The Cold War comes to Y-12

The world changed forever on August 6, 1945 when the first atomic bomb used in warfare was dropped on Hiroshima, Japan. The material in that bomb came from Y-12. Oak Ridger's learned for the first time what they were doing in those huge plants where they or their family members worked. The world would never be the same again.

On August 29, 1949, the world changed forever again. The Soviet Union exploded their first nuclear bomb. The test was conducted at Semipalatinsk Test Site, in Kazakhstan. The bomb was a copy of Fat Man, a plutonium bomb with a yield of approximately 20 kilotons. The plans had been stolen from Los Alamos by Claus Fuch, a British spy for the Soviets who was working there.

While many nuclear scientists and political leaders in the United States fully expected the Soviets to explode an atomic bomb, the actual fact caused a considerable stir among the Atomic Energy Commission and the government leaders. Many scientists knew it was only a matter of time until the Soviets would amass enough nuclear material for a bomb, so they were less surprised when it happened.

Joe-1 was the name given the nuclear explosion by those outside the Soviet Union. RDS-1 was the internal designation and the Soviet Union continued to use "RDS" for subsequent nuclear tests. The test was also code named "First Lightning" by the Soviets. The term, "RDS" was actually a meaningless term as were many of the Manhattan Project terms such as "Y-12," "K-25," "X-10," "S-50" and others.

The Soviets were working on a thermonuclear weapon as early as 1948, well before they exploded Joe - 1 in August 1949. Their successful military intelligence gathering during the Manhattan Project continued after the war and enabled them to quickly advance beyond the mere duplication of a United States designed atomic bomb.

Mike-1, of Operation Ivy was the United States' first thermonuclear bomb test on November 1, 1952. This test preceded the Soviet's first explosion of a thermonuclear weapon on August 12, 1953.

During the years from 1945 to the mid-1950's, the Soviets were expanding communism into Europe. As early as March 5, 1946, Winston Churchill had predicted such expansion was forthcoming in his "iron curtain" speech given at the invitation of President Truman in Fulton, Missouri. This speech had much to do with changing the way the Soviet Union was viewed by the rest of the United States and Western Europe.

While Y-12 was converting from the Manhattan Project's electromagnetic separation plant to a nuclear weapons production facility by bringing the capability to make uranium metal from K-25's product and to machine and form that metal into components for additional atomic bombs, K-25 was also expanding its capabilities to produce enriched uranium.

Buildings K-27 (completed in 1945), K-29 (completed in 1951), K-31 (completed in 1951) and K-33 (completed in 1954) were constructed to provide ever increasing quantities of enriched uranium for nuclear weapons and for nuclear reactors. The demand for enriched uranium was growing steadily. So much so that eventually two additional gaseous diffusion enrichment plants were built in Paducah, Kentucky and Portsmouth, Ohio.

Also during this time, the Korean War (June 25, 1950 – July 27, 1953) while a seemingly localized conflict between North and South Korea, was indeed much more than that. It was a "proxy" war between the United States and the Soviet Union and very much an element of the Cold War.

As a result of increasing tensions between the Soviet Union and the United States, the Cold War continued to grow in several different areas. One of which was the race to develop and test a thermonuclear weapon.

It was in 1950 that the Atomic Energy Commission tasked the Oak Ridge National Laboratory to develop a method for enriching Lithium 6 for use in thermonuclear weapons. The preliminary efforts conducted in

Building 9733-2 at Y-12 resulted in a pilot plant being built in Building 9201-2 in 1951. This was the Electrical Exchange Process or ELEX, as it was known.

It was at this time that much of the Y-12 research and development organizations were organizationally transferred to the Oak Ridge National Laboratory, however, they remained in the Y-12 buildings. ORNL took over many of the vacate calutron buildings and uranium chemical processing buildings no longer needed at Y-12.

Next we will examine one of these buildings.