

The Future is bright for Y-12 – and diverse

As our look back at the history of the Oak Ridge Centers for Manufacturing Technology and the Manufacturing Skills Campus concludes, it seems good to take a glance into Y-12's potential future in non-weapons areas. As with many things in Y-12's history, doing work other than specifically for nuclear weapons has tended to cycle up and down over the course of Y-12's existence. Y-12 has had a number of mission changes over the years, and what's known as "work for others" is again on the upswing at Y-12.

The following insight into Y-12's future is provided by Chris Clark, senior director for Strategic Program Development at the Y-12 National Security Complex.

"In 2000, the Department of Energy (DOE) formed a new and semi-autonomous agency called the National Nuclear Security Administration (NNSA). The purpose of the change in the federal organizational design was to allow DOE to increase its focus on more traditional energy sources, energy conservation and development of new technologies. The formation of NNSA allowed what was then termed the DOE Nuclear Weapons Complex to focus on our nation's nuclear weapons facilities, infrastructure and inventory.

"When Congress made this organizational change, they recognized that nuclear security meant more than just maintaining weapons. Over the past 10 years, the NNSA mission has matured to encompass a role much broader than the nuclear stockpile. Our world is faced with a broad array of threats to which the resources of the NNSA are responding.

"In the 'Nuclear Posture Review,' which was issued by the federal government in 2010, the mission of the Y-12 National Security Complex was boiled down to four (4) key areas:

- Sustain a safe, secure and effective nuclear arsenal;
- Supply the U.S. nuclear navy with fuel;
- Prevent nuclear proliferation and nuclear terrorism; and
- Solve global security challenges.

"The first mission area, nuclear weapons, has been a part of the base scope of Y-12 since Day One. The second mission area, nuclear fuel, has been a part of the Y-12 mission since navy vessels began using nuclear material as the source of heat for steam in the late 1940s.

"The last two missions have emerged over the past couple of decades and are built upon the core competencies required to supply our nation with nuclear weapons and nuclear fuel. Y-12 has three core competencies; Nuclear Technology and Materials; Security and Consequence Management; and Manufacturing and Technical Services.

"The expertise of the Y-12 workforce, which has been hewn by over 65 years of building and protecting the most reliable weapons and fuels in the world, is now being applied to solve issues around the globe associated with nuclear proliferation, nuclear terrorism and the management of high-consequence security activities.

"As Y-12 assesses its capabilities against emerging needs nationally and internationally, new missions are emerging which tie back to its three core competencies. Y-12 is partnering with commercial industry, both domestic and international, to develop safe and secure materials for the next generation of nuclear fuels and medical isotopes.

"Y-12's Global Security Training Academy provides training to federal and international security forces and will likely exceed 1,500 trainees this year. Y-12 is working with Oak Ridge National Laboratory to develop new technologies to detect the movement of nuclear materials worldwide.

“Y-12 has been recognized by DOE as the Uranium Forensics Archive for the nation for ‘fingerprinting’ nuclear materials. To date, Y-12 has downblended 131 metric tons of Highly Enriched Uranium for use in commercial reactors to generate electricity.

“Experts from Y-12 continue to support the recovery of nuclear materials worldwide, in the form of fuels, radioactive sources, and medical isotopes. In conjunction with Oak Ridge National Laboratory, this vital effort has protected our world by keeping special nuclear materials out of the hands of terrorists.

“As the National Prototype Center, Y-12 continues to work with government and industry on tough manufacturing problems. Y-12 is the ‘go-to’ place when a perfect conceptual design can’t be translated into a real part, or a process problem is resulting in short product life or shortfalls in quality.

“Y-12 maintains an ongoing contract with the University of Tennessee Center for Industrial Services to provide assistance to Tennessee industry when commercial manufacturing problems arise. This is much the same as the earlier Oak Ridge Centers for Manufacturing Technology efforts, but is refined and builds upon lessons learned from that earlier historic innovation.

“This broadening of missions has allowed Y-12 to maximize the utilization of resources and provided job diversity for its work force. Some of the new work can even be accomplished ‘outside of the fence,’ which is a treat for the employees but is also a valuable cost savings to both industry and government. As these missions continue to grow, Y-12 will evolve to a portfolio of work balanced across multiple missions and serving an array of the nation’s needs.

“Along the way, the Y-12 workforce is cranking out new ideas, inventions, patents and licenses. In 2010, Y-12 had over 45 invention disclosures. So far this year four (4) more patents have been issued for a total of 51 active patents, and a new start-up company has been created to mass produce a commodity solvent that could soon be appearing on store shelves nationwide.

“Over the past 10 years, under NNSA guidance, Y-12 has matured the Master Plan for the transformation of the old weapons complex plant into a vibrant and efficient operation to process nuclear weapons and fuels. The modernization plan is well underway. Looking ahead, Y-12 will evolve into a multifaceted resource responding to the nation’s needs for cutting-edge capabilities growing out of the expertise required for its national security missions.”

Thanks to Chris for putting Y-12’s recent past and potential future in perspective. The earlier historical efforts such as the Training for Technology School and the Oak Ridge Centers for Manufacturing Technology and Manufacturing Skills Campus have served to prepare Y-12 for the future roles as they have emerged and are continuing to emerge.

The specialized training programs being provided to the military as well as civilian police forces are becoming known as excellent programs. The training being provided to foreign nations to increase security of nuclear materials worldwide will help to secure all the world from nuclear attack.

Y-12 continues to be a leader in protecting freedom and assuring peace through maintaining longstanding missions and adapting to undertake new initiatives as identified and supported by NNSA. The future for Y-12 is indeed bright AND diverse!