

## **Y-12 apprentice programs are a lot like TAT**

The Training and Technology (TAT) School that flourished at Y-12 from 1966 to 1984 served as a model for other training programs. Y-12's long history of apprenticeship programs began at much the same time as the TAT program. It was at a time in the history of Y-12 that the number of employees being hired was steadily increasing.

During the late 1950's and early 1960's Y-12 was beginning to ramp up for the Cold War push that followed the Colex process for lithium separation, known to some as Y-12's second Manhattan Project. The lithium separation operations ran from 1955 until 1963. This provided a huge supply of lithium-6 that is still in use today.

Thus Y-12 became the manufacturing center for lithium-6 as well as uranium-235 and all other materials required to make the nuclear weapons "secondaries" and nuclear weapons test components. It was during the 1960's and 1970's that Y-12 increased the number of machine tools, focused on improvements in computer controlled machines and worked hand in hand with machine tool manufacturers to make Y-12 the most accurate machining center in the world.

This meant that the workforce had to keep pace with the technological advances being led, in many cases, by Y-12 engineers directing machine tool manufacturers and by Y-12 engineers reengineering machine tools once they were brought to Y-12. The accuracies required of Y-12 were unheard of in private industry. When someone mentions a "tenth" at Y-12 what is meant is 1/10,000<sup>th</sup> of an inch!

Apprentice programs contributed to Y-12's ability to keep pace with this rapidly advancing technology. There were other advances in technology other than machining. Maintenance crafts were required to learn how to maintain unique pumps, unusual motors, evolving electrical switchgear with newly developing monitoring and relaying using solid state devices. Computers were being introduced in huge numbers and rapidly changing from simple machines to more and more complex arrangements.

The latest apprentice program began in 2008. It ramped up quickly. One reason was the number of workers who were becoming eligible for retirement. At the time over ½ of Y-12's workforce could retire in the next few years.

To help understand this latest push for an apprenticeship program, let's first look at some recent Y-12 management history. Over the past 20 years Y-12 has hired many managers who had a Navy background. Especially did we hire them after the infamous shut-down on September 23, 1994, caused by a failure in something that came to be known as "conduct of operations."

The retired Navy personnel helped Y-12 move to a more structured Conduct of Operations model. Many of them came from the nuclear side of the Navy and had very definite training in their background that caused them to look at Y-12 in ways similar to a nuclear submarine.

While such attention to details as required in a nuclear submarine are much the same as needed at Y-12, the complexity of systems here far exceeds that of a submarine. Many more people are involved. Thus a large system model that includes skilled workers and managers at every level is needed.

Bill Klemm, B&W Y-12's Vice President, Facilities, Infrastructure & Services at the time and now Senior Vice President and Deputy General Manager, is one of the persons hired after a career in the Navy where he managed very large systems. Therefore, Bill understands the need for skilled people at all levels. He recognized the danger facing Y-12 with the years of experience being lost and saw even more in the coming years through retirement. He quickly called for an apprentice program to be put in place.

The Joint Apprenticeship Committee took the charge from Bill and began the necessary planning details to create the current program. With the approval of the National Nuclear Security Administration's Y-12 Site Office, the program was set to begin.

When the program was advertised in the newspapers, some 2,610 people applied, 2,200 took the test and 1,200 qualified for interviews. Of those qualified to be interviewed, 400 were selected for interviews and 50 selected to fill the first class. In 2009, another 21 were selected for the second class. A third class is planned for 2010, but has not been filled as of now.

The crafts included in this latest program at Y-12 are boilermakers, carpenters, electricians, insulators, ironworker/riggers, outside machinists/millwrights, painters, pipefitters, welders, and air conditioning and refrigeration mechanics. These same crafts have been the ones included in most other apprenticeships at Y-12 over the years.

An exception to that is the program that was initiated in 1991 to retrain workers impacted by a large reduction in force when, after the Cold War ended, Y-12 reduced the number of workers drastically. The range of skills included in that modified apprentice program was necessarily limited to only those where additional workers were required.

Earlier apprenticeship programs starting in the 1960's and later, with that one exception, had included the full range of crafts similar to the program that started in 2008. We will have more to come in future articles on the history of apprenticeship programs at Y-12. If you have experiences from your apprenticeship to share, please contact me and help document the history of apprenticeships at Y-12.