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SHAW SETS HIGH STANDARDS FOR NUCLEAR WORKFORCE





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By Roxanne C. Hare

The Shaw Group is building the first new nuclear power plants awarded in the U.S. in approximately 30 years. With contracts for four new Westinghouse AP1000® nuclear power plants in China and four in the U.S., Shaw is helping to bring the most technologically advanced nuclear power plants online.

Shaw's history of more than 60 years in the nuclear power industry gives the company a unique position. Its experience spans the complete life cycle of nuclear power plants, from engineering and design to decontamination and decommissioning.

Through legacy acquisition company Stone & Webster, Shaw built the first nuclear power plant in the U.S. at Shippingport, Pa., which began operation in 1957. Now, Shaw is staffing new nuclear construction projects at the Vogtle Electric Generating Plant in Georgia and the V.C. Summer Nuclear Station in South Carolina. Both sites are contracted for two new AP1000 nuclear power plants each.

At peak, each of the new projects will require approximately 3,500 skilled workers including journey-level welders, as well as pipefitters, electricians, instrument technicians, carpenters, concrete finishers, reinforcing ironworkers, structural ironworkers and millwrights at both the journey level and below.

"Shaw's history includes building 18 new nuclear power plants," Jeff Merrifield, senior vice president of Shaw's Power Group, said. "Today, Shaw is the largest provider of outage services in the U.S., servicing 44 of the country's 104 operating units – more than 40 percent."

Because of the breadth and scope of Shaw's work, the company has several business areas to utilize. Shaw provides engineering and construction services for all types of power plants, including nuclear, clean coal and gas. The company also provides maintenance, modification and outage services specific to nuclear plants.

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(Nuclear Workforce continued)

“We have 11,000 to 12,000 people in the field working at nuclear plants conducting modifications and outage work. These employees have been maintaining nuclear power plants for 20 plus years,” Merrifield said. “We also have been conducting engineering modifications for 40 years. And, we are building the Mixed Oxide Fuel Fabrication Facility for a government nuclear nonproliferation initiative; so we can tap into a big cadre of workers.”

Even in the absence of new U.S. nuclear plant construction, Shaw has performed comparable work in recent history – the 2007 restart of the Tennessee Valley Authority’s Browns Ferry Nuclear Plant Unit 1, which had been out of operation since 1984.

“That project was the most similar environment imaginable to new construction without it being new construction,” Merrifield said.

Shaw’s extensive nuclear work history gives the company a thorough understanding of specific requirements of the heavily regulated nuclear industry. Nuclear work performed in the U.S. must meet the guidelines and requirements of the Nuclear Regulatory Commission (NRC).



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NCCER is proud to support successful contractors like Shaw in the power market with not only our traditional craft curricula and assessments, but also through our new power-related curricula, including:

- Power Industry Fundamentals
- Power Generation Maintenance Electrician
- Power Generation I&C Maintenance Technician
- Power Generation Maintenance Mechanic

In the future, NCCER will also be conducting comparative analyses of our traditional craft curricula as they relate to industrial crafts in the nuclear construction environment.

Customize Your Training Using the New Digital Custom Library

NCCER and Pearson are pleased to announce the launch of a digital module library this spring. This library allows for individual module study, remediation, as well as a means to obtain the training recommended through NCCER’s National Craft Assessment Program.

When an NCCER assessment is taken and an individual receives a training prescription, the digital module library will allow the candidate to purchase and download a specific module or modules. This new functionality will allow candidates to focus their preparation on the module exams identified in the assessment training prescription. ■

“The NRC is very specific about its requirements on how nuclear plants are built, and there is strict enforcement,” Merrifield said.

For example, at nuclear sites rebar must be installed with tighter tolerances, and there is heightened safety awareness. As a result, Shaw hires and trains employees accordingly.

“Before our workers start to turn a wrench, there are specific training modules they are required to go through,” Merrifield said. “That includes safety-related training, training on quality assurance and training on NRC requirements.”

A significant NRC rule is that journey-level craft employees be able to verify their qualifications through a written assessment and performance evaluation. Typically, these employees are craft workers who are certified in their specific areas through official industry channels, whether merit or union shops.

Shaw takes steps not only to meet the NRC requirements but also to raise the bar. Instead of asking its journey-level craft employees to be certified, Shaw requires them to become “Certified Plus” through NCCER. This higher standard of certification crosses multiple construction areas, including those related to nuclear construction. It results in a better qualified workforce and greater confidence in employees’ performance, according to Ralph Heath, workforce development manager at Shaw’s V.C. Summer project.

“It is to Shaw’s advantage to employ highly skilled journeymen that become Certified Plus,” Heath said. “The NRC requires that we be able to prove the qualifications of every journeyman for every task they perform.”

NCCER plays an important role in helping Shaw achieve quality training. As an NCCER-Accredited Sponsor, Shaw benefits from partnering with an organization that has created a national standard of training and skills assessments, resulting in portable credentials workers can apply in many industries. This gives Shaw confidence in hiring those who previously completed training or assessments through NCCER-Accredited Training Sponsors and Assessment Centers.

Shaw employees who are not already Certified Plus can upgrade their skills through Shaw’s module-by-module training program, which utilizes NCCER curricula. Employees are trained and assessed on each skill of their craft and, if necessary, can receive additional training and retake assessments in order to become Certified Plus.

In addition, NCCER’s training is required in order for a Shaw employee to reach journey level. No employee below journey level may be promoted without NCCER craft training, and no uncertified journeyman can perform journey level nuclear work at Shaw. Depending on the craft, NCCER’s curricula includes between 180 to 960 formal hours, including classroom and hands-on training. Shaw covers most of the training costs for employees enrolled in an NCCER program.

“NCCER training is an investment in Shaw’s future,” Heath said. “We may be employing these workers for multiple projects or for the duration of nuclear projects, which typically last longer than others.”

In addition, Shaw takes training a step further by preparing some craft professionals for foremen and supervisory roles in an-

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icipation of future positions needed.

Throughout the entire cycle of nuclear work, Shaw implements the nuclear Safety Conscious Work Environment (SCWE), which emphasizes the responsibility to perform work safely and correctly. SCWE also encourages employees to raise safety concerns to management or the NRC without fear of retaliation.

“We question everything and follow best practices to ensure work is being done safely, not only for our employees but also for the preservation of nuclear safety culture and communities,” Heath said.

All new craft employees at Shaw’s nuclear construction projects must complete 30 hours of safety training during their first week of employment and before they gain site access. Shaw also requires each craft employee to complete at least 40 hours per year of safety training. In addition, job safety analyses are required prior to the performance of every project-related task. This helps to ensure overall project safety, as well as compliance with NRC safety guidelines.

The NRC’s current practice of using a combined license (COL) to bring new nuclear plants online builds inspections into the construction process. Once on-site construction under a nuclear safety standard begins, the NRC verifies and inspects work throughout the construction process. The agency sends waves of inspection teams and positions a resident NRC inspector at the site. There are many advantages to the simultaneous inspection and licensing process, one being efficiency. Historically, it has taken up to a year and a half to inspect a completed plant.

“The COL and on-site inspector give us an advantage because it allows real-time feedback as to how we’re performing,” Merrifield said. “A resident inspector can see the total scope of the project and recognize the significance of certain issues. This setup engenders itself to two-way communication.”

In February 2012, the Vogtle project received the first-ever NRC-approved COL, marking a crucial milestone in the history of the project and new nuclear construction activities in the U.S.

“Shaw is proud to be part of such a historic project,” said J.M. Bernhard Jr., Shaw’s chairman, president and chief executive officer. “Not only is this milestone another step forward in continuing to provide safe, clean and reliable energy for the future, but the project also will create thousands of jobs and provide numerous long-term benefits for the community.”

With that community focus in mind, Shaw partners with schools, colleges and training facilities in order to help hire, train and retain its workforce. This, combined with Shaw’s own training activities, demonstrates a proactive approach to workforce development in the unique environment that is nuclear construction. ■



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