Freese and Nichols is a multidiscipline consulting firm that offers services in water and wastewater engineering, architecture, environmental science, construction, and planning. The firm's chairman emeritus, Jim Nichols, has been a leader in water resources engineering for over 60 years. Honored locally and nationally for his professional accomplishments and civic activities, he was appointed to the Texas Board of Professional Engineers by Governor George Bush and later named chairman by Governor Rick Perry. Mr. Nichols currently consults with clients, leads executive client visits, teaches classes around the state on professional ethics for Freese and Nichols University, and consults with project teams. Irrigation Leader's editor-in-chief, Kris Polly, spoke with Mr. Nichols about his firm, his long career, and the future of water resources in the state of Texas.

Kris Polly: Can you provide our readers with some background on Freese and Nichols?

Jim Nichols: A civil engineer from Minnesota named John Hawley started the company. Around 1890, he came to Fort Worth to work for a group that designed the first municipal water system in the area. Prior to that time, people had shallow wells or cisterns, not a comprehensive water system. He was employed to design the intake structure of the Clear Fork of the Trinity River. It was primarily a water quality plant, where they pumped water into a small distribution system. After he completed that assignment, he decided to stay in Fort Worth and open up a consulting engineering practice focusing on water. That was the beginning.

From 1894, when this organization was really started, through World War I, [Hawley] practiced as a consulting engineer, working with small and large cities to develop water supplies. Prior to 1922, as far as I know, Mr. Hawley practiced by himself. In 1922, he was employed by the City of Paris, Texas, to design a small lake water treatment and distribution system. The work required more than he could take on by himself. He hired a man named Simon Freese to join the firm. It became Hawley and Freese at that time.

Later on, they received another project in Fort Worth from what is now the Tarrant Regional Water Board to design and be the construction managers of two large reservoirs. The project cost about $6 million, which was a large sum of money in the 1920s. Hawley and Freese hired Marvin Nichols, a city engineer up in Amarillo, to be the project manager on the reservoir projects. Over the next two or three years, the relationship matured, and the firm became Hawley, Freese and Nichols. Marvin Nichols was my father.

During the Depression, the firm struggled, and was one of only a few consulting firms that survived that period. Hawley retired in 1938 or 1939, and the firm became known as Freese and Nichols. Freese and Nichols remained a partnership until 1976, when it incorporated.

We started with one sole proprietor and now we have 43 shareholders. Our total staff is now 525 people. Water matters are a major focus in our practice. We also have branched out into other disciplines.

Kris Polly: How old was your father when he started working with Mr. Hawley?
Jim Nichols: He was born in 1897, so he would have been 31 years old. He was born north of Fort Worth in Roanoke. His father was a Methodist minister. They were people of very modest means. He worked his way through the University of Texas and received a bachelor’s in engineering in 1918, and then a couple of years later he received a master’s degree from the University of Illinois. During World War I, he went through pilot training and was stationed in San Antonio on an air installation. When the war he was over, he was discharged.

Kris Polly: How old were you when you joined the firm?

Jim Nichols: I was in the service stateside for three years in the signal corps, repairing radar equipment. After my discharge, I went down to Texas A&M to earn a bachelor’s and a master’s degree in civil engineering. I joined the firm in 1950 at the age of 27.

Kris Polly: What kind of changes have you seen in the water resources industry over the span of your career?

Jim Nichols: When I started in 1950, there were a lot of projects that needed to be built. During the Great Depression, there were no resources to develop water resources. Then, in World War II, most financial resources were used for the war. After the war, there was a tremendous amount of water resources development.

Our focus was primarily in West Texas in the areas where there was not a whole lot of ground water. Most of our projects involved surface water supplies. That [type of work] carried us through until the 1980s. Then for a number of reasons, primarily regulatory, the number of surface water development projects dwindled down to zero. As we speak, I don’t believe there are any dams or lakes being developed in Texas.

Kris Polly: What has been the most effective engineering innovation in water resources over your career?

Jim Nichols: The advent of the computer. When I came on board, the largest part of our workforce was dedicated to drawing schematics by hand. Now we have CAD technicians. The advancements in technology are truly amazing . . . mind-boggling. There is no telling what we will see in the future.

I have been here 62 years, and gosh, I have seen a lot. I hope to stay a few more years to see what is coming next. The thing I enjoy about engineering is that you can travel around and see the results of projects that we have been involved in. There is a lot of satisfaction in knowing that people are better off as a result of our efforts. To me that is very rewarding.

Kris Polly: Based on your knowledge and experience, what needs to happen in the water industry for Texas to stay on top of its water needs?
Jim Nichols: Out here in Texas, the permitting process requires multiple years and lots of money. While going through the maze of [government] departments to push a project through, all sorts of groups attempt to prevent water resources from being developed. Then, of course, financing the project is another matter. In the past, to some extent for some reservoirs, we’ve been able to depend on federal dollars. That financial resource is drying up. The challenge is finding the funds to develop these projects.

In 1952, Freese and Nichols completed Lake J.B. Thomas, a 204,000 acre-foot water supply reservoir, for the Colorado River Municipal Water District (CRMWD). We prepared the preliminary drawings, a profile, the cutoff, the location, and those sorts of details. We submitted [the information] to the state regulatory agency for its staff to review. They processed it in about a month. At the recommendation of the agency, we went down to Austin with our attorney for a hearing and provided testimony. The staff presented theirs. The permit was granted, it was written that afternoon, and we came home that night with a permit in hand.

Our last major reservoir project, the O.H. Ivie Reservoir, took years to go through the permitting process. CRMWD spent millions of dollars jumping through all kind of hoops with respect to endangered water snakes. The permitting process is entirely different than it was years ago.

As you know, the Texas Water Development Board develops a state water plan for Texas. We know where the surface water is, and we know how to develop it. The primary issues are regulatory and financial—how to pay for the projects. I hope that the legislature, when it convenes in January, will take a look at these issues. We need to be developing projects.

Kris Polly: Your firm is very interested in continuing education and takes a great interest in the personal development of your staff. Can you share with our readers the philosophy behind that interest?

Jim Nichols: That philosophy goes back to John Hawley, the founder of the firm. He had a great interest in continuing education. His policy was to further the education of the bright, young engineers working for him. He sent Simon Freese to Cambridge, England, in the 1920s to study new technologies in wastewater treatment.

We have a policy to help staff members who wish to get graduate degrees by helping to pay for tuition and books, and giving them the opportunity to take time off as required. We also have Freese and Nichols University, which is an in-house department. We offer all kinds of courses taught by experts in their respective fields. We have won a number of awards: In 2009, the National Society of Professional Engineers and the Texas Society of Professional Engineers honored Freese and Nichols with the Private Practice Professional Development Award, and in 2006, Freese and Nichols was named Best Place to Learn by the Dallas Chapter of the American Society for Training and Development.

Engineers at Freese and Nichols can take all of the continuing education courses they need to renew their professional licenses. Continuing education has always been an important part of our firm. Not only does the employee benefit, but the firm benefits as well.

Kris Polly: What advice would give to a young person just coming out of engineering school?

Jim Nichols: If they were coming here to Freese and Nichols, I would advise them to take advantage of the opportunities we have here. We have a mentorship program. Also, take advantage of Freese and Nichols University. Take advantage of our policy to pursue a graduate degree. We have a saying here: “Work hard and leave the woodpile a little higher than you found it.”

In 2010 Freese and Nichols became the first architecture/engineering company to receive the Malcolm Baldrige Award for Performance Excellence. To celebrate adherence to the firm’s “hedgehog concept” of being “the very best at client service, resulting in long-term, mutually beneficial relationships,” the company-wide celebration included toy hedgehogs.