



*Morning sun on D Reactor, before cocooning operations began.*

## Small Business Tackles

# BIG Challenge

*Hanford contracts with small businesses on D&D projects.*

By Ken Powers and Mark Lesinski

The current federal administration established the President's Small Business Initiative to increase participation of small companies in business by having governmental agencies lead the way. The U.S. Department of Energy's Office of Environmental Management has been promoting the concept with a variety of contract approaches. At the Hanford Site, one large company has successfully integrated small business into the ongoing clean-up efforts.

### BECHTEL'S SMALL BUSINESS STRATEGY

The Bechtel Hanford Inc. Environmental Restoration (ER) Project has been under way since 1994. (Bechtel Hanford manages the ER Project for the DOE's Richland Operations Office.) Great strides in the cleanup of the Cold War legacy at that site could be (and have been) the subject of many articles. This article, however, is focused on how the relationship between one large business, Bechtel Hanford, and a small local business, Federal Engineers and Constructors (FE&C), helped each other to tackle technical



*Ready to raise the roof.*

work scopes, create opportunities for growing small businesses, and still meet safety, schedule, and budgetary goals.

Small businesses have been an integral part of the Bechtel Hanford cleanup strategy at Hanford since the ER Project began 10 years ago. A case in point is the construction of a new 75-year safe storage enclosure for D Reactor, one of nine surplus plutonium production reactors located on the Hanford Site. Bechtel Hanford awarded the D Reactor roof contract to FE&C in 2003. The project is to be completed by September 30, 2004. Bechtel Hanford does not have a formal small business set-aside program. It is the company's preference, however, to seek bids exclusively from small businesses when enough qualified small businesses have expressed interest in a project.

Richland-based FE&C also has performed complex radiological remediation at the Hanford 618-4 and 5 Burial Grounds under contract to Bechtel Hanford. FE&C's roof construction and soil remediation work has included removal of more than 1.3 million tons of materials contaminated with asbestos, lead, polychlorinated biphenyls (PCBs), chromium, barium, beryllium, uranium oxide, uranium metal, and other radionuclides. These projects have been completed with zero lost-time incidents, within schedule, and under budget. FE&C is proving its ability to mitigate risk through strong project management, safety management, and related skills. Currently the only small business with a Hanford Atomic Metal Trades Council labor agreement to perform service contract work at Hanford, FE&C employs more than 100 professional and craft personnel. As Dick French, president and chief executive officer of FE&C, says, "We are

pleased that Bechtel Hanford has allowed small businesses numerous opportunities to show their capabilities by assisting in remediation and D&D work activities."

#### D REACTOR SAFE STORAGE ENCLOSURE PROJECT

The D Reactor was permanently shut down on June 26, 1967, and since that time has been in a condition of minimum surveillance and maintenance. Several areas of the facility are in an advanced state of deterioration, particularly the roof sections. Surveillance and maintenance activities for this reactor building have consisted of short-term actions, which are adequate to protect workers, the public, and the environment but are not considered adequate to ensure stabilized, long-term storage. Decommissioning and decontamination (D&D) of all auxiliary



*The first roof section frame is in place.*

structures was accomplished during the period from 1975 to the present.

One of Bechtel Hanford's responsibilities as the Hanford Site's ER contractor is to place the surplus reactors, including D Reactor, into interim safe storage. The process, "cocooning," involves removing ancillary facilities and the reactor buildings down to the 4-foot-thick shield walls that surround the reactor core. All openings are sealed, and a new galvanized aluminum roof, called the safe storage enclosure (SSE), is placed over the remaining structure. Construction of the SSE is the last step in cocooning the reactors, which reduces the original footprint by more than 80 percent. The reactors could remain in interim safe storage for up to 75 years, giving the DOE and regulators time to decide

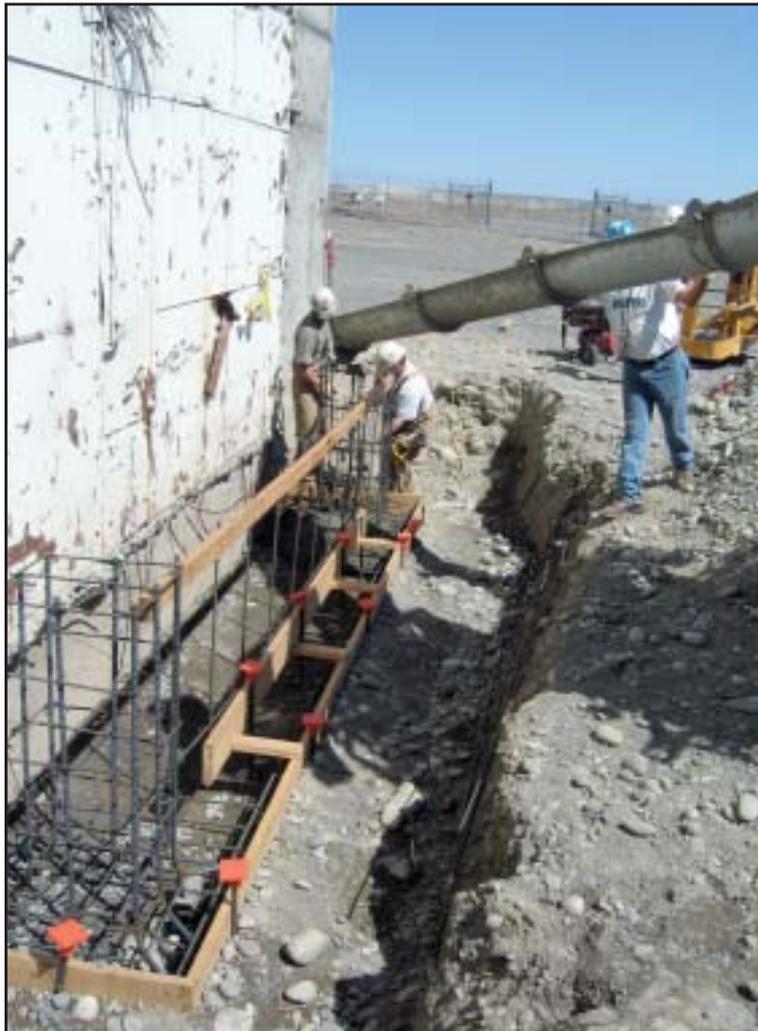
how to dispose of the highly radioactive reactor cores.

*(Editor's note: For more on cocooning, see "Hanford's C Reactor Large-Scale Demonstration Project," Radwaste Solutions, Mar. 1997, p. 31; "The 'Cocooning' of C Reactor: A Hanford Success Story," Radwaste Solutions,*



*The second section of the roof frame is placed into position.*

*Sept./Oct. 1999, p. 29; and "Hanford's Cocooned C Reactor Opened after Five Years," Radwaste Solutions, July/Aug. 2003, p. 53.)*



*Chad Osbourne, left, and Rigo Rivas, right, pour a concrete footing for the structural steel to enclose a lead shield wall.*

## THE FE&C SCOPE OF WORK

The scope of work that was subcontracted to FE&C for the D Reactor includes all disassembly, demolition, and construction work activities necessary to complete the SSE. In general, the project's sequence of events is as follows:

- Removing contaminated equipment, steel, and concrete from the reactor building and managing more than 15 000 tons of waste.
- Remediating contaminants, including low-level radioactive materials, asbestos, lead, PCBs, and other heavy metals.
- Demolishing the upper structure and removing specific reactor equipment.
- Designing and constructing a new 75-year roof, or SSE, over the reactor, including constructing a curtain wall over the external lead-plate shield wall.
- Installing the electrical/control monitoring system and ventilation equipment.
- Sealing the reactor building openings using concrete pourbacks and steel plate covers to seal doors and tunnel-size openings.

This project demonstrates FE&C's ability to perform the D&D and waste management in a safe and effective manner. During project completion, some of the highlights of this effort include the following:

- Rigging and hoisting large internal components using 400-ton cranes and other equipment provided by Lampson International LLC, another Hanford-based small business with unique expertise.
- Formulating design and installation documents incorporating the design requirement of BHI-00747, rev. 2, "General Design



**Above:** Man-lifts play an important role in getting the job done safely and efficiently.

**Left:** Just another day at the “office,” suspended high above the ground welding new steel to old.

Criteria for Richland Environmental Restoration Project.”

- Managing project risk, which includes significant work being performed high above the ground, a short construction schedule, and high-to-moderate radioactive concerns.

DeVerne Dunnum, FE&C vice president of Projects, feels there are specific capabilities that the FE&C team brings to bear on the project that have contributed to their success in mitigating the risks. He notes, “I feel strongly that our project management and safety management skills have been key to the progress to date.”

Steve Palmrose is the FE&C project manager for the SSE, and when he discusses this project, several themes begin to emerge that have contributed to its present success. “First of all,” Steve says, “the client [Bechtel Hanford] has been great to work for and with. I say ‘with’ because they have been with us all along the way actively helping us to avoid previous known problems. They have acted as a mentor to our small business, and it hasn’t been adversarial in any way.





*D Reactor roof frame shows how new steel was joined to old steel so workers can apply galvalum roof panels.*



*Calvin Harris assembles a siding girt.*

“Second,” Steve continues, “our craftsmen are just that—*craftsmen* in the true sense. They are more than qualified; they are technically superb. In addition, they truly practice safety; they take safety as more than lip service.”

Finally, Steve’s eyes light up when he discusses the contracting strategy that Bechtel put into play for this job. “The really neat thing about this project is that the conceptual design provided was based on a fourth-generation structure—fourth-generation in that it had been used in three other SSE efforts already. Our scope was to design and build the structure based

on this conceptual design. You really control your own destiny with a good design. The better your design, the fewer problems you’ll have.”

Steve goes on to list the benefits of this approach:

1. The team can react quickly if problems arise in the field.
2. The client does not need to be involved as an intermediary between designer and builder in an all-inclusive contract.
3. Any problems can be resolved with minimum impact to cost and schedule.

As of the end of April 2004, the project was 75 percent complete and running under budget and ahead of schedule. The overall D Reactor cocooning project was 95 percent finished by the end of April and on target to be completed well ahead of the scheduled completion date of December 31, 2004.

Former Congressman Sid Morrison, of the Tri-Cities [Washington] Local Business Association, remarked, “If a program is working for both DOE and the nation’s taxpayers, it should be expanded. Small business has to be innovative, effective, and safe because every job is a major part of their very existence. The administration’s Small Business Initiative allows local business to compete, and competition brings lower costs and a ‘fire in the belly’ desire to do everything right and on time. It is a win-win for everyone.” ■

*Ken Powers is nuclear strategist for FE&C and proposed president of FFTF Restoration Co. LLC. He is also a member of the Radwaste Solutions Editorial Advisory Board. Mark Lesinski is also a nuclear strategist for FE&C.*



*Steve Palmrose, project manager, stands in front of D Reactor. In the background is the cocooned DR Reactor.*