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Acid Stimulation of Carbonate Formations: Matrix Acidizing or Acid Fracturing?

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Abstract

Carbonate reservoirs contain about 40% of the world's conventional oil and gas reservoirs, including some of the largest oil reservoirs in the world. These formations are very amenable to stimulation by acids, either through matrix acid injection below fracturing pressure, or by acid fracturing. This talk will present the latest methodologies for design and evaluation of carbonate acid stimulation treatments. Comparison of predictions of the latest models of matrix acidizing and acid fracturing leads to a coherent criterion for selecting which stimulation method is best for any given reservoir. So rather than relying on simple rules of thumb based exclusively on reservoir permeability, the engineer can now select the best acid stimulation method for any carbonate reservoir. We now have a rigorous, straightforward methodology to select the best acid stimulation method for any well completed in a carbonate formation.

Biography

Dr. A. Daniel Hill is Professor and holder of the Noble Endowed Chair in Petroleum Engineering in the Harold Vance Department of Petroleum Engineering at Texas A&M University. Dr. Hill joined the Texas A&M faculty in 2004. Previously, he taught for twenty-two years at The University of Texas at Austin after spending five years in industry. He holds a B.S. degree from Texas A&M University, and M.S. and Ph.D. degrees from The University of Texas at Austin, all in chemical engineering. He is the author of 5 books, over 200 technical papers, and five patents. Through his career, he has received many SPE awards, including the SPE John Franklin Carll Award in 2014, and was named an Honorary Member of SPE and AIME in 2020. From 2014 to 2017, he was a member of the SPE Board of Directors. In 2019, Professor Hill was named a Regents Professor by the Texas A&M System Board of Regents.