

## **Y-12 and the National Nuclear Security Administration make continuing progress**

As we continue to look at Y-12's vision for a bright and diverse future, a closer look at the joint efforts of the National Nuclear Security Administration (NNSA) and the Y-12 National Security Complex will be helpful. These two elements of our nation's strategy for maintaining our freedom through a strong nuclear posture also contribute to other nuclear advances in technology and science.

Established by Congress in 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science in the nation's nuclear security enterprise. NNSA maintains and enhances the safety, security and performance of the U.S. nuclear weapons stockpile without nuclear testing; reduces the global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; provides fuel for research reactors around the world and the production of medical isotopes; and responds to nuclear and radiological emergencies in the United States and abroad.

As a recent Y-12 news release indicates, the Y-12 National Security Complex has recently taken a major step in support of the nation's nuclear nonproliferation agenda with the installation of a new cold rolling mill that will support U.S. High-Powered Research Reactors (HPRRs) conversion from highly enriched uranium to low-enriched uranium.

The \$1 million machine will enable Y-12 to roll uranium alloys — similar in thickness to aluminum foil — in production runs, maximizing surface area while minimizing the amount of material used. The foils will ultimately fuel the nation's five HPRRs and could also be used for the production of medical isotopes.

Reducing the use of highly enriched uranium in research reactors is a key strategy to minimize the amounts of fissionable material potentially vulnerable to terrorist plots.

Y-12 is the nation's Uranium Center of Excellence, as designated by the NNSA, with almost 70 years of expertise in handling and processing uranium. This designation recognizes the special capabilities at Y-12 that are applied worldwide when needed to handle uranium or other special nuclear materials that may be in danger of being compromised. Y-12 uses its expertise in storage and protection of this material to train other countries to improve their strategic approaches.

Training held at Y-12 has become well known and sought after by many organizations within former Soviet Union countries and others worldwide. Y-12 is gaining an international reputation of excellence in all things pertaining to uranium, making the Uranium Center of Excellence a well-recognized asset for NNSA.

The Y-12 thin-rolling process was developed by B&W Y-12's Applied Technologies group, and early production (70 foils) was completed on a mid-1950's mill in the development laboratories. The mill is expected to process three metric tons of U-Mo a year and 150 kilograms of Mo-99 target foil a year at full capacity.

In addition to the new production mill, Y-12 has replaced the original mill in its laboratories with a refurbished cold rolling mill. As you can see, the news release identified ways that Y-12 is addressing significant and current issues.

This is just one example of the future Y-12 is already moving toward and the expertise that exists within the NNSA through the Uranium Center of Excellence. As the NNSA has moved from the former Nuclear Weapons Complex of the Department of Energy, which focused primarily on maintaining nuclear weapons, to the much broader scope of a Nuclear Security Enterprise focused also on nonproliferation of special nuclear materials and reducing the amount of the material in use, the Y-12 National Security Complex has moved in lock step with NNSA.

As a result of this strongly proactive approach, Y-12 and the Y-12 Site Office of NNSA have demonstrated exceptional overall leadership in transformation of not only Y-12, but also the broader NNSA strategy of an enterprise that is vital to all aspects of our national security. Y-12's Uranium Center of Excellence is a key element of implementing that strategy now and into the future.

At the recent 2011 Tennessee Valley Corridor National Technology Summit, NNSA Administrator Thomas P. D'Agostino stressed the important relationship between NNSA, the Y-12 National Security Complex, and the Tennessee Valley as quoted in *The Oak Ridger* on May 16. Here yet another of the many aspects of the joint efforts of Y-12 and NNSA is shown to have positive impact on the region reaching from Virginia through East Tennessee to Alabama. Y-12 is playing a vital role in the future of the region.