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Chemical Tracer Case Studies – Practical Applications for Completion Optimization

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Summary

Chemical tracers used for unconventional reservoir analysis are one of the lowest cost and least wellbore invasive forms of science available to the industry. Advancements in tracer technology allow operators to analyze stage specific production of frac fluid, liquid hydrocarbon, formation water and gas. The tracer data enables long term analysis of the reservoirs' response to varying completion methods; provides insights into geological and completion variability along a single lateral; and indicates how fracture networks interact between wells. Different disciplines, including geology, drilling, completions, and production, use tracer data to optimize development strategies quicker in unconventional plays.

This presentation will discuss how chemical tracers work, how tracers are currently being used, and the changes operators are making as a result of analyzing tracer data. Using specific examples and case studies, we can see tracer response corroborating lithology predictions; identifying specific segments of wells experiencing hydraulic and/or propped communication; and comparing multiple exploitation strategies in a single well to determine the optimal completion design. By helping to identify ineffective variations of completion strategies, tracers can uncover the most effective strategies faster, thereby lowering the cost of innovation, leading to better play economics.