

Idaho Cleanup Project completes work at Test Area North complex at DOE's Idaho site

Idaho Cleanup Project workers have completed all the original contract work scope at the U.S. Department of Energy's Idaho Site's Test Area North (TAN) complex. The work involved close cooperation among the Department of Energy, the Environmental Protection Agency and the Idaho Department of Environmental Quality, with public input incorporated into end-state decisions at numerous stages along the way. The work included demolition of nuclear facilities, an old reactor containment building and thousands of square feet of support buildings, other structures, and many underground tanks and lines. It was completed four years ahead of schedule and well under budget.



Loss-Of-Fluid Test Reactor Facility
(before)

Completing the cleanup work at the Test Area North complex removed more than 270,000 square feet from the footprint of DOE Environmental Management-owned facilities at the Idaho site. The funds that would have been used to maintain the unneeded or obsolete facilities were redirected to other cleanup work at the Site. Although the originally planned work at TAN has been completed, under the recent American Recovery and Reinvestment Act, an additional small-scale soil cleanup has been added to the schedule and will be completed later this summer.

The TAN facilities were largely constructed between 1954 and 1961 to support the Aircraft Nuclear Propulsion Project of the U.S. Air Force and the Atomic Energy Commission. Upon termination of this research, TAN structures were converted to support a variety of DOE research projects. Full-scale decommissioning, decontamination and demolition of the TAN facilities began in 2005.



Loss-Of-Fluid Test Reactor Facility
(after)

First up was the Loss-Of-Fluid-Test (LOFT) reactor facility. The 60,000-sq-ft LOFT facility was a scale-model of a commercial pressurized-water reactor power plant built chiefly to explore the effects of loss-of-coolant accidents including core melt down. The steel dome was designed to safely contain such accident scenarios. An 80-ton shielded locomotive originally intended to transport the reactor-powered jet engines was employed to move the reactor in and out of the containment dome by rail to the nearby Hot Shop facility for maintenance and test modifications. The reactor itself had been removed in 1986. Demolition of the rest of the 60,000-sq-ft LOFT facility, control room and other support structures involved the use of various D&D techniques, including explosives and heavy equipment processing.

By far the most complex part of D&D work at TAN was the Hot Shop complex. The 153,661-sq. ft. complex included the TAN-607 Hot Shop itself, at the north end of the complex, as well as several support structures built on later. The 165-foot long, 55-foot high Hot Shop had 7-foot-thick reinforced concrete walls that tapered to 2 feet thick at the top, two 5-foot-thick concrete doors, nine 6-foot thick viewing windows, and several remotely-operated cranes and manipulators. Built onto the Hot Shop were other facilities, including several smaller hot cells for more detailed work, an adjacent "warm shop" for staging and other preparatory work, and a spent fuel storage basin that was drained and closed in 2004. The massive facility also included a decontamination shop, engine maintenance and large machine shops; high bay assembly shop; chemical cleaning area and office areas on the second floor.

Demolition of the facilities proceeded from the south end of the complex, using heavy equipment processors after all hazardous materials like asbestos and lead had been removed from the structure. The Hot Shop itself presented an enormous challenge, requiring three stages of complex explosive demolition to bring it down. An initial test blast in one wall was used to confirm the calculations of how much explosive would be required to break down the facility walls. In the next phase, a series of archways were blasted into the walls of the facility, and then the remaining portions of the walls were blasted in the final phase to bring down the facility roof. From there, heavy equipment processors were brought in to size the remaining debris. Throughout the process multiple techniques were employed to control contamination. Contaminated debris from the demolition was transported to the Idaho Site's lined CERCLA disposal facility. Remaining uncontaminated debris and other inert material was used as backfill material. The building site and a nearby soil berm were then restored to the natural grade level and seeded with native vegetation to close out the project.

The team responsible for the TAN project maintained a strong safety record throughout the project, completing it four years ahead of schedule and at a significant cost savings. The funding cost and schedule savings related to the TAN D&D work have enabled greater progress in other areas of the Idaho Cleanup Project.

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By Bradley Bugger