Acceptance speech to be given by G. Randy McKee at the American Indian Science and Engineering Society's 2013 Conference in Denver, CO on Nov 2, 2013.

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Osiyo—Hello, and good evening. What an honor it is to be standing here tonight to accept this very special award, especially knowing the breadth of talent here tonight and the amazing and equally deserving people that are my fellow nominees. I thank the AISES awards selection committee for this great honor—to be chosen as the American Indian Science and Engineering Society's 2013 Professional of the Year.

It is truly an extraordinary honor for me personally, for the Cherokee Nation, and for Sandia National Laboratories to accept this award.

When a person receives a great award, such as this, I have seen that it invariably comes with a strong support system of family, friends, and co-workers—you don't get here alone. So you earn the right to have a posse. I would like to introduce you to my greatest asset, and my personal posse. My wife, Linda McKee, is here with me …. and to her I must say thank you, thank you for a life-time of understanding and support. She has always been a driving force behind my career successes and has been there to cheer me on and lift my spirits when things sometimes didn't go quite as planned. She was the best decision I ever made…..I can say that I chose wisely and I am

glad that she chose me. Not with us tonight but a very important member of my posse is our daughter Kristen. She is in law school at UCLA and is preparing for upcoming tests. She is the best thing Linda and I ever did.

Also here with me tonight is the Hilborn family, they are close family friends. Samantha and Haley, and their wonderful parents Merriam, (Laguna-Acoma) and Duane (Jicarilla Apache). I get lots of advice and support from the Hilborn family. These beautiful young ladies are especially inspirational. Samantha—Sam as we call her—is in her first year at New Mexico State in Las Cruces and Haley is a junior at Saint Pius High School in Albuquerque. BTW, both are, and have been engaged with AISES and are pursuing their careers in Science, Technology, Engineering, and Math. Sam is studying math and agricultural science and Haley is interested in mechanical and aeronautical engineering. Of course, collectively, everyone here in attendance tonight knows these career fields as "STEM". And I will be using this acronym a lot tonight. STEM is very important to me as it is what has shaped *my* life and career. It has provided me with an abundance of career opportunities that have translated into a multitude of challenges, conundrums, and triumphs—from unexpected setbacks that cause me to question myself to the profound fulfillment of watching and learning from my young colleagues and students who have grown and achieved so much in their chosen STEM fields—It has all brought real enjoyment in my work.

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In the first years of my career as a mechanical engineer, I had the opportunity to work on the largest lasers being developed in the world. At the Air Force Research Labs at Kirtland Air Force

Base, I worked on 10 to 50 kW continuous wave lasers that were being developed for defense purposes for the Star Wars initiative. The purpose of these high-powered lasers was to disable incoming enemy missiles. This work was very complex and challenging.

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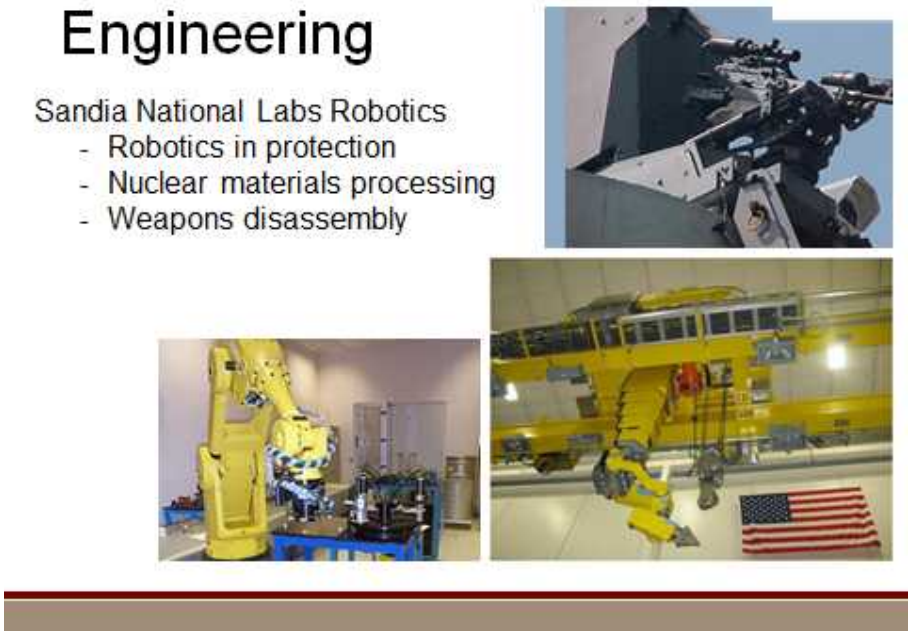
As I moved on in my career, my next challenge came in the semiconductor equipment arena working with a promising startup company—funded by a small venture capitalist group—which had the grit, talent, and money to build the 'next generation' of semi-conductor manufacturing tools. I came in as the Engineering Director and began by hiring some of the most talented people in the industry who could likely fulfill the company's goals. But, some of those unexpected setbacks I mentioned earlier occurred in this phase of my career— I took a 10% stake in this startup company and led a team of engineers and scientists in developing Hydrofluoric Acid etching systems for removing native oxide off of 300 mm silicon wafers. This was truly deadly work , the *wrong* mistake could cost lives of our staff members and researchers. This work was intricate, rigorous, and very challenging. As we came closer to finishing our development of the specialized etching equipment and were preparing to push our project into beta site testing, we got a *big surprise* that came with the 1987 crash of the stock market—all expenditures were immediately put on hold including our salaries. Meanwhile, a *larger* venture capitalist group moved in to try to take control of the valuable technology we were developing and take over the weaker venture capitalist group that we started with. While this wrangling was going on, I and many of my peers decided to stay on and

work. We worked 10 months without pay to try to complete our technology and get it successfully tested. (If you recall me telling you of my wife's unwavering support and understanding …well, it became really evident here). In the long run, the larger venture capitalist company won out—I lost my 10% stake in the technology, and the patents—our patents—were sold to one of the largest semiconductor equipment manufacturers in the world for a great sum of money. So, instead of 10% of the company, I ended up with an IBM Selectric typewriter. Not what one might call a great reward for two years of hard work, optimism, and loyalty. I did, however, gain significant technical experience and invaluable knowledge in this endeavor. This was a major growth period in my career, immensely insightful on a personal level, I learned some very advanced technology, not to mention in-the-trenches project management, and gained a greater appreciation for the way industry works.



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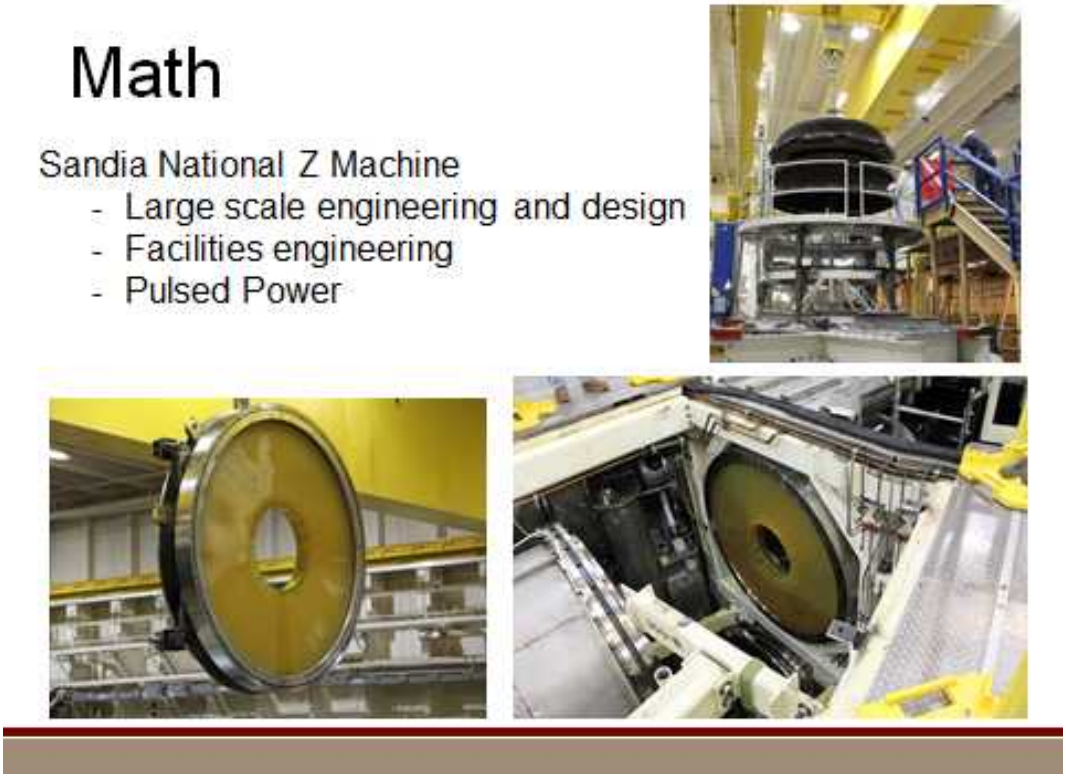
Soon after that I joined Sandia National Laboratories where opportunities to use my engineering science education and experience were plenty. I started by taking a job as a program manager in the robotics group and became the "rain maker", developing projects and securing funding (the rain) for robotic projects to be deployed across the entire Department of Energy's vast complex. We used automation to package nuclear materials at Rocky Flats in Colorado, the Mound Facility in Ohio, and the Savannah River Plant in South Carolina. The daily challenges of designing and building robotics, conducting advanced manufacturing research, and developing and deploying nuclear materials processing technologies provided me with both

career growth and the ability to work in the career field that I love, Science Technology, Engineering, and Math—STEM



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Eventually, I found my way to the Pulsed Power Sciences Center where I am now working on the world's largest Pulsed Power facility, …….the Z machine which stores huge amounts of energy in capacitor banks and then releases this energy in approximately 100 nano-second pulses to create high-energy density conditions for experimentation in fusion, dynamic materials properties, astrophysics, and extreme radiation effects research. What an incredible place to work. This facility is nothing but STEM. Cutting, no bleeding edge science and technology; engineering that is so complex it is mind bending; and math, oh the math…….it is mind boggling. Last year on the Z machine, we compressed hydrogen gas to over 8 million atmospheres—that's a pressure of 113 million pounds per square inch ….doing this we turned that gas into a metal…….this one piece of data gave the astrophysicists insight into the extreme magnetic forces seen around our solar system's gas giants planets, Jupiter and Saturn. We are performing Dynamic Materials Properties experiments on plutonium and other nuclear

materials of interest to determine their equations of state. This is again cutting edge STEM. And of great importance, we are working to be the first laboratory to achieve fusion. This is the holy grail of a clean and environmentally sustainable energy source. Fusion is the technology that would take the amount of sea water in the San Francisco Bay as the fuel and power the world's energy needs for the next 1000 years. This is science, technology, engineering and math at its best. Getting up every morning to go to work knowing that a new challenge awaits me is a special and invigorating feeling. I manage the pulsed power engineering team, a group of 20 extremely bright and innovative engineers and technicians. It is our responsibility to design and manufacture state-of-the-art solutions to build the special apparatus needed to conduct these pulsed power experiments in extreme environments. It is exciting, nerve wracking, challenging, and rewarding all at the same time. I am so very glad that I chose a career in STEM.

I would like to end tonight by offering advice that can help make your careers in STEM more rewarding and meaningful no matter where you are in your career. Whether you are just starting out and are a young middle school or high school student, or you are attending a university doing undergraduate or graduate work, or you are attending a technical trades college, or whether you have just started your first job or maybe you've been in a STEM career for many years with lots of experience,……

Mentorship is both - Learning & Teaching

Sandia National Laboratories' Z Machine

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My advice to you is to **REACH** out, for we are never too young or too old to learn….ask for mentorship—or offer it. Looking back, I believe I have learned as much or more from mentoring others as they have learned from me—because it's always been a two-way street of respect and sharing, and it is so rewarding to interact with so many talented and good people. Especially rewarding to me is how many of these people have been my fellow American Indians from many Nations. I would not be here without them.

We all know that the American Indian culture has endured because the Elders have taught us well by sharing their knowledge and experience. We also know that the youth have taken that shared knowledge and built upon it, becoming stronger and more adept at using it. Using it to protect and provide for their elders and teaching them in the new and sometimes stronger ways. This is a chain that should never be broken, it should be extended generation upon generation. So, reach out to your peers and help yourself and them to learn and to grow.

Teaching and sharing of knowledge is one of the greatest paths of increased understanding. This is a truth.

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May AISES continue to be a strong organization that will always support and contribute to advancing STEM and reach its most admirable goal of bringing our American Indian youth into Science, Engineering, Technology and Math—STEM—careers and assist them in launching and

sustaining their careers in these fields. Again thank you very much for this award and giving me the chance to speak with you here tonight. It has been such a great honor.

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