Technical Program Overview

Special Sessions

Monday, 31 October

1030–1200

Opening General Session

Enhancing Standards and Best Practices in the Oil Industry
Moderator: Chad Deaton, Chairman and Chief Executive Officer, Baker Hughes

Recent events and the increasing level of activity in very challenging operating environments have highlighted the importance of industry standards and best practices. The complexity of industry operations not only makes it more challenging to ensure safety and environmental protection, but also adds to the difficulties of providing sound regulatory oversight and gaining public acceptance.

SPE has invited global oil industry leaders, government officials, and experts from other leading industries to express their visions and to provide their views on how industry standards and best practices can ensure safe operations, environmental protection, and public acceptance of our activities.

Issues to be addressed include the role of industry associations, identifying which aspects of E&P need greater attention, sharing and leveraging technology solutions, and the relationships of the industry with government agencies and other stakeholders in the many parts of the world where we operate.

Panelists:
- Matthias Bichsel, Member of the Executive Committee and Director of Projects and Technology, Royal Dutch Shell plc
- José Formigli, Pre-Salt Executive Manager, Petrobras
- The Honorable Mary Landrieu, United States Senate
- William S. McArthur, Director of Safety and Mission Assurance, NASA Johnson Space Center

1400–1700

Economic Modeling in Oil and Gas Markets
Moderator: Carol Dahl, Colorado School of Mines

Panelists will discuss the current interest in the E&P industry, statistical analysis of super cycles in oil prices, an optimization model that minimizes bidding risk, simulation of the effect of shale gas on world LNG markets, and a game theory model related to environmental policies and oil spills.

Panelists:
- Abdel Zellou, PhD Student, Colorado School of Mines
- Yris Olaya, Assistant Professor, Universidad Nacional de Colombia
- William Lambert, PhD Candidate, Colorado School of Mines
- Arturo Vasquez Cordano, PhD Candidate, Colorado School of Mines
0830–1155
**Role of the Petroleum Industry in the Process of Capture, Storage, and Use of CO2**
Moderator: Tom Knode, Halliburton

This session is a collaborative effort of all six of the technical directors of the SPE Board. The directors will address issues such as technology, public acceptance, international collaboration, and financial considerations. Additional focus will be on the use of aquifer storage for CO2, the use of CO2 for EOR, and the notion that CO2 injection or storage is a viable solution to the greenhouse gas problem.

**Panelists:**
- **Keynote & Overview of Carbon Capture and Storage**
  Kamel Bennaceur, SPE Technical Director of Management and Information, Chair of SPE CCS Committee, Schlumberger
- **Carbon Capture and Storage Operations and Issues**
  Ahmed Abou-Sayed, SPE Technical Director of Production and Operations, Advantek
- **Carbon Capture and Storage for Profit: CO2 in EOR**
  Chuck Fox, Kinder/Morgan
- **Sustainable Carbon Storage**
  Christine Ehlig-Economides, Texas A&M University
- **Economics of Carbon Capture and Storage**
  Haroon Kheshgi, ExxonMobil

1400–1700
**Rocky Mountain Region Panel Session**
**Considerations for Liquids-Rich Horizontal Wells**
Moderator: Mike Eberhard, Anadarko

Over the last decade there has been rapid growth within the unconventional gas basins through the application of new technologies associated with horizontal wells. With the price differential between gas and oil at an all-time high in the US, operators are making a switch to more liquids-rich areas.

This panel will share some of the lessons learned in dealing with liquids-rich, rather than dry, natural gas horizontal wells.

Panelists offers operator, service company, and academic perspectives on their work in the Bakken formation in North Dakota, Niobrara formation in Colorado, and the Eagle Ford formation in Texas.

The panel will also discuss some of the design and operational differences that should be considered for liquids-rich plays.

**Panelists:**
- John Paneitz, Whiting Petroleum Corporation
- Clyde Finlay, ConocoPhillips
Environmental Considerations in Shale Play Development

Shale play development, including hydraulic fracturing, is a prevalent topic in the US media, legislative, and regulatory communities. This panel session is intended to generate open discussions on current HSE and social issues in the US and how these challenges may translate around the globe.

Panelists:
- Kayli Clements, Sr. Environmental Scientist, M-I SWACO
- Kathryn Klaber, President and Executive Director, Marcellus Shale Coalition
- Doug Flanders, Director of Policy & External Affairs, Colorado Oil & Gas Association
- Nick Douglas, Sr. Advisor, Oil Shale Dept. of the Interior, Bureau of Land Management
- Bernadette Rappold, Director, Special Litigation and Projects Division, Office of Civil Enforcement, US EPA

Talent Council Session
Workforce Challenges for 2012

The panel discussion will focus on what’s new and what’s coming in the future. The "Crew Change" is here, but what’s next? Topics will include SPE Talent Council initiatives related to petroleum engineering education, gender diversity, technical knowledge matrix for graduating petroleum engineers, and the SPE Faculty Task Force.

Panelists:
- Alain Gringarten, Imperial College, Moderator
- Ford Brett, PetroSkills
- Tom Blasingame, Texas A&M University
- Eve Sprunt, Chevron
- Maria Capello, Kuwait Oil Company
- Caziluqui Pedro, Chevron Angola
- Mohan Kelkar, Tulsa University
- Pierre Bismuth, Schlumberger
Technical Sessions
Monday, 31 October, 1400-1700

Room 102, 104, 106
UNLEASHING UNCONVENTIONAL RESERVOIRS

Session Chairpersons: Joel Le Calvez, Schlumberger; Paul Mckay, Ion Geophysical; Frederic Santarelli, Geomec

The high demand for energy and the advances in technologies triggers the need to reach challenged reservoirs by developing tools, methods, mapping and software. This session focuses on unconventional reservoirs, topics including shale, fractured reservoirs, tight formation and advances in unleashing unconventional reservoirs.

1400  Keynote  Linking Microseisms To Reservoir Models: Adding Value to Microseismic Measurements
T.I. Urbancic, A. Baig, K.C. Mace, ESG

1425  Crosswell Electromagnetic Tomography in Unconventional Well Geometries
M. Wilt, P. Zhang, M. Safdar, Schlumberger

1450  Predicting Shale Reservoir Response To Stimulation: The Mallory 145 Multi-Well Project
D. Moos, G.D. Vassilellis, R. Cade, J. Franquet, Baker Hughes; A. Lacazette, EQT Production; E. Bourtembourg, G. Daniel, Magnitude SAS

1545  Strategies to Minimize Frac Spacing And Stimulate Natural Fractures in Horizontal Completions
N.P. Roussel, M.M. Sharma, University of Texas at Austin

1610  Impact of Upscaling on 3D Modelling of SAGD in a Meander Belt
R. Deschamps, N. Guy, C. Preux, O. Lerat, IFP Energies

1635  Effective Pressure and Microstructure Control on Resistivity Formation Factor and Seismic Waves Velocities
A. Tinni, C. Sondergeld, C.S. Rai, H. Simo, University of Oklahoma

ePosters

147677  A Workflow Concept To Characterize Core Samples From The Microscale To The Nanoscale
H. Lemmens, A. Butcher, FEI

145709  Magnetic Resonance Utilization as an Unconventional Reservoir Permeability Indicator
J. Bray, C.H. Smith, S. Ramakrishna, E. Menendez, Halliburton
Applied Borehole Image Analysis in Complex Sedimentological and Structural Settings: A Single Well Case Study, California, USA
A. Amer, Schlumberger; M.R. Glascock, J. Schwalbach, Aera Energy; M. Khan, Schlumberger

Room 108, 110, 112
FLOW ASSURANCE AND SAND MANAGEMENT

Session Chairpersons: Sami El Halfawi, Weatherford; Murtaza Ziauddin, Schlumberger
This session will address production operations and ways of preventing or mitigating flow assurance related problems by understanding the fluid flow behavior and production chemistry. The session also discusses sand production management issues related to flow assurance.

1400 146156 The Cottonwood Field Case History: The Pig/Paraffin Obstruction of a Long Subsea, Deepwater Tie-Back and Its Successful Remediation

1425 147244 A Flow Assurance Study on Elemental Sulfur Deposition in Sour Gas Wells
Y. Tang, J. Voelker, Chevron; C. Keskin, Z. Xu, B. Hu, SPT Group; C. Jia, China National Petroleum

1450 146551 The Sanding Mechanisms of Water Injectors and Their Quantification in Terms of Sand Production: Example of the Buzzard Field (UKCS)
F.J. Santarelli, F. Sanfilippo, J. Embry, Geomec; M. White, J.B. Turnbull, Nexen

1545 146775 Improvement of Flow Properties of Heavy Oils Using Asphaltene Modifiers
C.N. Ovalles, E. Rogel, J. Segerstrom, Chevron

1610 146679 Improved Sand Management Strategy: Testing of Sand Monitors under Controlled Conditions
C. Emiliani, K. Lejon, Statoil; M. Linden, J. Engene, O. Kvernvold, DNV; C. Packman, Roxar; D. Clarke, Cormon; T. Haugsdal, ClampOn

1635 145254 Real Time Sand Production Management Using Non-Intrusive Surface Ultrasonic Sand Monitors in TNK-BP Brown Fields in Western Siberia
E. Muslimov, P. Medvedev, TNK-BP; S. Shevchenko, D. Mironov, SamotlorNefteGaz; A. Afanasiev, Varieganneftegaz
REMEDIAL OPERATIONS

Session Chairpersons: Bertrand Theuveny, Schlumberger; Mathew Samuel, Schlumberger
This session will focus on down-hole solutions to production problems and reserves enhancement. Discussed are innovative new equipment, diagnostic tools, and simulation techniques being developed and implemented.

1400 146868 Long and Stuck E-line - Probable Root Cause Failure Analysis and Fishing Success Story
M. Razak, M. Azher, Petronas; M. Samsu, Schlumberger

1425 146267 Subsea Well Fluid Intervention Using MARS (Multiple Application Reinjection System)
D. Petrone, Cameron

1450 145749 Hydraulic Piston Pump for Dewatering Gas Wells
T.S. Pugh, C.E. Robison, Weatherford

1545 147053 A Dynamic Model for Simulation of Integrated Reservoir, Well and Pipeline System
J. Sagen, Institute for Energy Technology; M. Ostenstad, B. Hu, SPT Group; K.E.I. Henanger, S.K. Lien, Statoil; Z. Xu, SPT Group; S. Groland, T. Sira, Institute for Energy Technology

1610 147247 Successful Discovery of Light Oil from an Unsuccessful Paleozoic Well Through Re-Entry - A Case Study of HPHT Well
H. Al-Bader, Y.Z. Al-Salali, V. Duggirala, A. Manimaran, S. Packirisamy, Kuwait Oil

1635 146017 Modelling of Cable Forces as a Decision Support Tool for RLWI Operations
J. Kjaersgaard-Rasmussen, N. Rask, M. Iversen, M.M. Arnskov, Welltec

APPLIED COMPLETION TECHNOLOGY

Session Chairpersons: Raymond Doyle, BOPCO; Roy Hathcock, Devon Energy
Presents a variety of applications of completion technology. Topics include unique well equipment, processes and techniques that improve well completions.

1400 145811 A New Compact Triaxial Perforation Tunnel Stability Tester
A Unique Plug For A Restricted Wellbore
J.J. Blevins, El Paso Exploration and Production; G.L. Frazier, Magnum Oil Tools

Formalization and Standardization of the Smart Well Modeling Workflow
J.D. Hudson, Shell; I.N. Alves, Petrobras; M. Khoshkbarchi, Computer Modelling Group

Perforating High-Pressure Deepwater Wells in the Gulf of Mexico
C.E. Baumann, H.A. Williams, Schlumberger; T.A. Korf, R.D. Pourciau, Chevron

A Coiled Tubing Perforating Solution Incorporating a Gun Deployment System and Dynamic Underbalance Technique Improves Well Production in High Angle Deep Gas Wells in Saudi Arabia
H.H. Al Jubran, J. Leal, S. Al BuHassan, S. Bolarinwa, Saudi Aramco; W. Kharrat, D. Pulson, M. Barnawi, Schlumberger

Autonomous Perforating System for Multizone Completions
P.B. Entchev, R. Angeles, K. Kumaran, N. Subrahmanya, ExxonMobil; R.C. Tolman, RC Tolman LLC

Room 205, 207
BHA AND BITS: INNOVATION AND OPTIMIZATION

Session Chairpersons: Terry Hemphill, Halliburton; Dan Scott, Baker Hughes

Bits and reamers continue to be areas of design and application innovation, leading to substantial increases in operational performance and improvements in vibration control. This session highlights several recent technologies that led to significant understanding and improved drilling techniques.

Anomalous Pore Pressure and Its Relation with Insitu Stress Regime in Deepwater Play
G. Li, D. Allison, M. Bai, Halliburton

Mitigation of Torsional Stick-Slip Vibrations in Oil Well Drilling Through PDC Bit Design: Putting Theories to the Test
J.R. Jain, L.W. Ledgerwood, O.J. Hoffmann, T. Schwefe, D. Fuselier, Baker Hughes

Drilling and Under-Reaming in the Gulf of Mexico Deepwater Ultradeep Lower Tertiary: History of a Record Run in the World's Deepest Oil or Gas Well
RFID Provides Multiple On-Demand Activation/Deactivation Reliability to Underreaming
L.A. Gonzales, Marathon Oil; E. Valverde, A. Odell, T. Laird, Weatherford

Expansion Of Field Testing And Application Of New Hybrid Drill Bit
T. Dolezal, F.C. Felderhoff, A.D. Holliday, Baker Hughes; G. Bruton, Chesapeake

Gauge Extension Optimizes Conventional Drill Bits for Superior Performance with Rotary Steerable Systems
D.R. Stroud, L.A. Lines, Weatherford; S.P. Barton, H.A. Sanchez, National Oilwell Varco

Application Specific Steel Body PDC Bit Technology Reduces Drilling Costs in Unconventional North America Shale Plays

Positive Displacement Motor Innovation Drives Increased Performance With PDC Bits in 8 ¾-in. Hole Size
A.A. Azizov, W. Davila, O. Nnanna, A. Rizen, D. Scott, Baker Hughes

ACIDIZING / OIL AND LIQUID RICH SHALE

Session Chairpersons: Javad Paktinat, Trican Well Service; Ghaithan Al-Muntasher, Saudi Aramco

This session focuses on several topics relating to acidizing diverting techniques, acid fracture conductivity correlations, and formation damage removal of carbonate reservoirs as well addressing the concepts and variables that influences proppant selections and optimization of transverse fractures in liquid rich formation.

DTS Sensing: An Emerging Technology Offers Fluid Placement for Acid
R.P. Reyes, G. Glasbergen, V.J. Yeager, Halliburton; J.L. Parrish, Occidental Petroleum

Acid Diversion Using Viscoelastic Surfactants: The Effects of Flow Rate and Initial Permeability Contrast
A.H. Al-Ghamdi, Saudi Aramco; D. Hill, H.A. Nasr-El-Din, M. Mahmoud, Texas A&M University

Removing Formation Damage and Stimulation of Deep Illitic-
Sandstone Reservoirs Using Green Fluids
M.A. Mahmoud, AkzoNobel; H.A. Nasr-El-Din, Texas A&M University; C.A. DeWolf, AkzoNobel

Experimental and Field Data Analysis of Ball Sealer Diversion
M. Nozaki, D. Zhu, A.D. Hill, Texas A&M University

Optimizing Transverse Fractures in Liquid-Rich Formations
M.C. Vincent, Consultant

Acid-Fracture Conductivity Correlations for a Specific Limestone Based on Surface Characterization
V.F. Rodrigues, W. Campos, A. Medeiros, North Fluminense State University; R.A. Victor, Petrobras

ePoster

Shale Oil Production Performance from a Stimulated Reservoir Volume
A.S. Chaudhary, C.A. Ehlig-Economides, R.A. Wattenbarger, Texas A&M University

Room 605, 607
RESERVES, MULTI PROSPECT ANALYSIS AND THE VALUE OF INFORMATION

Session Chairpersons: Thomas Heinold, Baker Hughes; David Yaw, EnCana
This session focuses on appropriate reserves analysis under new SEC guidelines, appropriate multiple prospect analysis and some insights into the value of information.

Demonstrating Reasonable Certainty Under Principles-Based Oil and Gas Reserves Regulations
R.E. Sidle, W.J. Lee, Texas A&M University

A New and Improved Approach for Geological Dependency Evaluation for Multiple-Prospect Exploration
S. Rasheva, R.B. Bratvold, University of Stavanger

Intelligent Appraisal Program for a Multi-Prospect Development
P. Delfiner, PetroDecisions

Understanding and Handling Residual Risks
J.G. Zhao, Statoil

Discretization, Simulation, and the Value of Information
E.J. Bickel, University of Texas at Austin

Creating Portfolio Insights by a Practical Multimethod Optimisation Approach
ePosters

**143843**  
**Reserves Follow-up Using An Integrated Deterministic-Probabilistic Approach**  
H. Araujo, A.J. Rattia, Repsol YPF

**146788**  
**Field Development Optimization Under Uncertainty: Screening-Models for Decision Making**  
B.A. Ogunyomi, C.J. Jablonowski, L.W. Lake, University of Texas at Austin

Room 702, 704, 706  
**RESERVOIR CONNECTIVITY AND STRESS CHARACTERIZATION**

Session Chairpersons: **Edward Boratko**, Schlumberger; **Calvin Kessler**, Halliburton  
Formation testing using wireline or while drilling, is a key technology for reservoir and fluid characterization. This session focuses on advancements in many areas of this theme. Reservoir connectivity using asphaltene nanoscience, novel fluid injection applications, new configurations for improved sampling and micro-fract testing in gas shales will be highlights of the session.

**1400  146450**  
**3D Multiphase Streamline-Based Method For Interpretation of Formation-Tester Measurements Acquired in Vertical and Deviated Wells**  
A. Hadibeik, R. Abdollah Pour, C. Torres-Verdin, K. Sepehrnoori, V. Shabro, University of Texas at Austin

**1425  145438**  
**DFA Asphaltene Gradients for Assessing Connectivity in Reservoirs Under Active Gas Charging**  
J.Y. Zuo, Schlumberger; H. Elshahawi, Shell; C. Dong, A.S. Latifzai, D. Zhang, O.C. Mullins, Schlumberger

**1450  146649**  
**Impact of Asphaltene Nanoscience on Understanding Oilfield Reservoirs**  
O.C. Mullins, B. Andrews, A. Pomerantz, C. Dong, J.Y. Zuo, T. Pfeiffer, A. Latifzai, Schlumberger; H. Elshahawi, Shell; L.E. Barre, IFP Energies; S. Larter, University of Calgary

**1545  146776**  
**The Effect of Mechanical Properties Anisotrophy in the Generation of Hydraulic Fractures in Organic Shales**  
G.A. Waters, R.E. Lewis, D.C. Bentley, Schlumberger

**1610  147506**  
**Pressure Transient and Production Data Analysis of Horizontal Well in Unconsolidated Formation in Frade, Brazil**  
Y. Pan, R.T. Ewy, D.P. Ringe, M.M. Kamal, R.J. Affinito, O. Sotunde, Chevron
Revisiting Microfrac Insitu Stress Measurement Via Flow Back - A New Protocol
A. Savitski, J.W. Dudley, Shell

ePosters

Effects of Temperature Variations on Formation Tester Pretests
S.S. Betancourt, E.B. Dussan V, Schlumberger; L.W. Lake, University of Texas at Austin

Application and Evolution of Formation Pressure While Drilling Technology (FPWD) Applied To The Gulf of Mexico
Y. Blanco, M. Turner, Schlumberger

The Use of a Wireline Formation Tester with Dual Intake Inflatable Packers to Optimize Fluid Analysis in an Eastern Siberian Heavy Oil Field
A. Tsiklakov, P.J. Weinheber, W.R. Wichers, Schlumberger; S. Zimin, R.A. Oshmarin, Rosneft

Room 708, 710, 712
IMPROVED RECOVERY PROCESSES

Session Chairpersons: Birol Dindoruk, Shell; Seung Kam, Louisiana State University

Engineers invest huge efforts to improve oil recovery. Lately low salinity floods, microbial methods and gas flood are among the ideas presented in this session.

Wettability Alteration in High Temperature and High Salinity Carbonate Reservoirs
G. Sharma, K.K. Mohanty, University of Texas at Austin

Considerations for Field Implementation of Microbial Enhanced Oil Recovery

Decoupling the Mechanisms of Microbial Enhanced Oil Recovery
R.T. Armstrong, D. Wildenschild, Oregon State University

Measurement and Modeling of Excess Oil Flow During Tertiary Gas Flood
H. Dehghanpour, D.A. DiCarlo, University of Texas at Austin

Evaluation Of The Effect Of Low Salinity Waterflooding For 26 Fields In Wyoming
G.D. Thyne, P. Gamage, Enhanced Oil Recovery Institute

Modeling Surfactant Enhanced Oil Recovery From Short And Long
Fractured Carbonate Cores And Scaling Of Results To Field Applications
B. Alamdari, H. Kazemi, Colorado School of Mines; M. Salehi, C.P. Thomas, M. Izadi, E.J. Manrique, TIORCO

ePosters

147375  Comparison of Oil Recovery by Low Salinity Waterflooding in Secondary and Tertiary Recovery Modes
P.H. Gamage, G.D. Thyne, University of Wyoming

147150  Maximization of Oil Mobility within a Hydrocarbon Reservoir for Elastic Wave-based Enhanced Oil Recovery
C. Jeong, L.F. Kallivokas, C. Huh, L.W. Lake, The University of Texas at Austin

Four Seasons Ballroom
IMPROVEMENTS TO FLOW MODELING FROM RELPERMS TO 4D SEISMIC

Session Chairpersons: Keshav Narayanan, BHP Billiton; Robert Tester, ExxonMobil
The papers in this session discuss improvements in modeling flow in petroleum reservoirs. Topics covered include integration of 4 D seismic into simulation models, field development optimization under uncertainty, flow based upscaling and measurement of 3 phase relperms. The session also includes innovative techniques to monitor reservoir performance.

1400  145808  Three-Phase Unsteady-State Relative Permeability Measurements in Consolidated Cores Using Three Immiscible Liquids
P. Cao, S. Siddiqui, Texas Tech University

1425  146639  Pattern-Based Approach to Multiphase Flow Upscaling Using Distance-Based Clustering
S. Suzuki, ExxonMobil

1450  146752  Nanoparticle and Microparticle Flow in porous and Fractured Media: An Experimental Study
M. Alaskar, M.F. Ames, S. Connor, C. Liu, Y. Cui, K. Li, R.N. Horne, Stanford University

1545  146512  Field Development Optimization with Subsurface Uncertainties
M.L. Litvak, J.E. Onwunalu, J. Baxter, BP

1610  146697  Practical and operational use of Assisted History Matching and Model-Based Optimisation in the Salym Field
G.J. Joosten, A. Altintas, Shell; P. De Sousa, Salym Petroleum Development

1635  146771  Joint Inversion of 4D Seismic and Production Data
J.L. Landa, D. Kumar, Chevron

**ePosters**

**146446**  
An Alternative to Streamlines for Flow Diagnostics on Structured and Unstructured Grids  
M. Shahvali, Stanford University; B.T. Mallison, K. Wei, H. Gross, Chevron

**146574**  
Impacts of the Porosity-Permeability Transform Throughout the Reservoir Modeling Workflow  
R.D. Roadifer, M.H. Scheihing, ConocoPhillips

**146748**  
Geology-Guided Quantification of Production-Forecast Uncertainty in Dynamic Model Inversion  
M. Maucec, S. Cullick, G. Shi, Halliburton

**147318**  
Potential Pitfalls from Successful History-Match Simulation of a Long-Running Clearwater-FM SAGD Well Pair  
Q.T. Doan, Vincano; F. Ali, PERL; M.T. Doan, Vincano

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**Tuesday, 1 November, 0830-1155**

**Room 102, 104, 106**  
**THE MODERN TOOLKIT TO IMPROVE LEARNING EVOLUTION OF TRAINING STRATEGIES**

Session Chairpersons: J.C. Cunha, Petrobras; Bill Fiffick, Baker Hughes  
Discussions will focus on the different tools being used to enhance individual and team learning through multidisciplinary environments.

**0830  147426**  
A Historical Survey of Summer Internships with a Review of Options for Increasing the Number of Interns Available for Industry  
F.M. Platt, Texas A&M University; L.R. Heinze, Texas Tech University

**0855  144880**  
A Strategic Method To Accelerate Individual’s Learning And Enhance Subsurface Team Performance Within Multidisciplinary And Multigenerational Environments  
Q. Dashti, Kuwait Oil C. Gunawan, Schlumberger

**0920  146020**  
Accelerating Petro-Technical Learning In The E&P Industry  
H.N. Edmundson, Schlumberger; S. Pickering, NExT

**0945  145235**  
The Upstream Professional Development Center (UPDC): The Continuing Evolution of Upstream Professional Development  
T.Agour, S.P. Salamy, D.G. Kersey, A. Ghanim, Saudi Aramco

**1040  146970**  
From the Classroom to the Field: Learning Transfer Strategies
10 YEARS OF DIGITAL ENERGY: WHAT HAVE WE LEARNED

Moderators: Antony Edwards, StepChange Global
This session will provide an overview of the numerous areas impacted by Digital Energy by highlighting the progress over the last 10 years and discussing the many opportunities ahead.

Panelists:
Judd Jacobs, CERA
Pieter Kapteijin, Maersk Oil & Gas A/S
Derek Matheson, Baker Hughes
Tofig Dhubaib, Saudi Aramco
Steve Fortune, BP

INTEGRATING ADVANCED MONITORING TECHNOLOGIES FOR IMPROVED RESERVOIR PERFORMANCE

Session Chairpersons: James Clark, Apache; Bobby Poe, Schlumberger
Recent advances in reservoir monitoring technologies has resulted in a better understanding of the reservoir dynamics of completion and production operations. Many new technologies are presented in this technical session that are used to obtain an improved characterization of the reservoir performance.
Component Seismic in a CO$_2$ WAG EOR Project
A. E. Heris, A.V. Wandler, H. Kazemi, T.L. Davis, Colorado School of Mines

0855 146637 Improved Understanding of Reservoir Connectivity in an Evolving Waterflood With Surveillance Data
B. Parekh, S. Kabir, Hess

0920 146348 First Borehole to Surface Electromagnetic Survey in KSA: Reservoir Mapping and Monitoring at a New Scale
A.F. Marsala, M. Buali, Z. Ali, S.M. Ma, Saudi Aramco; Z. He, T. Biyan, G. Zhao, T. He, BGP / CNPC

0945 146418 Comparison of Stochastic Data-Integration Algorithms for the Joint History Matching of Production and Time-Lapse Seismic Data

1040 147399 Steam Chamber Development In Diatomites: The Role of Microseismic Monitoring in Identifying Conformance and Out-of-Zone Fracture Growth
A.M. Baig, T.I. Urbancic, M. Seibel, ESG Solutions

1105 146366 A Capacitance-Resistive Model and InSAR Imagery of Surface Subsidence Explain Performance of a Waterflood Project at Lost Hills
W. Wang, T.W. Patzek, L.W. Lake, University of Texas at Austin

1130 147444 Interpretation of CO2 Sequestration Induced Surface Deformation Over KB-502 at Krechba, Algeria
E.J. Davis, Pinnacle

ePoster
145440 Monitoring on CO2 EOR and Storage in a CCS Demonstration Project of Jilin Oilfield China
S. Ren, B. Niu, B. Ren, Y. Li, W. Kang, China University of Petroleum;; G. Chen, H. Zhang, H. Zhang, Jilin Oilfield

Room 201, 203
ADVANCEMENTS IN SAND CONTROL TECHNOLOGY I
Session Chairpersons: Michael Barry, ExxonMobil; Martin Coronado, Baker Hughes
This Session Focuses on Application of Various Frac Packing Techniques as Well as the Design and Performance of Sand Control Screens.

0830 147313 The World’s Deepest Frac-Pack Completions Using a Single-Trip, Multi-Zone System: A Gulf of Mexico Case Study in the Lower Tertiary Formation
K.S. Ogier, Cherokee Offshore Engineering; Z.A. Haddad, FOI Technologies; O.M. Moreira, F.D. De Moraes, Petrobras; J. Shipley, Cherokee Offshore Engineering

0855  147095  Production Tubing Frack Pack: An Unconventional Multi-zone Design with Significant Cost Savings  
R. Patterson, El Paso E&P; C. Ross, M.L. Larpenter, Halliburton

0920  147006  Preemptive Scale Management: Treating with Scale Inhibitor While Frac Packing a Well  
M. Marquez, L.A. Schafer, W.D. Norman, Chevron

0945  146419  Production and Rock Stability around a Frac-Packed Gulf of Mexico Well  
G. Han, J. Revay, L.J. Kalfayan, J. Perez, Hess; D.A. Walters, R.C. Bachman, Taurus Reservoir Solutions

1040  146516  Well Completion Design Using High-Performance Passive Inflow Control Devices with Selective Zonal Isolation Capability  

1105  146656  A New Method for the Design and Selection of Premium / Woven Sand Screens  
S. Mondal, M.M. Sharma, University of Texas at Austin; R.M. Hodge, ConocoPhillips; R.A. Chanpura, M. Parlar, J.A. Ayoub, Schlumberger

1130  146721  Ceramic Screens, an Innovative Milestone in Sand Control  
S. Muessig, P.E. Henriksen, Maersk Oil; S. Wildhack, C. Lesniak, ESK Ceramics

ePoster

147439  Fiber Optic Strain Sensing at the Sand Face Enables Real-Time Flow Monitoring and Compaction Mitigation in Openhole Applications  
D.M. Earles, C.W. Stoesz, N.D. Surveyor, Baker Hughes; J. Pearce, H. DeJongh, Shell

Room 205, 207
DOWNHOLE TOOLS AND TUBULARS

Session Chairpersons: John McCormick, Weatherford; Guillaume Plessis, National Oilwell Varco

With the established trend for enhanced performance in drilling more and more complex wells, we have gathered in this session papers about downhole tool and tubular technologies that improve drilling efficiency and allow for a safer and better well placement. Tools, simulations, analysis and best practices will be presented, aiming at demonstrating their benefits on drilling and completing wells.
Downhole Isolation Packers for Drilling Operations: Field Experiences
P. Ferrara, C. Molaschi, Eni; J. Oppelt, R. Buda, Baker Hughes; M. Amicosante, Eni; H. Grimmer, Baker Hughes

Case Studies of an Innovative New Drilling Tool Using Rate of Penetration Modulation
S.R. Farley, C.A. Maranuk, C. Jasper, Weatherford

Application Of a Torsional Impact Hammer to Improve Drilling Efficiency
A. Deen, R.J. Wedel, A. Nayan, S.K. Mathison, G. Hightower, Ulterra Drilling Technologies

New Locking Clutch Turbine Technology Successfully Frees Stuck Bit/BHA in Deep Gas Wells, Oman

Casing-Running Analysis in Riserless Topholes
R. Samuel, Halliburton; J.R. Gradishar, Shell

Can You Protect Your Motor Without Sacrificing Performance?
B.C. Guidroz, S. Barton, National Oilwell Varco

Using Connection Technology to Further Enhance Fast Slim Hole Drilling Case Histories and Lessons Learned
J. Wood, J. Wood, Chevron; D. Farquhar, G. Plessis, National Oilwell Varco

Field Proven Solutions to the Challenges of Centralizing Solid Expandable Casing
D.B. Farley, T.J. Scott, Weatherford

Stability Analysis of Pipe with Connectors in Horizontal Wells
G. Gao, Shell; Q. Di, ShangHai University; S.Z. Miska, University of Tulsa; W. Wang, ShangHai University

CHEMISTRY AND FLUIDS

Session Chairpersons: Rick Gdanski, Shell; Subhash Shah, University Of Oklahoma
This session will explore issues of water chemistry on the stability of conductivity in shales and the effectiveness of friction reducers, as well as water recycling technology and crosslinked gel systems for reducing environmental impact. Fluid rheology and fluid loss at high pressure will be examined
along with a study of the recovery of gel filter cakes both experimentally and from a modeling viewpoint.

0830 147485  Eliminating Slickwater Fracturing Compromises for Improved Shale Stimulation  
H.D. Brannon, C.E. Bell, Baker Hughes

0855 147692  Theoretical and Experimental Modeling of Residual Gel Filter Cake Displacement in Propped Fractures  
L. Ouyang, T. Yango, D. Zhu, A.D. Hill, Texas A&M University

0920 147206  Fracturing Fluid Comprised of Components Sourced Solely from the Food Industry Provides Superior Proppant Transport  
D.M. Loveless, J. Holtsclaw, R. Saini, P.C. Harris, J. Fleming, Halliburton

0945 145454  Game Changing Technology For Treating And Recycling Frac Water  
J.W. Ely, Ely and Associates; A.D. Horn, Hydrozonix; R. Cathey, Ecosphere Energy; M. Fraim, Texas A&M University; S.D. Jakhete, Consultant to Ecosphere Technologies

1040 146832  Environmentally Focused Crosslinked Gel System Results in High Retained Proppant Pack Conductivity  

1105 147266  An Examination of Clay Stabilization and Flow Stability in Various North American Gas Shales  
M.W. Conway, Stim-Lab; J.J. Venditto, Anadarko Petroleum; P.B. Reilly, Water Mark Technology; K. Smith, Smart Chemical Services

1130 146827  Lower Quality Natural Quartz Proppants Result In Significant Conductivity Loss and Reduction In Ultimate Recovery: A Case History  
F.E. Syfan, R.W. Anderson, U.S. Silica Company

ePoster

146674  An Effective Model of Pipe Friction Prediction from Laboratory Characterization to Field Applications for Friction Reducers  
MJ. Zhou, Missouri University of Science and Technology; H. Sun, Q. Qu, Baker Hughes; B. Bai, Missouri University of Science and Technology

Room 605, 607  
ENVIRONMENTAL CONSIDERATIONS CURRENT ISSUES AND CHALLENGES  
Session Chairpersons: Arlette Ruiz, Advantel; Richard Haut, Houston Advanced Research Center
This session includes presentations on a variety of environmental topics, including environmentally
 responsible fracturing processes, pollution prevention/control, CO2 storage and biodiversity.

0830 147503 BMPs for Minimizing Environmental Impacts: A Resource for Communities, Government and Industry
K.M. Mutz, K.L. Rice, L. Walker, A.C. Palomaki, K.D. Yost, University of Colorado Law School

0855 145797 Long-Term Hydrocarbon Removal Using Treatment Wetlands
S.D. Wallace, Naturally Wallace Consulting; M. Schmidt, URS; E. Larson, Atlantic Richfield

0920 147414 Characterization of Microbial Diversity in Treated and Untreated Flowback Water Impoundments From Gas Fracturing Operations
A. Murali Mohan, K.B. Gregory, Carnegie Mellon University; R.D. Vidic, University of Pittsburgh; P. Miller, Range Resources R. Hammack, National Energy Technology Laboratory

0945 146439 Using Industrial Remotely Operated Vehicles in Standby Time for Deepwater Biodiversity Assessment: A Case Study From Offshore Nigeria
D. Jones, National Oceanography Centre; C.O. Mrabure, Total; A. Gates, National Oceanography Center

1040 147534 Profression Toward Implementation Environmentally Responsible Fracturing Processes

1105 146964 Geographic Response Strategy "An Integrated System for Effective Spill Response"
S.M. Ayu, J. Rusjanto, P. Sarwanto, H. Hidayatullah, R.I. Prasetyo, Total

1130 144628 Evaluation of Fugitive Methane Emission Factor for Oil and Gas in India
A. Agarwal, Indian School of Mines; A. Singh, Central Institute of Mining and Fuel Research

ePoster

145791 A CO2 Sequestration Simulation Case Study at the Dickman Field, Ness Co., Kansas
C. Liner, P. Geng, J. Zeng, H. King, J. Li, University of Houston

Room 702, 704, 706
NEW FORMATION EVALUATION TECHNIQUES AND TECHNOLOGIES

Session Chairpersons: Luiz Amado, Petrobras; Richard Pemper, Weatherford
New tools and techniques are essential to constantly improve the formation evaluation and to
reduce uncertainties. This session has a focus on recent advances in Formation Evaluation Techniques and Technologies. New way of estimating rock and fluid properties such as permeability from EM and production data and insitu viscosity from acoustic logging, new formation evaluation tools and techniques for improved formation evaluation will be highlights of this session.

0830 146526 Improved Estimation of Permeability from Joint Inversion of Time-Lapse Crosswell Electromagnetic and Production Data using Gradient-Based Method
L. Liang, A. Abubakar, T.M. Habashy, Schlumberger

0855 147169 A Modern Method for Using Databases to Obtain Accurate Solutions to Complex Reservoir Characterization Problems
R. Freedman, V. Anand, T. Zhou, D.A. Rose, S. Beekman, Schlumberger

0920 146769 Deep Fracture Imaging Around the Wellbore Using Dipole Acoustic Logging
A.O. Bolshakov, D.J. Patterson, C. Lan, Baker Hughes

0945 146023 InSitu Viscosity from Acoustic Logging
E. Dyshlyuk, A.V. Parshin, M.G. Charara, Schlumberger; A. Nikitin, Moscow State University; B. Plyushchenkov, Keldysh Institute for Applied Mathematics

1040 145515 Theory of Unipole Acoustic Logging Tools and Their Relevance to Dipole and Quadrupole Tools for Slow Formations
T. Wang, M. Dawber, P.M. Boonen, PathFinder Energy Services

1105 147400 Performance of a New 2.35-in. Wireline or Memory Quad Combo for Through-Bit or Small-Hole Logging
J.A. Truax, J.E. Galford, G.L. Moake, D.O. Torres, R.E. Cherry, B. Mandal, A. Mishra, L. San Martin, A. Quintero, Halliburton

1130 146883 Improved Precision Magnetic Resonance Acquisition: Application to Shale Evaluation

ePoster

145970 Cement Bond Evaluation: A Step Change in Capabilities
C.W. Kessler, C. Bonavides, A. Quintero, J. Hill, Halliburton

Room 708, 710, 712
LABORATORY FLOW CHARACTERIZATION

Session Chairpersons: Klaus Potsch, OMV Exploration and Production; Jawaid Saeedi, Petronas
Laboratory experiments are key to understanding the flow at the pore, and core levels. This session
highlights new advances in wettability, relative permeabilities, capillary pressure effects in sandpacks and fractured or heterogeneous porous media.

0830 146786  Correlation of Surfactant-Induced Flow Behavior Modification in Gas Condensate Reservoirs with Dynamic Contact Angles and Spreading  
Y. Zheng, B.D. Saikia, D.N. Rao, Louisiana State University

0855 146178  A Laboratory Study of the Effects of Fluid Composition on Gas-Water Interfacial Tension at HP/HT Reservoir Conditions  
A. Shariat, R.G. Moore, S.A. Mehta, K.C. Van Fraassen, University of Calgary; K.E. Newsham, J.A. Rushing, Apache

0920 147221  Effect of Relative Permeability Characteristics and Gas/Water Flow on Gas-Hydrate Saturation Distribution  
J. Behseresht, S.L. Bryant, University of Texas at Austin

0945 146370  Numerical Indicator for Flow Through Heterogeneous Permeable Media  
R. Ghanbarnezhad, L.W. Lake, University of Texas at Austin

1040 145380  An Experimental Investigation of Carbonated Water Flooding  
Y. Dong, B. Dindoruk, C. Ishizawa, E. Lewis, T. Kubicek, Shell

1105 147373  Coreflood Measurements of CO2 Trapping  
R. El-Maghraby, C.H. Pentland, M.J. Blunt, Imperial College

1130 147056  Impact of Supercritical CO2 Injection on Petrophysical and Rock-Mechanics Properties of Chalk: An Experimental Study on Chalk from South Arne Field, North Sea  
M.M. Alam, Technical University of Denmark; M.L. Hjuler, H.F. Christensen, Danish Geotechnical Institute; I.L. Fabricius, Technical University of Denmark

ePosters

143946  Experiments and Analysis of Multiscale Viscous Fingering During Forced Imbibition  
J. Sharma, University of Calgary; S. Inwood, A.R. Kovscek, Stanford University

145981  A Novel Methodology to Develop Relative Permeability Inputs for Field Simulation Models for the Solution Gas Drive Process in the Tengiz Reservoir  
A.S. Padmaker, J.M. Schembre-McCabe, J. Kamath, Chevron

147317  A Systematic Study of Oil Recovery Mechanisms from a Fractured and Vuggy Carbonate Reservoir
Four Seasons Ballroom
UNCONVENTIONAL RESOURCES PRODUCTION PERFORMANCE

Session Chairpersons: Raymond Ambrose, Reliance Energy; Mazher Ibrahim, EOG Resources

The impact of unconventional reservoirs has greatly increased over the last few years. Expanded investment has resulted in greater produced volumes and understanding from these reservoirs. This session focuses on reservoir engineering of unconventional oil and gas reservoirs. Topics that will be presented in this session include reservoir simulation, production forecasting and evaluation, transport phenomena, and integrated studies of shale reservoirs. Additionally, specific reservoir topics from the Fayetteville and Eagle Ford gas shales as well as the Bakken tight oil reservoir will be presented.

0830  147355  Improved Upscaling for Flow Simulation of Tight Gas Reservoir Models
Y. Zhou, M.J. King, Texas A&M University

0855  147352  Modeling of Transport Phenomena and Multicomponent Sorption for Shale Gas and Coalbed Methane in an Unstructured Grid Simulator
A. Leahy-Dios, M. Das, A. Agarwal, R.D. Kaminsky, ExxonMobil

0920  145117  Understanding Production from Eagle Ford—Austin Chalk System
R.B. Martin, J.D. Baihly, R. Malpani, G.J. Lindsay, W.K. Atwood, Schlumberger

0945  146534  Generalization of Dual Porosity System Representation and Reservoir Simulation of Hydraulic Fracturing Stimulated Shale Gas Reservoirs
C.M. Du, L. Zhan, J. Li, X. Zhang, S. Church, K. Tushingham, B. Hay, Schlumberger

1040  146651  Texas Panhandle Granite Wash Formation: Horizontal Development Solutions
B.W. Rothkopf, D.J. Christiansen, H. Godwin, A.R. Yoelin, Forest Oil Corporation

1105  147226  Understanding and Predicting Fayetteville Shale Gas Production Through Integrated Seismic-to-Simulation Reservoir Characterization Workflow

1130  144790  Production Forecasting with Logistic Growth Models
Tuesday, 1 November, 1400-1700

**Room 102, 104, 106**

**CHALLENGES OF TECHNOLOGICAL TRANSFER IN A DIVERSE WORLD TECHNOLOGY & TRAINING**

Session Chairpersons: *Henry Edmundson*, Schlumberger; *Nestor Saavedra*, Ecopetrol

This session will discuss the training tools, best practices and applications currently being utilized in the Petroleum Industry.

- **1400** 145421  **New Ways in Research and Education: The Effect of Real Field Data on Multi-Disciplinary Student Projects in Petroleum Engineering**
  K.M. Reinicke, L. Ganzer, C. Teodoriu, Clausthal University of Technology

- **1425** 146850  **Managing Large Enrollments: Plans to Ensure Students Receive a Quality Education**
  S.M. Schrader, B.J. Todd, J. Getty, Montana Tech

- **1450** 147149  **The Rapid Growth of e-Learning in the Upstream Petroleum Industry**
  D.A. Donohue, T. Donohue, J.M. Kapela, IHRDC

- **1545** 147242  **Simple Engineering Applications Recycled as Effective Training Aids**
  S.J. Sawaryn, BP

- **1610** 146766  **Best Practices for Effective Use of Technology in the Classroom**
  W. Fiffick, M.R. Smith, Baker Hughes

- **1635** 146050  **Real-Time Long Distance Teaching: An Extensive Evaluation of the Techniques and Student Response of 6 Years of Non-Stop Process**
  C. Teodoriu, M. Epps, M.A. Barrufet, G. Falcone, Texas A&M University

**Room 108, 110, 112**

**WELL PERFORMANCE MONITORING**

Session Chairpersons: *Darrin Willauer*, Baker Hughes; *Elizabeth Zuluaga*, Chevron

This session illustrates novel techniques for production allocation and state of the art methodologies to optimize well and field performance.
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1400</td>
<td><strong>Well Performance Diagnosis with Temperature Profile Measurements</strong></td>
<td>M. Tabatabaei, X, Tan, A.D. Hill, D. Zhu, Texas A&amp;M University</td>
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<tr>
<td>1425</td>
<td><strong>Geochemical Oil Fingerprinting—Implications For Production Allocations At Prudhoe Bay Field, Alaska</strong></td>
<td>D.B. Schafer, O.O. Bommarito, K.N. Cooper, BP: M.A. McCaffrey, Weatherford; P. Meixueiro, M. Mower, BP</td>
</tr>
<tr>
<td>1610</td>
<td><strong>Computation of Productivity Index with Capillary Pressure Included and Its Application in Interpreting Production Data from Low-permeability Oil Reservoirs</strong></td>
<td>K. Li, China University of Geosciences; U. Yangtze, Z. Chen, Peking University</td>
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<tr>
<td>1635</td>
<td><strong>Capacitance Resistive Model Application to Optimize Waterflood in a West Texas Field</strong></td>
<td>A.P. Nguyen, L. Lasdon, L.W. Lake, T.F. Edgar, University of Texas at Austin</td>
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**Room 109, 111, 113**

**WELL CENTRIC RESERVOIR MONITORING AND ANALYSIS**

Session Chairpersons: **Stephen Marinello**, Glori Oil; **Calvin Yao**, BHP Billiton

Reservoir monitoring at the wellbore is often the most common means of evaluating the performance of a reservoir. This session considers the application of modern wellbore centric technologies for reservoir monitoring and analysis.

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<tr>
<td>1400</td>
<td><strong>Characterization of Well Performance in Unconventional Reservoirs Using Production Data Diagnostics</strong></td>
<td>D. Ilk, DeGolyer and MacNaughteon; V. Okouma Mangha, Shell; T.A. Blasingame, Texas A&amp;M University</td>
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<tr>
<td>1425</td>
<td><strong>Micro Seismic: First Borehole Micro Seismic job Done in Columbia, Morpho Well Fracturing Through</strong></td>
<td>J.G. Garcia, Weatherford; V. Franco, C. Vasquez, C&amp;C Energy; A. Wills, Weatherford</td>
</tr>
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</table>
**Estimating Drainage-Area Pressure with Flow-After-Flow Testing**
C. Kabir, Hess; M.M. Elgmati, Missouri University; Z. Reza, Schlumberger

**Extending Production Petrophysics Applications in Monitoring Complex Recovery Mechanisms**
A. Zett, M.J. Webster, J.C. Seccombe, C. Colbert, BP; R.Z. Ansari, D. Chace, Baker Hughes

**Flow Model Selection For Production Logging Interpretation of Gas Wells**
K. Jongkittinarukorn, Chevron; R.P. Kerr, Scientific Drilling

**Impact of Reservoir Permeability on Flowing Sandface Temperatures; Dimensionless Analysis**
J.F. App, K. Yoshioka, Chevron

**Estimated Ultimate Recovery (EUR) as a Function of Production Practices in the Haynesville Shale**
V. Okouma, F. Guillot, M. Sarfare, Shell; V. Sen, Taurus Reservoir Solutions; D. Ilk, DeGolyer and MacNaughton; T.A. Blasingame, Texas A&M University

**Incorporating Geomechanics Into the Decline-Curve Analysis of Naturally Fractured Reservoirs**
H. Jabbari, Z. Zeng, University of North Dakota

**Novel Transient Electromagnetic Borehole System for Reservoir Monitoring**
S.M. Dutta, A. Reiderman, L.G. Schoonover, M.B. Rabinovich, Baker Hughes

**An Improved Model for Wireline Formation Tester Pumpout Time Estimation**
W.A. Khan, Schlumberger; R.A. Wattenbarger, Texas A&M University; S.S. Shah, A.H. Akram, Schlumberger

Room 201, 203

**ADVANCEMENTS IN SAND CONTROL TECHNOLOGY II**
Session Chairpersons: Syed Ali, Schlumberger; Steve Metcalf, Baker Hughes
Covers advances in Open and Cased Hole Gravel Packing Techniques, Hardware Development, and Methods to Assess Gravel Pack Placement and Completion Effectiveness

**Openhole Gravel Packing of Fishhook Wells with Zonal Isolation-Uphill Heel to Toe Packing**
S. Sulaiman, R.A. Jansen, P.C. Brassart, M. Kumar, Shell; J. Alexander, R.J.
Tibbles, N. Moses, A. Nordin, Schlumberger

1425  **146361**  **First Installation of Alternate Path Openhole Packer Providing True Zonal Isolation in Openhole Gravel Packs**  
M.T. Hecker, M.D. Barry, J.R. Ryan, V.F. Ruiz, P. Stevens, ExxonMobil; N. Pedro, Esso Exploration; C.S. Yeh, ExxonMobil; J. Inglesfield, Petrowell

1450  **145226**  **Cardinal Points to Achieve the Excellence in Horizontal Open-Hole Gravel Packing Operations in Deep and Ultra-Deepwaters**  
L.D. Marques, C. Pedroso, Petrobras

1545  **146755**  **Evaluation and Improvement of Gravel Pack Treatments Using Advanced Downhole Pressure Analysis**  
P. Wassouf, S. Jain, Schlumberger; G. Dannish, BG Group; A. Ramnarine, Schlumberger

1610  **146231**  **Casing and Screen Failure Analysis in Highly Compacting Sandstone Fields**  
K. Furui, G. Fuh, ConocoPhillips; N. Morita, Waseda University

1635  **147044**  **The Use of Slotted Expandable Liners in Multizone Openhole Frac-Packs: A New Completion Concept!**  
D. Mason, D. Duhrkopf, Q.P. Morgan, BP; A. McGeoch, C. Jones, Weatherford

**ePoster**

146650  **Mechanical Modeling of Shape Memory Polyurethane Foam for Application as a Sand Management Solution**  
C. Ozan, W. van der Zee, M. Brudy, J. Vinson, Baker Hughes

**Room 205, 207**  
**SHALES AND UNCONVENTIONALS**

Session Chairpersons: **Douglas Chester**, BP; **Rustom Mody**, Baker Hughes

The shale plays are the hottest E&P market in North America and shale gas drilling activity in the U.S. continues at a high level. Shale activity is also growing rapidly worldwide. Papers cover technologies to reduce drilling costs, increase RSS build rates to successfully drill curve and lateral sections in one run, managing unexpected high pore pressures in the Bossier and Haynesville formations and a lab study of adding nanoparticles to water based mud to measure the effect of water invasion into shale.

1400  **145964**  **Challenges and Surprises of Abnormal Pore Pressures in Shale Gas Formations**  
J. Zhang, J. Wieseneck, Shell

1425  **146732**  **Geosteering with Sonic in Conventional and Unconventional Reservoirs**
J.L. Pitcher, J. Market, D. Hinz, Halliburton

1450  148828  Efficiently Developing Fayetteville Shale Gas Reserves: Percussion Drilling Solves Application Challenges/Reduces Drilling Costs
R.J. Ford, Chesapeake Energy; A. Stone, Varnell Consulting; A. Spedale, R. Slaughter, S. Swadi, C. Dewey, Schlumberger

1545  147455  Evolution of High Build-Rate RSS Changes the Approach to Unconventional Oil and Gas Drilling

1610  146979  Decreasing Water Invasion into Atoka Shale Using Non-modified Silica Nanoparticles
J. Cai, China University of Geosciences; M.E. Chenevert, M.M. Sharma, University of Texas At Austin; J. Friedheim, M-I SWACO

1635  145969  Drilling with a Balanced-Activity Invert Emulsion Fluid in Shale: Is It Sufficient for Maintaining or Enhancing Wellbore Stability?
T. Hemphill, Halliburton

ePoster

147330  Particle Size Distribution-Engineering Cementing Approach ReducesNeed for Polymeric Extenders in Haynesville Shale Horizontal Reach Wells
R.H. Williams, D.K. Khatri, M. Vaughan, G. Landry, L. Janner, B. Mutize, O. Herrera, Schlumberger

Room 601, 603

FRACTURING TECHNOLOGY

Session Chairpersons: Andrew Bond, Pioneer Natural Resources; Klaas Van Gijtenbeek, Halliburton

Hydraulic fracturing is a vital key to exploiting the huge new unconventional gas and liquids developments around the world. Shale developments are causing an unprecedented surge in fracturing implementation and technology development. This session addresses multiple technical issues which are faced when fracturing both conventional and unconventional reservoirs.

1400  147622  Optimal Fracture Spacing And Stimulation Design For Horizontal Wells In Unconventional Gas Reservoirs
S. Bhattacharya, M. Nikolaou, University of Houston

1425  147603  Water As Proppant
C.A. Ehlig-Economides, Texas A&M University; M.J. Economides, University of
<table>
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<th>Time</th>
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<tr>
<td>1450</td>
<td><strong>The Effects of Fracturing Fluids on Shale Rock Mechanical Properties and Proppant Embedment</strong></td>
<td>O.M. Akrad, J.L. Miskimins, M. Prasad, Colorado School of Mines</td>
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<td>1545</td>
<td><strong>Stimulating a Barefoot Completion with Multiple Sand Fracture Treatments Using an Inflatable Packer Straddle System</strong></td>
<td>C. Campbell, pinnacle Wellsite Consultants; R.T. Brooks, T.W. Davis, TAM International</td>
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<td>1610</td>
<td><strong>How Do We Achieve Sub-Interval Fracturing?</strong></td>
<td>J.R. Augustine, Halliburton</td>
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<td>1635</td>
<td><strong>Innovative Method of Gas Shale Well Intervention with Coiled-Tubing/Jointed Tubing Hybrid String</strong></td>
<td>F. McNeil, M.A. Ehtesham, R.P. Gracey, Halliburton</td>
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<td><strong>ePosters</strong></td>
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<td>1443</td>
<td><strong>Evaluating the Long Term Benefits of Improved Fracture Treatments</strong></td>
<td>K.W. Blackwood, HighMount Energy; J. Flowers, Loredo Energy; P.J. Handren, Denbury Resources; C. Pope, Complete Shale; T. Palisch, M. Chapman, J. Godwin, CARBO Ceramics</td>
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<td>1465</td>
<td><strong>Quick Estimate of Initial Production from Stimulated Reservoirs with Complex Hydraulic Fracture Network</strong></td>
<td>W. Xu, J. Li, M. Du, Schlumberger</td>
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**Room 605, 607
SAFETY AND WASTE MANAGEMENT**

Session Chairpersons: **Richard Haut**, Houston Advanced Research Center; **John Karish**, ENSCO
This session covers a variety of safety and waste management related subjects. Among them are SEMS, driving safety, risk management, human factors and emergency response. In addition, there are several papers dealing with reduction of waste streams.

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<tr>
<td>1400</td>
<td><strong>First Successful Field Utilization of Cuttings Re-Injection (CRI) in the Offshore Manifa Field of Saudi Arabia as an Environmentally Friendly and Cost Effective Waste Disposal Method</strong></td>
<td>R. Ezell, F. Quinn, Halliburton; J.I. Chima, A. Baim, Saudi Aramco</td>
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<tr>
<td>1425</td>
<td><strong>Validation Process for Human Factor in Complex Upstream Oil and Gas Operations</strong></td>
<td>I. Ershaghi, University of Southern California; D.R. Luna, Luna and Glushon</td>
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<tr>
<td>1450</td>
<td><strong>WISEMan: A New Way to Waste Recording, Waste Tracking, and</strong></td>
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</table>
Waste Reporting to Improve Waste Management  
J. Rusjanto, O.S. Hartoyo, F.M. Qory, A.I. Aripin, R.I. Saroso, K. Rohman, Total

1545 146845  
B.A.R.T (Baseline Risk Assessment Tool): A Step Change in Traditional Risk Assessment Techniques for Process Safety and Asset Integrity Management  
A. Petrone, L. Scataglini, Eni; P. Cherubin, Tecnomare

1610 147521  
Case Study: Successful Implementation of Driving Safety and IVMS Program  
B.R. Gale, M. Trostel, EnCana; D. Armitage, M.A. Mason, L S. Bautista, Cartasite

Room 702, 704, 706  
INTEGRATED CASE STUDIES

Session Chairpersons: Zuleima Karpyn, Pennsylvania State University; Douglas Peck, Baker Hughes

Review of field performance analysis and reservoir management of carbonate and clastic reservoirs in the deepwater Gulf of Mexico, onshore Middle East, onshore United States, offshore China and offshore pre salt.

1400 145070  
Coupled Surface/Subsurface Simulation of an Offshore K2 Field  
W.C. Dobbs, J.B. Browning, Anadarko Petroleum; J.E. Killough, A. Kumar, Halliburton

1425 146292  
Practical Assisted History Matching and Probabilistic Forecasting Procedure: A West Africa Case Study  
B.O. Dujardin, Chevron; S.F. Matringe, Quantum Reservoir Impact; J.R. Collins, Chevron

1450 146817  
Monitoring and Improving Water Injection Efficiency in a Structurally Complex Field  
M. Rotondi, A. Binda, M. Draoui, A. Tsoumou, L. Tealdi, Eni

1545 146508  
Advanced Upscaling For Kashagan Reservoir Modelling  
P. Panfili, A. Cominelli, M. Calabrese, C. Albertini, A. Savitskiy, G. Leoni, Eni

1610 146037  
Reservoir Simulation of Detailed Object-Based Models of a Complex Fluvial System  
J.R. Gilman, H. Wang, iReservoir.com

1635 144975  
Integration of Formation Pressure Data to Improve Reservoir Characterization and Reservoir Management in PL 19-3 Oil Field, Bohai Bay
Reserves of heavy oil are huge but they are hard to recover. This session focuses on new ways to move the heavy oil by advanced thermal method and point out to new ways that help to get the oil out of the ground by adding chemicals and gases.

1400  147110  **Numerical Modeling of Massive Sand Production**  
J. Wang, D.P. Yale, G.R. Dasari, ExxonMobil

1425  146867  **Fuel Formation During In-Situ Combustion of Heavy Oil**  
B. Hascakir, C.M. Ross, L.M. Castanier, A.R. Kovscek, Stanford University

1450  146841  **Viscous Fingering During Non-Thermal Heavy Oil Recovery**  
S. Doorwar, K.K. Mohanty, University of Texas at Austin

1545  146661  **Transportation and Interaction of Nano and Micro Size Metal Particles Injected to Improve Thermal Recovery of Heavy-Oil**  
Y. Hamedi Shokrlu, T. Babadagli, University of Alberta

1610  146671  **A Semi-Analytical Approach for Estimating Optimal Solvent Use in Solvent Aided SAGD Process**  
S.C. Gupta, S. Gittins, Cenovus Energy

1635  147241  **Design of Simultaneous Enhanced Oil Recovery and Carbon Dioxide Storage Applied to a Heavy Oil Field Offshore Trinidad**  
L. Sobers, M.J. Blunt, T.C. LaForce, Imperial College
Experimental Results and Analytical Modeling of Solvent-Leaching Gravity Drainage Phenomenon in Heavy Oil Reservoirs
F. Ahmadloo, K. Asghari, A. Henni, University of Regina; N.P. Freitag, Saskatchewan Research Council

Catalytic Effects of Nano-Size Metal Ions in Breaking Asphaltene Molecules During Thermal Recovery of Heavy-Oil
J.H. Greff, T. Babadagli, University of Alberta

Conversion of Cyclic Steam Injection to Continuous Steam Injection
K. Alikhlalov, University of Houston; B. Dindoruk, Shell

Gel Flooding Pilot Test and Evaluation Method Studies to Control Water Channeling in Conventional Heavy Oil Reservoir of Bohai Bay
Y. Li, Y. Su, K. Ma, Q. Li, X. Jia, China National Offshore Oil

Four Seasons Ballroom
NOVEL SOLUTIONS FOR RESERVOIR ENGINEERING ISSUES
Session Chairpersons: Cengiz Satik, Chevron; Lang Zhan, Schlumberger
Papers in this session provide novel solutions and techniques for a variety of reservoir engineering issues. The topics include classical problems of reservoir connectivity evaluation, reserve bookings, backpressure calculation for layered reservoirs, EOS and viscosity modeling as well as emerging issues in CO2 storage capacity estimation and pore network modeling for extracting petrophysical properties.

Determination of Fluid Composition Equilibrium Under Consideration of Asphaltenes: A Substantially Superior Way to Assess Reservoir Connectivity than Formation Pressure Surveys
T. Pfeiffer, Z. Reza, Schlumberger; D.S. Schechter, W.D. McCain, Texas A&M University; O.C. Mullins, Schlumberger

Application of Single Well Chemical Tracer Tests to Determine Remaining Oil Saturation in Deepwater Turbidite Reservoirs

Application of Real Rock Porethroat Statistics to a Regular Pore Network Model for Extracting Petrophysical Properties
M.H. Sarker, Texas Tech University; D. McIntyre, US Department of Energy; M.V. Ferer, S. Siddiqui, Texas Tech University; G.S. Bromhal, US Department of Energy

Practical Justification for an Empirical Approach to Probabilistic
**Undeveloped Reserve Bookings In Resource Plays**
M.L. Dobson, P.D. Lupardus, Chesapeake Energy; J. Lee, Texas A&M University

1610 146066  **Backpressure Equation for Layered Gas Reservoirs**
A. Juell, C.H. Whitson, Norwegian University of Science and Technology

1635 147075  **EOS and Viscosity Modeling for Highly Undersaturated Gulf of Mexico Reservoir Fluids**
J. Larsen, Statoil; H. Sorensen, Calsep; T. Yang, Statoil; K.S. Pedersen, Calsep

ePosters

147344  **Integrated Capacitance Resistive Model for Reservoir Characterization in Primary and Secondary Recovery**
A.P. Nguyen, J. Kim, L.W. Lake, T.F. Edgar, University of Texas at Austin; B. Haynes, Petroleum Development Oman

147078  **A Universal Formulation For The Prediction Of Capillary Pressure**
H.M. Goda, Petroperth Consulting P. Behrenbruch, University of Adelaide

**Wednesday, 2 November, 0830-1155**

**Room 102, 104, 106**
**PRODUCTION OPERATIONS AND OPTIMIZATION**

Session Chairpersons: Cary Billings, Repsol USA; Bob Chin, Shell
This session comprises a very interesting selection covering topical operational concerns such as, Gas Decompression in subsea boosting systems, coil tubing applications for enhanced deepwater operations and water injection project operating optimization.

0830 21283  **Rapid Gas Decompression Issues in Subsea Boosting System**
N.W. Ritchie, R.J. Rivera, KPI Consultants

0855 147205  **Materials Selections: A Systems Engineering Approach**

0920 146581  **Optimization of Unconventional Gas Developments by Bayesian Logic and Genetic Algorithm**
B.J. Willigers, Palantir Economic Solutions

0945 145437  **Failure to Produce: An Investigation of Deficiencies in Production Attainment**
N.S. Nandurdikar, L. Wallace, Independent Project Analysis
Flow Induced Inline Separation (FIIS) Dewatering Tests at the Gullfaks Field
M. Bjorkhaug, B. Johannesen, G. Eidsmo Statoil

Integrated Field Optimization Strategy Applied to an Offshore Water Injection Project

A New Coiled Tubing Application to Enhance Operating Envelope for Deepwater Production
H. Dong, SPT Group; H. Shi, BP; L.H. Norris, SPT Group; R. Berger, Manatee ePoster

In-Line Water Extraction from Crude Oil Using Compact Separation Technology
C. Wordsworth, N. Beg, Caltec

DIGITAL ENERGY: FUNCTIONAL SHOWCASE
Moderators: Philippe Flichy, IO-Hub
A panel of experts will discuss the challenges, implications and direction that Digital Energy will play in technology and solutions within the Petroleum Industry.
Panelists:
Hamed Guedroudj, Petex
Ole Klingshelm, CP
Mike Blowers, Vosper Thornycroft Controls
Ketil Anderson, Statoil
Saeed Mubarak, Saudi Aramco

ARTIFICIAL LIFT
Session Chairpersons: Bob King, King Consulting; Benny Troelsen, Maersk
This session addresses recent practices in the analysis of simulation models and use of new equipment designs to handle liquid loading, production optimization, and artificial lift in both vertical and directional wells.

Performance of Vertical Transient Two-Phase Flow Models Applied to Liquid Loading in Gas Wells
P.J. Waltrich, G. Falcone, Texas A&M University; J. Barbosa, Federal University of Santa Catarina

Practical Aspects of Insitu Ball Seat Milling
A Generic Model for Optimizing the Selection of Artificial Lift Methods for Liquid Loaded Gas Wells
A. Rehman, N. Soponsakulkaew, O.O. Bello, G. Falcone, Texas A&M University

Laslau Mare Field: A Successful Case Of Production Optimization In Brownfield Rehabilitation
L.P. Charry, A. Blades, R. Strasser, Schlumberger; D. Rotar, S. Stancicu, ROMGAZ

Brilliant Water Shut-off Application Bypassing Existing Fish: A Success Story at Angsi Field, Malaysia
M.A. Mohd Johan, M.I.A. Jalil, R. Ghalzalli, M.H.A. Abdul Razak, Petronas

Novel Approach of Gas Lift Valve Change out Which Eliminating Production Deferment for Multiple Oil Producer String
O. Wei, M. Hashim, Petronas

Scale Inhibitor Squeeze Treatments Selection, Deployed and Monitoring in a Deepwater Gulf of Mexico Oilfield
M.M. Jordan, Nalco; T.E. Kramer, D. Barbin, Chevron; S. Linares-Samaniego, W. Arnette, Nalco

Chaning Roles, and Optimizing Well Construction Performance in Russia
P. McMorran, J. Lopez, INTEGRA

Stress Shadowing and Microseismic Events: A Numerical Evaluation
N.B. Nagel, M. Sanchez-Nagel, Itasca Houston

Increasing Lateral Coverage in Eagle Ford Horizontal Shale Completion
K.C. Nwabuoku, El Paso Energy

Use of Data Driven and Engineering Modeling to Plan and Evaluate

Room 201, 203
SHALE/UNCONVENTIONAL RESERVOIR WELL COMPLETIONS

Session Chairpersons: Terry Palisch, Carbo Ceramics; Daniel Wood, Devon Energy
This session focuses on emerging technologies related to well completions in shale and unconventional reservoirs. Particular emphasis will be placed on hydraulic fracturing/isolation technology, as well as Eagle Ford Shale completions.
Hydraulic Fracture Stimulated Horizontal Bakken Completions
R.F. Shelley, StrataGen Engineering; K.E. O’Connell, D. Skari, R.A. Baribault, North Plains Energy

0945 146586 Smart Nanostructured Materials Deliver High Reliability Completion Tools for Gas Shale Fracturing
Z. Xu, G. Agrawal, B.J. Salinas, Baker Hughes

1040 147546 Benefits and Application of a Surface Controlled Sliding Sleeve for Fracturing Operations
J. Shaw, Halliburton

1105 147120 An Integrated Approach to Design Completions for Horizontal Wells For Unconventional Reservoirs
R. Jain, S. Syal, T.A. Long, C.C. Wattenbarger, ExxonMobil; I. Kosik, Imperial Oil Resources

1130 147264 Shale Gas Water Treatment Value Chain - A Review of Technologies, Including Case Studies
P. Horner, Aqua Pure Ventures; B. Halldorson, Fountain Quail Water Management; J.A. Slutz, Global Energy

ePosters

147158 The Effects of Fluid Hammer Tools on the Efficiencies of Coiled Tubing Plug Milling - A Comparative Best Practices Study
C.E. Schneider, S.H. Craig, J.C. Castaneda, L. Castro, Baker Hughes

147082 A Novel Well Annular Barrier Solution Alternative To Swellable Casing Packers
H. Plessing, M.M. Arnskov, Welltec

Room 205, 207
DRILLING OPERATIONS

Session Chairpersons: Neal Adams, Neal Adams Services; Mario Zamora, M I SWACO
This session addresses timely topics of Drilling Operations, Managed Pressure Drilling and specialized Cementing Applications. The papers describe new and effective approaches to drill more safely and efficiently.

0830 147012 Lightweight Cementing Design Improves Zonal Isolation on Challenging High Temperature Offshore Thailand Wells
A. Brandl, E.R. Acorda, D.R. Doherty, V. Rajaneekornkrilas, Baker Hughes

0855 146079 Adequate Cementing Solutions for Deepwater Dual-Casing Running System Improves Operational Efficiency When Drilling Tophole Sections in Deepwater Wells
Managing Pressure Drilling With Continuous Circulation: A Summary Of Experience

Liner Drilling Technology as a Tool to Reduce NPT - Gulf of Mexico Experiences
S.M. Rosenberg, D.M. Gala, Weatherford

Parametric Analysis of Wellbore Strengthening Methods from Basic Rockmechanics
N. Morita, Waseda University; G. Fuh, ConocoPhillips

Field Demonstration of a New Method for Making Drillpipe Connections During Managed-Pressure Drilling Operations
R.L. Johnson, J. Montilva, M.F. Sati, J. Grable, S. Saeed, R. Lovorn, Halliburton; R.J. Billa, W. Derise, Shell

Plastering Effect of Casing Drilling: A Qualitative Analysis of Pipe Size Contribution
M. Karimi, T.E. Moellendick, C. Holt, Tesco

MPD - Drilling Optimization Technology, Risk Management Tool, or Both?
D.M. Hannegan, Weatherford

A Simplified Method to Estimate Peak Casing Pressure During MPD Well Control
J.E. Chirinos, J.R. Smith, D.A. Bourgoyne, Louisiana State University

Computational Analysis of Stress Interference Effect for Hydraulic Fracture

This session has two main topics. The first one is fracture monitoring discussing how various fracture monitoring technologies (microseismic monitoring, proppant detection etc) help us understand the fracture growth behavior and its complexity, as well as how the fracture diagnostics could be integrated with the engineering data, geological and geophysical data to provide insight information on completion strategies and optimize hydraulic fracture design. The second one is fracture modeling which includes fracture modeling in unconsolidated sand and natural fractured reservoirs, and fracture stress interference effect on fracture orientation and fracture geometry.
Fracturing in Waste Injection Wells
Y. Yao, J. Lewandowski, T.K. Ellison, K.H. Searles, ExxonMobil

0855 145463 Integrating Fracture Diagnostics and Engineering Data in the Marcellus Shale
M.J. Mayerhofer, N. Stegent, Halliburton; J.O. Barth, K.M. Ryan, Seneca Resources

0920 146932 What Does Microseismicity Tell Us About Hydraulic Fracturing?
S.C. Maxwell, Schlumberger

0945 145949 Hydraulic Fracture Height Growth: Real Data
M.K. Fisher, N.R. Warpinski, Halliburton

1040 146309 A New Approach to Modeling Fracture Growth in Unconsolidated Sands
K. Agarwal, M.M. Sharma, University of Texas at Austin

1105 146872 New Algorithms and Integrated Workflow for Tight Gas and Shale Completions
C.L. Cipolla, U. Ganguly, Schlumberger

1130 146744 Field Application of a New Proppant Detection Technology
R.J. Duenckel, Carbo Ceramics; W. Warren, Chesapeake; H. Smith, Harry D. Smith Consulting

ePoster

147514 Assessment and Prediction of Erosion in Completion Systems Under Hydraulic Fracturing Operations Using Computational Fluid Dynamics
A. Farahani, M. Lastiwka, D.C. Langer, B. Demirdal, C.M. Matthews, C-FER Technologies; J. Jensen, A. Reilly, EnCana

Room 605, 607
INTEGRATED RESERVOIR CHARACTERIZATION

Session Chairpersons: Safian Atan, Marathon Oil; Tonya Brami, ExxonMobil; Behnam Jafarpour, Texas A&M University

Geology, geophysics and reservoir engineer work together in integrated reservoir characterization to optimize complex and challenged reservoirs, this session presents papers show how each discipline fits into the puzzle to solve problems and challenges

0830 145721 Reservoir Forecast Optimism - Impact of Geostatistics, Reservoir Modeling, Heterogeneity, and Uncertainty
W.S. Meddaugh, N. Champenoy, W.T. Osterloh, H. Tang, Chevron

0855 146708 Lean Synchronization for Turnaround Reduction in Seismic
**Exploration Programs: The Case of Diaba 3D 6000 km² Deep Offshore Seismic**
K.W. Wabara, R. Petton, H. Houleveigue, E. Garinet, Total

**0920 146734 Validation of T2 Bin Derived Permeability: A Case Study in Carbonates**
J. Kneedy, Chesapeake Operating; C. Smith and S. Ramakrishna, Halliburton

**0945 146621 Advanced Workflows For Joint Modelling Of Sedimentary Facies And Diagenetic Overprint: Impact On Reservoir Quality**
B. Doligez, Y. Hamon, M. Barbier, F.H. Nader, O. Lerat, IFP Energies nouvelles; H. Beucher, Paris School of Mines

**1040 147372 History Matching with a Multiscale Parameterization Based on Grid Connectivity and Adaptive to Prior Information**
E.W. Bhark, A. Datta-Gupta, B. Jafarpour, Texas A&M University

**1105 146230 Don’t Drop the Anchor: Recognizing and Mitigating Human Factors When Making Assessment Judgments Under Uncertainty**
M.A. Sykes, ExxonMobil; M.B. Welsh, S.H. Begg, University of Adelaide

**1130 146462 Review of a Stratigraphic Reservoir Exploration Proven By Production: A Case Study**
Y. Ling, X. Guo, J. Gao, D. Sun, J. Lin, China National Petroleum

**ePoster**

**145835 Structural and Stratigraphic Control on the Trapping Mechanism in Stacked Reservoirs of Kuwait**
S.A. Azim, B. Al-Otaibi, S. Al-Qattan, B.A. Al-Saad, Kuwait Oil Company

**Room 702, 704, 706**

**PORE AND RESERVOIR CHARACTERIZATION OF SHALES**

Session Chairpersons: **Annie Audibert Hayet**, Total; **Jeffry Hamman**, Marathon Oil

Shale gas and shale oil are the current hot topics because of their immense hydrocarbon potential. This session has a focus on the formation properties that control the productivity of shales and improving their characterization. Specifically addressed will be pore size distribution, permeability and flow in shale reservoirs. The economically critical topics of well placement, formation evaluation and completion optimization will also be presented.

**0830 146869 Surface Area and Pore-Size Distribution in Clays and Shales**
U. Kuila, M. Prasad, Colorado School of Mines

**0855 147397 Kerogen Pore Size Distribution of Barnett Shale Using DFT Analysis and Monte Carlo Simulations**
Characterization of Gas Dynamics in Kerogen Nanopores by NMR
R. Kausik, C. Minh, L. Zielinski, B. Vissapragada, R. Akkurt, Y. Song, Schlumberger; C. Liu, S. Jones, E. Blair, Chevron

Improved Reservoir Characterization Through Estimation Of Velocity Anisotropy In Shales
T. Prasad, R. Vines, Shell

Total Organic Carbon And Formation Evaluation With Wireline Logs In The Green River Oil Shale
M.M. Herron, J. Grau, S.L. Herron, R.L. Kleinberg, M. Machlus, S.L. Reeder, B. Vissapragada, Schlumberger; A.K. Burnham, R. Day, American Shale Oil; P. Allix, Total

Gas Permeability of Shale
A. Sakhaee-Pour, S.L. Bryant, University of Texas at Austin

Use of Pickett Plots for Evaluation of Shale Gas Formations
G. Yu, R. Aguilera, University of Calgary

ePosters

Improved Petrophysical Core Measurements on Tight Shale Reservoirs Using Retort and Crushed Samples
D.A. Handwerger, R. Suarez-Rivera, K. Vaughn, J. Keller, Terra Tek

LWD for Well Placement and Formation Evaluations Towards Completion Optimization in Shale Plays
J.C. Kok, Y.H. Shim, E. Tollefsen, Pathfinder

MODELING IN COMPLEX SYSTEMS

Session Chairpersons: Salil Banerjee, Consultant; Matt Honarpour, Hess

Nature is complex. Models for the porous medium have to be refined to represent the actual cases. This session deals with heterogeneity, flow simulation, phase effects, like asphaltene precipitation, fracture matrix transfer and EOR aspects.

Lattice Boltzmann Simulation of Non-Darcy Flow In Stochastically Generated 2D Porous Media Geometrics
M.S. Newman, Chevron; X. Yin, Colorado School of Mines

Numerical Prediction of Relative Permeability from MicroCT Images: Comparison of Steady-State Versus Displacement Methods
Q. Sheng, K.E. Thompson, Louisiana State University; J.T. Fredrich, P.A. Salino, BP
Nonlinear Formulation Based on EoS-free Method for Compositional Flow Simulation
R. Zaydullin, D.V. Voskov, H.A. Tchelepi, Stanford University

Prediction of Asphaltene Deposition in Porous Media By Systematic Upscaling from Colloidal Pore Scale Model to a Deep Bed Filtration Model
E.S. Boek, Imperial College; A. Fadili, M.J. Williams, Schlumberger; J. Padding, Universite Catholique de Louvain

A Practical Method to Calculate Polymer Viscosity Accurately in Numerical Reservoir Simulators
A. Sharma, M. Delshad, C. Huh, G.A. Pope, University of Texas at Austin

Modeling SAGD with a Black-Oil Proxy
M. Ghasemi, C.H. Whitson, PERA/NTNU

Modeling of Multi-Component Flow in Porous Media with Arbitrary Phase Changes
D.V. Voskov, Stanford University

Four Seasons Ballroom
ENHANCED SWEEP, ENHANCED DISPLACEMENT: EOR

Session Chairpersons: Mahmoud Asadi, ProTechnics; Mike Odell, Occidental
In the current economic climate, EOR has become attractive globally. This session attempts to cover recent practical and theoretical aspects of EOR. Successful field results are presented in the areas of visco elastic polymer flooding and enhancing sweep efficiency while theoretical models predict EOR performances.

Incremental Recoveries in the Field of Large Scale High Viscous-Elastic Fluid Flooding are Double that of Conventional Polymer Flooding
D. Wang, G. Wang, Daqing Oilfield; H. Xia, S. Yang, W. Wu, Northeast Petroleum University

Impact of Fractures Growth on Well Injectivity and Reservoir Sweep During Waterflood and Chemical EOR Processes
K. Lee, C. Huh, M.M. Sharma, The University of Texas at Austin

General Isothermal Enhanced Oil Recovery and Waterflood Forecasting Model
A. Mollaei, M. Delshad, The University of Texas at Austin

Sweep Efficiency of Heavy Oil Recovery by Chemical Methods
R. Kumar, K.K. Mohanty, University of Texas at Austin
**Session Chairpersons:** Jeff Sawchuk, BP; Hua Shi, BP

This session covers a wide spectrum of issues associated with multiphase flow applications such as multiphase pumping technologies for subsea applications, characterization of sand erosion in multiphase flow, and 3 phase flow investigation.

**1400 147605** Accurate Measurement, Correlation and Simulation of Multicomponent BTEX Solubility in Amine Solutions
R.T. Borda, F. Civan, University of Oklahoma

**1425 146784** Comparison of Multiphase Pumping Technologies for Subsea and Downhole Applications
MULTIPHASE FLOW, METERING AND ARTIFICIAL LIFT

Session Chairpersons: Ghaithan Al Muntasheri, Saudi Aramco; Chad Evans, Weatherford

Multiphase Flow, Metering and Artificial Lift are constantly more important in the upstream activities of the petroleum industry. This session will cover these topics emphasizing on new technologies and innovative methods.

1400  145293  Remote Operations - A Remote Possibility, Or the Way We Do Things 'Round Here?
R. Cramer, Shell; H. Hofsteenge, Nederlandse Aardolie Maatschappij B.V.; T.A. Moroney, D. Gobel, F.I. Akpoghiran, A. Murthy, Shell

1425  146038  Automatic Early Fault Detection for Rod Pump Systems
S. Liu, C.S. Raghavendra, Y. Liu, K. Yao, University of Southern California; O. Balogun, L. Olabinjo, R. Soma, J. Ivanhoe, B. Smith, B. Seren, T.L. Lenz, Chevron; C. Babu, I. Ershaghi, University of Southern California

1450  146448  Experiments and Model Assessment on High-Viscosity Oil/Water Inclined Pipe Flows
S. Sridhar, H. Zhang, C. Sarica, E.J. Pereyra, University of Tulsa

1545  147225  Analysis of Plunger Lift Applications in the Marcellus Shale
M.S. Kravits, R.M. Frear, Range Resources; D. Bordwell, Multi Products

1610  147736  New Mixer System Enhances GOSP Crude-Water Separation Performance
A.A. Boudi, Saudi Aramco; H. Linga, ProPure; Z. Al-Johar, K. Al-Yousef, Saudi Aramco
A Real Time Lift Monitoring and Optimization Solution Applied at Chicontepec Field

Simulating the Initial Startup of a Deepwater Field in the Gulf of Mexico
H. Shi, BP; L.H. Norris, Scandpower; R.K. Berger, Manatee

PRODUCING HEAVY OIL AND OTHER DIFFICULT FLUIDS

Innovative CT Abrasive Hydrajetting Perforating Approach in A Complex Saudi Arabian Gas Well Overcomes Initial Inability to Perform A Proppant Fracturing Treatment and Achieves Better Than Expected Results: A Case History
W. Nunez Garcia, J. Solares, A.R. Malik, Saudi Aramco; J.R. Vielma, A. Chacon, C. Wolfe, Halliburton

Impact of Water Hammer in Deep Sea Water Injection Wells
S.K. Choi, W.B. Huang, Chevron

Wellbore Cleanup Tools Save Rig Time in Approximately 30% Optimizing Workover and Completion Operations
J.L. Cardenas A.M. Rueda, E.X. Guerra , Baker Hughes; J. Vera, Andes Petroleum

Well Site Risk Screening: The Critical Few
B.D. Powell, ConocoPhillips; K.C. Van Scyoc, Det Norske Veritas

Stand Research And Analysis Of Liquid-Gas Jet-Pump's Operation Characteristics For Oil And Gas Production
A.N. Drozdov, E.A. Malyavko Y. Alexeev, O. Shashel, Gubkin Russian State University of Oil and Gas

COMPLETION TECHNOLOGY CASE HISTORIES

Room 201, 203
This session showcases applications of completion technologies implemented in a variety of fields
around the world.

1400  146027  Case History of the World’s First Installation of Continuous Chemical Treatment in a Horizontal Openhole Gravel Pack to Inhibit Scaling While Maintaining Production Levels
N.D. Surveyor, A.D. Amaral, M.F. Pinto, Baker Hughes

1425  146454  Integration of Dynamic Modeling of ICD Completion Design and Well Placement Technology: A Case Study of GOM Shelf Reservoir
A. Sharma, J.C. Kok, R. Neuschaefer, S.Y. Han, Schlumberger; T. Bieltz, A. Obvintsev, P. Riegler, Energy Partners

1450  146625  Experiences and Consequences Related to Continuous Chemical Injection
J.H. Olsen, Statoil

1545  146447  How to Constantly Deliver 100% Packing Efficiency in Openhole Gravel Packs: A Field Study in Colombia
H. Trujillo, J.A. Tengono, J. Rubiano, R. Castano, A. Beltran, E. Ortiz, Hocol; C. Navarro, D. Florez, N. Lopez, Schlumberger

1610  146489  Field Application of Very High Volume ESP Lift Systems for Shale Gas Fracture Water Supply in Horn River, Canada
G.C. Coppola, R.C. Chachula, EnCana

1635  146623  The Design and Application Of Latest Generation Inflow Control Devices In Non-Horizontal Wells in the Bhagyam Field, India
T.J. McKenzie, A. Wenk, C. Chavan, S. Kumar, Cairn Energy; P. Phan, G. Garcia, Baker Hughes

ePoster

147005  Barite Sag Occurrence And Resolution During Angolan Completion Operations
B. Mcnerlin, N.D. Oakey, BP

Room 205, 207
DRILLING OPTIMIZATION

Session Chairpersons: J.C. Cunha, Petrobras; Robello Samuel, Halliburton
This session features topics related to methodologies and techniques not only to optimize drilling operations but also to prevent costly failures. It offers case histories related to optimizing horizontal wellbores as well as using the real time data for drilling optimization.

1400  145910  Drill Pipe Dynamic Measurements Provide Valuable Insight Into Drill String Dysfunctions
C. Raap, A.D. Craig, National Oilwell Varco
1425 145166 Threading the Needle: Optimizing Horizontal Wellbores Within Tight Vertical and Lateral Tolerances: A Case Study

1450 147100 The Practice and Evolution of Torque and Drag Reduction: Theory and Field Results
J.E. McCormick, Weatherford; T. Chiu, The University of Texas at Austin

1545 146298 Automated Alarms for Managing Drilling Pressure and Maintaining Wellbore Stability: New Concepts in While-Drilling Decision Making
A.G. Sadlier, C.A. Wolfe, M.M. Reese, I. Says, Baker Hughes

1610 142831 Use of the Near-Balance Drilling Technology Enables an Operator to Drill Successfully the Deepest Exploratory Well in Pakistan: Case History
F. Crea, Eni; A. Mehmood, K. Moyse, S. Saber, F. Torres, M.A. Arnone, Weatherford

1635 146624 A New Approach to Deepwater Drilling Data Analysis Offers Enhanced Real Time Capabilities in a Post Macondo World
J.F. Greve, Chevron

Room 601, 603
FRACTURING CASE HISTORIES
Session Chairpersons: Bart Thomeer, Schlumberger; Brian Ward, Hess
Hydraulic fracturing and matrix stimulation have been successfully applied as a technology to improve and optimize well performance in every reservoir and well environment. This session reviews case studies which highlight various applications and successful implementation of these technical solutions.

1400 147389 New Fracture Stimulation Designs and Completion Techniques Result in Better Performance of Shallow Chittim Ranch Wells
V.J. Pandey, A.J. Agreda, ConocoPhillips

1425 145403 Channel Fracturing in Horizontal Wellbores: The New Edge of Stimulation Techniques in the Eagle Ford Formation

1450 147614 Well Evolution in the James Lime: How Technology has Driven Well Productivity Improvements
J.D. Baihly, R.M. Altman, I. Aviles, Schlumberger R. Seale, D.J. Snyder,
Packers Plus

1545 146103 Selecting Candidate Wells for Refracturing Using Production Data
N.P. Roussel, M.M. Sharma, The University of Texas At Austin

1610 147237 The Design and Execution of Frac Jobs in the Ultra Deepwater Lower Tertiary Wilcox Formation
Z.A. Haddad, Foi Technologies; M.B. Smith, NSI Technologies; F.D. De Moraes, O.M. Moreira, Petrobras

1635 146523 Utilization of Simple fluids and Proppant Combined with Design Optimization Yields Outstanding Results in New Mexico Yeso-San Andrus Oil Play
J.W. Ely, Ely and Associates; M.A. Jacoby, Burnett Oil

Room 605, 607
UNCONVENTIONAL QUESTIONS, UNCONVENTIONAL RESOURCES

Session Chairpersons: Pierre Delfiner, PetroDecisions; Scott Shipley, Ralph E. Davis Associates
This session focuses on the management/surveillance of unconventional reservoirs, an interesting question about the future in Yemen and a look at super cycles in oil prices through the years.

1400 146524 Reservoir Simulation: A Reliable Technology?
W.J. Lee, R.E. Sidle, D.A. McVay, Texas A&M University

1425 146910 A Resident’s View of Urban Operations
J.R. Fanchi, Texas Christian University; C.J. Fanchi, energy.fanchi.com

1450 146765 Economics and Technology Drive Development of Unconventional Oil and Gas Reservoirs: Lessons Learned in the United States
C.P. Flores, PB Energy Sotrage Services; S.A. Holditch, W.B. Ayers, Texas A&M University

1545 147059 Unconventional Type Curves: Useful, or Sirens of Destruction?
W.J. Haskett, Haskett Consulting

1610 147227 Is There Evidence of Super Cycles in Oil Prices?
A.M. Zellou, J. Cuddington, Colorado School of Mines

1635 146893 A Gas Master Plan for Yemen
J. Luijkx, Antoroma Company

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148115 The United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources-2009
D. MacDonald, BP; M. Lynch-Bell, Ernst & Young; J. Ross, Ross Petroleum; S. Heiberg, Statoil; C. Griffiths, UN Economic Commission for Europe; T. Klett, US
Petrophysics Interpretation Methods and Case Studies

Session Chairpersons: Badarinadh Vissapragada, Schlumberger; Jerome Truax, Halliburton

Interpretation development continues apace for all reservoir types, whether unconventional or classic. This session offers innovative petrophysical methods based on old, novel, and reborn types of data. A wide range of topics include improved understanding of core measurements and log responses, integration of data for reservoir evaluation, description of porosity and fracture systems, and use of history matching with logs as a reservoir management tool.

1400 147297 Borehole and Invasion Effects of Formate-Based Mud Systems on LWD Density, Neutron, PE, and Gamma-Ray Logs
P.A. Cooper, J.E. Galford, G. Goodyear, G.L. Moake, J.A. Truax, Halliburton

1425 147245 A Novel Approach Based on Dielectric Dispersion Measurements to Evaluate the Quality of Complex Shaly-Sand Reservoirs
M. Pirrone, Eni; M. Han, Schlumberger; N. Bona, M. Borghi, M. Galli, F. Pampuri, Eni; O. Faivre, M. Hizem, J. Kherroubi, L.E. Mosse, Schlumberger

1450 147651 Toward Quantitative Remaining Oil Saturation (ROS): Determination Challenges and Techniques
A.A. Al-Harbi, D.P. Schmitt, S.M. Ma, Saudi Aramco

1545 146043 The Integration of Petrophysical and Formation Tester Data in the Creation of a Petrophysical Model for an Eastern Siberian Oilfield
Y. Karpekin, P.J. Weinheber, Schlumberger; L. Abdakmanova, A. Tsiklakov, Y. Gordeev, S. Maslov, VCNG

1610 147360 A Practical Approach to Determine Low-Resistivity Pay in Clastic Reservoirs
W. Chu, J. Steckhan, OMV Exploration and Production

1635 144774 History Matching and Production Forecast with Logs, as Effective Completion and Reservoir Managing Tools in Horizontal and Vertical Wells
C.F. Haro, Occidental Oil and Gas

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146522 Analysis of Calibration Materials To Improve Dual-Energy CT Scanning for Petrophysical Applications
K. Ayyalasomayajula, Mississippi State University; D. McIntyre, J. Jain, National Energy Technology Laboratory; J. Singh, F. Yu-Yueh, Mississippi State University; S. Siddiqui, Texas Tech University
A Multiple-Porosity Model for Evaluation of Giant Naturally Fractured Gas Sandstone Reservoirs in Bolivia
L.J. Sivila, R.M. Graves, Colorado School of Mines; R. Aguilera, University of Calgary

New Acoustic Log Data Interpretation for Gas-Bearing Shaly Sands
C. Lan, D.J. Patterson, Baker Hughes; X. Tang, China University of Petroleum

Advanced Logging-While-Drilling Formation Evaluation Case Study, North Slope, Alaska
D. Hastings, B. Armfield, Brooks Range Petroleum; D. Hupp, Schlumberger

Room 708, 710, 712
FLOW IN UNCONVENTIONAL RESERVOIRS

Session Chairpersons: Paul Boonen, PathFinder Energy Services; George Petrosky, ConocoPhillips

The easy hydrocarbon reservoirs are still producing. To find additional reserves one has to crack harder nuts. Tight gas and shale gas liquid rich shale are the new frontier. This session provides a glance on modeling the flow in these reservoirs.

An Integrated Workflow for Reservoir Modeling and Flow Simulation of the Nikanassin Tight Gas Reservoir in the Western Canada Sedimentary Basin
H. Deng, R. Aguilera, A. Settari, University of Calgary

A Multimodal 3D Imaging Study of Natural Gas Flow in Tight Sands
D.B. Silin, T.J. Kneafsey, J.B. Ajo-Franklin, P.S. Nico, Lawrence Berkeley

Surfactant Formulation Study For Bakken Shale Imbibition
D. Wang, R. Butler, H. Liu, S. Ahmed, University of North Dakota

Multi-Scale Gas Transport in Shales with Local Kerogen Heterogeneities
I. Akkutlu, E. Fathi, University of Oklahoma

An Experimental Investigation of Spontaneous Imbibition in Gas Shales
B. Roychaudhuri, T.T. Tsotsis, K. Jessen, University of Southern California

Parametric Investigation of Shale Gas Production Considering Nano-Scale Pore Size Distribution, Formation Factor, and Non-Darcy Flow Mechanisms
G.G. Michel, R.F. Sigal, F. Civan, D. Devegowda, University of Oklahoma

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Lattice Boltzmann Method for Simulation of Shale Gas Transport in Kerogen
E. Fathi, I. Akkutlu, University of Oklahoma

Discrete Modeling of Natural and Hydraulic Fractures in Shale-Gas Reservoirs
B. Gong, Peking University; G. Qin, B.F. Towler, University of Wyoming; H. Wang, Petro-China

Four Seasons Ballroom
FROM WELL PERFORMANCES TO RESERVOIR CHARACTERIZATION

Session Chairpersons: Saadoun Banooori, Eni; Jorge Landa, Chevron
This session addresses theoretical and practical aspects on the use of dynamic measurements taken at the wellbore to assist reservoir characterization.

1400 146833 Permeability Estimation of Damaged Formations Near Wellbore
X. Shi, M. Prodanovic, J. Holder, K.E. Gray, D.A. DiCarlo, The University of Texas at Austin

1425 147679 Analysis of Transient Well Tests Affected by Wellbore Storage, Skin, and Short Injection/Production Time
G. Fuentes-Cruz, Texas A&M University; R. Camacho Velazquez, M.A. Vasquez-cruz, Pemex

1450 146636 The Use of Attenuation and Phase Shift to Estimate Permeability Distribution From Pulse Tests
S. Ahn, R.N. Horne, Stanford University

1545 147298 Interpreting Pressure and Flow Rate Data from Permanent Downhole Gauges Using Data Mining Approaches
Y. Liu, R.N. Horne, Stanford University

1610 146614 Combined Temperature and Pressure Data Interpretation: Applications to Characterization of Near Wellbore Reservoir Structures
O.O. Duru, R.N. Horne, Stanford University

1635 145468 A Variable Rate Solution to the Nonlinear Diffusivity Gas Equation
A.B. Barreto, A.M. Peres, Petrobras; A.P. Pires, North Fluminense State University

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145682 Evaluation of Well Testing Systems for Three Deepwater Gulf of Mexico (GOM) Reservoir Types
K.K. Millheim, T.E. Williams, C.R. Yemington, Nautilus International