Innovation, cooperation key factors in WESF upgrades

Connie Eckard, FH

Melissa Herron (left), Pete Pena and Bill Greger of Fluor Hanford attach a wire basket to a cable bundle as they prepare for a wire pull during electrical upgrades at the Waste Encapsulation and Storage Facility. Greger and Pena are electricians with the Waste Management Project, while Herron is with the Nuclear Material Stabilization Project.

The finishing touches are being made on a significant electrical safety upgrade project at the Waste Encapsulation and Storage Facility in the 200 East Area. The upgrades are correcting some long-standing deficiencies that contributed to an electrical arc flash that burned an electrician and resulted in a lost-time injury.

WESF was built in 1974 to encapsulate and store cesium and strontium in deep water-filled pools. As long ago as 1990, some major deficiencies were identified with the facility's electrical system. Recommendations were made to correct the deficiencies, but there were more deficiencies and problems than there were dollars in the budget for corrections.

"We were only able to nibble away at the corrections, a little bit each year," said Dewey Robbins of Fluor Hanford and the Waste Management Project, who was coordinator of the upgrade project.

During fiscal year 2000, Waste Management Project personnel worked closely with Bill Ruhlman, the Department of Energy Richland Operations Office facility representative for WESF, and Sen Moy, the DOE-RL WESF program manager, to make senior management aware of the funding importance of the upgrades.

Moy included the safety factor when he made a pitch for funding to his manager. George Sanders agreed, and brought the issue to the attention of DOE-RL senior management. "It was a funding issue," said Moy, "and George made a push to get the resources from RL people like Sandy Johnson, Rich Holten, Mat Irwin, Beth Bilson, Paul Kruger and Keith Klein.

"Senior management recognized the issue and went to bat for funding the upgrades," said Moy, acknowledging the team that successfully got the job done. DOE found $700,000 to fund the necessary upgrades, and in July 2000, money was assigned to the project.

Assessing needs

Detailed planning went on for six months as WESF personnel determined that five specific electrical upgrades were needed at the facility. Finding the additional electricians who were needed to do the work proved to be another challenge.

"There were reels of wire to be installed, and we figured we would need eight or nine electricians for the job," said Robbins. "We had three electricians, so we borrowed some, brought in a temporary and decided we had to get the job done with them. They quickly came together as a team, and as they came up to speed they worked faster and their efficiency improved."

The project has been under budget and has had an excellent safety record. In the hundreds of hours worked so far, not even a single first-aid case has been reported.

Continued on page 6.

Innovation, cooperation key factors in WESF upgrades, cont.

"We're proud of the way the electricians have 'dug in' to complete the projects," said Robbins. "The electricians were well organized, the work was well planned, the configuration work was done quicker than expected and the conduits were cleaner than we anticipated."

The biggest part of the upgrades was pulling electrical cables from substations outside into the facility's motor control centers. The second biggest part was adding ground fault interrupters that fit on the breakers to sense small amounts of electricity loss. The interrupters actually trip the breakers to keep a ground fault from growing bigger or causing a short circuit to develop.

A temporary power cable was installed this s spring for the distribution of electricity during feeder pulls at WESF.

Productive team

Ruhlman was impressed with the way the non-WESF electricians were totally integrated into the working team. "This extremely tedious work was done safely and professionally," he said. "There was coordination to assure that electrical interruptions had minimal impacts on operations. And there were innovations to increase productivity and safety.

"Mike Storm of Fluor Hanford deserves a lot of credit for the overall success of the project," Ruhlman said. "In addition to providing top-notch engineering expertise, his day-to-day involvement with the electricians embodied the spirit of ISMS and was vital to completing the work safely, on schedule and within budget."

Refurbishing the electrical breakers, the fifth and final upgrade, is still under way. Eleven breakers are being sent back to the vendor, where the breakers are refurbished and tested before they are returned to be put back in service. The magnitude of this upgrade is more easily understood when it is realized that each breaker measures 18 inches by 18 inches by 18 inches and weighs 300 pounds. Handling the breaker is somewhat like grappling with a small safe.

Melissa Herron of Fluor Hanford terminates temporary electrical power to the temporary power panel at the Waste Encapsulation and Storage Facility in the 200 East Area.

"Each of the breakers is at least 25 years old," Robbins explained. "We are taking them out one at a time and sending them to the vendor for refurbishing, which costs approximately $1,500 apiece. We essentially get a new breaker that's been tested back from the vendor. A brand new breaker costs around $25,000."

The breaker work is on schedule to be completed by the end of the fiscal year. ✦