

Nuclear testing continues

The actual transfer of the responsibility for atomic energy research and weapons production from the Army to the Atomic Energy Commission did not take place until January, 1947. However, the later part of 1945 and the entire year of 1946 was a time of transition and turmoil amid the continuing demand to produce more nuclear weapons.

While in Oak Ridge Y-12 continued to produce uranium 235 in ever increasing purity and quantity assisted by the increased production of K-25, Los Alamos faced ever increasing production demands. Last week we noted that many of the Special Engineer Detachment stayed at the sites when the war was over and continued working, however, most of them who had been drafted out of college and graduate school, were very eager to get back and finish their education. This hit Los Alamos hard as a large part of the technical staff left.

According to Hewlett and Anderson's *The New World*, throughout 1946, General Groves received several letters from Norris Bradbury, the Director of Los Alamos Scientific Laboratory expressing concern for the large numbers of technical staff who were leaving the laboratory and the vital need the nation had to keep the laboratory viable. He also included a plan of action that laid out what needed to be done at the laboratory to assure its future.

Many of the Special Engineer Detachment who had been drafted out of college and graduate school were anxious to get back and finish their education. Many scientists were leaving who had been on a loaned status anyway from various teaching positions and other scientific work they were doing before the Manhattan Project brought them to Los Alamos. Now that the war was over, they felt their commitment was at an end.

Bradbury knew that the nation was in need of additional nuclear weapons. President Truman made it clear that we had atomic weapons, even though there were none ready at Los Alamos. All the nation had built were used at the Trinity test and to end the war.

The United States went so far as to attempt to convince the world that even though we were the only nation with atomic bombs, we were willing to place them under international control. This failed to materialize and very soon it became clear that international agreements on control were not going to be reached. It was obvious to Bradbury that it would be necessary to continue nuclear weapons work and the place that had to do that was Los Alamos.

The fact was that without Los Alamos, the nation did NOT have atomic bombs and could not acquire any more. Bradbury saw the scientific and technical expertise leaving in droves. His letters to General Groves attempted to explain the situation. Yet, he was only willing to commit six months to the continuation of the project at first. Soon he became committed to the idea that Los Alamos must continue to exist for the nation's benefit.

Bradbury knew that the nation had put a tremendous amount of effort into creating the atomic bomb and nuclear weapons were so important to the strength of the nation in a world that was still quite unsettled even though the war had officially ended. There was ever concern about Russia and what plans they had for expansion of their control over other European nations.

Remember also that this was the time when Klaus Fuchs was giving secrets from Los Alamos to Russia. Likely in June or July 1945, he gave the plans to Fat Man to Russia. He left Los Alamos in 1946, was caught spying and tried in England in 1950 and served nine years in prison of a 14 year sentence. He spent much of his time at Los Alamos working with Edward Teller, but focused on the design of Fat Man.

It is not likely that he passed any of the information Teller was working on regarding the thermonuclear weapon (called the "super" at the time) already under consideration by some at Los Alamos. Edward Teller continued working on this design while others focused on creating more Fat Man and Little Boy type weapons.

The next major activity, after just producing more nuclear weapons because the nation's supply had literally been used up ending the war, was to prepare for additional nuclear testing. Earlier we briefly mentioned the first such test after the war. Let's look a bit closer at the significance of that event for Y-12.

The fourth and fifth nuclear explosions were the first atomic test after the war ended (the Trinity explosion of GADGET on July 16, 1945 being the first test of an atomic device). This new round of testing began on June 30, 1946. It was code named Operation Crossroads. There were two atomic explosions associated with the test.

ABLE, the first explosion of the test occurred on July 1, 1946, and was detonated as an airburst. BAKER, the second explosion of the test occurred on July 25, 1946, and was detonated underwater.

Several captured ships were placed in the target area to assess the damage that could be expected from these nuclear weapon explosions. The target area was the Bikini atoll in the Marshall Islands of the Pacific Ocean. Five ships were sunk as a result of the ABLE blast and eight as a result of BAKER.

The stresses associated with Operation Crossroads, the fourth and fifth nuclear explosions named Able and Baker, taxed the production capabilities of the entire emerging atomic project. Creating the world's first atomic explosions, the world's first atomic bombs used in warfare and now continued testing was taking its toll on the entire complex.

Soon, Bradbury at Los Alamos began to look for ways to further separate the scientific research and production. Y-12, with feed material coming from K-25 was increasing its output of uranium-235 significantly. The Beta Calutrons in Buildings 9204-1, 9204-2, 9204-3 and 9204-4 were operating at full speed. Hanford continued to supply plutonium to Los Alamos as Oak Ridge supplied the uranium.

Next week we will learn more about the impact of scientists leaving the project, and changes being made to shift the production work away from Los Alamos. Eventually the uranium machining came to Y-12.