

At the Weapons Labs/DOE Sites

AT LOS ALAMOS NNSA LAYS OUT TA55 FIRE SYSTEM SEISMIC UPGRADE PLAN

Upgrades to the fire safety systems in Los Alamos National Laboratory's Plutonium Facility (PF-4) will cost up to \$10 million and could be completed by February 2013, according to a plan delivered Jan. 31 to the Defense Nuclear Facilities Safety Board. The upgrades are one of the first milestones outlined in a plan submitted last July to deal with seismic safety issues raised by the board, an independent nuclear safety auditing entity whose findings have played a key role in the lab's recent efforts to bring nuclear facilities into compliance with Department of Energy safety standards.

Built in the 1970s, PF-4 is a concrete bunker-like laboratory space where, among other things, the nation's plutonium pits are now fabricated. The DNFSB has expressed growing concern in recent years about its ability to withstand a major earthquake, a concern that culminated in a 2009 set of recommendations that major upgrades are needed. The danger, according to the DNFSB, is that a

major earthquake—the type that occurs once every few thousand years on fault lines on the Los Alamos mesa that holds PF-4—could lead to a fire and uncontrolled release of potentially fatal doses of plutonium off of laboratory property.

The plan lays out a number of steps needed to protect PF-4's fire safety system from an earthquake, primarily additional bracing and supports for fire water lines and pumping equipment. It calls for initial design work to begin March 1, with design completed early next year and construction wrapped up in Fiscal Year 2013. The fire system plan is one of a long list of "deliverables" required under Department of Energy's July 2010 implementation plan developed in response to the DNFSB's concerns about PF-4. The next requirement is the March delivery of a conceptual design for an active confinement ventilation system able to withstand the worst-case earthquake scenario.

AT OAK RIDGE Y-12 MOVING TOWARD 'AGILE' MACHINES IN UPF

To save space inside the Uranium Processing Facility and to advance the technological capabilities for making nuclear warhead parts, Y-12 National Security Complex officials are planning to introduce some one-of-a-kind machines specially developed for working with enriched uranium and other materials in Oak Ridge. The general name for the technology is "agile machining," and it really is being tailored to Y-12's needs, according to Darrel Kohlhorst, the president and general manager of B&W Y-12. Kohlhorst recently provided more detail on the plans and said the new technologies will probably allow one machine to replace what's currently done by six or seven machines when making warhead parts. "In the past, the equipment, the machines that we used here [at Y-12], were more what you and I would think of more as single-purpose," Kohlhorst said. That type of equipment doesn't allow the type of efficiency that Y-12 officials are seeking, Kohlhorst said. "An agile machine is a machine that typically has more live spindles, and different cutting tools," he said. "In fact, you could have an automatic tool changer on it that would go get another tool. It might also have two or three machines kind of built together—a cluster—and the part's in the middle."

In a report last year that raised questions about more than half of 10 key technologies that will be used in the facility, the Government Accountability Office specifically singled out concerns about plans for agile machining. The government watchdog said that NNSA officials did not expect agile machining to be demonstrated in a "relevant environ-

ment"—known as Technology Readiness Level (TRL) 6—until 18 months after the project's cost and schedule performance baseline was approved. "Nevertheless, NNSA plans to approve its performance baseline with less than optimal assurance that this technology will work as intended," GAO said. The auditors said NNSA officials had created plans to address risks from the potential technology readiness gap, including the development of a technology maturation plan last year that would track activities needed to help agile technology reach TRL 6. The impact of failure could be significant, according to the GAO. "If critical technologies fail to work as intended, NNSA may need to revert to existing or alternate technologies, possibly resulting in changes to design plans and space requirements that could delay the project and increase costs," the GAO said.

Kohlhorst Optimistic About 'Agile' Technology

Kohlhorst said testing is already underway to prepare for UPF and determine what's needed in the facility, which is expected to cost between \$4.2 and \$6.5 billion. He said Y-12 officials first tested commercially available machines, but those couldn't provide exactly what is needed in the facility. "We had a couple of test-bed machines that have come in that we got from a vendor," he said. "They were to test some concepts, but they weren't complete machines. They were maybe an 80 percent solution—not a 100 percent solution." Kohlhorst said that it's clear from the testing that the floor space for machining operations can