

## **AEC and changes at Y-12, K-25 and X-10**

For the past several weeks we have concentrated on the transition from military control of atomic energy to civilian government control. This was a major change that touched many organizations and was not done without a lot of political uncertainty.

The first attempt was to place control within the United Nations and when that seemed doomed to failure because of the Soviet Union's resistance the United States government determined to place control under its own Atomic Energy Commission. This was effective on January 1, 1947.

Meanwhile, Oak Ridge had continued to supply uranium 235 without slowing down right on through 1945 and 1946. All available resources to create enriched uranium were fully utilized during this time as each came available. This new science was being applied in production facilities and more and more product, uranium 235, was being delivered to Los Alamos.

Y-12 was operating all its calutrons and improving their efficiency all along. The S-50 Thermal Diffusion Plant, built in 90 days in 1944, ran all 21 racks from March 1945 until September 1945, to help provide feed material for Y-12. The K-25 Gaseous Diffusion Plant, under construction since June 1943 was finally completed in early 1945. The first stage was operational in January 1945, product was being fed to Y-12 by March 1945 and the final stage was operational by August 1945.

By September 1945, the K-25 Gaseous Diffusion Plant had replaced the S-50 Thermal Diffusion Plant which had operated less than a year. As the months went by and the operations at K-25 continued to produce higher and higher enrichment of uranium 235, soon the Alpha Calutrons at Y-12 were no longer needed.

For several months in late 1945 and throughout 1946, K-25 was feeding enriched uranium directly to the Beta Calutrons at Y-12. Near the end of 1946, K-25 was even able to produce highly enriched uranium that equaled the ability of Y-12 and with much more capacity and greater economy.

By the end of 1946, K-25 was ready to assume the entire uranium enrichment effort as it could do so at a much more economical fashion than could Y-12. K-25, being a continuous process whereas Y-12 was a batch process requiring many more workers, was capable of operating at 1/10th the cost of Y-12.

X-10's Graphite Reactor produced a total of only 326.4 grams during its demonstration that plutonium could indeed be generated through a large nuclear reactor. In early 1945 the production of plutonium was being done at Hanford. The Graphite Reactor was then being used to fill special radioactive isotope requests as needed by Los Alamos. The first radioisotope separation was likely one of these special materials Oppenheimer requested for research purposes.

Thus the transition from plutonium pilot facility to basic scientific research was already beginning at X-10 or the Clinton Laboratory even before the war ended. Scientists there such as Eugene Wigner and Alvin Weinberg along with Martin Whitaker, laboratory director, were exploring new and varied reactor related experiments.

There was much turmoil at X-10 immediately after the war ended. Many questions arose regarding the future of the laboratory. The scientists who had worked to support the plutonium efforts as well as other special requests during the war were now at a loss for direction. Their desire was to do basic scientific research and it was obvious that with the new atomic age they were in a unique position to explore the possibilities of peaceful use of this enormously powerful new force.

Clinton Laboratories had been operated by DuPont for the University of Chicago until July 1945 when the university withdrew its services. Monsanto Chemical Company was selected as a replacement contractor. However, Monsanto's contract was not renewed in December 1946 and the scientists associated with the University of Chicago who had stayed on failed to produce a management team.

The Atomic Energy Commission took control from the Army's Manhattan District on January 1, 1947 and Clinton Laboratory became known as the Clinton National Laboratory that year. Eugene Wigner, Research and Development Director, 1946–1947, and others worked hard at creating a true national laboratory in Oak Ridge. There was no contractor operator for the laboratory from January 1947 through February 1948.

Carbide and Carbon Chemicals Company, the operator of K-25 was given the contract to operate Y-12 when Tennessee Eastman Company asked to be relieved in May 1946 and was then given the contract to operate Clinton Laboratory on March 4, 1948. The Clinton National Laboratory became the Oak Ridge National Laboratory in 1948.