



Robert Coward: Playing on an all-star team

Having worked on a wide range of challenging engineering projects, the 63rd president of the American Nuclear Society is ready to lead the nuclear team forward.

By Tim Gregoire

In early 2003, FirstEnergy Nuclear Operating Company (FENOC) was facing some serious challenges with its Davis-Besse nuclear power plant outside Oak Harbor, Ohio. The previous spring, the company had discovered the infamous “hole in the head” of the reactor pressure vessel, and in the ensuing assessment of the plant’s components and systems it was determined that the reactor’s high-pressure safety injection pumps could be vulnerable following a loss-of-coolant accident (LOCA). The issue had been previously raised by the Nuclear Regulatory Commission in Generic Safety Issue 191, which found that pumps used to cool a reactor core following a LOCA could become clogged with debris and were susceptible to failure.

Faced with the prospect of spending millions of dollars and working for ma-

ny months to replace the pumps, FENOC called upon the Alexandria, Va.-based engineering company MPR Associates for advice on what to do. “We put a tiger team in a conference room at MPR, and we worked for two weeks to put together a very detailed PowerPoint presentation and report on what the issues were, what the options were, and what we recommended be done,” said Bob Coward, a principal officer of MPR. What they recommended was not to replace the pumps, but to modify them instead. So in May 2003, Coward, who was then director of nuclear services, and the MPR team made their presentation before a panel of FENOC executives, including Gary Leidich, FENOC’s president and chief nuclear officer at the time.

“We got done with the presentation, and Gary said, ‘Okay, sounds great. When will you be done?’” Coward recalls. “I said, ‘What do you mean, when will we be done?’”

Impressed by the presentation, Leidich and the FENOC team wanted MPR to do the job of modifying the pumps, including all the associated engineering, physical modifications, and testing. “We told them that we were just a small engineering company, that we don’t normally do that work, and that we thought we were recommending what they should have other people do,” Coward explained. “And Gary, in one of the great moments of my career, looked at me and said, ‘We have complete confidence in you guys. Go make it happen.’”

Make it happen is what Coward and his team from MPR did. “We started that month and finished the last bit of paperwork a week or two before Thanksgiving, and between the end of May and the middle of November, I think I took two days off,” Coward said, adding that it was then perhaps the single most intense, biggest project in the history of MPR. The work was fast paced, he said, with many first-of-

a-kind technical issues to overcome. Yet, despite the challenges and weeks that averaged 70 working hours, Coward said, it was such exciting and engaging work that none of it felt like a burden.

Looking back on his 34-year career with MPR, Coward said that for him, the Davis-Besse experience is the definition of a memorable engineering project. A self-described sports jock, he is quick to credit the project's successful outcome to the work of his teammates. "We succeeded in the way everyone—the MPR team, the subcontractors, our friends at FirstEnergy—came together to get the job done," he said. "That was the great thing."

Growing up

Coward says that while both of his parents greatly influenced his life, he learned a lot about teamwork, discipline, and leadership from his father, Robert Sr., who was a high school physical education teacher, sports coach, and athletic director. "I didn't attend the school where he taught, but growing up I would go to his games and practices, so I spent a lot of time in that environment and was heavily influenced by sports," he said. Coward played a lot of sports himself, including basketball and golf. Having played golf all four years of high school, he became quite good at the game, eventually peaking at a handicap index of 2.

The oldest of four children, Coward was born on March 25, 1961, and grew up in central New Jersey, first in Metuchen, close to Thomas Edison's Menlo Park laboratory, and later in Lakewood, about 50 miles south, near the Jersey Shore. Coward first attended St. Joseph High School in Metuchen, and then completed high school at St. Joseph High School in Toms River. As someone who grew up knowing he would become an engineer, Coward



Coward in 1964 at age 3.



A Coward family outing in the early 1970s with siblings, from left, Cheryl, Jim, Bob, and Cyndy.

said he always enjoyed science and math classes.

A telling incident happened while Coward was still in elementary school, when an ice skating accident left him with a broken leg. He would have to stay in the classroom during recess while his leg was in a cast, his teacher explained to his mother, Phyllis. "My mother asked how I was handling missing recess," he said. "My teacher told her I seemed fine, because while everyone was out at recess, I would sit in the classroom and play math games."

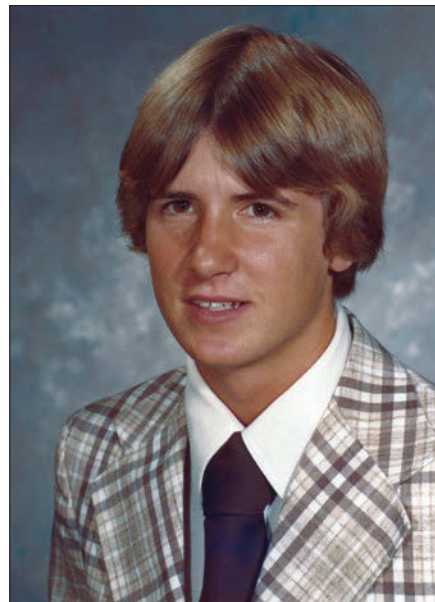
Coward credits his mother, who later in life would become a manager for H&R Block, the tax preparation company, for instilling in him a strong work ethic. "My mother taught me the value of working hard and doing excellent work," he said.

That work ethic runs deep in Coward's family. His great-grandfather founded Nicholas Schwalje Inc., a mechanical contracting company in central New Jersey that specialized in heavy construction projects. It was under his grandfather Phil Schwalje's turn at the helm that Coward got his first taste of hands-on engineering, working at the company during college summers and vacations as a laborer, apprentice pipefitter, and assistant site superintendent. "Being around heavy construction in college—learning how things are made, what things look like on the inside, and what it takes to actually build something—interested me and provided a good foundation for my professional career when I got out of college and went into an engineering field," he said.

It was also his grandfather, Phil, who first made Coward aware of the benefits of nuclear power. "He was a believer," Coward, said, adding that his grandfather led

the company through the process of obtaining the various N Stamp certifications and credentials that would allow the company to work on nuclear power projects. Coward said that a company partnership would eventually provide control panels to PSEG Nuclear's Hope Creek nuclear power plant near Salem, N.J.

Coward recalls a story his grandfather would tell about meeting with executives from Jersey Central Power & Light, which was building the Forked River nuclear power plant adjacent to the Oyster Creek plant in Forked River, N.J. JCP&L was to award Nicholas Schwalje Inc. the contract to construct the service water piping that would run from Barnegat Bay to the plant, and Phil was at the meeting to finalize the contract. That meeting occurred on March 28, 1979, the day of the accident at Three



Coward's high school yearbook photo from 1976.

Mile Island-2. As Coward tells the story, that morning, just as everyone had gathered in the meeting room, a JCP&L secretary came in and whispered into the ears of her managers, who promptly got up, left the room, and never returned. JCP&L eventually canceled the Forked River project. "The company [Nicholas Schwalje Inc.] was doing well, but my grandfather said he thought that that was going to be the one project that would have really created the foundation for it to be successful in the nuclear industry."

Taking a look at Duke

Coward graduated from St. Joseph's in 1979, and having done well academically, graduating at the top of his class, he was looking toward college and contemplating attending one of the Ivy League universities. "I was thinking about places like Princeton, among others, when my father said, 'You should think about Duke—it's the Princeton of the South,'" Coward said. "At the time, all I knew about Duke was that they had just gone to the final game of the NCAA National Championship." That was in 1978, when Bill Foster was coaching Duke's basketball team. Foster, who would be the first NCAA coach to guide four different teams to 20-win seasons, had been recruited by Duke in 1974 to turn around the university's struggling basketball program.

His curiosity piqued, Coward looked further into the home of the Blue Devils and learned that Duke was ranked one of the best universities in the world. So, in October of his senior year of high school, Coward and his father set off at 5 a.m. from their home in New Jersey to make the eight-hour drive to Durham, N.C. "It was one of those days where we left New Jersey and it was expected to be 58 degrees, and we pulled into Durham in the middle of the afternoon, and it was about 73 degrees," he said. "That is a big 15-degree difference. We got out of the car, and everybody was wearing shorts. It was an entirely different environment and feel, and it just felt good."

If the nice weather wasn't enough of a welcoming sign, a pep talk from Coach Foster was sure to seal the deal. "After we got there, I asked my father where we should start," Coward said. "He said, 'We'll go to the most important person on campus and talk to him first.'" So the Cowards went to the office of Bill Foster, whose team had just been ranked the number one NCAA Division I basketball team. Foster, it turned out, was a longtime friend of the elder Bob Coward, and the coach was more than happy to share with his friend's son the various attributes of the university. "I decided then and there that, as long as I could get in, this is where I would like to go," Coward said. "I visit-



At his graduation from Duke University in 1983 with parents Phyllis and Bob Sr.

ed other places, but nothing else had that same feel."

Coward spent the next four years as an engineering student at Duke, graduating magna cum laude in 1983 with a bachelor's degree in mechanical engineering. Coward said he most enjoyed the hands-on, problem-solving aspects of his engineering courses while at Duke. "My mind works very methodically, so those classes or projects where we would develop models, build equations, calculate something and figure it out, that always interested me," he said.

As an engineering student, Coward said, he wasn't too enthusiastic about the liberal arts courses he was required to take. Yet he admits to being somewhat of a history buff, and he fondly recalls taking, on the recommendation of a friend, a religious studies class. The class was on the Old Testament, and Coward said that he was engrossed as the professor walked the class through biblical history. "To this day I remember that class," he said. "It was just very interesting."

At Duke, Coward continued to be active in sports, playing a "whole ton of basketball." He even played as shooting guard for a year on what was then Duke's junior varsity basketball team, which, in addition to playing other schools, would sometimes serve as sparring partners for the varsity team. This afforded Coward the chance to compete face-to-face with some of the greats of the game. "Forget the professional accomplishments," he said. "One of the things that my kids find most impressive about me is that I have played on the same basketball court with Michael Jordan."

MPR: A top-notch outfit

During the early 1980s, as at nearly any point in the university's history, Duke-

educated engineers were highly sought after by technical companies. Coward recalls that companies such as Texas Instruments and UNISYS would recruit heavily on campus, subsequently flying potential employees to their headquarter cities, where they would wine and dine the young engineers in hopes of drafting them into the company ranks. The small engineering company MPR also recruited at Duke, but as Coward would find out, MPR was a bit different.

MPR was founded in 1964 by Harry Mandil, Bob Panoff, and Ted Rockwell. Legendary nuclear engineers in their own right, all three had come out of the senior leadership of Adm. Hyman Rickover's U.S. Naval Nuclear Propulsion Program. As protégés of Admiral Rickover, Mandil, Panoff, and Rockwell built their company on those principles of professionalism and devotion to excellence that the father of the nuclear Navy was known to value.

Unfamiliar with the company at the time, Coward asked one of his professors if he could tell him anything about it. "He told me it was a top-notch outfit, real hardcore with good people, and that they work hard," Coward said. Interested, Coward met on Duke's campus with Doug Chapin, an MPR engineer and later an ANS Fellow, who told Coward about the company and the impact MPR was having on the nuclear industry.

At the time, Chapin was involved in a joint research program of the United States, Germany, and Japan. Chapin had flown directly from Germany to Durham, and was then flying to Tokyo, Japan, right after his interview with Coward. "I thought, 'Oh man, this is great stuff,'" Coward said of the jet-setting job description. "Of course, dial ahead, I go to work for MPR, and the first place I go is Oswe-

go, N.Y., and the second place I go is Seneca, S.C. So let's just say I was brought back to earth pretty quickly," he said.

Coward must have made a good impression on Chapin, as the graduating engineer was soon after invited up to MPR's headquarters, then in Washington, D.C., for another interview. Unlike other trips to interview with prospective employers, however, there would be no wining and dining. Flying in to Washington the night before the interview, Coward was on his own. Yet the drive from Washington National Airport (now Reagan National) to the hotel downtown, right past the national monuments, the U.S. Capitol, and the White House, made a deep impression on Coward. "Let's just say that for someone who, as I said, has an interest in history, that 15-minute drive had an effect on me," he said. "Especially when you're 22 years old, it's dark, and everything is lit up, and you say to yourself, 'Wow, could I work here? This would be great!'"

Coward describes his meeting with MPR management the next day as more of an interrogation than an interview. "They were more interested in asking me difficult questions about engineering and seeing if I could solve problems than they were in doing what I would call a standard interview," he said. "I found out later that what I went through that day was something akin to being interviewed by Admiral Rickover."

The company's earnest, no-nonsense interview approach, and their interest in assessing Coward's intellect over other, softer qualities, struck a chord with him. "Something about that experience resonated with me," he said. "Just their whole



Several former principal officers of MPR Associates attended the company's 50th anniversary celebration in September 2014. From left: Bill Schmidt, Alex Zarechnak, Coward, Paul Damerell, Doug Chapin, and Bob Weiner.

attitude and focus on seeking out great people who do great work. I knew that if they were to offer me a job I would take it, despite an interview day where all I got for lunch was a sandwich in an interior conference room."

When Coward started at MPR in 1983, about three-quarters of the work the company was doing was related to nuclear. This was also around the time that issues surrounding cracking in stainless steel piping in boiling water reactors were being seriously analyzed, and Coward was soon involved in conducting stress and fracture mechanics analyses of BWR piping. Also early in his career, Coward worked on the

Electric Power Research Institute's Advanced Light Water Reactor program, for which MPR was a key contractor. Later, Coward would work on the Department of Energy's Nuclear Power 2010 program, looking for ways to spur the commercial development of nuclear power.

In addition to his experience with the Davis-Besse injection pump project, Coward fondly recalls the work that MPR did starting in 2006 on behalf of the majority co-owners of the South Texas Project (STP) nuclear plant, NRG Energy and CPS Energy, which were interested in building additional units at the STP site. MPR's initial efforts were focused on an evaluation to recommend the reactor technology, followed by a detailed assessment of the ability of Toshiba to supply a design to meet the U.S. Advanced Boiling Water Reactor (ABWR) design certification.

That led to Coward's managing the effort to prepare the license application for the two new ABWRs that STP Nuclear Operating Company (STPNOC) was proposing to build. Toshiba led the contractor team, which included Fluor, Sargent & Lundy, Westinghouse, and MPR.

MPR's contributions to the team were widely felt, and because of his influence and work on the project with the STPNOC team, Coward said, he was asked by NRG and CPS to lead the STP-3 and -4 project, essentially becoming STPNOC's senior vice president for the new plant project, splitting his time between STPNOC and MPR. In 2010, however, it became apparent that the project was not going to move forward because of economic reasons (an early sign of the challenges affecting a number of operating nuclear power plants today), and Coward returned to MPR full time. It was among the most rewarding



As part of the International Expert Group providing feedback and guidance to Tepco, Coward visited the Fukushima Daiichi site in Japan after the March 2011 accident.



U.S. Sen. Mark Warner (D., Va.) joins Coward for MPR's 50th anniversary, in 2014.



Kelley and Bob at Christmas in 2009.

experiences of his career, he said, adding that he would jump back into his position with STPNOC and the new plant project “in a heartbeat” should the company ever decide to revive it.

Since joining MPR, Coward has done work with almost every nuclear power plant in the United States and has visited most of them in one capacity or another. He has, over the course of his career, become known to his colleagues as a smart and capable engineer, and in 2009 he was promoted to principal officer of MPR, taking over that seat from Doug Chapin, who had first interviewed Coward at Duke.

“I have been incredibly lucky and blessed to have had the opportunity to work at MPR and then lead it,” Coward said. “It is a very special place made up of people with outstanding qualities and potential, not just as engineers but as human beings.” To understand the difference at MPR, simply ask him to recall the company’s 50th anniversary a few years ago, when MPR bused the entire company and their families to a resort on Maryland’s Eastern Shore for a long weekend celebration. Stewardship and caring for the company and its people, and carrying on the culture of and commitment to the Rickover legacy, are always high on his priority list, Coward said.

Personal life

Coward not only found a rewarding career at MPR, he found his wife there, as well. Coward first met Kelley Baker when she was working as a fellow engineer at MPR. It wasn’t until later, however, after Kelley had left the company and subsequently returned, this time as a quality assurance manager, that a bond began to form between the two. At that point, both of their first marriages had ended, and they found themselves facing similar situations and challenges in their personal lives. They would often seek advice from each other over lunch. Coward, who said he found that Kelley makes him a better person, eventually proposed. Or, as he said, “I think it was probably closer to ‘we agreed together,’ which is how our partnership has always worked.” The couple celebrated their 10th wedding anniversary in May.

Today, Kelley, who received a bachelor’s degree from Rice University and a master’s degree from George Mason University, is a program manager for MedStar Health, working in patient safety research. In describing their relationship, Coward said that he is the ideas guy and she is the one that makes things happen, usually better than he had imagined. “It took me a long time to get used to the idea of being married to someone smarter than me, but I did, and it’s great,” he said.

The couple currently lives in Alexandria, Va., and together they have five children from their previous marriages. Coward has a daughter, Jessica, who turns 29 years old this summer and is a paralegal in Washington, D.C., and a son, Bobby, who is two years younger and is an attorney living in New Jersey. Kelley has two sons, Michael, 26, and Matthew, 24, and a daughter, Jenny, 22. Michael works in computer software sales in northern Virginia, Matthew is a structural engineer in Atlanta, Ga., and Jenny attends graduate school at George Mason University, pursuing a career in social work.

While everyone in the Coward family maintains a busy schedule, they still find time to gather together for some rest and relaxation. About five years ago, Coward and Kelley bought a beach house on the Delaware shore for the purpose of having a central location where the family could spend weekends and vacations. "It's a place where we can get together and hang out, drink some beer, and put our toes in the sand," Coward said. Also, when time allows, Coward still enjoys a game of basketball or a round of golf, although he admits that his golf handicap is now around 7, which is still not at all shabby.

Those times fill the void left by his children's growing up and moving on, Coward said. Some of his most treasured activities, and the focus of his life outside work prior to his children reaching high school, was giving his time to his children's sports teams. Often the head or assistant coach for up to three teams each season, Coward is proud of the impact and influence he had on not only his own children, but others as well. Recalling a particularly proud moment, he said, "Several years later, a parent saw me and commented that they had asked their daughter how she was able



A proud father with daughter Jessica in 1988.

to do so well on the high school basketball team, and she had responded, 'Because Mr. Coward taught me really well—the fundamentals and how to be effective as a teammate.' That is what it is all about, and it made me feel very good."

ANS

A registered professional engineer, Coward joined ANS in 2001. He said that his primary goal as ANS president is to help make the society more relevant and to do so in a way that brings the members of ANS together. He doesn't shy away from his position as coming from the power side of nuclear technology, and says that the power sector is an important part of ANS. "I believe it will be difficult for ANS to be as successful and influential as it would like to be without a thriving nuclear power sector and without an ANS engagement in

that," he said. "And right now, that sector is experiencing some stress, and ANS's engagement with it is not strong."

Throughout his professional life, Coward has built working relationships with a number of nuclear leaders and organizations, including the DOE, EPRI, and the Institute of Nuclear Power Operations, as well as ANS and the Nuclear Energy Institute. He said that he understands how such organizations work and how each, in its own way, contributes to the success of nuclear technology.

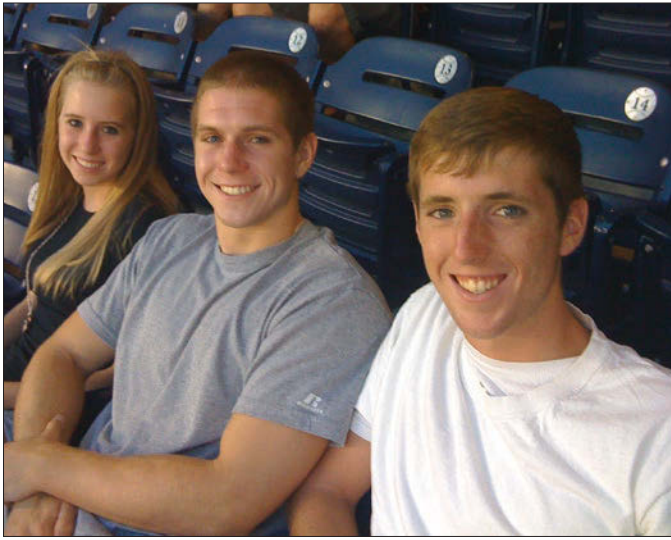
In particular, Coward notes the congruent yet at times conflicting roles played by ANS and industry groups such as NEI. Such trade organizations, Coward said, primarily work to promote a specific company or industry, while as a professional organization, ANS works foremost to represent people, helping to promote the



Four generations hit the golf links in the mid-1990s. From left, Bob Sr., Phil Schwalje, Bobby, and Bob.



With his mother, Phyllis, at her home in the early 2000s.



Jenny, Michael, and Matt enjoy a baseball game at Washington Nationals Park, a favorite family venue during the summer.



Jessica and Bobby on vacation in Cape May, N.J., in 2005.

professional development and success of the individuals working in the industry. “I believe that both of those perspectives, while different, are needed and valuable,” he said. “And getting everybody on board with that is important.”

Coward also said he believes that because of its independence, there are things that ANS can do that other in-

dustry organizations would have trouble doing. For example, he said, when the industry tries to promote changes to policy or regulations, even if they are beneficial to the public, it is seen as self-serving because it directly affects individual businesses. Improving the effectiveness of ANS programs would serve to help both the industry and individual profession-

als, he added.

In the end, Coward said, it will take some teamwork and a bit of hard work to help ANS reach its full potential. Fortunately, he is very familiar and comfortable with both of those attributes. As he says of his team at MPR, “You don’t get to the all-star game without working a little harder than everybody else.” **NN**



Kelley and Bob hike the Grand Canyon earlier this year.