Bob Ellingson remembers — Part 1

As is often the case when writing about the history of Y-12, helpful suggestions come from many who lived the history and are proud to see it being presented to the public through this weekly newspaper column. Last week was no exception. Ken Bernander called me to say that I was getting to the point in Y-12's history where I needed to talk to Bob Ellingson.

So, I called Bob. He came to Oak Ridge on June 23, 1943. He said he spent three weeks "piddling around" not knowing what was happening. He later decided that was during the time they were checking his background to decide if he could be granted a security clearance.

He then went to Y-12 where he remembers seeing a lot of plywood and very few finished buildings. Even Building 9731 was not fully completed, but the high bay with the crane was operational and work was going on to install the calutrons there.

Fred Conklin, who was Tennessee Eastman's Y-12 Plant Manager for the entire Manhattan Project, told Bob that they had "over hired in chemical and wanted him to go into processing." He further explained to Bob that he would need to go to California for training. Bob said most all who were given this opportunity took it.

He soon was at Berkeley working on the "XA" unit which is what the calutron installed in the 184-inch cyclotron was called. There were two Alpha calutrons in place similar to the ones later installed in Building 9731. Bob spent the last part of the summer of 1943 in California.

When he got back to Oak Ridge late in the summer, there were no rooms in the dormitories. Bob and three of his co-workers also returning from California were put in a house at 101 Turner Road. This was during the time of heavy construction activities in the city of Oak Ridge as well as the three plant sites.

Bob was assigned to the Refining Division and went to work in Beta 1 (Building 9204-1). Both Beta 1 and Beta 2 were under construction in September of 1943. His first assignment was to teach the cubicle operators, young girls right out of high school, to understand how to operate the calutrons.

But Bob did not teach at Y-12, rather at the yellow brick buildings just south of the Federal Office Building in Oak Ridge. Then the administration building located where the FOB is now was the building known as "The Castle on The Hill" because of its huge size. He did not actually go to work in Beta 1 until January 1944.

Teaching these young girls something as complicated as operating a huge machine that was not moving, but had magnetic force enough to pull the bobbie pins from their hair, was not an easy task. I have been told by others who taught them as Bob did, that some of the young girls just could not stand it and would not make it through even one day on the job.

Bob determined that he could use language about money that would help him translate the complicated designations for the sending units, the receiving units, the magnets and the most important ion stream beam current. Anything he could think of was used to make the complicated operation simple enough for them to understand. He further helped them learn by using terms that would help them to remember the specific operations.

As you know, this teaching worked well. Later when the calutrons were operational in several buildings the practice of hiring these young girls right out of high school was questioned by some scientists at The Radiation Laboratory in Berkerley. Tennessee Eastman set up a contest where one bank of calutron control panels, known as "cubicles," would be operated by the scientists and engineers from Berkeley and the other bank of an equal number of calutrons and control panels would be operated as normal by the young girls.

Well, you know what happened. The young girls beat the scientists and engineers hands down. They were actually practicing statistical process control without ever knowing those words. They would not move the handles on the cubicles until the meter reached an upper or lower control point.

The scientists and engineers, on the other hand, were continually adjusting the controls all the time trying to maintain the highest readings. As a result they spent all their time changing the settings on the machine rather than getting high beam current runs by letting the machine operate within its natural control points.

In January of 1944 Bob was reassigned to work in Beta 1 as a Technical Aid. That meant he was responsible for the technical operation of the calutrons in Beta 1. He recalls the importance of pushing the calutrons for the most efficient operations possible. The sense of urgency was felt by all who worked there.

The term he used to describe the successful calutron run time was “inage.” That was a new term to me, so I asked him again what he said and what it meant. Bob patiently explained it was the time that the calutron operated with the ion beam current high enough for the operator to know that the beam was hitting “in” the pocket, thus “inage.”

Next week we will follow Bob as he came to July 1945 and realized something special was about to happen. He could tell by the instructions he was given to collect as much of the product as could be obtained that something major was going on.