Optimizing Liquids-Rich Development
The Journey Continues

Many aspects of liquids-rich development remain experimental, even controversial, and the pace at which they are evolving is remarkable. This workshop will continue pushing the subject forward, discussing technological advances that are unfolding, and those that are still needed. Technical experts and academic leaders in research, development planning, well and facility design, and field operations will discuss the latest ideas and best practices for maximizing the economic recovery of liquids-rich resources.

COMMITTEE MEMBERS

Chairpersons
Matt Bell
Ikon Science

Lance Robertson
Marathon Oil

Mike Belcher
ExxonMobil

Rob Fulks
Weatherford

Matt Honarpour
BHP Billiton

Dave Koskella
SFC Energy Partners

Dick Leonard
ProTechnics

Kristal Peña
Linn Energy

Michael Thomas
Pioneer Natural Resources

Megan Starr
Anadarko

Zack Warren
Resolute Energy
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TECHNICAL AGENDA

TUESDAY, 19 MAY
1730-1900 | Welcome Reception
Rocky Point Terrace

WEDNESDAY, 20 MAY
All technical sessions are located in Palos Verdes 78.

0700-0800 | Registration and Continental Breakfast
Palos Verdes Foyer

0800-0815 | Chairpersons’ Welcome

0815-1000 | Session I: The Big Picture
Session Chair: Lance Robertson, Marathon Oil
- Presentation 1: United States Liquids Production – The Down-Side of Explosive Growth and a Look to the Future
  Dave Pursell, Tudor Pickering Holt
- Presentation 2: Business-Friendly Environmental Oil and Gas Regulation - Yes, We Can All Get Along
  Jared Anderson, Breaking Energy

1000-1030 | Coffee Break
Palos Verdes Foyer

1030-1200 | Session II: Rocks and Fluids
Session Chairs: Matt Honarpour, BHP Billiton
  Lance Robertson, Marathon Oil
- Presentation 1: Experimental and Theoretical Observations of Condensation and Vaporization in Nanopores
  Erdal Ozkan, Colorado School of Mines
- Presentation 2: The Value of Rock and Fluid Properties in Liquid-Rich Shale Reservoirs – From Core Scale Characterization to Field Level Development
  Basak Kurtoglu, Marathon Oil
- Presentation 3: Rock Mechanics, Brittleness Indices, and Hydraulic Fracture Design
  Robert Hurt, Baker Hughes

1200-1330 | Lunch
Palos Verdes 6

1330-1500 | Session III: Integrated System Behavior
Session Chairs: Zack Warren, Resolute Energy
  Mike Belcher, ExxonMobil
  - Presentation 1: Impact of Nanopore Thermodynamics and Pore Size Distribution on Unconventional Phase Behavior
    Nagi Nagarajin, Hess
  - Presentation 2: Unconventional Yield Behaviors in Unconventional Horizontal Gas Condensate Wells – Eagle Ford Shale
    Ola Solaja, SM Energy
  - Presentation 3: Beating the Decline Through Refracturing of Liquids-Rich Plays
    Sudhendu “Kash” Kashikar, MicroSeismic, Inc

1500-1530 | Coffee Break
Palos Verdes Foyer

1530-1700 | Session IV: Simulation, Forecasting, and Economics
Session Chairs: Mike Belcher, ExxonMobil
  Kristal Peña, Linn Energy
  - Presentation 1: Evaluating Well Performance and Optimizing Stage Spacing in the Bakken
    Craig Cipolla, Hess
  - Presentation 2: Completion Optimization Utilizing Multivariate Analysis
    Victoria King, WPX Energy
  - Presentation 3: Optimizing Development of Unconventional Assets - An Integrated Workflow for Managing Uncertainty
    Kirsty Downing, BHP Billiton

1700-1830 | Reception
Palos Verdes Terrace
THURSDAY, 21 MAY

0700-0800 | Continental Breakfast
Palos Verdes Foyer

0800-0930 | Session V: Optimizing Well Placement and Design
Session Chairs: Dick Leonard, ProTechnics
Rob Fulks, Weatherford

- Presentation 1: Data Analytics for Production Optimization in Unconventional Reservoirs
  Srikanta Mishra, Battelle Memorial Institute

- Presentation 2: Optimizing Well Performance in Gas Condensate Wells that Also Produce Water
  George Stewart, Weatherford

- Presentation 3: The Wolfcamp Shale – Technical Learnings and Challenges of Appraisal and Development
  Wes Hanover, Pioneer Natural Resources

0930-1000 | Coffee Break
Palos Verdes Foyer

1000-1130 | Session VI: Completion Strategy and Execution
Session Chairs: Rob Fulks, Weatherford
Dave Koskella, SFC Energy Partners

- Presentation 1: Evaluation of Completion Design Effectiveness and Analysis Techniques Incorporating Pulsed Neutron Logs in the Granite Wash Formation, Anadarko Basin
  Lee Thomas, Enervest

- Presentation 2: The Right Completion? Know Your Reservoir – Trial, Fail, Optimize, and Repeat
  Bob Gales, CRC

- Presentation 3: Slick Water Fracturing and Small Proppant - The Future of Stimulation or a Slippery Slope?
  John Ely, Ely and Associates

1130-1300 | Lunch
Palos Verdes 6

1300-1430 | Session VII: Spotlight on the Permian Basin
Session Chairs: Michael Thomas, Pioneer Natural Resources
Zack Warren, Resolute Energy

- Presentation 1: Appraisal and Development of the Spraberry-Wolfcamp Oil Resource Plays in the Midland Basin
  Damien Borcovsky, Pioneer Natural Resources

- Presentation 2: Liquids-Rich Unconventional Reservoir Targets in the Delaware Basin
  Randy Miller, Core Lab

- Presentation 3: The Old is New Again – 21st Century San Andres Development
  Billy W. Harris, Elk River Resources

1430-1500 | Coffee Break
Palos Verdes Foyer

1500-1630 | Session VIII: Emerging Plays and Novel Approaches
Session Chairs: Dave Koskella, SFC Energy Partners
Lance Robertson, Marathon Oil

- Presentation 1: Acid Stimulation Learnings from an Unconventional Reservoir, Monterey Shale
  Andrei Popa, Chevron

- Presentation 2: Important Aspects of Multiphase Flow in Horizontal Wellbore Trajectories and Their Impact on Well Design and Operations
  Anand Nagoo, University of Texas

- Presentation 3: South Central Oklahoma Oil Province (SCOOP) - Examining Early Spacing Tests and Completion Parameters
  Scott Donnelly, Continental Resources, Inc.

1630-1730 | Open Discussion
Moderated by Matt Bell
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**FRIDAY, 22 MAY**

0700-0800 | Continental Breakfast
*Palos Verdes Foyer*

0800-0930 | **Session IX: Production Optimization**
Session Chairs: Megan Starr, Anadarko
Matt Bell, Ikon Science

- **Presentation 1**: Competing in an Over-Supplied Market - Examples of Optimization in the Alberta Deep Basin Montney Hydrocarbon System
  Glen Nevokshonoff, Seven Generations

- **Presentation 2**: Energize Your Well – Conserve, Optimize, Maximize!
  Juliana Buendia, Ferus

- **Presentation 3**: Sustainable Water Resource and Air Quality Regulatory Practices
  Matthew Bruff, Altelia, Inc.

0930-1000 | Coffee Break
*Palos Verdes Foyer*

1000-1100 | **Session X: Threats, Bets, and Not Yets**
Session Chairs: Matt Bell, Ikon Science

- **Presentation 1**: Injection-Induced Seismicity - Is Something Lurking in Your Basement?
  Julie Shemeta, MEQ Geo

- **Wrap-Up**: Moderated Discussion of Issues Raised by Workshop Participants

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**Accessibility**
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SPE recognizes the legitimate serving of alcoholic beverages in the process of conducting business and social activities. We also recognize that the use and consumption of alcohol carries with it the requirement for all attendees to consume those beverages responsibly.

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In remaining consistent with workshop objectives and SPE guidelines, commercialism in presentations will not be permitted. Company logos should be used only to indicate the affiliation of the presenter(s).

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**Workshop Format**
Workshops maximize the exchange of ideas among attendees and presenters through brief technical presentations followed by extended Q&A periods. Focused topics attract an informed audience eager to discuss issues critical to advancing both technology and best practices.

Many of the presentations are in the form of case studies, highlighting engineering achievements and lessons learned. In order to stimulate frank discussion, no proceedings are published and members of the press are not invited to attend.