



Angela Mestemacher Vande '95

By Gi Smith

Environmentally conscious about fracking, Angela Vande wakes up most mornings well before dawn with the same invigorated outlook: “It’s a good day if you get to learn something, and there’s always something for us to learn.”

Graduating from Marietta in 1995 and going directly to work for Crestar Energy, Angela started working in her home state of West Virginia and then moved with her job to Tulsa, Oklahoma. A colleague asked if she could do a favor for the company. Rather than ask what the favor entailed, she said “Yes” and ended up in Alberta, Canada, for the next 27 years.

Her petroleum industry job started in facilities, and after working for about a year and a half in that area, she moved on to completions.

“When you say, ‘Yes, I’ll figure out a way,’ you get a lot of exposure, so within less than 10 years, I had actually been promoted to the point where I was looking after the longest wells in North America,” she says. “They were the longest, some of the first horizontals, they were critically sour, they were in environmentally sensitive areas, and I ran the whole completion operation.”



That's when her first patent was developed. When looking after the longest wells in North America, there are a number of challenges. Three or four wells into the completion process, the geologist she was working with said the end of the horizontal — known as the “toe” — was the part he wanted because it was the best part of the reservoir.

“This was about 2005, and the technology at the time could not reach the longest toes in North America,” she says. “The geologist said it was the best part of the well, so why leave that behind? So, I collaborated with the service company and figured out how to get to the toe, and with that, we developed what is now a multi-billion-dollar tool that's used on every single horizontal well, every single well and drilling.”

The technology developed was a vibrator that broke down the coefficient of static friction, reducing the friction numbers by about 25 percent. She presented it as a “world first” and published a paper to present at an industry conference. Though the tool could reach the toe, the well didn't produce any better, which was a surprise to Angela.

“So, at that time, I conceptualized a multi-stage kind of completion — and multi-stage wasn't invented yet. I conceptualized that and the way I did it was I basically allowed the well to blindly pick its best spots. I pumped fluid down and the fluid went into the well's best spot, and then I put in a diverter. A diverter can be damaging and have residue, and the diverter I used was a surfactant-based visco-elastic diverter, so that means it viscosifies and then it breaks back to surfactant to a water phase.”

She thought it was an innovative idea, so she measured the distance (from surface to toe) by running a five-mile-long piece of fiberoptic. Not only was it successful, but she was also getting two to five more intervals per well than she had ever gotten before. She patented and published the process. Multi-stage was invented and became predominant a couple of years after her breakthrough.

Education: BS Petroleum Engineering • Marietta College

Patents: Pipelon Heater String, Environmentally Conscious Fracking

“When you get successes like that — first the billion-dollar tool and then the longest wells in North America with successful completions and better production, and that production is even holding out and it’s been almost 20 years. The wells I did this on are still better production and better reserves than wells I did not do this on. Those are some of the highlights of my career.”

Now working as a consultant with her own company, Angela has taken the successes she earned working in the industry and the information she contributed to help her clients.

“But I’m the engineer that designed it and I have improved on the original — so I actually can do it now without fiberoptic and without intervention, meaning I don’t have to take off the wellhead, meaning I just come through the valves. It’s super safe, much less costly, much less risky, and still very effective. I design and do that on my own jobs. And I found the treatment fluid that viscoelastic diverter through the guy that was supplying it to (her former employer), and I bought it directly from him to save my clients’ money.”



In addition to running her consulting company, Angela is affiliated with the U.S. Department of Environmental Protection and the Energy Committee. She was the advisor to the Vice Chair of the Energy Committee for four terms and is now advising the Chair of that committee. She has done this for free, so there is no perceived bias.

“When I’m back with the government, I often stop into Marietta and say, ‘Hi.’ I’ve been in Dave Freeman’s class back when multi-stage was still getting going and I showed the students the difference between a multi-stage cement and a multi-stage open hole, and the significant differences in a few pictures. You can hear the words, but when you see a picture from a location and say, ‘This is a packer’ and you can see how long it is and what it looks like, I found that it’s more valuable to the students.”

Angela says she always looks to be a part of the good, always looking for ways to use her skills to help others.



“I had a contract for water management at a hospital. It was an engineering contract. They needed somebody that was reliable, and they found my consulting firm and I showed up and I did what I said I do and that was a unique contract for petroleum engineers. And I currently still carry a forensic engineering contract. So again, I’m oil and gas, but they trained to be a little bit on accident investigation in automobiles and fraud and I’ve been doing forensic engineering for them as a part-time contract, so it’s here and there. So, I think trying to be part of the good and seeing the good in people and also wanting to do a good job and produce value.

“I want to live two lifetimes in my one span of life that I have, and I want to make it positive. I want to make people around me happy to come to work and happy about what they’ve done — that way, they’ll be kinder to their families and their friends.”

