

Y-12 through the decades

As the decades rolled by in Y-12's history, the 1940's represented the Manhattan Project and uranium-235 separation for Little Boy, the world's first atomic bomb used in warfare, as the primary mission. Also in the 1940's Y-12 soared to a total of 22,482 employees on August 21, 1945, and then plummeted to a low of 2,440 employees in May 1947, and still had only 1,700 employees in October 1949. It must have seemed as if Y-12 were doomed after such success just a few years before.

A second mission was created when Dr. Chris Keim separated Copper into its isotopes and demonstrated that calutrons could be used to separate isotopes of other elements than uranium. This began the medical isotope program in 1946 and continued as a mission of the Oak Ridge National Laboratory at Y-12 until 1998 and remains an active program and source of various isotopes even today.

In the late 1940's the uranium machining mission for production of additional atomic bombs was brought to Y-12 from Los Alamos by Jack Case. This would be a vital change that sustained Y-12 over the years and still does so today. Y-12 is the nation's precision machine shop for all things uranium as the Uranium Center of Excellence and also capable of machining anything needed by the nation or the world using the most exotic and difficult materials to shape, form or otherwise modify to meet a given requirement.

In the 1950's the nation turned to Y-12 to provide the lithium-6 for the hydrogen or thermonuclear bombs being designed for the Cold War. This unusually difficult task has been termed the "second Manhattan Project" by Oak Ridge City Historian and retired Y-12 Technical Director Bill Wilcox, when he explains the COLEX (Column Exchange) process that was located in Building 9201-4 and 9201-5 with a pilot facility in 9201-2.

Bill cites the challenges and notes the huge success obtained by Y-12 workers in the midst of large volume mercury process usage and the difficulty of containing spills. Of course, the 1980's found Y-12 dealing with the losses of mercury in the 1950's and 1960's and having to dig up the East Fork Poplar Creek streambed and banks in the city of Oak Ridge and bring that contaminated soil back to Y-12 for burial.

We now are cleaning out Building 9201-5 (Alpha 5), the largest building at Y-12. Alpha 5 played a huge role in the winning of the Cold War. After the COLEX process was shut down for the last time in 1963, many other modifications were made to Alpha 5 over the years.

The American Recovery and Reinvestment Act funding is enabling Y-12 to get a head start in the necessary preparation to eventually demolish Building 9201-5 and other buildings no longer needed for Y-12's current and future missions. The many processes and the residual materials from those processes are high on our list of necessary clean up efforts to safely and effectively prepare these buildings for future actions when funding from the Integrated Facilities Disposition Program comes available.

The 1960's and 1970's saw continued growth at Y-12 with a period where expansion of capability included the procurement of advanced machine tools and ever-increasing inspection capabilities. In addition to building a vast arsenal of nuclear weapons for the nation's winning of the Cold War, Y-12 also provided the needed tools and materials to support other vital missions for the nation.

One such mission related to the production of nuclear weapons was the manufacturing of special test fixtures and nuclear materials configured as nuclear weapons test apparatus for nuclear weapons testing in the atmosphere until 1963 and underground until 1992. The Nevada Test Site is an enormous desert area that served to explode the devices manufactured at Y-12.

The "Can Do" attitude of Y-12 over the years has created an invincible spirit of "never say no" to a customer and always produce the highest quality product possible. At various times over the years Y-12 has turned to other work than nuclear weapons manufacturing and has been successful in each new endeavor.

The 1960's saw the Apollo Lunar Sample Return Container or "Moon Box," as it is best known, manufactured at Y-12. This work came as a result of the well-known reputation of Y-12 as being the location of excellent machining capabilities.

Technology Transfer was known in the late 1960's as an Industrial Cooperation Program designed to make available new technologies being developed at Y-12 to industry and private industry. This program was the forerunner of our Work for Others programs and led to the Oak Ridge Centers for Manufacturing Technology which helped private industry in every state in the nation during the 1990's.

The Y-12 Standards Laboratory, working with the National Bureau of Standards, served to assure accuracy of measuring equipment at Y-12 and also provided certification services to such other groups as the Tennessee Valley Authority and the military at McGhee Tyson Air Force Base in Knoxville. It was not uncommon during the 1970's for instruments to come and go daily from Building 9737 as the laboratory expanded the calibration services to others.

Engineering was consolidated across the three sites in Oak Ridge and also provided such unique designs as the National Aeronautics and Space Agency's Lunar Receiving Laboratory in Houston, Texas, and the National Institute of Health's Cancer Laboratory at Rockville, Maryland. As the 1970's came, Oak Ridge was expanding its influence throughout the decades since the Manhattan Project in many varied areas.