

TIP AWARDS

Welding process at Calvert Cliffs wins Best of the Best Award

A Constellation Energy Nuclear Group (CENG) team at the Calvert Cliffs nuclear power plant in Maryland has won this year's B. Ralph Sylvia Best of the Best Award, the most highly prized of the Nuclear Energy Institute's Top Industry Practice (TIP) awards. CENG's winning entry—known as Mini-ID Temper Bead Welding—is a first-of-its-kind welding process that improves the efficiency and safety of equipment replacement at Calvert Cliffs and is adaptable to nearly 70 U.S. reactors.

The CENG team streamlined the welding required to install pressurizer lower head heater nozzles and level nozzles, reducing weld completion time by more than 75 percent and weld material volume by 90 percent. Worker safety was also significantly enhanced, because the technique permits the nozzle replacements and other nearby maintenance activities to be conducted with better radiation protection. In addition, the new nozzle welding process has the potential to save electric utilities and their customers hundreds of millions of dollars, due to the cost savings that will result from these operational efficiencies.

NEI's annual TIP awards recognize nuclear energy industry innovators in 14 categories—four reactor vendor awards and nine process awards—for innovations that improve safety, efficiency, and nuclear plant performance, plus an award for vision and leadership.

"Innovations like these, spanning processes, training, and operational improvements, have helped America's nuclear energy facilities increase electricity production by 34 percent since 1990," said NEI Senior Vice President and Chief Nuclear Officer Anthony Pietrangelo. "The Nuclear Energy Institute is proud to acknowledge the dedicated industry professionals whose hard work and commitment to safety and excellence has yielded these excellent results. For each winning entry, there are scores of other innovations in the competition that can be adopted industry-wide."

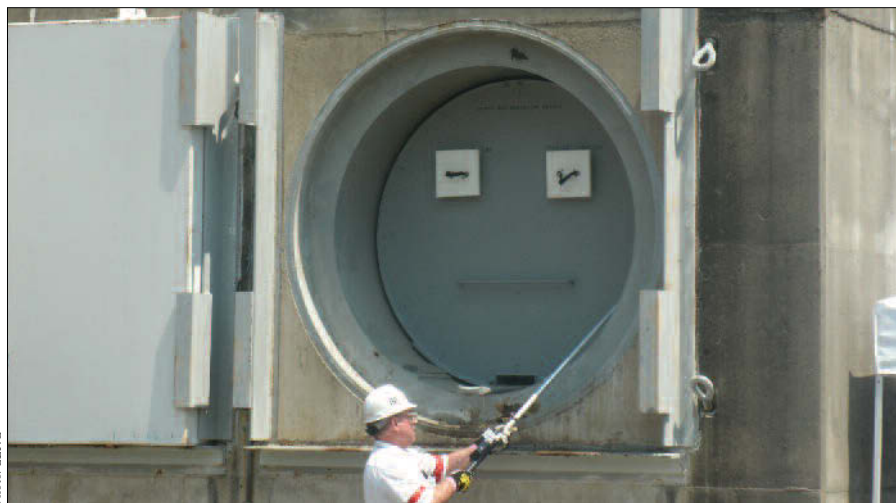
Vendor Awards

Duke Energy employees at the Oconee nuclear plant in South Carolina were winners of the Areva Vendor Award for their new approach to reactor vessel inspections. The Duke team implemented new industry

NEI's annual Top Industry Practice awards spotlight the nuclear power industry's leading innovators, as well as their safety- and performance-enhancing innovations.



Best of the Best: At Calvert Cliffs, the remote weld head delivers the new stainless steel heater sleeve. Once the sleeve is delivered, the weld head is used to make the ID Temper Bead weld of the sleeve to the pressurizer.

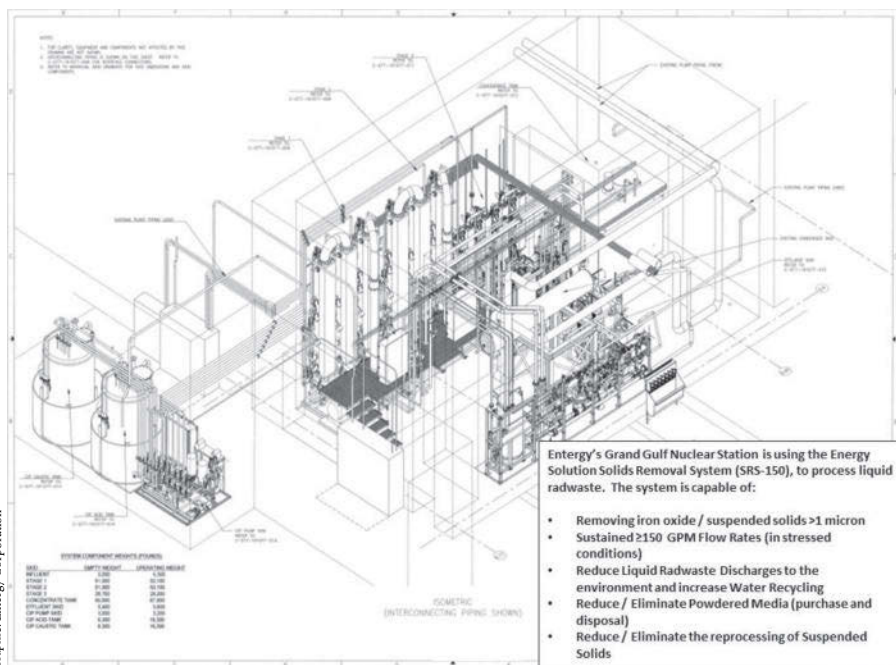


Vision and Leadership: With the shield tank fully inserted in Horizontal Storage Module-1, a radiological controls technician measures dose rates at Calvert Cliffs. The shield tank has polyurethane plugs installed to reduce streams from fork lift prong openings.



Photo: NEI

Accepting this year's B. Ralph Sylvia Best of the Best Award are, from left, Mike Rencheck, Areva CEO; Lennie Daniels, CENG senior project manager; and Emran Hussain, CENG principal engineer.



Graphic: Entergy Corporation

Entergy Grand Gulf's Improved Liquid Radwaste Processing system.

guidelines for the inspection and evaluation of reactor vessel internals—a single, all-encompassing inspection process that reduces the number of workers required and cuts costs by avoiding the need for multiple inspections.

■ Exelon Generation employees at the Clinton plant in Illinois garnered the GE Hitachi Nuclear Energy Vendor Award for the development of annual fuel cycles, which improved the fuel efficiency and cost-effectiveness of their reactor refuelings. Compared with the standard industry practice of refueling every 18 months or two years, Clinton's annual refueling outages have saved approximately \$20 million in

fuel costs every two years, while maintaining operational safety and efficiency.

■ Dominion Generation employees at Virginia's North Anna nuclear facility took home the Westinghouse Design Vendor Award for their Emergent Fuel Assembly Capture Tool Project, which allowed plant personnel to safely move a fuel assembly that was determined to be out of position in the reactor during a refueling outage. With assistance from Westinghouse, the Dominion team developed tools and procedures that enabled workers to precisely reposition the fuel assembly.

■ NextEra Energy employees at Florida's Turkey Point and St. Lucie plants, along

with a team from Wisconsin's Point Beach nuclear plant, shared the Westinghouse-Combustion Engineering Design Vendor Award for their power uprate program. The five-year project, which added more than 700 megawatts of additional generating capacity at the plants' six reactors, included 11 regulatory amendments, 300 design modifications, and 27 million person-hours worked in collaboration with more than 100 different suppliers and vendors.

Process Awards

NextEra Energy employees at St. Lucie and Turkey Point were also recipients of this year's Community Relations Award for a program that illustrated the value of nuclear energy via communications about the Florida Power & Light power uprate program. The outreach program used both traditional and social media, as well as a number of different communication activities and spokesmen, to promote the uprates at FPL's four Florida reactors. The multiyear project garnered strong media coverage and extensive community support.

■ Team members at Entergy's Grand Gulf plant in Mississippi earned this year's Operate Plant Award for their Improved Liquid Radwaste Processing water filtration innovation, which uses a filtration membrane to remove particles as small as 1-millionth of a meter (1 micron) from plant drain water without producing the conventional filter system by-products. With the use of this filtration process, the system substantially raises the plant's overall water treatment effectiveness.

■ Exelon Generation employees at the Limerick plant in Pennsylvania captured the Equipment Reliability Award for devising a new method for analyzing the performance of steam relief valves. By using ultrasonic detectors, the Limerick team was able to obtain a more accurate analysis of each valve's operability. As a result, the need for unscheduled maintenance to repair leaking relief valves was reduced, which will save an estimated \$7 million over the next four years.

■ CENG employees at Calvert Cliffs, winners of the B. Ralph Sylvia Best of the Best Award, were also presented with the Maintenance Award for the Mini-ID Temper Bead Welding innovation (see above for description).

■ Employees at Entergy's headquarters were acknowledged with the Materials and Services Award for a fuel failure detection process that identifies small fractures in boiling water reactor fuel tubes. With early fracture detection, operators can protect affected tubes and minimize further damage. The detection process also improves worker safety by reducing radiation exposure and avoids the potential costs associated with fuel repairs.

■ FirstEnergy employees at the Beaver Valley plant in Pennsylvania and the Davis

Besse and Perry plants in Ohio received the Management Processes and Support Services Award for their Proactive Integrated Equipment Reliability and Strategic Sourcing initiative. The initiative increases plant safety by improving equipment reliability through focused preventive maintenance activities, enhanced work planning, and replacement component management.

■ An employee at Exelon Generation's Braidwood plant in Illinois won the Plant Support Award for his "Total Recall" X-ray machine innovation. The design, which features a swinging door that triggers a full X-ray scan of all items that enter the plant's security scanning devices, addresses an important security challenge. This simple, low-cost innovation also has the potential to save millions of dollars by replacing additional hands-on checks of materials by security personnel and shortening the time workers spend processing through plant security.

■ American Electric Power employees at the Cook nuclear plant in Michigan were recognized with the Nuclear Training Award for developing virtual simulation technology to enhance training. The system features a large, state-of-the-art touch screen to support virtual simulation of control-room panels and safety-related field equipment used in the chemistry training program. Capable of supporting 30 trainees, the new system enables realistic training on safety-related equipment without affecting plant operation. The system provides excellent training for employees and saves the cost of purchasing and adapting duplicate equipment for training purposes.

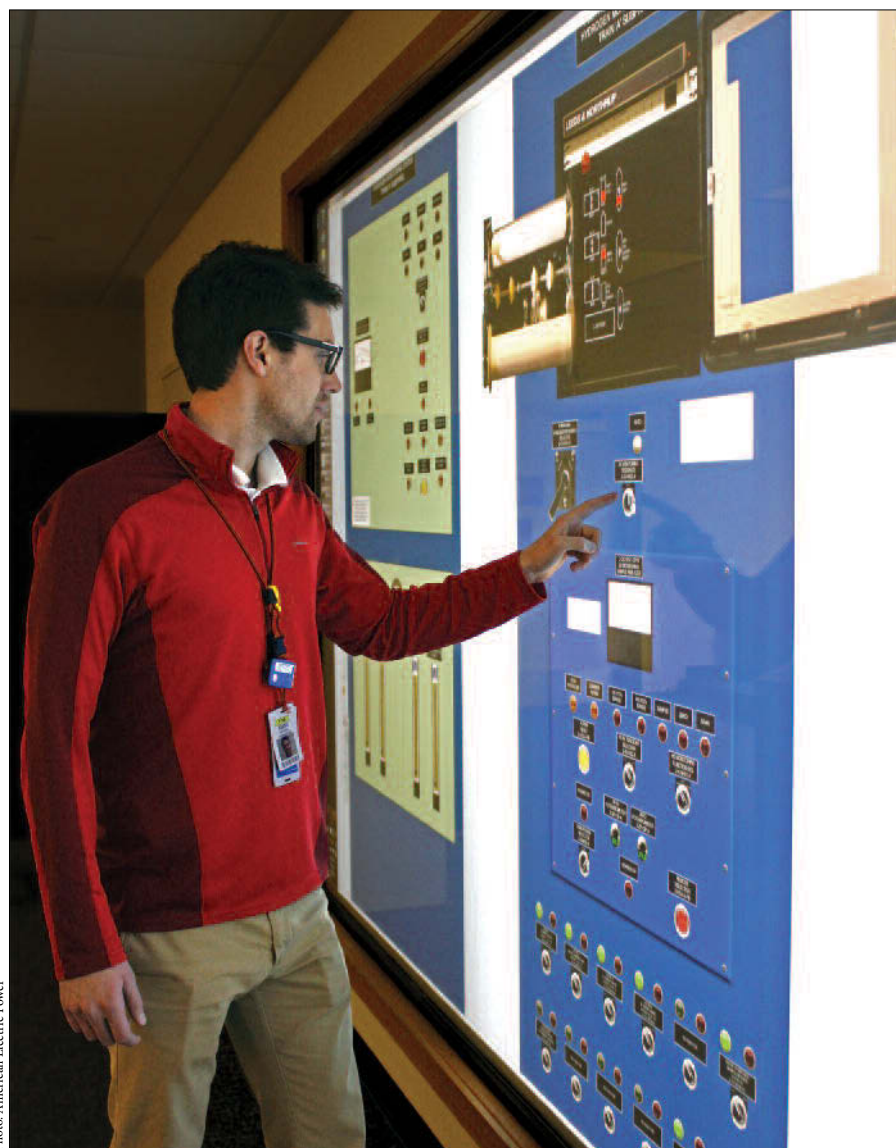
■ Employees of Exelon Generation at the LaSalle plant in Illinois were honored with the Fuel Award for their used fuel pool storage rack innovation. To solve a challenge associated with the degradation of material used to control radiation in the racks that hold used fuel assemblies in on-site storage pools, the team designed snap-in, thin metal sleeves that fit inside each fuel rack. The metal inserts improve fuel storage safety; are permanent, easy to install, and cost-effective; and can be adapted for use at many other U.S. nuclear energy facilities.

Vision and Leadership Award

■ Employees at CENG's Calvert Cliffs plant won the Vision and Leadership Award for the development of an inspection process and tools to assess the integrity of nuclear fuel dry storage modules and the canisters inside them that hold used fuel rods. The Horizontal Dry Storage Module Internal Inspection and Dry Shielded Canister Surface Sampling process increases safety across the nuclear energy industry by establishing the ability and tools needed to effectively monitor the condition of storage modules and canisters and extend the period of time that the dry storage containers can be used. **NW**



Braidwood plant senior maintenance electrician Jim Walcher, left, demonstrates for Exelon's Chief Nuclear Officer Mike Pacilio his "Total Recall" security solution, designed to ensure that all contents placed on site security X-ray machines are fully screened.



The plant simulation department at Cook developed a classroom, touchscreen, and software that enhance training through virtual simulation. Virtual panels include control room panels and select safety-related field equipment.