

Assessment of Stage-Based Hydraulic Fracturing Quality

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Dr. Zhengwen Zeng, Associate Professor of Petroleum Engineering at University of Texas Permian Basin, will speak on Thursday, December 09, 2021. The seminar will be at 9:00 Central Time.

The topic is “Assessment of Stage-based Hydraulic Fracturing Quality.”

Abstract

Application of multistage massive slick-water fracturing stimulation treatment to horizontal wells makes production of tight oil and shale gas economically viable. Stress-shadow effects build up stage after stage due to the huge amount of injected fluids and proppants. Treatment quality in each stage is negatively affected by stress shadow effects. Production log revealed huge variations of fracturing quality among stages. A new method to evaluate stage-based fracturing quality using field data is developed. The method is tested using two Wolfcamp wells in Permian Basin. Results of both Wolfcamp wells are consistent with field observations from production log data.

Biography

Zhengwen Zeng is an Associate Professor of Petroleum Engineering in The University of Texas Permian Basin (UTPB), Midland, Texas, USA. He joined UTPB in Spring 2016. Before UTPB, he worked for three years as a Senior Geomechanics Engineering at BP in Houston, Texas. Prior to BP, he was a tenure track assistant professor at The University of North Dakota (UND), Grand Forks, North Dakota, and got tenured and promoted to associate professor in Spring 2011. At UND he built a research program and performed geomechanics study to promote the oil production from the Bakken formation in Williston Basin. He was also the leading faculty to found UND’s BS in Petroleum Engineering program. Prior to UND, he worked for three years at the

Petroleum Recovery Research Center in New Mexico Tech on DOE-funded projects for CO₂ enhanced oil recovery and CO₂ sequestration. He received his PhD in Petroleum (Geomechanics) Engineering from The University of Oklahoma, focusing on lab imaging of hydraulic fracturing under the supervision of Dr. Jean-Claude Roegiers. Prior to moving to the USA, he finished his DSc in Tectonophysics in State Seismological Bureau, Beijing, China. His MS and BS, both in Engineering Geology, were completed in Southwest Jiaotong University, Sichuan, China.