

## Y-12 and the 1990s

In addition to halting underground nuclear testing in 1992, that was also the year when the last stockpile component for a new nuclear weapon was produced at Y-12. Since then, all components made at Y-12 have been for existing nuclear weapons.

“Life extension program” is the term used to describe the work being done on these “secondaries” that have been deployed and are returned to Y-12 for one reason or the other with the intention of redeploying them after the “life extension” work is completed. This vital work is performed today with the same high degree of quality assurance and uncompromising concern for safety as the work done during the winning of the Cold War, when huge numbers of nuclear weapons secondaries were produced at Y-12.

Even in 1992, it was already apparent that Y-12 was in a state of transformation into a nuclear weapons dismantlement center and a special nuclear materials storage location. The then Y-12 Plant Manager, Jeff Bostock, stated as much in the *1992, The Year in Review, Energy Systems News Special Edition, February 1993*.

As the ensuing years unfolded, Bostock’s foresight has proven accurate. Y-12 is now focused on dismantlement of nuclear weapons and has been for several years. The Highly Enriched Uranium Materials Facility is the nation’s repository for all highly enriched uranium not in an active nuclear weapon or in a secondary waiting to be dismantled.

While nuclear weapons work remains the main mission for Y-12, other national requirements have taken on larger and larger roles and have expanded Y-12’s missions over the years. These “Work for Others” missions have ebbed and flowed over the years. However, regardless of the type of work being requested, Y-12’s “Can Do” attitude is proven to still be as prominent as ever!

An early success was the U. S. Navy’s Seawolf submarine propulsor. The F-22 Raptor’s extremely large and complicated fuselage component for the U. S. Air Force was another. The Portable disaster shelter, which can deploy in minutes into a fully equipped 400-square-foot facility, is yet another example. Originally designed by Y-12 inventor Lee Bzorgi as a mobile surgical suite for the U.S. Army, the technology took only nine months to move from concept to prototype.

The Advanced Amphibious Assault Vehicle, for which Y-12 developed two planing hulls and turrets for the U.S. Marine Corps, is also an example of “Work for Others” projects done at Y-12. These examples were found documented in the online *Y-12 Report, Summer 2011, Vol. 8* article *Transforming concepts into products*.

The Oak Ridge Centers for Manufacturing Technology, officially created in September 1993, was a result of the increased desire to ensure that defense technology skills were not lost and to share benefits of the expertise gained during the Cold War. This was yet another example of work at Y-12 that was uniquely fitted to the skills environment that exists here.

A *Success Story* from the early days of ORCMT is found online and dated, June 23, 1994. This article states, “The Y-12 National Security Complex and SILMA Inc., of Cupertino, California, specialists in computer-simulated manufacturing software, have completed a cooperative research and development agreement (CRADA) that improves the software that assists manufacturers in programming coordinate measuring machines to inspect parts for quality.

“The focus of the project was the development of enhancements to SILMA’s coordinate measuring machine off-line programming software package, CimStation Inspection.

"The Inspection software allows users to create dimensional measurement interface specification programs off-line and to simulate the coordinate measuring machine's motions before the program is downloaded into the machine. The CRADA enhancements check for additional program correctness and provide testing to verify inspection coordinates either generated by the system or loaded from another system.

"Using the new functionality added to CimStation Inspection, Y-12 researchers have decreased the amount of time it takes them to program a coordinate measuring machine by 50 percent and increased the confidence rate of the program from 70 to 95 percent."

Typical of the work done through the ORCMT in the 1990s, this success story was replicated numerous times with other such innovative approaches to solving tough manufacturing problems. It was a highly successful program.

Even while Y-12 was going through the difficulties after the September 23, 1994, shut down of operations, the secret Project Sapphire trip to Kazakhstan to retrieve enriched uranium continued without delay, and the upgrade to the nuclear weapon B61 modification 11 was completed ahead of schedule. These successful projects were a result of Y-12's "Can-Do" attitude, again seen operating in the midst of turmoil.

The first production unit for the W87 life extension program was delivered ahead of schedule. So you see, as the needed changes were introduced to transition fully to a more rigorous conduct of operations across the whole operation at Y-12, in many cases key elements were already performing admirably.

As the 1990s transitioned into the new millennium, Y-12 continued to make significant changes. In 2000, for the first time ever, the entire top of the organization's structure was replaced as BWXT Y-12 (now known as B&W Y-12) took over the management and operating contract for the newly named Y-12 National Security Complex.

Up until 2000, the site had been known simply as the "Y-12 Plant" or formally as the "Oak Ridge Y-12 Plant." With the change within the Department of Energy to create the National Nuclear Security Administration, the name was changed to the Y-12 National Security Complex to better represent the broader scope of Y-12's missions.