

URTeC 2019 Themes and Subthemes

- 1. Operators' Forum: Case Studies Highlighting the Multidisciplinary Approach to Exploration, Appraisal, Pilot Tests, and Development of Unconventional Resources**
 - a. Well Spacing to Field Development
 - b. Technologies That Deliver Bottom-Line Results
 - c. Case Studies of Game-Changing Results
 - d. Case Studies Highlighting Optimizing Completion, Perforation, and Stimulation Strategies
 - e. Refracturing to Improve Performance and Economics
 - f. Stacked Pay Development Strategies
 - g. Operating in the Permian Basin

- 2. Advanced Formation Evaluation of Unconventional Reservoirs**
 - a. Drivers for Understanding Reservoir Quality and Completion Quality
 - b. Rock-Fluid and Fluid-Fluid Interactions
 - c. High and Low Field NMR Applications
 - d. Advances in Core-Flood Testing
 - e. Advances in SCAL
 - f. Emerging Petrophysical Evaluations
 - g. Petrophysical Property Modeling for Geocellular Modeling

- 3. Geological Characterization of Unconventional Reservoirs**
 - a. Depositional Processes, Facies, and Sequence Stratigraphy
 - b. Role of Diagenesis in Unconventional Reservoir Quality
 - c. Aligning Geoscience and Engineering Workflows
 - d. Upscaling Geocellular Models and Simulations
 - e. Horizontal Targeting Strategies and Challenges
 - f. Imaging Unconventional Facies at the Macro-, Micro-, and Nano-Scales

- 4. Geophysical Characterization of Unconventional Reservoirs**
 - a. High-Resolution Geophysical Imaging
 - b. DTS & DAS Applications and Case Studies
 - c. Source Rock Modeling
 - d. Pressure Modeling and Prediction
 - e. Quantitative Imaging and Interpretation of Natural Fractures
 - f. Predicting Rock Properties With Seismic Inversion
 - g. Uncertainties in Geophysical Workflows
 - h. Optimizing the Development of Unconventional Plays
 - i. Integrating Microseismic Data, Mechanical Stratigraphy, and Seismic Volumes

5. Geomechanics Integration – The Glue between Geoscience and Engineering

- a. Rock Characterization for Drilling and Fracturing
- b. Integration of Rock Data, Mechanical Stratigraphy, and Seismic Volumes
- c. Determination of In Situ Stresses
- d. Pore Pressure and Stresses Before and After Depletion
- e. Discrete Fracture Network: From Characterization to Stimulation
- f. Geomechanics of Microseismic and Induced Seismicity
- g. Hydraulic Fracture Modeling: From Physics to Field
- h. Field Case Studies: Geomechanics for Stimulation Optimization
- i. Field Case Studies: Geomechanics for Infill Wells

6. Applied Geochemistry and Basin Modeling for Unconventionals: From Source Rock to Produced Hydrocarbons

- a. Organic Geochemistry of Oil-Prone and Gas-Prone Unconventional Resource Plays
- b. Fluid-Fluid and Fluid-Rock Interactions of Unconventional Plays
- c. Modeling the Effects of Burial, Uplift, and Temperature Histories on API Gravity, GOR, and Hydrocarbon Composition for Engineers: Linking In-situ vs. Produced
- d. Chemostratigraphy of Sedimentary Sequences — Applications of Elemental Proxies to Understand Unconventional Petroleum Systems
- e. Time Lapse Geochemistry: Protocols, Applications, Production Allocation and Commercial Reality

7. Machine Learning, AI, and Big Data in the Digital Oilfield

- a. Cross-Discipline Leveraging of Data Mining, Modeling, and Data Analytics
- b. Workflows for Disparate Data Sets
- c. "Big Data" Applications to Unconventional Reservoirs — Case Histories, Expectations and Realities
- d. Surveillance of Unconventional Production — Collecting the Right Data at the Right Time
- e. Performance Metrics — Cross-Discipline Measures of Success for Asset Teams
- f. Integration of Numerical Models and Data Science in Reservoir Characterization
- g. Efficient Management of Big Data Storage and Ensuring Data Accuracy

8. The Holy Grail: Increasing Recovery Efficiency in Unconventional Plays

- a. Gas Injection IOR/EOR
- b. EGR (Enhanced Gas Recovery) Methods in Unconventionals
- c. Nanofluids, Surfactants, and Friction Reducers
- d. Flow Conformance and Sweep Efficiency Strategies
- e. Pore-Network Imaging and Modeling to Understand Fluid Flow
- f. Case Studies in IOR/EOR Field Pilots

9. Reserves Estimation and Production Forecasting

- a. EUR and Performance Prediction: Decline Curve Analysis and Beyond
- b. Reserves Implications: Guidelines and Considerations
- c. Future of Production Forecasting: Data-Driven Models and Physics-Based Solutions
- d. Type Well Profiles
- e. Well Spacing and Well Interference Impact
- f. Production Diagnostics — Understanding the Big Picture on Production Forecasting
- g. Case Studies — Impact of 2018 Update to Petroleum Resources Management System (PRMS)

10. Production Performance of Tight Oil and Gas Reservoirs

- a. Flow and Phase Behavior for Tight Oil and Shale Oil/Shale Gas Reservoir Systems
- b. Reservoir Modeling for Unconventionals — Bringing Together Data, Disciplines, and Design
- c. Reservoir Production and Recovery Mechanisms
- d. Pressure Transient Testing, DFIT, and Well Testing
- e. Use, Abuse, and Limitations of the SRV Concept
- f. Resolving Early-Time Well Performance in Unconventional Reservoirs
- g. Shale Facilities and Artificial Lift Optimization
- h. How to Design and Derive Value From Multi-Disciplinary Diagnostics of Unconventional Resource Plays

11. New Materials and Novel Technologies for Unconventionals

- a. Novel Proppants and Fluids
- b. Nanostructured Material for Gas Separation and Corrosion Mitigation
- c. Advanced Polymers for Oil-Water Separation
- d. Down-Hole CO₂ Separation and Sequestration
- e. Lightweight Composites to Reduce Completion Costs
- f. Waterless Fracturing, Energized Fluid Fracturing, and “Green” Fluids
- g. Mapping the Distribution of the Proppant Pack

12. Overcoming Gridlock: Unlocking the Midstream Bottleneck

- a. Upstream to Midstream – How Can We Better Collaborate?
- b. Linking Supply to Market: Pipelines, Rail, and Trucks
- c. Rig Count, Sand Supply, and Frac Spreads
- d. Challenges Obtaining a Skilled Labor Force
- e. Novel Methods to Fund Future Midstream Operations
- f. Data Analytics – Forecasting Supply & Demand for Midstream Buildout

13. Emerging Unconventional Plays and Novel Applications of Technology

- a. Teaching Old Dogs New Tricks — Application of Unconventional Strategies to Under-Exploited Conventional Plays
- b. Geothermal and Gas Hydrates – The Next Frontier
- c. Going Global: Case Histories of Burgeoning International Unconventional Plays

14. Well Construction Optimization and Best Practices

- a. Performance Drilling Practices for Unconventional Reservoirs
- b. Novel Well Designs
- c. Drilling Challenges of Multi-Well Pads
- d. Case Histories and Best Practices for Ensuring Wellbore Integrity
- e. Remediation Techniques and Case Studies for Repairing Well Integrity Issues
- f. Well Path Planning and Geosteering
- g. Fault Detection in Horizontal Wells — How Geoscientists and Engineers Can Avoid Surprises
- h. Lateral Hole Stability and Sand Control

15. License to Operate: Stakeholder Management and Social Performance

- a. Water Resources: Management, Utilization, Recycling, and Disposal
- b. Solids Waste Management and Disposal
- c. Contractor Management
- d. Social Issues and Social License to Operate
- e. Managing Roles, Expectations, and Relationships
- f. Social Investment and Impacts
- g. Effective Communications Strategies