More Than Thirty Years of Innovative Thought and Accelerated Results


Maturing oil fields and inadequate reserve replacement ratios has resulted in pressure to increase recovery factors in all type of reservoirs. Because “easy oil” is gone, the recovery challenge grows as we move towards producing in difficult sources such as naturally fractured reservoirs, extra heavy oils reservoirs, ultra-deep offshore fields, and extremely tight oil fields.

Enhanced oil recovery (EOR) has reached new levels of technology with low-salinity applications, more potent EOR-agents, and advanced conformance practices. Additionally, improved oil recovery (IOR) has made significant advances in imaging, characterizing, quantifying, reaching, and producing reservoirs. Yet current recovery processes and their applications still have serious technical, resource, and commercial hurdles in the current paradigms. Pushing recovery to higher levels requires a new mindset supported by innovative solutions now and into the future.

This SPE Forum will
• Review current technologies and novel approaches that impact oil recovery
• Discuss methods to accelerate the deployment of new technologies in the future
• Explore smart integration of disciplines and professions to maximize oil recovery
• Examine how to make EOR a standard component of the field development cycle.
• Develop a new culture that focuses on recovery from the beginning

This forum offers a unique opportunity for participants from all corners of the oil industry, government, and academia to come together and discuss new ideas and innovative solutions to increase EOR levels over the next 5-10 years.

What is a Forum?
SPE Forums are unique, by-invitation-only SPE events that bring together top technologists, innovators, and managers to address a specific industry challenge. Participants are encouraged to come prepared to contribute their experience and knowledge, rather than be spectators or students. The objective is to create a collaborative, idea-generating arena that stimulates new ideas and innovation about future challenges facing the E&P industry.

Who Should Attend
• Are you a young professional with at least five years’ industry experience? Get involved now. Forums are a window on the future that belongs to the next generation of professionals.
• Do you want to exchange ideas with others in your technical area of expertise? Participation in a forum builds a professional network that will last a career. Forums offer an exclusive opportunity to interact with innovators, seasoned professionals, and leading technologists.
• Are you looking to establish your technical reputation throughout the industry in a way that benefits your company? Forums provide the perfect setting because they serve as early incubators for future trends and technologies.

Inspire the Development of New Technology
You have a role to play in meeting the challenges of tomorrow head on. Go to www.spe.org/events/15fmex and apply today.
These exciting topics will be discussed in an open setting designed for optimal input from all participants.

**Session 1: A History of Enhanced Oil Recovery**

**Session Managers:** Jim Erdle and Jose Luis Bashbush

This session presents a “failure analysis” of past EOR projects with an eye towards identifying improvements in all phases of project implementation to make EOR a more generally applied recovery process. Thermal is the dominant EOR technique, with CO$_2$ being a distant second. Chemical EOR never seems to survive downward oil price cycles. More recent methods like low-salinity waterflooding and derivatives of polymer flooding—all of which are less expensive than surfactant-based methods—may survive, but reservoir characterization issues are always the great albatross.

**Session 2: Emerging Technologies and New Developments in EOR**

**Session Managers:** Tayfun Babadagli and Bob Bartusiak

Fundamental EOR methods are sometimes inefficient due to unfavorable reservoir or oil characteristics. Using supportive additives or combining the fundamental methods with other techniques helps address this problem. Such new approaches include foaming CO$_2$; using smart water (low-high salinity); improving steam residual oil saturation through interfacial tension (IFT) reduction; adding nanomaterials into water, steam, and CO$_2$; and using sonic and electromagnetic waves in thermal and nonthermal methods. It is imperative to test the economic viability of these new approaches through fundamental and applied research.

**Session 3: Research-to-Field Cycle of EOR**

**Session Managers:** Tayfun Babadagli and Gokhan Coskuner

Despite tremendous efforts on research in classical EOR, the contribution of EOR oil is still limited. How does outsourcing EOR research affect this? Inefficient coordination between research facilitators such as academia and operating companies plays an important role in the research-to-field cycle of EOR projects. The reduced number of research centers, for major and national oil companies, place service companies in a unique position in EOR technology development and transfer. Other issues to be discussed are the obsolescence of academic/nonacademic training and education on EOR. Are we paying sufficient emphasis to new-generation simulators at an appropriate scale smaller and greater than core and upscaling? Should we go back to a molecular-scale understanding of the physics and chemistry of the processes?

**Session 4: Predictive Modeling of EOR**

**Session Managers:** Jim Erdle and Grant Haddix

Past EOR forums have identified phase behavior and rock-fluid interaction as areas requiring more mechanistic physics and algorithms. An understanding of geochemistry is also needed for better modeling of surfactant and foam-based EOR. Discussions will address the latest thinking in modeling of phase behavior including microemulsions, relative permeability, and capillary pressure of four-phase fluid systems and geochemistry of sandstone and carbonate reservoirs.
Session 5: EOR in Non-Fractured Reservoirs

Session Managers: David Sorin and Grant Haddix

Encouraged by successful large-scale applications in the most favorable reservoirs, operators are now looking at more complex environments such as tight, unconventional, carbonates, and deep reservoirs. Maturity and challenges vary for different EOR processes. Where are the current boundaries for feasibility and what to expect in the next three to five years? How should approaches to studies differ to take into account specific challenges? Which field-testing strategies should be used to mitigate risks?

Session 6: EOR in Naturally Fractured Reservoirs

Session Managers: Emmanuel Manceau and José Luis Mogollón

Fractured reservoirs are often giant fields with significant amounts of oil trapped in the matrix after conventional water-flood processes. Developing dedicated EOR processes to extract more oil from the matrix are a primary strategy. These processes include interfacial tension reduction, wettability alteration, and the use of foam. Which process is more suitable and when? How to manage appropriate kinetics in the fracture to enable efficient process in the matrix? How to ensure economic viability?

Session 7: EOR in Heavy Oil Reservoirs

Session Managers: George Koperna and Jose Luis Bashbush

The session will leverage the knowledge gained from past EOR laboratory investigations, field pilots, and actual projects to enhance traditional screening criteria in light of technological advances and positive field experiences. Thresholds for viscosity, temperature, rock type, salinity, and depth ranges deserve a thorough update to facilitate the implementation of feasible EOR/IOR methodologies. These include thermal EOR, chemical EOR, and a combination of both, particularly in steam foam.

Session 8: Deployment and Implementation of EOR Projects

Session Managers: David Sorin and Fernando Flores Avila

Thorough laboratory and reservoir engineering studies are a prerequisite for successful EOR implementation. However, critical aspects of operational implementation are sometimes overlooked and can present substantial challenges. How realistic is it to build the required surface facilities? Can high-volume chemical logistics be handled in offshore or remote locations? Can chemicals be produced cost effectively in quantities required for large-scale implementation? Implications for project technical feasibility and financial attractiveness are many and varied. So what questions should be asked at various stages of a project? What is the right timing to implement the process: early or late in the field life? What should be anticipated from the start?

Session 9: Long-Term Success of EOR Projects

Session Managers: Omer Gurpinar and Fernando Rodriguez de la Garza

In developing EOR projects, significant effort is expended from concept to field trials. Once in the field, the EOR project's success depends on correct monitoring and control, a feature lacking in most projects to date. This session will discuss how and what should be done to ensure all EOR projects have effective monitoring and control.

No EOR discussion is complete unless it covers the human aspects of synchronization between management and the technical teams. Many fields have low recovery factors due to misalignment between the business drivers and the technical attention required for EOR. The forum will close with discussions on ways for technical teams to effectively articulate the need for EOR to management in a timely manner.
Benefits to You and Your Organization

- Gain insight and perspective through conversations with peers who share your interests.
- Enjoy the relaxed atmosphere of learning through one-on-one interaction.
- Meet with other experts from international companies, research institutes, and universities in an off-the-record format.
- Form professional relationships that will continue after the forum has ended.

Forum Guidelines

The following will prepare attendees for what to expect when attending a forum:

- Participants are expected to attend every session.
- All sessions will be conducted in English.
- Slides are limited, allowing maximum time for informal discussions and exchange of experience.
- Forums are conducted off the record to support the free interchange of information and ideas.
- Extensive note taking is not allowed.
- Recording of any forum session is prohibited.
- Information disclosed at a forum may not be used publicly without the originator’s permission.
- Participants are requested to omit reference to forum proceedings in any subsequent published work or oral presentation.
- No commercialism.

Application Information

Participants at SPE Forums are selected by the Forum Steering Committee based on ability to contribute to the topical discussions. Attendance is limited to maximize each person’s opportunity to contribute.

Accepted applicants will receive their registration form and other materials within two weeks of the application deadline. For those requiring visas to attend the forum, please ensure that you leave sufficient time for your visa to be processed.

USD 2,595 Forum Fee Includes:

- Nine technical sessions
- Five nights of hotel accommodation, Sunday through Thursday
- Daily Breakfast Buffet at Hotel Restaurants
- Daily Lunch at Hotel Restaurants
- Daily Dinner at Hotel Restaurants
- Monday and Thursday Private Lunch
- Sunday welcome reception
- Thursday farewell reception and dinner
- Morning and afternoon coffee breaks

Upcoming SPE Events

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<td>30 June – 1 July 2015</td>
<td>SPE Oil and Gas Effluent Discharge Management Workshop</td>
<td>Port of Spain, Trinidad and Tobago</td>
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<tr>
<td>7-8 July 2015</td>
<td>SPE Latin America and Caribbean Health, Safety, Environment, and Sustainability Conference</td>
<td>Bogotá, Colombia</td>
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<tr>
<td>11-13 August 2015</td>
<td>SPE Distributed Fiber-Optic Sensing for Well, Reservoir, and Facilities Management Workshop</td>
<td>Napa, California, USA</td>
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<td>18-20 August 2015</td>
<td>SPE Managed Pressure Drilling and Well Control Workshop</td>
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<td>1-3 September 2015</td>
<td>SPE Workshop: From Sensors to Solutions</td>
<td>Galveston, TX, USA</td>
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<td>3-4 September 2015</td>
<td>SPE Water Management for Oil and Gas: Best Practices and New Technologies Workshop</td>
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<td>9-11 November</td>
<td>SPE Performance and Design of Water Injectors Requiring Sand Control Workshop</td>
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<td>18-20 November</td>
<td>SPE Latin America and Caribbean Petroleum Engineering Conference</td>
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Visit www.spe.org/events for the most up-to-date information.