Bob Holland: Introducing young people to the nuclear industry

Bob Holland, a career nuclear Navy man, joined the Shaw Group’s nuclear division in 2006 to lead an effort to recruit young people to the commercial side of the nuclear power industry. As manager of training and development, Holland is in charge of the company’s new scholarship/internship program, which is run in conjunction with the University of Massachusetts at Lowell (UMass Lowell). In 2007, the program’s first year, seven engineering students were awarded with tuition scholarships to attend UMass Lowell during the school year, and with paid internships to work at Shaw during the summer months. The program seeks to introduce these students to the nuclear industry, the hope being that they will eventually choose nuclear as a career. Shaw is now in discussions with other Massachusetts universities to establish similar scholarship programs. In addition, Holland suggests, scholarship programs could be set up by other companies in the industry to draw young people as prospective employees.

Holland retired from the nuclear Navy in September 2006 after a career as a nuclear submariner. During his 30 years in the Navy, which included an interview with Adm. Hyman Rickover to gain acceptance into the nuclear program, he was an engineer, a junior officer, an executive officer on a Trident submarine after the Cold War, and a commanding officer of a fast-attack submarine during U.S. military operations involving Bosnia-Herzegovina. He also served as commodore of a submarine squadron, in charge of 10 submarines.

Holland calls submarining a young man’s game because of the length of time a vessel stays at sea, sometimes for as long as six months. After more than 20 years in the Navy, most of them aboard a submarine, he landed behind a desk on dry land as the head assignment officer for the submarine community, responsible for assigning enlisted personnel and officers to the Navy’s 110 active submarines. Soon after, he was put in charge of assignments for almost 400,000 Navy personnel.
His twilight tour with the Navy, from 2003 until his retirement, was as professor of naval science, teaching courses at Harvard University, the Massachusetts Institute of Technology, Tufts University, Boston University, Boston College, and Northeastern University. During this time, he mentored about 220 students per year who were enrolled in the Naval Reserve Officers Training Corps, leading to their commissioning in the Navy or the Marine Corps.

When he retired from the Navy, Holland wasn’t ready to sit on the shore with a fishing pole in hand, so he joined Shaw last year, still having the desire to work with young people and introduce them to nuclear power. Shaw is a pioneer in design, engineering, maintenance, construction, startup and test, and new plant services. Shaw and Westinghouse Electric Company, its AP1000 Consortium partner, were recently selected to build the first four nuclear power plants in China’s nuclear expansion program.

In this interview, Holland talks about the Navy’s influence on the commercial side of the business and about the scholarship/internship program he now leads for Shaw. Shaw’s program, by the way, was the subject of a presentation that Holland made at the American Nuclear Society’s Annual Meeting in Boston in June. The interview was conducted by Rick Michal, NN senior editor.
vice president for operations, and Dave Barry, president of Shaw’s nuclear division, meet over lunch with our new employees and student interns to discuss their own career paths and experiences. The formal mentoring program, on the other hand,

hooks up our veterans with the young people who are already employed by Shaw, in one-on-one long-term career counseling and advisory roles.

Meanwhile, the scholar/intern program is for college students who we want to bring into the nuclear industry. The participants gain financial support for classroom education, and also gain invaluable funded hands-on experience, working alongside skilled professionals in the nuclear field.

How did the scholar/intern program develop?

Michael O’Connell, a Shaw employee, set it up with Prof. Gilbert Brown, of the nuclear engineering program at UMass Lowell. The two of them were talking at an American Nuclear Society local section meeting about how important it was to get a nuclear engineering person on the departmental advisory board at the university because of the input the board provides to the curriculum and accreditation effort. Michael brought a real-world perspective to the campus meetings to show that the demand signal was growing for nuclear education. One of the challenges discussed by the board was how to get more people into the nuclear pipeline. Shaw decided it would be a good idea to provide scholarships as a way to introduce students to possible careers in the nuclear industry. Shaw offered $20,000 to establish the scholar/intern program at UMass Lowell. That’s when I came on board with the company, so I took on heading the effort to set up the program. It turned out that the state of Massachusetts would match our funds, and so combined, there was $40,000 available for the program. As part of the program, we also set up summer internships at Shaw for the students. These are paid internships, at very competitive wages, so the students are making decent money for their efforts. We are very flexible, too. We realize that a lot of them want to go on family vacations or be with friends during the summer. They told us when they wanted to work and we were flexible with them on it.

Are the scholarship winners all nuclear engineering majors?

No, on the contrary, only one of the seven students in the program is studying nuclear engineering. We are hoping that because of their internship experience, some of the others will opt to pursue nuclear engineering technical electives as part of their majors.

How did the students qualify for the program?

At UMass Lowell, the engineering dean’s office coordinator, Bette Fortin, advertised it to the engineering classes. At the start of the year, the students filled out standard scholarship request forms. They provided their resumes and had to show that their grade point average was at least 3.0. They also had to be engineering majors. For the first year of the program, there were about 30 applicants. From there it was reduced to 20 prospects. I did a phone interview with a number of them, but some weeded themselves out because they weren’t really interested in doing the internship, they just wanted the scholarship money. A selection process ultimately picked the top students. Once they are in the program, we look at their grade point averages every semester. We give them a warning letter if their grades aren’t up to standards. If they turn their grades around, they are kept on scholarship. Those who cannot may have the scholarship suspended, but we still retain the ability to keep them on as interns as an incentive while they work on improving their classroom performance.

For all students in the program, we offer winter semester break and summer internships. At the end of each internship opportunity, they fill out a feedback form to let us know what we can do to improve the program. At the same time, their immediate supervisor on the job provides comments on whether or not to continue to invite the student back to the program. So far, we’ve found that every one of the students is a fired-up individual. It’s been a very positive experience for all of us.

What is the breakdown by class year of the students?

Of the seven, there is one senior, one junior, and the other five are freshmen. Besides the other requirements, the senior was selected because we are hoping that he will come to work for us upon graduation, so it would be a quick return for our work in setting up the program. The junior was selected because it looks like he is going to opt to take the nuclear engineering electives as part of his mechanical engineering program. And then, the freshmen—three of whom are women, by the way—at this point are still investigating which path to take. But that’s okay, because if they become civil engineers, chemical engineers, or mechanical engineers, they’re going to be needed for building new power plants. Our thought was to involve them early in their university experience.

What are your expectations for hiring these students once they graduate?

We entered into this program realizing that not all seven or eight students per year are going to come work for us. We would like to hire a majority of them, but the real goal is to raise the overall profile of power generation careers for the mechanical, electrical, civil, and chemical engineers who are not familiar enough with our industry because the industry has not been at colleges supporting or recruiting them.

What do the interns experience while on the job?

We worked with Florida Power & Light, which runs the Seabrook pressurized water reactor in New Hampshire, to allow the interns to spend a day at the plant. Going forward, they’ll be visiting Pilgrim, a boiling water reactor in Massachusetts. We’ve also started a mentoring program for them to work side by side with our employees at Shaw. Students are currently working on domestic AP1000 construction preparations, China AP1000 support efforts, and various site-specific jobs, such as for the Millstone nuclear plant. At our offices in Stoughton, Mass., we have a group of 25 young employees who are going through training now. We incorporated the interns into that group, so the interns have a peer group. Some of the young employees have
worked elsewhere, so they have a lot of
good experience that they can relate to the
young interns.

In addition, we funded every one of the
interns to go to ANS’s national meeting in
Boston this year. They were able to get
more involved with the younger folks in the
industry and see the spectrum of what is go-
ing on in nuclear power, not just what we
do at Shaw.

Will your program be funded each year?
Yes. We have dedicated ourselves to it,
and we’ll eventually expand it at UMass
Lowell and enter into new partnerships with
other schools. We’re working with Gil
Brown and his colleague, Prof. John White,
to develop nuclear courses that may be
given to our employees or exported to other
Massachusetts state colleges. Regarding in-
ternships, we’ve entered into informal
agreements with Northeastern University
students who would intern with us for
six months and then go back to school
for six months. We just brought in our
first intern from the Massachusetts Mar-
time Academy, a state school that pro-
vides a lot of em-
ployees for the two
operating plants in
the area—Seabrook
and Pilgrim.

We’ve also entered into initial talks
with Tufts University, where full tuition
for one student is about $35,000 per year.
Instead of paying for all of that, we’re
talking about funding a single student’s
design project, which could be done at a
cost of a few thousand dollars. We would
then have that student come down to be
mentored by our engineers in Stoughton.

Do you see the program funding only eight
students at one time, or would a new set of
eight get funding each year, so that after
four years the program would be funding
32 students?

While we currently fund just eight per
year at UMass Lowell, we are looking to
add some additional billets there. But we
are also attempting to spread the wealth
among diverse campuses in other areas.
Examples include Drexel, out of Philadel-
phia, for our office in Cherry Hill, N.J., and
the University of North Carolina at Char-
lotte and North Carolina State University
for our office in Charlotte, N.C. In addition,
students and faculty from various univer-
sities across the country contact us about
internship opportunities. Students who at-
tend far-flung campuses but happen to live
near our corporate offices when school is
not in session are sometimes available for
a cooperative work experience while resid-
ing at home. We diligently work to try to
match up qualified students with worth-
while job experiences in these cases as well.

Can other companies adopt this program?
Yes, it is easily transportable. We en-
courage other companies to get engaged at
the college level—by participating in fresh-
man engineering lectures, for example—to
inform students about power and, more
specifically, the nuclear industry, before
they start thinking about majors and possi-
bile careers. We’re more than willing to help
any company that wants to do something
like this. There’s a lot to be gained from it.
For example, we’ve found that the enthusi-
amism of our senior employees has improved
by having the young workers in the office
building, adding a bit of energy to the whole
unit. I can’t see why other companies
wouldn’t want to do it.

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