

A brief overview of some historical details of Oak Ridge, part 1

On two occasions over the past few weeks I have been asked to assist with creating documentary films with information about Oak Ridge's beginnings. One request was for the history of how the Oak Ridge National Laboratory (ORNL) came to be a national laboratory and how Oak Ridge Associated Universities (ORAU) had its beginning. The other request focused on the history of Environmental Management in Oak Ridge over the years.

As I responded to both requests, it became apparent that while a lot has been documented about our history, there is not a single ready reference that can be used to capture all of the needed details. Our history is rich, diverse, and is found in multiple locations. Therefore, in my opinion, a comprehensive "History of Oak Ridge" is needed and sounds like a good project for my retirement.

Here are some notes created in response to these two requests for historical details which could be included in short documentary films. Of course, not all of this can be used in the videos; it is intended as a set of reference material from which sound bites can be extracted.

First let's look at the general history and then the specific ORNL and ORAU history.

As early as the summer of 1942, the area of East Tennessee now known as Oak Ridge was targeted to be radically transformed from a sparsely populated area of small farming communities into a military industrial complex that would produce the world's first uranium-235 for an atomic bomb. The area would also be the location of the first industrial-sized uranium reactor to prove that plutonium could be produced on a large scale.

By September, General Leslie R. Groves, who had just been placed in charge of the Manhattan Project, took the action to secure almost 60,000 acres for his first "plant site." He immediately came to look at the site and, in November 1942, construction began on the administration building that became known as the "Castle on the Hill." The administration building served as the day-to-day headquarters for Colonel Kenneth D. Nichols, second in command to General Groves and the person who administered the entire Manhattan Project from right here in Oak Ridge.

By August 1945, there were 75,000 people living in Oak Ridge and over 22,000 working at Y-12 alone. The other three sites – X-10 (now ORNL), K-25 Gaseous Diffusion Plant (now East Tennessee Technology Park), and S-50 (the thermal diffusion plant) – were operating with approximately 5000 more workers. In all, some 100,000 workers spent time constructing Oak Ridge or working at one of the plants.

There were 850 buses that transported workers from surrounding cities. People over 12 years old living in Oak Ridge had to wear badges and there were seven gates as entrances to the area.

Those gates were not removed until March 19, 1949, when the public was allowed to enter the city for the first time. The three government sites were isolated by the white guard checking stations on Scarboro Road (isolated Y-12), Bethel Valley Road (isolated X-10), and the Oak Ridge Turnpike (isolated K-25). These three structures, although only used for that purpose until 1953, remain standing today. The Scarboro Road and Oak Ridge Turnpike guard checking stations have been renovated and are now used as meeting rooms.

Most people working at Oak Ridge during the war years did not really know what they were working on. They only knew it was an important effort to help win the war. Of the 22,482 people working at Y-12 on 1152 Calutrons (CALifornia University CycloTRONS invented by Ernest Lawrence of the Radiation Laboratory in Berkley, CA), maybe 100 of the chemists and scientists would have had a clue about what was being done. The rest of the workers just did their jobs as trained and, because of the secrecy required, did not talk about the "project."

Because of the wartime copper shortage, Y-12 used 14,700 tons of silver borrowed from the U. S. Treasury for electrical conductors. The coils of the world's largest magnets were wound with silver.

When the Little Boy bomb was dropped on Hiroshima, the local newspapers reported that the material used to make the world's first uranium atomic bomb used in warfare came from Oak Ridge. This is the first time many even heard the word "uranium," because that word was classified.

Don't you know that General Groves was frustrated when he learned that the people in East Tennessee were numbering the buildings at Y-12 that processed uranium starting with the number "92," the atomic number for uranium!

The X-10 Graphite Reactor started operating on November 4, 1943 and soon proved that plutonium could be produced in a uranium reactor. However, by the time that was accomplished, General Groves was becoming concerned about having all of the Manhattan Project production facilities in a single location.

Next we will look at the expanded Manhattan Project and Oak Ridge's role in it.