CH₄-CO₂ Flow in Shale Gas Reservoirs With Nano- to Micro-Scales**
K. Wu, U. of Calgary
(Alternate paper in technical session 17)
- 176873 Proppant Transport Simulation in Hydraulic Fractures and Fracture Productivity Forecast**
B. Kong, U. of Calgary, and E. Fathi, West Virginia U.
(Alternate paper in technical session 2)
- 176875 Zonal Isolation in a High Stress Environment: A Case History in Venezuela's In-Situ Combustion Wells**
A. Brandl, Baker Hughes
(Alternate paper in technical session 21)
- 176876 New Toe Sleeve Enables True Casing-Pressure Test in an Eagle Ford Shale Well - A Case Study**
G.A. Haydell, Murphy Oil Co. Ltd.; B.J. Wellhoefer, Halliburton Energy Services Group; S. Canning, Halliburton Completion Products and Services; and T. Alkek, Halliburton Energy Services (OK)
(Alternate paper in technical session 12)
- 176877 Preparing for the Tight Gas Steeplechase, Talking to Canadians About Deep, Tight Gas Sand (TGS) Developments**
R.M. Pearson, Tactical Gas Services Pty. Ltd.
- 176878 Numerical Investigations on the Impact of Fracture Characteristics on Elastic Anisotropy in Coal Seam Gas Reservoirs**
J. Gao, L. Gross and S. Tyson, The U. of Queensland
(Alternate paper in technical session 18)
- 176879 Hydrodynamic Modelling of Hydraulic Fracturing Fluid Injection in North Perth Basin Shale Gas Targets**
S. Palat, S. Varma, M. Torbatynia, K. Kanadikirik and M. Middleton, Department of Mines and Petroleum
(Alternate paper)
- 176880 Adsorption Behaviour Study of Shale Gas: Models and New Combination Approach**
J. Li, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum U.; Z. Lie Hui, Southwest Petroleum U.; and C. Yulin, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum U.
- 176882 Experimental Research on the Shale Imbibition Characteristics and Its Relationship With Pore Structure**
L. Yang, H. Ge, Y. Shen, K. Ren, M. Meng, X. Qin, H. Huang and S. Su, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing
- 176886 Gas Transport in Shale Gas Reservoirs With the Effects of the Pore Wall Roughness and Wettability**
K. Wu, U. of Calgary
(Alternate paper in technical session 1)
- 176888 Analysis of the Most Successful Shale Gas Reservoir in China**
P. Wei, Sinopec Research Inst. of Petroleum Engineering
(Alternate paper in technical session 8)
- 176894 Geochemical Exploration for Gas Hydrates in the Muli Area, Qilianshan Permafrost, Northwestern China**
C. Wu, Wuxi Research Inst. of Petroleum Geology, Petroleum Exploration and Production Research Inst. of Sinopec; K. Zhao, Petroleum Exploration and Production Research Inst. of Sinopec; and C. Sun, Y. Tang and J. Gao, Wuxi Research Inst. of Petroleum Geology, Petroleum Exploration and Production Research Inst. of Sinopec
(Alternate paper)
- 176896 Associative Non-Crosslinked Polymer as a Low Damage Fracturing Fluid**
Z. Hu, Q. Jiang and Z. Song, China U. of Petroleum, Beijing
- 176898 Optimisation of Horizontal Well Spacing and Transverse Fracture Stages for a Thinly-Interbedded Tight Sand Reservoir Onshore Australia: An Integrated Geomechanical and Production Modelling Approach**
A. Younessi and K. Rahman, Baker Hughes
(Alternate paper in technical session 11)
- 176899 Pressure Triggered Toe Sleeve in Lieu of a Tubing Conveyed Perforating Operation for First Stage Fracturing in the Neuquén Basin**
F.J. Ortega and A. Govorushkina, Baker Hughes Solutions
- 176900 Application of a Novel Temporary Blocking Agent in Refracturing**
Y. Li, X. Cheng, Z. Zhang, S. Xue, X. Hou, Y. Wang and G. Wu, ENTI PERC Petrotech Corp.
- 176903 Dynamic CBM Reservoir Characterisation of Southern Qinshui Basin**
X. Zhao and S. Zhang, China U. of Petroleum, Beijing, and R.M. Bresnehan, CFT Energy
(Alternate paper in technical session 14)
- 176906 Evaluation of Microwave Heating on Fluid Invasion and Phase Trapping in Tight Gas Reservoirs**
H. Wang, R. Rezaee and A. Saeedi, Curtin U.
(Alternate paper in technical session 13)

- 176907 Dynamic Modelling to Optimise the Field Development Plan for a Low Permeability Volcanic Reservoir With Multi Stage Hydraulic Fractures**
A.K. Gupta, P. Shankar, S. Verma and S. Saurav, Cairn India Ltd.
(Alternate paper in technical session 21)
- 176909 Lean Best Practices for Unconventional Projects: Learnings From CSG to LNG**
C.M. Riseley, QGC - A BG Group Business
(Alternate paper in technical session 16)
- 176910 Effect of Well Interference on Shale Gas Wells' SRV Interpretation**
P. Wei, Sinopec Research Inst. of Petroleum Engineering
- 176916 Mechanical Interaction of Multiple 3D Fractures Propagation for Network Fracturing**
S. Zhiyu and H. Zhiwen, Sinopec Exploration and Production Research Inst.
- 176917 Development and Verification of Degradable Sealing Elements for Fully-Degradable Frac Plugs**
S. Takahashi, T. Takahashi, T. Kobayashi and M. Okura, Kureha Corp.
(Alternate paper)
- 176918 A Comparison of Plug and Perf and Cemented Multiple Entry Ball Drop Sleeve Completions**
W. Davis, Baker Hughes; R.D. Mckitrick and W. Burton, Baker Hughes Inc.; and J.S. Sanchez, Baker Hughes Oilfield Operations
(Alternate paper in technical session 12)
- 176921 Researches on Pore Connectivity and Scale-Dependent Permeability of Shale**
X. Zhou, W. Pan, Z. Lun and C. Zhao, Sinopec
- 176922 Anisotropic Wellbore Stability Model for Transversely Isotropic Formation and Its Application in Drilling Through Shale Formation**
M. Liu, Y. Jin, Y. Lu, M. Chen and X. Wen, China U. of Petroleum, Beijing
(Alternate paper)
- 176924 Dynamic Synthesis of a CSG Field**
J. Goodchild, G. Fontaine, K. Kim and M. Storey, Santos Ltd.
(Alternate paper)
- 176926 PTA and Well Performance Comparison of Rich vs Dry Gas Unconventional Tight Sands: A Middle East Case Study**
A.M. Al-Shawaf, Saudi Aramco PE&D; M.B. Issaka, Saudi Aramco; and L. Cai, Halliburton Co.
- 176927 Application of a New Hydraulic Fracturing Simulator in Changbei II, Ordos Basin, P.R. China**
S. Falser, Shell (China) Project & Technology; A.D. Nezich and L. Nas, Shell China E&P Co. Ltd.; X. Wang, Shell China Exploration & Production Co. Ltd.; and Y. Yang, H. Yang and H. Chen, PetroChina Changqing Oilfield Co. Ltd.
(Alternate paper in technical session 2)
- 176929 An Evaluation of Velocity Analysis Methods for Estimation of Thomsen Anisotropy Parameters and Their Application for Sweet-Spot Identification and Flow Simulation in Coal Seam Gas**
H.L. Wilson, L. Gross and S. Tyson, The U. of Queensland
(Alternate paper in technical session 4)
- 176930 Boosting Performance of Component Assets Used in Unconventional Resource Plays With Nanolaminated Alloy Coatings**
C. Lomasney, Modumetal
- 176932 Optimal Fracing Near Faults - Quantifying the Interaction Between Natural and Hydraulic Fractures Using Geomechanical Modelling**
A. Ouenes and N. Umholtz, FracGeo, and Y.E. Aimene and J.A. Nairn, Oregon State U.
(Alternate paper in technical session 10)
- 176933 Application of Innovative High Density Non-Aqueous Fluids Technology in the Efficient Development and Production of Ultra-Deep Complicated Formations in the Tian Mountain Front Block**
L. Li, PetroChina Co. Ltd.
- 176934 Structural Controls on the River Morphology and Sedimentation Pattern in the South Pine River Basin, North Brisbane**
B. Bhosle, Weatherford Laboratories Australia Pty. Ltd.; D.S. Bhagat, Independent Geoconsultant; and E.A. Barcelona, Weatherford Australia Pty. Ltd.
(Alternate paper)
- 176935 Quick Tricks, Tips, Analytical Methods and Other Proxy Tools for the Unconventional Reservoir Engineer**
C.L. Jordan, RISC
(Alternate paper in technical session 17)
- 176938 Characterisation of Complex Multiscale Natural Fracture Systems of the Silurian LongMaXi Gas Shale in the Sichuan Basin, China**
X. Liang, PetroChina; C. Xian, X. Liu and L. Wang, Schlumberger; and C. Zhao, Schlumberger Trinidad Inc.
- 176939 The Effect of Water Salinity on ECBM and CO₂ Sequestration in Coalbed**
A.F. Ibrahim and H.A. Nasr-El-Din, Texas A&M U.
(Alternate paper in technical session 4)
- 176940 Study of Pore Structure of Gas Shale With Low-Field NMR: Examples From the Longmaxi Formation, Southern Sichuan Basin, China**
Y. Chen, L. Zhang, J. Li and T. Zhang, Southwest Petroleum U.
(Alternate paper in technical session 7)
- 176943 Optimal Core Retrieval Time to Minimise Core Decompression Damage**
T. Hoeink, W. Van Der Zee and S.M. Arndt, Baker Hughes
(Alternate paper in technical session 16)
- 176945 100% in the Sweet Section: An Effective Geosteering Approach for the Silurian Longmaxi Gas Shale in the Sichuan Basin, China**
X. Liang, Y. Jiao and G. Wang, PetroChina, and L. Wang, C. Xian and C. Zhao, Schlumberger
(Alternate paper in technical session 15)
- 176946 Natural and Induced Fracture Application Technology on Enhancing Unconventional Reservoir Wellbore Stability**
Y. Al-Ghamdi and R.R. Sung, Saudi Aramco PE&D EASD
(Alternate paper)

- 176947 Architecture of the Fracture Network of Shale Reservoirs by Tracking Exchangeable Cations**
H. Roshan, U. of New South Wales, and M. Sarmadivaleh, Curtin U.
(Alternate paper in technical session 1)
- 176949 Pulse-Echo Cement Evaluation Tool Confirms the Effectiveness of New Optimised Cementing Practice in Fairview Field, Queensland, Australia**
H. Pourabed, Schlumberger; A. Ablaghdar and G. Amorer, Santos Ltd.; and J. Rosales, Schlumberger
- 176951 Causes and Responses for Abnormal Fracture Pressure of Ultra-Deep Shale in South China**
Q. Shan, Y. Jin, M. Chen and B. Hou, China U. of Petroleum, Beijing
- 176952 A New Improved Shale Correction for Pulsed-Neutron Measurements**
J. Quirein, Landmark Graphics Corp., and N. Mekic, W. Guo, D.F. Dorffer and C. Mcilroy, Halliburton
(Alternate paper in technical session 11)
- 176956 An Adventure in Accelerated Immersive Capability Development in Unconventional Resources**
S. Salahudin, Halliburton; A. Biron, PETRONAS Carigali Sdn. Bhd.; J.L. Stannard, PETRONAS; R. Befus, PETRONAS Carigali Sdn. Bhd.; and S. Rajput and M. Navarette, Halliburton
- 176959 Hydraulic Fracturing Simulations in Zhahaquan, Qaidam Basin, P.R. China: Can Early Screen-Outs be Avoided With Model Based Design?**
D. Weng, Research Inst. of Petroleum Exploration and Development - Langfang Branch; S. Falser, Shell (China) Project & Technology; Y. Ding and Y. Xu, Research Inst. of Petroleum Exploration and Development - Langfang Branch; Z. Guo, Qinghai Oilfield, PetroChina; and H. Liang, Research Inst. of Petroleum Exploration and Development - Langfang Branch
(Alternate paper)
- 176967 Single Component Gas Diffusion in Australian Black Coal - Experimental Characterisation and Modelling**
R. Sander, Z. Pan, L. Connell, M. Camilleri, N. Lupton and D. Heryanto, CSIRO Energy
(Alternate paper in technical session 20)
- 176968 Evaluation of Molecular Diffusion Effect by Using PVT Experimental Data: Impact on Gas Injection to Tight Fractured Gas Condensate/Heavy Oil Reservoirs**
T. Ohata, M. Nakano and R. Ueda, Japan Petroleum Exploration Co. Ltd.
- 176972 Dynamic Variations of Petro-Physical Properties of Gas Shale During Gas Production**
J. Wang, China U. of Petroleum, Beijing; H. Luo, The U. of Texas at Austin; H. Liu, China U. of Petroleum, Beijing; Y. Jiao, Research Inst. of Petroleum Exploration and Development; and K. Sepehrnoori, The U. of Texas at Austin
(Alternate paper)
- 176973 Effects of Sample Holding Time, Storage and Preservation on Sample Integrity for Source Rock Analysis: Experimental Results**
B. Bhosle, P. Crozier and K.H. Flynn, Weatherford Laboratories (Australia)
- 176975 Use of Automated Well Placement for Optimised and Improved Geosteering - A North America Unconventional Case Study**
C. Sirivuri and K. Saikia, Halliburton
(Alternate paper in technical session 5)
- 176976 A New Method for the Estimation of Lost Gas During the Measurement of the Gas Content of Coal**
M. Lu, Z. Pan and L. Connell, CSIRO
(Alternate paper in technical session 16)
- 176980 Impact of Creep on Coal Permeability and Gas Production**
N.N. Danesh, Z. Chen, S. Aminossadati and M. Kizil, The U. of Queensland
(Alternate paper in technical session 4)
- 176981 Production Simulation of Complex Fracture Networks for Shale Gas Reservoirs Using a Semi-Analytical Model**
P. Jia, L. Cheng and S. Huang, China U. of Petroleum, Beijing
- 176983 Estimate the Effective Fracture Properties From Tight Formation Production Data**
X. Wu and W. Tian, The U. of Oklahoma
- 176985 How SRV Determination by Properly Honoring Unconventional Depletion Mechanisms May Boost Producers' Bottom Line by 30%**
Y. Wang, L. Jin and Y. Li, InPetro Technologies Inc.
(Alternate paper)
- 176986 Optimising Hydraulic Fracture and Drilling Location Selection for Unconventional Gas Development Through a Full 3D Discrete Fracture Network Approach**
M.G. Cottrell and P. La Pointe, Golder Associates, and P. Hayes, Golder Associates Pty.
- 176988 3D Pore Network Investigation in Marcellus Shale Rock Matrix**
J. Goral and I. Miskovic, The U. of Utah
(Alternate paper in technical session 20)
- 176989 Slip Velocity and Permeability of Gas Flow in Nanopores for Shale Gas Development**
N. Okamoto, Y. Liang, S. Murata and T. Matsuoka, Kyoto U., and T. Akai and S. Takagi, Japan Oil, Gas and Metals National Corp. (JOGMEC)
(Alternate paper in technical session 1)
- 176991 Novel Micro and Nano Particle-Based Drilling Fluids: Pioneering Approach to Overcome the Borehole Instability Problems in Shale Formations**
J. Zhang, CNPC Drilling Research Inst.; L. Li, PetroChina Co. Ltd.; and J. Sun, Z. Zhao and S. Wang, CNPC Drilling Research Inst.
(Alternate paper)
- 176992 Quantifying Pore Size Distribution Effect on Gas in Place and Recovery Using SLD-PR EOS for Multiple-Components Shale Gas Reservoir**
X. Wu, The U. of Oklahoma
(Alternate paper in technical session 6)
- 176993 Reservoir Characteristics for Unconventional Shale Play of Huai Hin Lat Formation in Northeastern Thailand**
C. Chumkratoke and S. Dunn-Norman, Missouri U. of Science and Technology
- 176995 Depth Distribution of Gas and Water Rates From Temperature and Pressure Profiles in Unconventional Gas Wells**
Z. You and P.G. Bedrikovetsky, The U. of Adelaide
(Alternate paper in technical session 19)

- 176996 The Triaxial Mechanical Strength Experiments of Shale Under Supercritical Carbon Dioxide Conditions**
H. Zhu, Southwest Petroleum U.
(Alternate paper)
- 176997 Simulation of Shale Gas Transport in 3D Complex Nanoscale-Pore Structures Using the Lattice Boltzmann Method**
Y. Ning, Y. Jiang and G. Qin, U. of Houston
- 176998 A Practical Method to Determine Aquifer Leakage Factor From Well Test Data in CBM Reservoirs**
P. Srivastava, The U. of Oklahoma; F.H. Escobar Macualo, Surcolombiana U.; and X. Wu, The U. of Oklahoma
(Alternate paper)
- 177001 Mechanism of Liquid-Phase Adsorption and Desorption in Coalbed Methane Systems - A New Look at an Old Problem**
J. Li and J. Shi, China U. of Petroleum, Beijing, and K. Wu, U. of Calgary
(Alternate paper in technical session 20)
- 177002 Petrophysical Characterisation of Tight Sands in Granite Wash, Anadarko Basin (USA)**
A. Agarwal, C.S. Rai and C.H. Sondergeld, The U. of Oklahoma, and J.A. Truax, Linn Energy LLC
(Alternate paper in technical session 13)
- 177003 Improved Reservoir Performance Using Complex Nanofluid (CnF) Systems**
S.A. Marinello, Flotek Industries; J.T. Pursley, CESI Chemical - Flotek Co.; and G. Flock, Flotek Industries
- 177004 Modified Hybrid Fracturing in Shale Stimulation: Experiments and Application**
Y. Li, CCDC Downhole Service Co., and G. Qin, U. of Houston
- 177006 Isotherms, Gas Contents and Diffusion Coefficients of Coals and Shales**
I. Gray, Sibra Pty. Ltd.
(Alternate paper in technical session 9)
- 177010 A Unified Model for Gas Transfer in Nanopores of Shale Gas Reservoirs: Coupling Pore Diffusion and Surface Diffusion**
K. Wu and Z. Chen, U. of Calgary
(Alternate paper)
- 177011 Laboratory and Mathematical Modelling of Fines Production From CSG Interburden Rocks**
T. Beasley, D. Nguyen, A. Keshavarz, A. Badalyan and T. Carageorgos, U. Schacht, Z. You and P. Bedrikovetsky, The U. of Adelaide; and S. Hurter, The U. of Queensland
(Alternate paper in technical session 14)
- 177013 Innovative PDC Cutter With Elongated Ridge Combines Shear/Crush Action, Improves PDC Bit Performance**
Y. Zhang, X. Gan, H. Song, Z. Lin and M.G. Azar, Smith Bits, a Schlumberger Co.
- 177014 An Experiment Method to Determine the Fracture Toughness of Brittle and Heterogeneous Materials by Hydraulic Fracturing**
J. Too, National U. of Singapore; S. Falser, Shell (China) Project & Technology; and P. Linga, B. Khoo and A.C. Palmer, National U. of Singapore
(Alternate paper in technical session 10)
- 177015 High Pressure Swellable Packer Success and Lessons Learned**
S.J. Kim, Halliburton Energy Services (OK); P. Ji, Shell; and T. Stein, Halliburton
(Alternate paper in technical session 15)
- 177016 Pore-Scale Network Modelling for Prediction of Coal Permeability**
A. Zamani and P. Mostaghimi, U. of New South Wales
(Alternate paper in technical session 6)
- 177017 Micro CT Imaging for Coal Characterisation**
H. Lamei Ramandi, P. Mostaghimi, R.T. Armstrong and W.V. Pinczewski, U. of New South Wales
(Alternate paper in technical session 14)
- 177018 Production Forecasting for Shale Oil: Workflow**
M.D. Rincones Garcia and D. Lee, U. of Houston, and J.M. Rutledge, Marathon Oil Co.
(Alternate paper in technical session 7)
- 177020 DFN Model for Flow Simulation in Hydraulically Fractured Wells With Pre-Existing Natural Fractures Using Unstructured Quadrilateral Grids**
K. Wang, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum U.
- 177022 Avoiding Short Wiper Trips To Increase the Milling Efficiency of Composite Plug Drillout Operation With Coiled Tubing**
J. Li, K. Isidahomen and S.M. Majko, Trican Well Service Ltd.
(Alternate paper in technical session 5)
- 177023 De-Bottlenecking Drilling and Completion Operations for Shale Field Developments**
M. Mitschanek, Montanuniversität Leoben; G. Thonhauser, TDE Thonhauser Data Engineering; and M. Prohaska, Montanuniversität Leoben
(Alternate paper)
- 177026 Applicability Comparison of Nuclear Magnetic Resonance and Mercury Injection Capillary Pressure in Characterisation Pore Structure of Tight Oil Reservoirs**
H.W. Zhao, China U. of Petroleum, Beijing, and Z.F. Ning, T.Y. Zhao and R. Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum
(Alternate paper)

EXHIBITION AND SPONSORSHIP

The technical exhibition will include an international cross section of service and supply companies providing opportunities to learn about new products and improvements to existing technologies. Representatives from exhibiting companies will be on hand to demonstrate solutions for the challenges facing stakeholders in oil and gas exploration and production.

Scheduled coffee breaks and a networking luncheon in the exhibition hall will provide ample opportunity to meet exhibitors, review old acquaintances, and make new contacts in the exhibition area.

Exhibitors' List

(As of 31 July 2015)

ALS Oil & Gas	Netzch Australia
Carl Zeiss X-ray Microscopy, Inc.	Santos
Condor Energy Services Ltd.	Saltel Industries Australia
Enersight Petroleum Planning	Schlumberger
General Petroleum Oil Tools	Sharpe Com Au
Golder Associates	Tendeka Oil & Gas Pty. Ltd.
Hatch Pty. Ltd.	Trican
Kudu Australia Pty. Ltd.	University of Queensland
Magnum Oil Tools International	voestalpine Tubulars GmbH & Co KG
Marubeni-Itochu Tubulars Oceania Pty. Ltd.	Weatherford

Sponsorship Opportunities

A Sponsorship Programme has been designed to offer maximum exposure and visibility of organisations in the energy industry. Among the sponsorship opportunities still available are:

• Principal Sponsor	• Bottled Drinking Water
• Digital Proceedings	• Young Professionals Workshop
• Networking Luncheons	• Caps
• ePosters	• Juice Bar
• Evening Icebreaker	• Ice Cream Social
• Happy Hour	• Author Gifts
• Directional Signages	• Writing Pads
• Conference Preview/Programme	• Satchel Insertion
• Education Days	• Coffee/Tea Breaks

For more information, please contact

Christopher Wong, Sales Manager, Society of Petroleum Engineers at cwong@spe.org; Tel: +60.3.2182.3148

CONFERENCE DINNER (Organised by the SPE Queensland Section)

**Tuesday, 10 November 2015 • 1900-2300 hours • Meeting Room M3 & M4
Brisbane Convention & Exhibition Centre**

A\$165 per person (SPE Member)

A\$175 per person (Non Member)

Why not enjoy a casual evening with fellow industry colleagues and new acquaintances? The conference dinner is an informal opportunity for conference delegates, local members and partners to socialise and enjoy all that Brisbane has to offer. Superb food wine and live entertainment promises to make this an evening to remember. Join us for this not to be missed Conference Dinner!

Dress Code: Smart Casual

REGISTRATION AND GENERAL INFORMATION

Advance Registration

Register by 9 September and Save!

To advance register, please complete and return the Early Bird/Advance Registration Form. Early Bird Registration deadline is **9 September 2015**. The deadline for receipt of Advance Registration Form is **26 October 2015**. Advance registration should be made by mail OR fax to the SPE Asia Pacific Office (Kuala Lumpur). To submit your registration on-line, please visit the SPE website <http://www.spe.org/events/urce/2015/> (credit card registrants only).

Advance registration payment:

1. Telegraphic Transfer or Electronic Funds Transfer (Bank details will be provided on the invoice).
2. Credit Card payments will be processed in U.S. Dollars equivalent at the current exchange rate specified on the conference website. Conference materials and badges will not be mailed in advance, but should be collected at the Conference Registration Counter, Main Foyer, Brisbane Convention & Exhibition Centre, during registration hours.

To avoid congestion during the event, delegates are encouraged to collect their materials/badges at the Registration Counter on Sunday, 8 November 2015 between 1200-1700 hours.

Registration Package and Fee

Full Conference Period Registration Fee includes: admission to technical/e-poster sessions and exhibition, happy hours, coffee/tea breaks, daily luncheons, and one Digital Proceedings.

One-Day Registration Fee includes: admission to technical/e-poster sessions and exhibition, luncheon and coffee/tea breaks for that day only.

Students: Registration for technical sessions and exhibition is complimentary for full time students. Complimentary registration does not include *Proceedings* or any function tickets.

On-Site Registration

Delegates may register onsite at the Registration Counter, Main Foyer, Brisbane Convention & Exhibition Centre at the following times and dates:

- 1200-1700 hours on Sunday, 8 November
- 0730-1730 hours on Monday, 9 November
- 0730-1730 hours on Tuesday, 10 November
- 0730-1530 hours on Wednesday, 11 November

Refund Deadline

Cancellations must be received in writing by SPE Asia Pacific Office address shown on the Early Bird/Advance Registration Form no later than 26 October 2015 to receive a refund less A\$150 processing fee. No refund will be accepted after this date. Substitutions will be accepted.

Digital Proceedings

Advance full conference registration guarantees one set of Digital *Proceedings* and is available for collection at the conference. Additional Digital *Proceedings* may be pre-ordered on the Advance Registration Form or purchased during registration hours at the conference for A\$275 member and A\$330 non-member. Participants are encouraged to order Digital *Proceedings* in advance, as on-site availability is limited.

Hotel Accommodation

Hotel accommodation can be reserved at special rates at the Rydges South Bank, where room blocks are being held for conference delegates. Please complete the Hotel Booking Form to ensure your hotel accommodation during the conference and return by fax or email directly to the hotel.

You may also visit <http://www.rydges.com/customised-web-page/society-of-petroleum-engineers-conference-2015/> for online accommodation reservation. Alternatively, you may contact the Rydges South Bank reservation team directly via telephone at 61.7.3364.0800 or via email at reservations_southbank@rydges.com. Kindly quote the Society of Petroleum Engineers and provide the following code: **1511SOCIET** for telephone or email reservations.

Immigration/Visa

A valid passport with a visa is required for all non-Australian citizens attending the conference. Visas can be applied for at any office of the Australian High Commission, Embassy or Consulate. An invitation letter to facilitate the application of visa will be issued to attendees if required. Please visit the SPE website <http://www.spe.org/events/urce/2015/> for letter of invitation request form. It is important that people wishing to travel to Australia apply for their visas well in advance. Please ensure that your passport is also valid for the period of stay you are visiting Australia.

Please check with your travel agent or the Australian Embassy on regulations relating to immigration/visa for entry to Australia before your departure or visit www.immi.gov.au for further information.

The Society of Petroleum Engineers (SPE) is a not-for-profit organisation. Income from this event will be invested back into SPE to support many other Society programs. When you attend an SPE event, you help provide even more opportunities for industry professionals to enhance their technical and professional competence. Scholarships, certification, the Distinguished Lecturer program, and SPE's energy education program Energy4me are just a few examples of programs that are supported by SPE.

A GLANCE AT 2015-2016 EVENTS IN ASIA PACIFIC

SPE OFFICES

SPE WORKSHOPS

**“Young Professionals Workshop – Oil and Gas Digital World:
The Rise of Generations”**

9 to 11 August 2015 • Kuala Lumpur, Malaysia

“A Call to Action: Bringing Gender Diversity to the Next Level”

11 to 13 August 2015 • Kuala Lumpur, Malaysia

“Integrated Production Modelling - Maximising Asset Value”

16 to 19 August 2015 • Perth, Australia

“Reservoir Testing to Add Production Value”

2 to 5 September 2015 • Putrajaya, Malaysia

“Advanced Completion Technologies for Challenging Fields”

27 to 30 September 2015 • Putrajaya, Malaysia

**“Developing Marginal/ Brown Fields -
Managing Cost and Schedule”**

28 to 30 September 2015 • Putrajaya, Malaysia

**“Optimal Reservoir Characterisation Using Core
Analysis Data and Models”**

29 November to 2 December 2015 • Singapore, Singapore

“Process Safety & Integrity”

6 to 9 December 2015 • Kuala Lumpur, Malaysia

“Acid Stimulation: An Alternative for Production Enhancement”

10 to 13 January 2016 • Phuket, Malaysia

“Challenges of Frontier Deepwater Drilling”

24 to 27 January 2016 • Yangon, Myanmar

**“Operating Ageing Assets – Operating, Upgrading and Extending
the Production Life of Mature and Ageing Offshore Assets”**

26 to 29 January 2016 • Kota Kinabalu, Sabah, Malaysia

**“Digital Field Development & Management -
Data Driven Analytics & Decision Making”**

21 to 24 February 2016 • Kuala Lumpur, Malaysia

**“Drilling and Completion Fluids/Waste Management – Maximising
Drilling Performance & Well Productivity”**

29 February to 3 March 2016 • Putrajaya, Malaysia

**“Complex Fluid Characterisation -
Impact on Gas Recovery & Production”**

13 to 16 March 2016 • Kota Kinabalu, Sabah, Malaysia

CONFERENCES

SPE Asia Pacific Enhanced Oil Recovery Conference and Exhibition

11 to 13 August 2015 • Kuala Lumpur, Malaysia

SPE/IATMI Asia Pacific Oil & Gas Conference and Exhibition

20 to 22 October 2015 • Bali, Indonesia

Offshore Technology Conference Asia

22 to 25 March 2016 • Kuala Lumpur, Malaysia

IADC/SPE Asia Pacific Drilling Technology Conference

22 to 24 August 2016 • Singapore

SPE Asia Pacific Oil & Gas Conference and Exhibition

25 to 27 October 2016 • Perth, Australia

International Petroleum Technology Conference

14 to 16 November 2016 • Bangkok, Thailand

Web Site: www.spe.org

AMERICAS OFFICE

222 Palisades Creek Dr.
Richardson, TX 75083-3836, USA
Tel: 1.972.952.9393

1.855.282.6330 (Toll-free in USA/Canada)

Fax: 1.972.952.9435

E-mail: spedal@spe.org

ASIA PACIFIC OFFICE

Level 35, The Gardens South Tower,
Mid Valley City, Lingkaran Syed Putra,
59200 Kuala Lumpur, Malaysia

Tel: 60.3.2182.3000

Fax: 60.3.2182.3030

E-mail: spekl@spe.org

CANADA OFFICE

Eau Claire Place II
Suite 900 521 – 3rd Avenue S.W.
Calgary, Alberta T2P 3T3, Canada
Tel: 1.403.930.5454

Fax: 1.403.930.5470

E-mail: specal@spe.org

EUROPE, RUSSIA, CASPIAN AND SUB-SAHARAN AFRICA OFFICE

First Floor, Threeways House
40/44 Clipstone Street
London W1W 5DW, U.K.

Tel: 44.20.7299.3300

Fax: 44.20.7299.3309

E-mail: spelon@spe.org

HOUSTON OFFICE

10777 Westheimer Road, Suite 1075
Houston, TX 77042-3455, USA

Tel: 1.713.779.9595

Fax: 1.713.779.4216

E-mail: spehou@spe.org

MIDDLE EAST, NORTH AFRICA, AND INDIA OFFICE

Office 3101/02, 31st Floor Fortune Tower, JLT
P.O. Box 215959, Dubai, UAE

Tel: 971.4.457.5800

Fax: 971.4.457.3164

E-mail: spedub@spe.org

MOSCOW OFFICE

Perunovsky per., 3 Building 2
3rd Floor, Moscow, Russian Federation,
127055

Tel: 7.495.268.04.54

Fax: 7.495.268.04.54

E-mail: spemos@spe.org