The New Energy Age: Building on Success

SPE Asia Pacific Unconventional Resources Conference and Exhibition

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

CONFERENCE PROGRAMME
Deep domain knowledge backed by real world experience

We have combined the deep technical consulting capabilities of WorleyParsons Consulting, Select and INTECSEA with our existing strategy and management consulting expertise. Advisian is the independent consulting business line of WorleyParsons with more than 3,000 people in 19 countries.

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CONDUCT COMMITTEE

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

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, Weatherford – 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
TECHNICAL PROGRAMME COMMITTEE

Co-Chairmen

Tom Blasingame  
Texas A&M University

Ray Johnson Jr.  
Unconventional Reservoir Solutions

Committee Members

Usman Ahmed, Unconventional Energy Resources International
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 Cullinan, 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 Gaten, Unconventional Gas Resources Canada
Daniel Taylan Georgi, Aramco Service Co.
Carlos Gilardone, FDC de Argentina Srl
Ian Gray, Sigma 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
Hon Chung Lau, 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

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 and Teachers’ Day on 11 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.

Stephen Kelemen
Conference Chairman
Santos Ltd.
SCHEDULE OF EVENTS

(All functions, unless otherwise specified, are scheduled at the Brisbane Convention & Exhibition Centre)

Sunday, 8 November
0900 – 1700 Exhibitors Move-In – Great Hall 1, 3 & 4, Foyer Level
1200 – 1700 Registration – Main Foyer, Foyer Level
1200 – 1700 SPE HQ and Speaker/Author Check-In – Meeting Room M9, Mezzanine Level
1200 – 1700 Speaker/Author AV Preparation Room – Meeting Room M10, Mezzanine Level
1300 – 1700 Young Professionals Workshop – Meeting Room M1, Mezzanine Level

Monday, 9 November
0730 – 1730 Registration – Main Foyer, Foyer Level
0730 – 1730 SPE HQ and Speaker/Author Check-In – Meeting Room M9, Mezzanine Level
0730 – 1730 Speaker/Author AV Preparation Room – Meeting Room M10, Mezzanine Level
0900 – 1000 Opening Session – Great Hall 2, Mezzanine Level
1000 – 1030 Coffee Break – Great Hall 1, 3 & 4, Foyer Level
1000 – 1830 Exhibition – Great Hall 1, 3 & 4, Foyer Level
1030 – 1230 Executive Plenary Session – Great Hall 2, Mezzanine Level
1230 – 1400 Networking Luncheon and Knowledge Sharing ePoster Session 1 – Great Hall 1, 3 & 4, Foyer Level
1400 – 1530 Technical Sessions
   Session 1: Shale Formation Evaluation I – Meeting Room M1, Mezzanine Level
   Session 2: Shale and Tight Gas Hydraulic Fracturing I – Meeting Room M2, Mezzanine Level
1530 – 1600 Coffee Break and Knowledge Sharing ePoster Session 2 – Great Hall 1, 3 & 4, Foyer Level
1600 – 1730 Technical Sessions
   Session 3: Technical Advances From Shale/Tight Reservoirs I – Great Hall 2, Mezzanine Level
   Session 4: Coal Seam Gas Reservoir Engineering I – Meeting Room M1, Mezzanine Level
   Session 5: Well Construction I – Meeting Room M2, Mezzanine Level
1730 – 1830 Happy Hour and Knowledge Sharing ePoster Session 3 – Great Hall 1, 3 & 4, Foyer Level

Tuesday, 10 November
0730 – 1730 Registration – Main Foyer, Foyer Level
0730 – 1730 SPE HQ and Speaker/Author Check-In – Meeting Room M9, Mezzanine Level
0730 – 1730 Speaker/Author AV Preparation Room – Meeting Room M10, Mezzanine Level
0830 – 1000 Panel Session 2: Emerging Strategies in Data Analytics – Great Hall 2, Mezzanine Level
0830 – 1000 Technical Sessions
   Session 6: Unconventional Formation Evaluation – Meeting Room M1, Mezzanine Level
   Session 7: Shale/Tight Gas Reservoir Engineering – Meeting Room M2, Mezzanine Level
   Session 8: Maintaining the Social License to Operate – Meeting Room M3, Mezzanine Level
0830 – 1200 Education Day – Meeting Room M4, Mezzanine Level
0830 – 1830 Exhibition – Great Hall 1, 3 & 4, Foyer Level
1000 – 1030 Coffee Break and Knowledge Sharing ePoster Session 4 – Great Hall 1, 3 & 4, Foyer Level
1030 – 1200 Panel Session 3: Integrating Formation Evaluation Data – Great Hall 2, Mezzanine Level

Technical Sessions
Session 9: Coal Seam Gas Reservoir Engineering II – Meeting Room M1, Mezzanine Level
Session 10: Geomechanics and Hydraulic Fracturing – Meeting Room M2, Mezzanine Level
Session 11: Managing Your Business in Unconventional Reservoirs – Meeting Room M3, Mezzanine Level

1200 – 1400 Networking Luncheon and Knowledge Sharing ePoster Session 5 – Great Hall 1, 3 & 4, Foyer Level

Technical Sessions
Session 12: Technical Advances From Shale/Tight Reservoirs II – Great Hall 2, Mezzanine Level
Session 13: Shale/Tight Gas Reservoir Performance – Meeting Room M1, Mezzanine Level
Session 14: Coal Seam Gas Reservoir Modelling – Meeting Room M2, Mezzanine Level

1400 – 1530 Coffee Break and Knowledge Sharing ePoster Session 6 – Great Hall 1, 3 & 4, Foyer Level

Technical Sessions
Session 15: Technical Advances From Shale/Tight Reservoirs III – Great Hall 2, Mezzanine Level
Session 16: CSG Reservoir Development Strategies – Meeting Room M1, Mezzanine Level
Session 17: Shale and Tight Gas Hydraulic Fracturing II – Meeting Room M2, Mezzanine Level

1900 hours Conference Dinner (Organised by SPE Queensland Section) – Meeting Room M3 & M4, Mezzanine Level

Wednesday, 11 November

0730 – 1530 Registration – Main Foyer, Foyer Level
0730 – 1530 SPE HQ and Speaker/Author Check-In – Meeting Room M9, Mezzanine Level
0730 – 1530 Speaker/Author AV Preparation Room – Meeting Room M10, Mezzanine Level
0830 – 1500 Teachers’ Day – Meeting Room P1, Plaza Level
0830 – 1530 Exhibition – Great Hall 1, 3 & 4, Foyer Level
0900 – 1030 Panel Session 4: Sweet Spot Identification – Great Hall 2, Mezzanine Level

Technical Sessions
Session 18: Coal Seam Gas Hydraulic Fracturing – Meeting Room M1, Mezzanine Level
Session 19: Production Analysis and Forecasting – Meeting Room M2, Mezzanine Level

1030 – 1100 Coffee Break and Knowledge Sharing ePoster Session 7 – Great Hall 1, 3 & 4, Foyer Level

1100 – 1230 Panel Session 5: Geomechanics Influence in Hydraulic Fracturing – Great Hall 2, Mezzanine Level

Technical Sessions
Session 20: Pore Scale Effects – Meeting Room M1, Mezzanine Level
Session 21: Emerging Resources and Recovery Technologies – Meeting Room M2, Mezzanine Level

1230 – 1400 Networking Luncheon and Knowledge Sharing ePoster Session 8 – Great Hall 1, 3 & 4, Foyer Level

1400 – 1530 Panel Session 6: “Mega Projects”: Past, Present and Future – Great Hall 2, Mezzanine Level

Technical Sessions
Session 22: Pore Scale Modelling and Visualisation – Meeting Room M1, Mezzanine Level
Session 23: Multi-Stage Hydraulic Fracturing Completions – Meeting Room M2, Mezzanine Level

1600 – 2000 Exhibition Move-Out – Great Hall 1, 3 & 4, Foyer Level
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**

- Santos
- Schlumberger

**General Sponsors**

- Condor Energy
- Origin
- Pro-Test
- Thru Tubing Solutions
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- Weatherford
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**Nametag Lanyards**

**Morning & Afternoon Coffee Breaks**

- (Tuesday, 10 November)

**Conference Satchels**

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**Silver Sponsor**

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**Gold Sponsor**

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**Exhibition Visitor Passes**

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**Pens**

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**Happy Hour**

- (Monday, 9 November)

**Networking Luncheon**

- (Monday, 9 November)

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**Afternoon Coffee Break**

- (Monday, 9 November)

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**Official Supporter**

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GENERAL INFORMATION

REMINDER: Conference badges must be worn at all times in conference and exhibition areas.

CONFERENCE HEADQUARTERS
SPE Conference Headquarters is located at Meeting Room M9, Mezzanine Level, Brisbane Convention & Exhibition Centre.

SPEAKER/AUTHOR/SESSION CHAIRPERSONS CHECK-IN AND AV PREPARATION
Panel Speakers, Presenting Authors and Session Chairs are requested to check-in at the Speaker/Author Check-In at Meeting Room M9, Mezzanine Level, Brisbane Convention & Exhibition Centre.

Speaker/Authors may load and review their presentation slides at the Speaker/AV Preparation Room at Meeting Room M10, Mezzanine Level, Brisbane Convention & Exhibition Centre. No further changes/uploads to presentation slides will be accepted less than four (4) hours prior to the each session.

Panel Speakers, Presenting Authors and Session Chairs should report to their assigned session rooms 30 minutes before the session begins.

REGISTRATION
On-site registration and advance registration badge collection are located at the Registration Counter, Main Foyer, Foyer Level, Brisbane Convention & Exhibition Centre. Registration hours are as follows:

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

DIGITAL PROCEEDINGS
Digital proceedings are available for collection from SPE at Booth 26 in Great Hall 1, Foyer Level, Brisbane Convention & Exhibition Centre.

EXHIBITION
The exhibition is open to registered attendees at the following times:

- **Monday, 9 November, 1000-1830 hours**
- **Tuesday, 10 November, 0830-1830 hours**
- **Wednesday, 11 November, 0830-1530 hours**

POLICIES AND PROCEDURES

ATTENDEE QUALIFICATIONS
All attendees are required to wear their conference badges at all times. Use of a badge by a person not named on the badge is grounds for confiscation. If you lose your conference badge, please return to the Registration Counter to obtain a replacement.

MOBILE / CELL PHONE POLICY
As a courtesy to the speakers and your fellow attendees, please turn off all mobile phones during meetings and sessions.
PHOTOGRAPHY POLICY
All conference sessions and the exhibition are protected by international copyright laws. Photography and video/audio recording of any kind are strictly prohibited in the sessions and throughout the exhibition area.

ATTENDEE SURVEY
We would appreciate if you could take a few minutes to share your thoughts about the event with us. Your feedback is important in helping us to continuously improve and organise better events in the future. You may complete the survey online at www.spe.org/go/15urcesurvey. Alternatively, the survey can be completed at the SPE Booth or at the ePoster stations.

SOCIAL ACTIVITIES

HAPPY HOUR
Monday, 9 November • 1730-1830 hours
Great Hall 1, 3 & 4, Foyer Level
Join us for an excellent opportunity to network with fellow conference delegates, make new acquaintances and expand industry network. We welcome all event attendees to Happy Hour.

CONFERENCE DINNER
Tuesday, 10 November • 1900-2300 hours
Meeting Room M3 & M4, Mezzanine Level
“Casino Royale”
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 themed, “Casino Royale”!

Dress Code: Smart Casual
Tickets: A$165 per person for SPE Members and A$175 per person for Non Members, available from conference Registration Counter at Main Foyer.

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.
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<td>Session 19: Production Analysis and Forecasting</td>
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<td>1030-1100</td>
<td>Coffee Break and Knowledge Sharing ePoster Session 7 (Great Hall 1, 3 &amp; 4, Foyer Level)</td>
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<tr>
<td>1100-1230</td>
<td>Panel Session 6: Geomechanics Influence in Hydraulic Fracturing</td>
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<td>Session 20: Pore Scale Effects</td>
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<td>Session 21: Emerging Resources and Recovery Technologies</td>
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<tr>
<td>1230-1400</td>
<td>Networking Luncheon and Knowledge Sharing ePoster Session 8 (Great Hall 1, 3 &amp; 4, Foyer Level)</td>
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<tr>
<td>1400-1530</td>
<td>Panel Session 6: “Mega Projects”: Past, Present and Future</td>
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<td>Session 22: Pore Scale Modelling and Visualisation</td>
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<td></td>
<td>Session 23: Multi-Stage Hydraulic Fracturing Completions</td>
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Provided by the University of Queensland in partnership with leading petroleum engineering educator Heriot-Watt University in the UK, the Masters of Science in Petroleum Engineering combines world class reputation, technical expertise and local industry insight to shape the next generation of industry professionals.

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www.eait.uq.edu.au/mscpetroleum
OPENING SESSION

Monday, 9 November ● 0900-1000 hours
Great Hall 2, Mezzanine Level

James Purtill, Director-General, Department of Natural Resources and Mines, Queensland Government, Australia

Stephen Kelemen, Conference Chairman, Manager Unconventional Resources Growth, Santos Ltd.

Janeen Judah, 2017 SPE President, General Manager, Southern Africa Business Unit, Chevron

EXECUTIVE PLENARY SESSION

Monday, 9 November ● 1030-1230 hours
Great Hall 2, Mezzanine Level

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 Resource Development

Monday, 9 November ● 1400-1530 hours
Great Hall 2, Mezzanine Level

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, Mezzanine Level

Session Chairpersons:
- **Usman Ahmed**, Chief Executive Officer, Unconventional Resources Energy International
- **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, Mezzanine Level

Session Chairpersons:
- **Russell Byfield**, Director, Strategy Central
- **Marcel Croon**, Senior Geophysicist, Weatherford
- **Hans-Christian Freitag**, Vice President, Integrated Technology, Baker Hughes

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, Mezzanine Level

Session Chairpersons:
- **Usman Ahmed**, Chief Executive Officer, Unconventional Resources Energy International
- **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, Mezzanine Level

Session Chairpersons:
• Thomas Flottman, Principal Geologist, Origin Energy Ltd.
• Emma Tavener, Team Leader Geomachanics, Santos Ltd.

Speakers:
• Ahmed Abou-Sayed, Founder, Advantek International
• 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, Mezzanine Level

Session Chairpersons:
• Tom Blasingame, Professor, Texas A&M University
• Ray Johnson Jr., Principal, Unconventional Reservoir Solutions
• Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Speakers:
• Steve Begg, Professor, University of Adelaide
• Trevor Brown, Vice President Queensland, Santos
• Michael Hollewand, Director, Hollewand Consulting Associates
• Rebecca Pickering, General Manager, Production Operations West, Origin Energy
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, have been 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.

“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
- Barbara Pribyl, Reserves Manager, Exploration and Subsurface, Santos Ltd.
- Tom Blasingame, Professor, Texas A&M University
- Andrew Garnett, Professor and Director of Centre for CSG, University of Queensland
- Mark Stone, Executive Petroleum Engineer, Department of Natural Resources and Mines

EDUCATION DAY

Tuesday, 10 November 2015 ● 0830-1200 hours
Meeting Room M4, Mezzanine Level
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.

ATTENDEE SURVEY

Your feedback is important to us!

SPE aims to continuously improve on our events. Please take a few minutes to complete the Attendee Survey to tell us what you think about your experience at this conference.

Three easy ways to submit the survey:

• Online: Visit www.spe.org/go/15uresurvey or scan the survey code with your mobile device
• SPE Booth: Booth 26 located at Great Hall 1, Foyer Level
• ePoster Stations: Great Hall 4, Foyer Level

ePOSTER SESSIONS

Knowledge Sharing and Networking on the Exhibition Floor

Join us on the exhibition floor for more technical presentations and networking opportunities during these sessions.

An ePoster is an electronic version of a traditional poster, presented on a kiosk with a large flat screen display. The electronic format offers enhanced visual experience and facilitates greater interactivity between attendees and authors. Refer to page 32-38 for a detailed presentation schedule.

Monday, 9 November
- ePoster Session 1 • 1230-1400 hours
- ePoster Session 2 • 1530-1600 hours
- ePoster Session 3 • 1730-1830 hours

Tuesday, 10 November
- ePoster Session 4 • 1000-1030 hours
- ePoster Session 5 • 1200-1400 hours
- ePoster Session 6 • 1530-1600 hours

Wednesday, 11 November
- ePoster Session 7 • 1030-1100 hours
- ePoster Session 8 • 1230-1400 hours
TECHNICAL SESSIONS

Monday, 9 November ● 0900-1000 hours
OPENING SESSION
Great Hall 2, Mezzanine Level

- James Purtill, Director-General, Department of Natural Resources and Mines, Queensland Government, Australia
- 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, Mezzanine Level

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 RESOURCE DEVELOPMENT
Great Hall 2, Mezzanine Level

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, Mezzanine Level

Session Chairpersons:
- Marcel Croon, Weatherford
- Chad Hartman, Weatherford Laboratories

Time Papers

1400 176911 Flowback Chemical Analysis: An Interplay of Shale-Water Interactions
A. Zolfaghari, J. Holyk, Y. Tang and H. Dehghanpour, U. of Alberta, and D. Bearinger, Nexen Energy ULC

1430 176971 An Innovative Technique for Estimation of Permeability of Shale Gas Reservoirs
Y. Yuan, S. Rahman, J. Wang and N.G. Doonechaly, School of Petroleum Engineering, U. of New South Wales

1500 176908 A Comparative Study of Pore Size Distribution in Gas Shales
A. Zolfaghari and H. Dehghanpour, U. of Alberta
### Monday, 9 November ● 1400-1530 hours

#### TECHNICAL SESSION 2: SHALE AND TIGHT GAS HYDRAULIC FRACTURING I

**Meeting Room M2, Mezzanine Level**

**Session Chairpersons:**
- Mark Pitkin, Beach Energy Ltd.
- Sau-Wai Wong, Shell Intl. E&P

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<th>Time</th>
<th>Papers</th>
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<tr>
<td>1430</td>
<td>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&amp;P, and A. Mukha, TGT Oilfield Services</td>
</tr>
<tr>
<td>1500</td>
<td>Finite Element Simulation of a Hydraulic Fracture Interacting With a Natural Fracture Z. Chen, CSIRO; R.G. Jeffrey, SCT Operations Pty. Ltd.; and X. Zhang and J. Kear, CSIRO</td>
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### Monday, 9 November ● 1600-1730 hours

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

**Great Hall 2, Mezzanine Level**

**Session Chairpersons:**
- Craig Cipolla, Hess Corp.
- Hans-Christian Freitag, Baker Hughes
- George Koperna, Advanced Resources Intl., Inc.

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<th>Time</th>
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<td>1700</td>
<td>New Toe Sleeve Enables True Casing-Pressure Test in an Eagle Ford Shale Well: A Case Study B. Wellhoefer, S. Canning and T. Alkek, Halliburton, and G. Haydell and M.W. Smith, Murphy Exploration</td>
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### Monday, 9 November ● 1600-1730 hours

#### TECHNICAL SESSION 4: COAL SEAM GAS RESERVOIR ENGINEERING I

**Meeting Room M1, Mezzanine Level**

**Session Chairpersons:**
- Natalie Chadud, Origin Energy Ltd.
- Thomas Gan, Arrow Energy Pty. Ltd.

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<tr>
<td>1600</td>
<td>The Influence of Cleat Demineralisation on the Compressibility of Coal R.D. Balucan, L.G. Turner and K.M. Steel, The U. of Queensland</td>
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</tbody>
</table>
1630  176925 Novel Well Test Design for the Evaluation of Complete Well Permeability and Productivity for CSG Wells in the Surat Basin
W. Bottomley and J. Schouten, QGC - A BG Group Business; E. McDonald, Pro-Test Well Services; and T. Cooney, Australian Rig Construction

1700  177007 The Anisotropy and Inhomogeneity of Coal Permeability and Interconnection of Adjacent Seams
I. Gray, Sigra Pty. Ltd.

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

Session Chairpersons:
Hon Chung Lau, Shell (China) Projects and Technology
James McGowen, Halliburton

Time  Papers

1600  176987 Plugging CSG Wells With Bentonite: Review and Preliminary Lab Results

1630  176923 The Application of Mud Weight Optimisation Method in Fractured Tight Sandstone Formation
M. Liu, School of Civil and Environmental Engineering, Georgia Inst. of Technology, and Y. Jin, Y.H. Lu, M. Chen, B. Hou, S. Yang, X. Wen and Y. Chen, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing

1700  176820 Drilling and Completion Optimisation in Unconventional Reservoirs With Data-Driven Models

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

Session Chairpersons:
• Usman Ahmed, Chief Executive Officer, Unconventional Energy Resources International
• 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, Mezzanine Level

Session Chairpersons:
Robert Befus, PETRONAS
Marcel Croon, Weatherford
Thomas Gan, Arrow Energy Pty. Ltd.

Time  Papers

0830  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
0900 176964 Rock Physics Relationships Between Compressional, Shear, and Density Logs in Unconventional Formations, Including Deviated Wells
J. Quirein, M.E. Far, M. Gu, D. Gokaraju and N. Mekic, Halliburton

0930 176992 Quantifying Pore Size Distribution Effect on Gas in Place and Recovery Using SLD-PR EOS for Multiple-Components Shale Gas Reservoir
B.T. Tolbert and X. Wu, U. of Oklahoma

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

Session Chairpersons:
Dilhan Ilk, DeGolyer and MacNaughton
Marie Louise Lees, Santos Ltd.

Keynote Speaker:
• Pressure-Dependant Permeability in Shale Reservoirs
  Implications for Estimated Ultimate Recovery
Randall S. Miller, Vice President, Core Laboratories

Time Papers
0900 176955 Measurement of Shale Anisotropic Permeability and Its Impact on Shale Gas Production

0930 176965 Water Distribution Characteristic and Effect on Methane Adsorption Capacity in Shale Clay
J. Li, China U. of Petroleum, Beijing; K. Wu, U. of Calgary; J. Shi and X. Li, China U. of Petroleum, Beijing; Y. Li, CNOOC Research Inst., Beijing; D. Feng, T. Zhang, M. Xu and Y. Bai, China U. of Petroleum, Beijing

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

Session Chairpersons:
Russell Byfield, Strategy Central
George Koperna, Advanced Resources Intl., Inc.
Jim Stannard, PETRONAS Australia

Time Papers
0830 176901 Managing the Productive and Responsible Use of Energy Resources - The Role of the Regulator
M. Stone and J. Grundy, Queensland Department of Natural Resources and Mines, and A. Troup, Geological Survey of Queensland

0900 176941 Benefits and Burdens for Rural Towns From Queensland’s Onshore Gas Development

0930 176958 Can the Unconventional Gas Industry Maintain Their Social Licence?
R. Lightfoot, Casconsult Pty. Ltd.
Tuesday, 10 November • 1030-1200 hours
PANEL SESSION 3: INTEGRATING FORMATION EVALUATION DATA
Great Hall 2, Mezzanine Level

Session Chairpersons:
• Russell Byfield, Director, Strategy Central
• Marcel Croon, Senior Geophysicist, Weatherford
• Hans-Christian Freitag, Vice President, Integrated Technology, Baker Hughes

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, Mezzanine Level

Session Chairpersons:
Rod Bresnehan, CFT Energy
Mike Zuber, Schlumberger

Time Papers

1030  176834  A Practical Workflow for Characterising Stress-Dependent Behaviour of Coal From Changes in Well Productivity
M. Burgoyne and R. Shrivastava, Santos Ltd.

1100 177006  Isotherms, Gas Contents and Diffusion Coefficients of Coals and Shales
I. Gray, J. Wood, I. Shelukhina and X. Zhao, Sigra Pty. Ltd.

1130 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, Mezzanine Level

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

Time Papers

1030  176912  Estimation of the Propped Volume Through the Geomechanical Modelling of Multiple Hydraulic Fractures Interacting With Natural Fractures
S. Raymond, FracGeo; Y.E. Aimene, Oregon State U.; and A. Ouenes, FracGeo

1100 177014  An Experimental Method to Determine the Fracture Toughness of Brittle and Heterogeneous Material by Hydraulic Fracturing
J.L. Too, National U. of Singapore; S. Falser, Shell China P&T; and P. Linga, B.C. Khoo, A. Cheng and A. Palmer, National U. of Singapore

1130 176932  Optimal Fracing Near Faults - Quantifying the Interaction Between Natural and Hydraulic Fractures Using Geomechanical Modelling
N. Umholtz and A. Ouenes, FracGeo
### TECHNICAL SESSION 11: MANAGING YOUR BUSINESS IN UNCONVENTIONAL RESERVOIRS

**Meeting Room M3, Mezzanine Level**

**Time Papers**

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<th>Paper Title</th>
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<tr>
<td>1030</td>
<td>A New Improved Shale Correction for Pulsed-Neutron Measurements</td>
<td>C. McIlroy, J. Quirein, N. Mekic and W. Guo, Halliburton</td>
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<tr>
<td>1100</td>
<td>Litigation Against Unconventional Gas Producers: Lessons From the US Experience</td>
<td>R.M. Lightfoot, Casconsult Pty. Ltd.</td>
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<tr>
<td>1130</td>
<td>The Next Generation of Water and Fluid Management for Unconventional Exploration and Appraisal: Building on the Successes of Queensland Coal Seam Gas</td>
<td>N. Hudson, Resource Energy Solutions P/L</td>
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### TECHNICAL SESSION 12: TECHNICAL ADVANCES FROM SHALE/TIGHT RESERVOIRS II

**Great Hall 2, Mezzanine Level**

**Session Chairpersons:**

- Hans-Christian Freitag, Baker Hughes
- Mike Gatens, Unconventional Gas Resources Canada

**Time Papers**

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<th>Paper Title</th>
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<td>1400</td>
<td>Delaware Basin Bone Springs. A Study of the Evolving Completion Practices to Create an Economically Successful Play</td>
<td>L.V. Lehman and R. Andress, StrataGen, Inc.; M. Mullen, Stimulation Petrophysics, LLC; and R. Johnson, Jr., Unconventional Reservoir Solutions</td>
</tr>
<tr>
<td>1500</td>
<td>The Progression of Fracture Stimulations in Horizontal Wells Targeting the Montney Formation in the Heritage Field, British Columbia, Western Canada</td>
<td>K. Christie, Deloitte Touche Tohmatu (Australia); D. Russum, M. Fitzmaurice and A. Quinton, Deloitte LLP (Canada)</td>
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### TECHNICAL SESSION 13: SHALE/TIGHT GAS RESERVOIR PERFORMANCE

**Meeting Room M1, Mezzanine Level**

**Session Chairpersons:**

- Rod Bresnehan, CFT Energy
- Ian Gray, Sigra Pty. Ltd.

**Keynote Speakers:**

- **Qualitative Analysis of Rate-Time Behaviour for US Gas Shale Plays**
  Tom Blasingame, Professor, Texas A&M University

- **Reservoir Engineering Aspects of Gas and Liquids-Rich Unconventional Reservoir Systems**
  Dilhan Ilk, Vice President and Staff Engineer, DeGolyer and MacNaughton
Tuesday, 10 November ● 1400-1530 hours
TECHNICAL SESSION 14: COAL SEAM GAS RESERVOIR MODELLING
Meeting Room M2, Mezzanine Level

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

Time Paper
1500 176906 Evaluation of Microwave Heating on Fluid Invasion and Phase Trapping in Tight Gas Reservoirs
H. Wang, R. Rezaee and A. Saeedi, Curtin U.

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

Session Chairpersons:
Craig Cipolla, Hess Corp.
Hon Chung Lau, Shell (China) Projects and Technology

Time Papers
1600 176947 Architecture of the Fracture Network of Shale Reservoirs by Tracking Exchangeable Cations
H. Rosham, U. of New South Wales, and M. Sarmadivaleh and S. Iglaucher, Curtin U.

1700 176931 Sweet Spot Identification and Prediction of Fracture Stage Performance Using Geology, Geophysics, and Geomechanics - Application to the Longmaxi Formation, China
X. Yang and X. Wang, SCGC; A. Aoues, SIGMA³, and A. Ouenes, FracGeo

1730 176931 Evaluation of Microwave Heating on Fluid Invasion and Phase Trapping in Tight Gas Reservoirs
H. Wang, R. Rezaee and A. Saeedi, Curtin U.
Tuesday, 10 November ● 1600-1730 hours
TECHNICAL SESSION 16: CSG RESERVOIR DEVELOPMENT STRATEGIES
Meeting Room M1, Mezzanine Level

Session Chairpersons:
Mark Burgoyne, Santos Ltd.
Saikat Mazumder, Arrow Energy Ltd.
Mike Zuber, Schlumberger

Time Papers

1600 176890 Produced Gas Re-Injection Trial for a Coal Seam Gas Field
O. Thomas, Origin Energy

1630 176976 A New Method for the Estimation of Lost Gas During the Measurement of the Gas Content of Coal

1700 176904 Value Optimisation of Future Coal Seam Gas Field Developments Using Horizontal Wells
N. Xu, P. Weatherstone and N. Alam, Origin Energy, and X. Lin, Sinopec

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

Session Chairpersons:
Rob Jeffrey, SCT Operations
James McGowen, Halliburton
Sau-Wai Wong, Shell Intl. E&P

Time Papers

1600 176887 A Unique Hydraulic Fracturing Technique Using 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

1630 176840 The Relationship Between Geomechanical Response of Natural Fractures and Reservoir Productivity in Keshen Tight Sandstone Gas Field, Tarim Basin, China

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, Mezzanine Level

Session Chairpersons:
• Usman Ahmed, Chief Executive Officer, Unconventional Energy Resources International
• 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, Mezzanine Level

Session Chairpersons:
Marie Louise Lees, Santos Ltd.
Ricardo M. Villasenor, ProTechnics, a Division of Core Laboratories

Time Papers

0900 176895 Hydraulic Fracture Design Optimisation in Low Permeability Coals, Surat Basin, Australia

0930 176953 Effect of Suspension Fluid Chemistry on Fracture System Stimulation Using Micro-Sized Proppant Placement

1000 176885 Mechanistic Modelling of Counter-Current Slug Flows in Vertical Annuli
M. Firouzi, B.F. Towler and T.E. Rufford, The U. of Queensland

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

Session Chairpersons:
Dilhan Ilk, DeGolyer and MacNaughton
Samantha Phillips, Origin Energy
Andrew White, Santos Ltd.

Time Papers

0900 176914 Downhole Naturally Convective Hydrocarbon-Separating Production System to Avoid Unnecessary Water and Sand Production
J.B. Surjaatmadja and B.J. Lewis, Halliburton

0930 176935 Quick Tricks, Tips, Analytical Methods and Other Proxy Tools for the Unconventional Reservoir Engineer
C.L. Jordan, RISC Advisory

1000 176869 A Semi-Analytical Method for Forecasting Wells Completed in Low Permeability, 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, Mezzanine Level

Session Chairpersons:
• Thomas Flottman, Principal Geologist, Origin Energy Ltd.
• Emma Tavener, Team Leader Geomechanics, Santos Ltd.

Speakers:
• Ahmed Abou-Sayed, Founder, Advantek International
• 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, Mezzanine Level

Session Chairpersons:
Chad Hartman, Weatherford Laboratories
Rick Lewis, Schlumberger
Saikat Mazumder, Arrow Energy Ltd.

Time Papers

1100 176870 The Effect of Rank and Lithotype on Coal Wettability and Its Application to Coal Relative Permeability Models

1130 176999 Pore-Filling Nature of CH4 Adsorption Behaviour in Kerogen Nanopores: A Molecular View Based on Full-Atom Kerogen Models

1200 177021 Effect of Wettability Alteration on Productivity Enhancement in Unconventional Gas Reservoirs: Application of Nanotechnology
S. Naik, Z. You and P. Bedrikovetsky, U. of Adelaide

Wednesday, 11 November • 1100-1230 hours
TECHNICAL SESSION 21: EMERGING RESOURCES AND RECOVERY TECHNOLOGIES
Meeting Room M2, Mezzanine Level

Session Chairpersons:
Russell Byfield, Strategy Central
Hon Chung Lau, Shell (China) Projects and Technology
Marie Louise Lees, Santos Ltd.

Time Papers

1100 176950 Taking the Heat Out of the Burning-Ice Debate: Potential and Future of Gas Hydrates

1130 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

1200 176844 Proving the Concept of Unconventional Gas Reservoirs in Saudi Arabia Through Multistage Fractured Horizontal Wells
A. Al-Momin, M. Kurdi, S. Baki, K. Mechkak and A. Al-Saihati, Saudi Aramco

Wednesday, 11 November • 1400-1530 hours
PANEL SESSION 6: “MEGA PROJECTS”: PAST, PRESENT AND FUTURE
Great Hall 2, Mezzanine Level

Session Chairpersons:
• Tom Blasingame, Professor, Texas A&M University
• Ray Johnson Jr., Principal, Unconventional Reservoir Solutions
• Stephen Kelemen, Manager Unconventional Resources Growth, Santos Ltd.

Speakers:
• Steve Begg, Professor, University of Adelaide
• Trevor Brown, Vice President Queensland, Santos
• Michael Hollewand, Director, Hollewand Consulting Associates
• Rebecca Pickering, General Manager, Production Operations West, Origin Energy
Wednesday, 11 November ● 1400-1530 hours
TECHNICAL SESSION 22: PORE SCALE MODELLING AND VISUALISATION
Meeting Room M1, Mezzanine Level

Session Chairpersons:
Pat Lasswell, Weatherford
Steve Tyson, U. of Queensland

Time Papers

1400 177005 Multicomponent Flow of Hydrocarbons in Nano-Capillaries: A Non-Equilibrium Molecular Dynamics Study
F. Feng, and Y.I. Akkutlu, Texas A&M U.

1430 176998 A New Model to Determine Leakage Factor for a Finite Aquifer Using Pressure Fall Off Test in CBM Reservoir
X. Wu and P. Srivastava, The U. of Oklahoma, and F.H. Escobar, Universidad Surcolombiana

1500 176948 Applications of Multi-Scale Imaging Techniques to Unconventional Reservoirs
A. Fogden, E. Goergen and T. Olson, FEI Oil & Gas; Q. Cheng, J. Middleton and A. Kingston, Australian National U.; and M. Curtis and J. Jernigen, U. of Oklahoma

Wednesday, 11 November ● 1400-1530 hours
TECHNICAL SESSION 23: MULTI-STAGE HYDRAULIC FRACTURING COMPLETIONS
Meeting Room M2, Mezzanine Level

Session Chairpersons:
Peter Burrows, Weatherford
Ricardo M. Villasenor, ProTechnics, a Division of Core Laboratories

Time Papers

1400 176966 Impact of Multistage Fracturing on Tight Gas Recovery From Saudi Arabian High Pressure High Temperature Carbonate Reservoirs
Z. Rahim, A. Al-Kanaan and H. Al-Anazi, Saudi Aramco, and R. Kayumov and Z. Al-Jalal, Schlumberger

1430 176994 An Evaluation of Coiled Tubing Fracturing Compared to Traditional Completion Techniques in Horizontal Wells
B.J. Lewis, Halliburton

1500 176838 Interventionless Unconventional Multistage Hybrid Completion: Fracturing Longer Laterals in Cemented Applications
A. Govorushkina, C. Henderson, L. Castro, R. Allen and E. Nasir, Baker Hughes

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**STATION 1**

**Monday, 9 November**

**Time Papers**

**1230 176868** Exporting USA Percussion Tools and Techniques to Australia: Underbalanced Hammer Drilling Significantly Increases ROP on First Attempt Drilling Ultra-Hard/Abrasive Formations
C. Rogers, R. Jangani and A. Spedale, Smith Bits, a Schlumberger Co., and M. Howard, W. Farrington, G. Nairn and P. Neale, Santos (Alternate paper)

**1300 176980** Creep: A Neglected Phenomenon in Coal Permeability Evolution and Coalbed Methane Production
N.N. Danesh, Z. Chen, S.M. Aminossadati and M. Kizil, School of Mechanical and Mining Engineering, The U. of Queensland, and Z. Pan and L.D. Connell, CSIRO (Alternate paper in technical session 4)

**1330 176843** A Coupled Model for Fractured Shale Reservoirs With Characteristics of Continuum Media and Fractal Geometry
Y. Wei, D. He, J. Wang and Y. Qi, Research Inst. of Petroleum Exploration and Development (RIPED), PetroChina (Alternate paper)

**1530 176853** Experimental Study of Controlling Factors of the Continental Shale Matrix Permeability in Ordos Basin
H. Qu, F. Zhou and Y. Xue, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing, and Z. Pan, CSIRO (Alternate paper)
1730 176956 An Accelerated Immersive Capability Development in Unconventional Shale Resource
A. Biron, R.A. Befus and J. Stannard, PETRONAS, and M. Navarette, S. Singh and S. Salahudin, Halliburton

1800 176864 Solving 22” Roller Cone Endurance Issues Drilling Challenging Carbonates in Western Kuwait Sets New World Single Run Footage Record and Reduces Trip Time

Tuesday, 10 November

Time Papers

1000 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 and J. Li, Southwest Petroleum U. (Alternate paper in technical session 7)

1200 176850 Effect of Mud Filtrate Invasion on Measurement of Formation Pressure and Determination of Gas-Water Contact Depth in Tight Gas Reservoirs
N. Bahrami and R. Byfield, Strategy Central; M. Hossain, Curtin U.; and H. Pourabed, Schlumberger (Alternate paper in technical session 6)

1230 176825 Estimating Cleat Characteristics in Reservoir Simulation Models of Coal Seam Gas Reservoirs Using Welltest Analysis
N. Bahrami and R. Byfield, Strategy Central, and M. Hossain, A. Chitgar and J. Wong, Curtin U.

1300 176841 Effect of Volcanic Intrusions and Mineral Matters on Desorption Characteristics of Coals (Case Study)
A. Salmachi, C.C. Wainman, M. Rajabi and P. McCabe, Australian School of Petroleum (Alternate paper in technical session 9)

1330 177017 X-Ray Micro-Computed Tomography Imaging for Coal Characterisation

1530 176983 Estimate the Effective Fracture Properties From Tight Formation Production Data
W. Tian and X. Wu, U. of Oklahoma; Z. Zhang, Tiptop Energy Production US LLC; and K. Ling, U. of North Dakota

Wednesday, 11 November

Time Papers

J. Gao, L. Gross and S. Tyson, The U. of Queensland (Alternate paper in technical session 18)

1230 176833 Prediction of Fracture Population and Stimulated Reservoir Volume in Shale Gas/Oil Reservoirs
1300 176930 Boosting Performance of Component Assets Used in Unconventional Resource Plays With Nanolaminated Alloy Coatings
C. Lomasney, Modumetal Inc.

1330 177020 DFN Model for Flow Simulation in Hydraulically Fractured Wells With Pre-Existing Natural Fractures Using Unstructured Quadrilateral Grids
K. Wang, X. Peng and Z. Du, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum U., and M. Haghighi and M. Sayyafzadeh, Australia School of Petroleum, U. of Adelaide

STATION 2
Monday, 9 November

1230 176879 Hydrodynamic Modelling of Hydraulic Fracturing Fluid Injection in North Perth Basin Shale Gas Targets
S. Palat, M. Torbatynia, K. Kanadikirik and S. Varma, Department of Mines and Petroleum, Western Australia (Alternate paper)

1300 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.K. Bhagat, Independent Geologist; and E. Barcelona, Weatherford Laboratories Australia Pty. Ltd. (Alternate paper)

1330 176973 Effects of Sample Holding Time, Storage and Preservation on Sample Integrity for Source Rock Analysis: Experimental Results
B. Bhosle, P. Crozier and K. Flynn, Weatherford Laboratories Australia Pty. Ltd.

1530 176917 Development and Verification of Degradable Sealing Elements for Fully Degradable Frac Plugs
S. Takahashi, M. Okura, T. Kobayashi and T. Takahashi, Kureha Corp. (Alternate paper)

1730 176900 Application of a Novel Temporary Blocking Agent in Refracturing
S. Xue, Z. Zhang, G. Wu and Y. Wang, ENTI PERC Petrotech Corp., and J. Wu and J. Xu, Tangshan Jidong Oilfield Energy Development Co. Ltd.

Tuesday, 10 November

1000 176826 CO₂ Near-Miscible Flooding for Tight Oil Exploitation
K. Zhang, U. of Calgary; M.E. Gonzalez Perdomo, The U. of Adelaide; B. Kong, K.O. Sebakhy, K. Wu, G. Jing, J. Han and X. Lu, U. of Calgary; A. Hong, U. of Stavanger; and Z. Chen, U. of Calgary (Alternate paper in technical session 7)

1200 176995 Depth Distribution of Gas Rates From Temperature and Pressure Profiles in Unconventional Gas Wells
Z. You and P. Bedrikovetsky, U. of Adelaide (Alternate paper in technical session 19)
1230 176873 Proppant Transport Simulation in Hydraulic Fractures and Fracture Productivity Optimisation
B. Kong, S. Chen and K. Zhang, U. of Calgary, and M.E. Gonzalez Perdomo, U. of Adelaide
(Alternate paper in technical session 2)

1300 176943 Optimal Core Retrieval Time for Minimising Core Decompression Damage
T. Hoeink, W. Van Der Zee and S. Arndt, Baker Hughes
(Alternate paper in technical session 16)

1330 176898 Optimisation of Horizontal Well Spacing and Transverse Fracture Stages for a Thinly Interbedded Tight Sand Reservoir Onshore Australia
A. Younessi and K. Rahman, Baker Hughes
(Alternate paper in technical session 11)

1530 176981 Production Simulation of Complex Fracture Networks for Shale Gas Reservoirs Using a Semi-Analytical Model

Wednesday, 11 November

Time Papers

1030 176938 Characterisation of Complex Multiscale Natural Fracture Systems of the Silurian LongMaXi Gas Shale in the Sichuan Basin, China
X. Liang, Zhejiang Oilfield Co., PetroChina; X. Liu, Schlumberger; H. Shu, Zhejiang Oilfield Co., PetroChina; C. Xian, Schlumberger; Z. Zhang, Zhejiang Oilfield Co., PetroChina; C. Zhao, Schlumberger; and Q. Li and L. Zhang, Zhejiang Oilfield Co., PetroChina

1230 176959 Hydraulic Fracturing Simulations in Zhahaquan, Qaidam Basin, P.R. China: Can Early Screen-Outs be Avoided With Model Based Design?
D. Weng, RIPED-Langfang; S. Falser, Shell China P&T; Y. Ding, Y. Xu, H. Liang and L. Wang, RIPED-Langfang; and H. Lin, Qinghai Oilfield, PetroChina
(Alternate paper)

1300 176993 Reservoir Characteristics for Unconventional Shale Play of Huai Hin Lat Formation in Northeastern Thailand
C. Chunkratoke and S. Dunn-Norman, Missouri U. of Science and Technology

STATION 3

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Time Papers

1230 176886 A Novel Model of Brittleness Index for Shale Gas Reservoirs: Confining Pressure Effect
(Alternate paper in technical session 1)

1300 177010 New Models of Brittleness Index for Shale Gas Reservoirs: Weights of Brittle Minerals and Rock Mechanics Parameters
(Alternate paper)
1330 176945 100% in the Sweet Section: An Effective Geosteering Approach for Silurian Longmaxi Shale Play in Sichuan Basin
X. Liang, PetroChina Zhejiang Oilfield Co.; L. Wang, Schlumberger; J. Zhang, PetroChina Zhejiang Oilfield Co.; C. Xian, Schlumberger; G. Wang, PetroChina Zhejiang Oilfield Co.; and C. Zhao, Schlumberger
(Alternate paper in technical session 15)

1530 177023 De-Bottlenecking Drilling and Completion Operations for Shale Field Developments
M. Mitschanek, M. Prohaska and G. Thonhauser, Montanuniversität Leoben
(Alternate paper)

1730 176933 Application of UDM-2 Drilling Fluid Technology in the Development of Upper-Deep Oil and Gas Resources in Tarim Basin

1800 176859 Selection Criteria and Evaluation Technology for Casing Used in Shale Gas Wells in China

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Time Papers
1000 176951 Causes of and Responses for Abnormal Fracture Pressure of Ultra-Deep Shale in Southern China
Q. Shan, Y. Jin, M. Chen and S. Yang, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; X. Zhang, Sinopec Research Inst. of Petroleum Engineering; and J. Wu and J. Huang, PetroChina, Jidong Oilfield Co.

1200 176888 SRV Analysis of Shale Gas Wells in China
W. Pang and Z. He, Sinopec Research Inst. of Petroleum Engineering; C. Xin, Research Inst. of Yanchang Petroleum Co.; J. Du, Sinopec Research Inst. of Petroleum Engineering; and Z. Sun, Petroleum Exploration and Production Research Inst. of Sinopec
(Alternate paper in technical session 8)

1230 176910 Effect of Well Interference on Shale Gas Well SRV Interpretation
W. Pang, Sinopec Research Inst. of Petroleum Engineering; C.A. Ehlig-Economides, U. of Houston; and J. Du, Y. He and T. Zhang, Sinopec Research Inst. of Petroleum Engineering

1300 176848 A Novel Thermal-Resistance and Salt-Tolerance Gel With Low-Concentration Crosslinkers for Water Shutoff in Tahe Oilfield
L. Chen, G. Zhang, J. Ge, P. Jiang, X. Zhu, Y. Lin and S. Han, China U. of Petroleum (East China)
1330 176972 Simulation of Time-Varying Properties of Organic-Shale Nanopores During Gas Production
(Alternate paper)

1530 176865 Reservoir Modelling for Pad Optimisation in the Context of Hydraulic Fracturing

Wednesday, 11 November

Time Papers

1030 177001 Mechanism of Liquid-Phase Adsorption and Desorption in Coalbed Methane Systems - A New Insight Into an Old Problem
J. Li and X. Li, China U. of Petroleum, Beijing; Y. Li, CNOOC Research Inst., Beijing; J. Shi, China U. of Petroleum, Beijing; K. Wu, U. of Calgary; and F. Dong, Y. Li, J. Yang and Y. Bai, China U. of Petroleum, Beijing
(Alternate paper in technical session 20)

1230 176847 Geochemical Assessment of the Huntly Coalbed Methane (CBM) Field, New Zealand Using a Chloride, Bicarbonate, and Boron Ternary Diagramme
H. Abu Bakar and S.J. Zarrouk, The U. of Auckland
(Alternate paper)

1300 176846 The Contributing Factors of Stimulation Design to Incremental and Long-Term Productivity in Bakken Play
F. Zhou, Y. Xue, H. Qu and X. Qin, China U. of Petroleum, Beijing

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Time Papers

1230 176882 Experimental Research on the Shale Imbibition Characteristics and Its Relationship With Microstructure and Rock Mineralogy
L. Yang, H. Ge, Y. Shen, K. Ren, M. Sheng, Z. Gao, X. Qin and S. Su, China U. of Petroleum, Beijing
(Alternate paper)

1300 176922 Anisotropic Wellbore Stability Model for Transversely Isotropic Formation and Its Application in Drilling Through Shale Formation
Y.H. Lu, M. Chen, Y. Jin, G. Chen and B.T. Lin, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; C. Liang Offshore Engineering Technology Center, CNPC Intl.; and J.X. Ji, Beijing No. 4 High School
(Alternate paper)

1330 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)
1530 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.

1730 177004 Modified Hybrid Fracturing in Shale Stimulation: Experiments and Application
C. Yin, Y. Li and S. Wang, Downhole Service Co., Chuanqing Drilling Co., CNPC; G. Qin and B. Xu, U. of Houston; and R. Zeng, Southwest Petroleum U.

1800 176997 Simulation of Shale Gas Transport in 3D Complex Nanoscale-Pore Structures Using the Lattice Boltzmann Method
Y. Ning, S. He and T. Chen, U. of Houston; Y. Jiang, Sinopec; and G. Qin, U. of Houston

Tuesday, 10 November

Time Papers
1000 176861 Technology Feasibility and Production Driver Study in the First Integrated Shale Gas Block in Sichuan Basin

1200 177018 Production Forecasting for Shale Oil: Workflow
M.D. Rincones, W.J. Lee, and J.M. Rutledge, U. of Houston (Alternate paper in technical session 7)

1230 176852 Evaluating Ion Effect on Residue Content of Fracturing Fluids
D. Singh, U.A. Inyang, P.D. Chopade, and P. Boontheung, Halliburton (Alternate paper in technical session 12)

1300 177026 Applicability Comparison of Nuclear Magnetic Resonance and Mercury Injection Capillary Pressure in Characterisation Pore Structure of Tight Oil Reservoirs
H. Zhao, Z. Ning and T. Zhao, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; F. Che, Research Inst. of Exploration & Development, Changqing Oilfield Co., PetroChina; R. Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China U. of Petroleum, Beijing; and T. Hou, MOE Key Laboratory of Petroleum Engineering, China U. of Petroleum, Beijing (Alternate paper)

1330 176991 Novel Micro and Nano Particle-Based Drilling Fluids: Pioneering Approach to Overcome the Borehole Instability Problems in Shale Formations

1530 176880 Adsorption Behaviour Study of Shale Gas: Models and New Combination Approach
J. Li, L. Zhang and Y. Chen, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum U.
Wednesday, 11 November

Time Papers

1030 176988 Pore Network Investigation in Marcellus Shale Rock Matrix
J. Goral and I. Miskovic, The U. of Utah, and J. Gelb and J. Kasahara, Carl Zeiss Microscopy

1230 176837 Rheological Characteristics of CMHPG Crosslinked With New Zirconium and Dual Crosslinkers
K. Sokhanvarian and H.A. Nasr-El-Din, Texas A&M U., and T.L. Harper, Maxflo Oilfield Chemical Solutions

1300 176877 Preparing for the Tight Gas Steeplechase, Talking to Canadians About Deep, Tight Gas Sand (TGS) Developments
B. Pearson, Tactical Gas Services Pty. Ltd.
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Directorate General of Oil and Gas, Republic of Indonesia – Booth 32
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