Unconventional Well Performance Analysis & Reserves Estimation
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ABSTRACT
The first part of this presentation will cover some general introductory remarks about the magnitude of unconventional oil and gas production in the U.S. and therefore the need to analyze unconventional well performance and estimate reserves. A recommended workflow – from SPEE monograph 4 – for the analysis of unconventional well performance would be described. The second part of the presentation would consist of the application of the workflow to an oil well. This section would have the details of the diagnostic plots and the semi-empirical models (Arps, modified Arps, etc.) that constitute the proposed workflow. The third section would present an application of the workflow to an Eagle Ford condensate well where surface separator oil and gas volumes must be converted back to reservoir gas volume. This example will illustrate how condensates can be handled in practice, while still trying to honor the fluid properties. This section concludes with a valuation of the well.

Dr. John P. Seidel is the Vice President of MHA Petroleum Consultants LLC in Denver, Colorado. He has more than thirty years of experience in unconventional gas and oil reservoir engineering in domestic and international plays. His current duties include unconventional reservoir engineering work, reserve studies and economic evaluations, and serves as an expert witness for litigation and regulatory hearings. He received a PhD in Mechanical Engineering from the University of Colorado, is a member of SPE, AAPG, and SPEE, and is a Registered Professional Engineer in Colorado, Oklahoma, and Wyoming.