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Steve Taylor
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Ray Tibbles
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Dave Warner
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14-16 October 2008
Novotel Barossa Valley Resort
Barossa Valley, Australia

SPE Applied Technology Workshop

FIELD DEVELOPMENT BEST PRACTICES FOR UNCONVENTIONAL GAS RESERVOIRS

Registration deadline:
16 September 2008
Apply inside or online
at www.spe.org/atws

Workshop Description

Over 15% of the world's unconventional gas reserves exist in South East Asia¹. China is rapidly turning to Unconventional Gas (UG) to alleviate its burgeoning energy crisis and exploration is underway in India². In Australia, economic reserves from UG now approach that of conventional reservoirs and the country is poised to export unconventional gas via LNG terminals under construction³. Underpinning this expansion in Asia are E&P organizations who are embarking on aggressive development programs requiring expediency and innovation.

This workshop will showcase the efforts of E&P and service company innovators, including new practices from other key areas of the world (US, Canada). This workshop will focus on the key elements of UG field management throughout field life; Exploration, Development and Production.

To further attract overseas participants, this workshop is to be held in one of the finest Australia winegrowing regions and tourist venues and is timed to coincide with the Asia Pacific Oil and Gas Conference in Perth.

Workshop Focus and Objectives

- Facilitate the exchange of ideas on Unconventional Gas field development between the key experts and the broader E&P industry
- Highlight the best strategies for field development in unconventional gas reservoirs
- Arm attendees with the technical 'know how' to implement key technologies
- Identify the strengths and limitations of existing technologies
- Identify potential breakthrough technologies

Who Should Attend

Geoscientists and engineers, in both green or brown field developments will benefit from this ATW. The conference will cover the breadth of field development strategies as well as the technical depth ('know how') in key technological areas. Because of the limited numbers(120), those people who offer to present or deliver a poster will be given preference.

1 Holditch S. "Tight Gas Sands" Distinguished Author Series JPT 06

2 GRI CoalBed Natural Gas Alert Oct 03

3 ASX/Media Release; 'Santos proposes multi-billion dollar Gladstone LNG Project' 18th Jul 07

Documentation:

1. Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
2. Work in progress, new ideas, and interesting projects are sought.
3. Professionally-prepared visual aids are not required; handwritten viewgraphs are entirely acceptable.
4. Note-taking by participants is encouraged. However, to ensure free and open discussions, no formal records will be kept.

Workshop Deliverables:

- The committee will prepare a full report containing the highlights of the Workshop discussions. This report will be circulated to all attendees. A one-page summary will be prepared by the Workshop Co-Chairperson, which will be posted on the SPE Web Site, and published in the Journal of Petroleum Technology (JPT), if space permits. The copyright of the summary report will belong to SPE.
- PowerPoint presentation materials will be posted on a specific SPE URL address after the Workshop. Provision of the materials by the discussion leaders will signify their permission for SPE to do so.

Commercialism:

In keeping with ATW objectives and the SPE mission, excessive commercialism in posters or presentations will not be permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter and others involved in the work.

Attendance Certificate:

All attendees will receive an attendance certificate attesting to their participation at the Workshop. This certificate will be provided in exchange for a completed Workshop Questionnaire.

Continuing Education Units:

This workshop qualifies for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the ATW.

Workshop Venue:

Novotel Barossa Valley Resort
Golf Link Road, Rowland Flat
Barossa Valley, Southern Australia, Australia
Tel: +61.8.8524.0000; Fax: +61.8.8524.0100

Attendees' Information:

General and detailed accommodation information will be forwarded to registrants with the attendee package prior to the scheduled Workshop in October 2008.

Dress Code:

Casual clothing is recommended. The Workshop atmosphere is informal.

Transportation/Visa:

All travellers other than Australian and New Zealand citizens need to present the following documents to officers in immigration clearance:

- a valid passport or other acceptable travel document
- a valid visa or authority to enter Australia (including electronic visas)
- a completed and signed Incoming Passenger Card, including health and character declaration.

Anyone who arrives without a valid travel document, visa or authority to enter Australia, may be refused entry to Australia or delayed until their identity and claims to enter Australia have been confirmed. For more detailed travel information, visit your local consulate.

Registration Fees:

Registration Deadline: 16 September 2008

- **SPE MEMBER : US\$2,700.00/person**
- **NONMEMBER : US\$2,800.00/person**

Fee includes the following:

- Three-day registration fee for all Workshop sessions;
- Three nights accommodation based on single occupancy with arrival Monday, 13 October 2008 and departure Thursday, 16 October 2008;
- Three meals per day except on Thursday;
- Daily coffee/tea breaks;
- Workshop Workbook and Certificate of Continuing Education Units (CEU);
- A half-day group outing
- An airport shuttle will run on Monday and Thursday. Details to be announced.

Note: Registration fee does not include hotel accommodation and meal costs for additional family member(s).

Registration Policy:

- Registration fee **MUST** be paid in advance for attending the Applied Technology Workshop.
- Full fixed fee is charged regardless of the length of time that the registrant attends the Workshop.
- Fixed fee cannot be prorated or reduced for anyone (Workshop chairpersons, committee members, speakers, discussion leaders, students and registrants).
- Attendees are expected to attend all Workshop sessions and are not permitted to attend on a partial basis.

Cancellation & Refund Policy:

- A processing fee of US\$100.00 will be charged for cancellation received before the registration deadline **16 September 2008**
- For cancellation received after the registration deadline **16 September 2008**, 25% refund will be made to the registrant.
- No refund on cancellation received seven (7) days prior to the starting of the Workshop date, on or after **7 October 2008**.
- Substitutions will not be accepted without prior Programme Committee approval.
- **No refund** will be issued if a registrant fails to show up at the Workshop on-site.

**ATTENTION NON-MEMBERS:
JOIN SPE DURING THIS WORKSHOP AND RECEIVE
YOUR FIRST YEAR'S MEMBERSHIP FREE!
SUBMIT YOUR MEMBERSHIP APPLICATION ONSITE!**

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Preliminary Daily Activities Agenda

Note: While every attempt will be made to adhere to the schedule, the status/availabilities of session topics, discussion leaders and moderators are subject to change. For updated technical agenda information, please visit the SPE website at www.spe.org/atws.

Tuesday, 14 October 2008

- 0700 - 0800 **Breakfast**
- 0800 - 0900 **Opening Session**
- **Introduction**
Simon Chipperfield, Santos
 - **The Role of Unconventional Gas in Asia Pacific**
David Knox, Acting CEO, Santos
- 0900 - 1030 **Field Development Strategy Panel**
- **Coal Field Development Planning**
Raj Puri, Director Coal Bed Methane Business Development, Vico
 - **The Tight Gas Business Model**
Anwar Husen, Head of Production Technology, BG Group
 - **Global Challenges of Unconventional Play Entry**
Dr. Melvyn Giles, New Venture Manager Unconventional Gas, Shell International E&P
 - **The Evolution Operational Techniques in US Shales**
Richard Moorman, Manager, Strategic Analysis
- 1030 - 1100 **Group Photo/Coffee Break**
- 1100 - 1200 **Session 1: Resources Quantification**
- **Coalbed Methane (CBM) Petrophysical Approaches**
Tim Pratt, Tiora
 - **Shale Petrophysics: New Technology**
Basim Faraj, Talisman Energy
- 1200 - 1300 **Lunch**
- 1300 - 1500 **Session 2: Assessment of "Producibility"**
- **Role of Rock Fabric in Unconventional Gas Reservoirs**
David Warner, Santos
 - **The Role of Geomechanics in Unconventional Gas**
David Campagna, Campagna and Associates
- 1500 - 1530 **Break and Poster Viewing**
- 1530 - 1630 **Session 3: Assessment of "Producibility" - Continued**
- **Defining CBM Sweet-Spots**
Prem Sawhney, Reliance Industries
 - **Criticality of CBM Permeability**
Ian Palmer, Higgs-Palmer Technologies
- 1630 - 1800 **Session 4: Assessment of Commerciality (Pilot Programmes)**
- **Defining a Pilot Programme**
Bill Haskett, Decision Strategies
 - **CBM Pilot Programme Case Study**
Michael Scott, QGC
 - **Pilot Programs in the Mesaverde**
Brian Towler, U. of Wyoming
- 1930 - 2230 **Poster Session and Dinner**

Wednesday, 15 October 2008

- 0700 - 0800 **Breakfast**
- 0800 - 1000 **Session 5: Coal Development Options**
- The focus of this session will be on the proper selection of particular completion strategies in CBM based on reservoir engineering and cost/efficiency reasons. Discussions will revolve around:
- **Surface Inseam Completions**
Tony S Peck, Arrow Energy
 - **Cavitation and Underreaming**
S. Taylor, Santos
 - **Fracture Completions**
Ahmad Teemoori, QGC
- A short discussion panel in which the speakers will discuss appropriate completion selection for CBM will follow the presentations.
- 1000 - 1030 **Break and Poster Viewing**

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Wednesday, 15 October 2008 (cont.)

- 1030 - 1130 **Session 6: Tight Gas/Shale Development**
This session, like the previous one, will look at the proper selection of particular completion strategies in Tight Gas or Shale developments and explain the decisions taking into account reservoir engineering and cost efficiency. Speakers will discuss the following:
- **Horizontal Fracturing in Cemented and Non-Cemented Wells**
Nick Steinsberger, Republic Energy
 - **Vertical Fracturing**
Jim McGowen, Halliburton
- The presentations will be followed by a discussion on what the best-fit completions are for tight gas and shale reservoirs.
- 1130 - 1300 **Session 7: Well Completion Design**
Speakers will highlight the critical technology issues that greatly influence development success. Discussions will focus on:
- **Critical Items for Cavitation and Non-Fractured Horizontal Wells**
Ian Palmer, Higgs-Palmer Technologies
 - **Fracture Fluid Selection**
Larry Britt, NSI Technologies
 - **Frac Job Sizing and Modeling**
Tony Martin, BJ Services
- 1300 - 1800 **Lunch and Winery Tour (Halliburton sponsored)**
1930 - 2230 **Keynote Dinner**

Thursday, 16 October 2008

- 0730 - 0830 **Breakfast**
0830 - 0930 **Session 8: Well Completion Design - Continued**
- **Multifrac Staging Options for Cemented Wells**
Paul Huckabee, Shell E&P
 - **Multifrac Staging Options for Non-Cemented Wells**
Ray Tibbles, Schlumberger
- 0930 - 1000 **Session 9: Reservoir Performance Evaluation**
- **Reservoir Simulation of UG**
Craig Cipolla, Pinnacle Technologies
 - **Well Placement and Spacing**
Anthony Western, Staff Reservoir Engineer Santos
- 1000 - 1030 **Break and Poster Viewing**
1030 - 1200 **Session 10: Reservoir Performance Evaluation - Continued**
- **Pre-Frac Production Transient Testing, DSTs and Injection Falloff Application**
David Craig, Reservoir Development Services / Marty Santo, Fekete
 - **Treatment Diagnostics**
Craig Cipolla, Pinnacle Technologies
 - **Production Data Analysis and Diagnostics**
Tom Blasingame, Texas A&M U.
- 1200 - 1300 **Lunch**
1300 - 1530 **Session 11: Extraction Technology**
- **Simultaneous Fracture Stimulations in Adjacent Horizontal Wellbores**
Terry Dobkins, Rimrock Energy
 - **Complex Diversion Methods Using Real-Time Microseismic Diagnostics**
George King, Rimrock Energy
 - **Shear Dilation Stimulation**
Simon Chipperfield, Santos
 - **Distributed Stimulation Placement Control in Multiple Lateral Wellbores**
Dan Themig, Packers Plus
 - **What can be Learned From Modeling Mineback Data of Hydraulic Fractures in Fractured Rock?**
Rob Jeffrey, CSIRO Petroleum
- 1530 - 1600 **Break and Poster Viewing**
1600 - 1730 **Session 12: Surveillance and Evaluation**
- **Optic Fibre Distributed Temperature Sensing for Stimulation Diagnostics and Inflow Profiling**
Paul Huckabee, Shell E&P
 - **Complex Fracture Propagation and Flow Modeling**
Craig Cipolla, Pinnacle Technologies
 - **Multi-Layer Reservoir Evaluation**
Bob Poe, Schlumberger
- 1730 **Adjournment**

