

Y-12 again called on by the nation

With the pressure placed on the Atomic Energy Commission by President Truman's declaration on January 31, 1950 that the nation would expand the efforts to build nuclear weapons and begin development of a thermonuclear bomb, scientists were again asked to explore the unknown and create something new and even more powerful than the fission bomb. Not all scientists working for the AEC agreed with this approach, but many did understand that if such a bomb could be built it would be built by someone.

As the decision was made for the nation to pursue the development of a thermonuclear weapon, the scientists working on the design quickly realized that additional materials were going to be needed. The AEC immediately looked to Oak Ridge to create those materials.

Among many other technical advances and unique challenges being accepted in Oak Ridge, both at the newly emerging Oak Ridge National Laboratory and the reborn Y-12 during the early 1950's, these requirements for new and unusual materials were met by the scientists and engineers here as welcome opportunities. Not only was the work challenging, it was growing rapidly.

Examples of first time activities being done in 1950 were, according to Bill Wilcox's excellent overview of Y-12's history and chronology of noteworthy events: the casting and machining of uranium-aluminum alloy; the first large scale precision machining of beryllium; and, the separation of hafnium from zirconium. This important and first of a kind operation was the subject of an earlier column.

All this in addition to the machining of Oralloy (enriched uranium or "Oak Ridge Alloy"), THE primary mission Y-12 had assumed from Los Alamos and the reason for Y-12's rebirth after all the calutrons except those in Building 9731 and 9204-3 were removed. The machining of depleted uranium metal was also being done at Y-12.

An improvement in the bonding of aluminum cladding to reactor fuel elements for the ORNL Graphite Reactor was the result of Finis (Pat) Patton's trip to Hanford, Washington to learn the basic technology from the large uranium reactors there used to produce plutonium. This enabled the Graphite Reactor to operate at higher temperatures for increased productivity.

Beta 3 (Building 9204-3) was converted to stable isotope separation along with Building 9731 under ORNL management. This program was growing and with the cooperative efforts of the folks at Y-12 and those at ORNL's Graphite Reactor, the medical isotope program continued to expand.

Much of the highly enriched uranium work at Y-12 was concentrated at the complex known as Building 9212. At the time, 1950, it was one of the newest buildings at Y-12, having been completed in August 1945, just as the war was ending.

As the requirements for more weapons work expanded, so did Building 9212. The building was originally constructed with a "head house" running generally north and south with A, B, C, and D wings coming off that head house to the east. The wings were separated by spaces nearly as large as the wings themselves.

When the Atomic Energy Commission sent orders to Y-12 to double the capacity for weapons work, a team quickly began to look at filling in the spaces between the wings and adding additional buildings that were either connected to it or built very nearby. An additional wing was added called "E" wing.

Requirements continued to grow and even more expansion was required. New facilities were built inside the wings and Building 9212 was further expanded to include several new buildings surrounding the original building. The "9212 Complex" was born and continues to play a central role in Y-12's primary mission today.

Building 9104-3, a large four-boiler steam plant was constructed in 1954 to supply the ever increasing demand for steam to support the new process areas in many of the nine calutron buildings. Building 9215 was added in 1956, primarily to address the growing need for increased capacity for weapons work.

Building 9996 was constructed adjacent to Building 9212 as a support facility. It was completed in December 1950.

Building 9995 was completed in March, 1951, and served as the analytical laboratory in support of the 9212 operations. This building has continued to serve as the "Plant Laboratory" over the years.

In addition to the new weapons work coming to Y-12, the Oak Ridge National Laboratory continued to expand in the buildings such as Building 9201-2 where as early as November, 1950, an 86-inch cyclotron was constructed to conduct radiation damage studies. Other experiments were also being introduced in the large available buildings where calutrons had once stood. And, of course, the Biology Division was growing more prominent all the time.

During these years of rapid expansion in the 1950's working along side construction at Y-12 was a way of life.