RPSEA Conference Presents Ideas Applicable In Mid-Continent

While there has been a lot of talk about a sunset date, the Research Partnership to Secure Energy for America still has a lot of work to accomplish in the area of technology transfer. Created by the Energy Policy Act of 2005, RPSEA’s 10-year program was designed to foster technologies needed to produce secure and affordable hydrocarbon energy. In the last decade, RPSEA has been instrumental in selecting and funding innovative technologies aimed at maximizing our domestic resources. Key areas include increasing supply, reducing cost, and improving the efficiency of exploration and production.

RPSEA also is charged with providing access to this emerging technology to oil and gas operators. Technology transfer is perhaps where RPSEA’s most important work is being pursued. Events such as the RPSEA Onshore Production Conference and Ultradeepwater Technology Conference are common fixtures on industry calendars across the nation. These types of events can be especially useful to small producers that, while producing much of America’s onshore oil and natural gas, often find value in emerging technology and best practices.

During a one-day conference by the RPSEA Small Producer Program, oilmen working in the Mid-Continent benefited from presentations by research scientists working on RPSEA-funded initiatives. Held in Houston, “Technological Keys to Enhance Production Operations” highlighted the results of projects aimed at linking technology with operators looking to optimize well performance. Several presentations stood out as very interesting innovations that soon could be applied in ongoing operations.

A presentation from David Vance of Arcadis aimed to delineate the presence and size of residual oil zone resources in residual oil zone “fairways” in the Permian Basin. In the Texas portion of the basin, thick ROZs exist immediately below many fields that produce from the San Andres Dolomite. These zones can contain 20-40 percent residual oil in pore spaces. This oil cannot be produced by conventional techniques, including waterflooding.

A ROZ carbon dioxide flood under way in the Seminole Field may recover 200 million-300 million barrels of additional oil. In addition to examining the Texas resource in more detail, the study is developing technology directed toward the small oil producers for finding the higher quality portions of the ROZ resource recoverable with CO2 EOR in the Permian and other U.S. basins.

Another presentation updated the second phase of the RPSEA project, “Cost-Effective Treatment of Produced Water using Co-Produced Energy Source.” Led by Robert Balch at the New Mexico Institute of Mining and Technology, this project looks to upscale the humidification/dehumidification process that was tested successfully in an earlier RPSEA project, while demonstrating a viable and cost effective process augmented with solar energy for continuous operation.

In a presentation called “Upstream Ultrasonic Processing for Small Producers: Maintenance for Paraffin Management in Production Tubing using Noninvasive Ultrasonic Technology,” Kayte Denslow from Pacific Northwest National Laboratory demonstrated cost savings associated with adopting preventive maintenance instead of constant remedial intervention for oil well production tubulars that suffered from frequent paraffin wax plugging.

At present, production tubes require costly wax removal by mechanical methods or injections of hot oil, hot water, steam, or chemicals to melt or dissolve the paraffin wax deposits. None of these remedial methods are permanent solutions or preventative measures, and regular, repeat treatments are required, once a well develops a paraffin problem.

Robert Balch from New Mexico Tech also presented “Field Testing and Diagnostics of Radial-Jet Well-Stimulation for Enhanced Oil Recovery from Marginal Reserves.” The objective of this research is to demonstrate a newly developed radial jet technology for enhancing production from low-permeability reservoirs. Balch’s diagnostic techniques include distributed pressure sensors and electrical resistivity tomography for monitoring lateral direction and placement.

Finally, Jeremy Pitts from OsComp Systems discussed “Hybrid Rotor Compression for Multiphase and Liquids-Rich Wellhead Production Applications.” The goal of this work is to develop OsComp’s hybrid rotor compression technology into a robust and commercially viable solution that can be used as multiphase compression for wet gas applications in a small package. The project aims to prove that OsComp’s technology can run with wet gas streams at high efficiencies in a manner beneficial to small producers.

Additional presentations included “Field Demonstration of Eco-Friendly Creation of Propped Hydraulic Fractures,” from Brian Smiley at EnerPol; and “Improving Zonal Isolation in the Marcellus Shale Formation,” by Jessica McDaniel of CSI Technologies.

As RPSEA moves forward, it is clear its most important work is still to come as it continues to share emerging technology with the folks who need it the most. Look for more opportunities to benefit from this important national program in the coming year.

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