

Terry Engelder (2022)



Vice President - 2023-2024

President - 2024-2025

Feb 8, 2023: Fracking: Jargon for Breaking Rocks with a Wedge

I was conceived during a wild weekend in Washington DC, the day before my father shipped out to the Philippines to prepare for the final invasion of Japan. I grew up at the very eastern end of the Bradford oil fields in Wellsville, New York. My first job was as a dollar an hour roustabout for Bradley Producing Company just after Halliburton introduced hydraulic fracturing to Appalachia. After having a finger crushed between two lengths of casing, the company turned me into a one-handed geologist's assistant. At about the same time, I was recruited by Penn State as a distance runner (cross country and track). While in Happy Valley during my first tour of duty, I met my life's soulmate, Janice Wicks, a math-education major who had a long career teaching at Bald Eagle Area High School. My first stop as a graduate student was Yale where I trained for the Boston Marathon with Frank Shorter, the only American to win a gold medal in the Olympics during the past century. When Nixon, the good Republican, went on a budget cutting binge after his 1968 election, I lost my National Defense Education Act fellowship at Yale and retreated to Texas with Janice where Gov. John Connally started pouring money into A&M to enhance its reputation in science and engineering. My Ph.D. thesis involved rock mechanics, specifically a study of friction along the broken surfaces of rock to simulate the generation of earthquakes. Columbia University recruited me to continue working on the mechanisms for earthquake generation. While at Columbia my geological field work focused on natural hydraulic fracturing, among other things. During one field season in Italy, I took the sample which helped Walter Alvarez unravel the mystery of what caused the dinosaurs to go extinct. In 1985 the stars aligned just right and I was rewarded for my work on breaking rocks with a tenure-line appointment back at Penn State—my second tour of duty in Happy Valley. My active research career at Penn State involved understanding the mechanisms for fracture of rock in the crust of the Earth including hydraulic fracturing. This interest slipped naturally into an interest in fractured gas shale including the Marcellus. The penultimate task in my career was figuring out (for Madison Avenue bankers) how much gas was present in the Marcellus. The bankers wanted an independent check on the drillers who were about to spend hundreds of billions of dollars of the banker's money on fracking. The question was, "Would the bankers get their investment money back?" I told the Madison-Avenue types that, with their money, Appalachia would become the world's second largest gas field. That news was one of the important steps enabling the expenditure of about two trillion dollars on fracking nationwide over a period of roughly 12 years (2006-2018). Those were the glory days and as Bruce Springsteen has sung, "Glory Days, well they'll pass you by in the wink of a young girl's eye!"

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