

# the **Y-12** times

A newsletter for employees and friends  
of the Y-12 National Security Complex

Inside ...

## Operations resume

(pg. 2) Y-12 resumes nuclear operations  
Aug. 15.

## Phased Array

(pg. 5) A Y-12 project brings sweet  
success to weld inspections.

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September 2012



## The Main Thing

Whether you've been a Y-12 employee for one year or 40 years, the events of July 28 had an effect on your time here. Y-12ers have always considered themselves a family, and like family, we must work together to regain the confidence of interested groups.

We know three people cut through fences and vandalized the Highly Enriched Uranium Materials Facility July 28. As a result, B&W Y-12 ordered a temporary security stand-down. The National Nuclear Security Administration fully supported this step to ensure continued confidence in safe and secure operations. Nuclear operations resumed Aug. 15 (see pg. 2).

Y-12 employees and contractor security personnel have had additional training and refresher instruction to address additional security training and execution deficiencies identified by the contractor after the incident. Under Secretary for Nuclear Security and Administrator NNSA Tom D'Agostino said, "... remind yourself that everything you do has to come after safety and security. There is nothing more important than keeping this as your Main Thing."

D'Agostino shared, "I have spent most of my career at NNSA and have seen the work that gets done at every site and in every organization. I have seen what each member of this organization is capable of and I know the dedication and professionalism that defines your work.

"The security of our nation's nuclear assets is and must always remain our top priority. In light of the recent security event at Y-12, I ask each of you to take time to think about our security procedures and posture. The word 'security' in the title of our organization is an indication of the seriousness and importance of that mission. Every employee has a responsibility to ensure

**MAIN**, cont. on pg. 2



Tom D'Agostino, Under Secretary for Nuclear Security and Administrator National Nuclear Security Administration

# Safety a value for UPF

“Safety is a value,” said Brant Morowski, Engineering manager for the Uranium Processing Facility project. “Priorities can change, but what we value remains constant.”

Morowski and UPF Project Manager Tony Giordano want to ensure safety is a value on UPF by emphasizing both human performance improvement, or HPI, and a nuclear safety culture that focuses on employee involvement. Morowski and his managers are providing staff with a “toolbox” containing proven methods for reducing human error. These tools were developed by the Institute for Nuclear Power Operations

and have been used successfully at other U.S. Department of Energy sites.

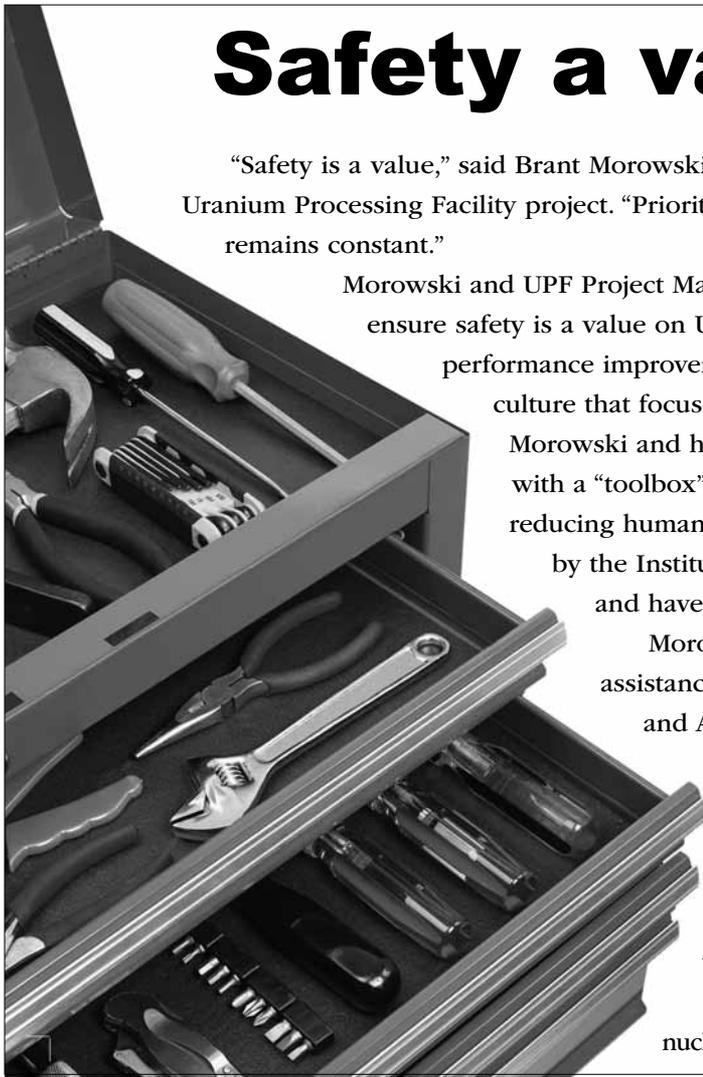
Morowski and Bill Altman (Engineering) have spearheaded this initiative, with expert assistance from Mark Farris, Gary Hagan and Jeff Miller of Environment, Safety and Health, and Andy Hobbs of Business Services and Performance Assurance. The result: An outstanding collaboration. “To have a manager ‘walk the talk’ with regard to HPI, is truly exciting,” said Farris.

The enthusiasm for the effort does indeed seem contagious, with managers and staff eager to use the tools. In fact, a brief five-minute overview of the initiative resulted in a request for one tool — a “Do not disturb” sign. Other tools include validating assumptions, pre-job briefings and self-checking.

For designers, the stakes for errors are high. Errors with the potential for significant nuclear safety and quality issues may not be recognized until construction, installation or operation.

“No one wants to be responsible for the error that causes an injury or fatality. Use of the HPI tools within an environment that values safety greatly reduces the likelihood of those consequences.”

Gary Hagan,  
UPF ES&H manager



**MAIN**, cont. from pg. 1

that the work we perform is done in a safe manner and secure environment. Security is, of necessity, an integral part of our mission and needs to be worn proudly each time our name or logo is viewed. We all must remain ever vigilant to that task and constantly be aware of the enormous trust and confidence placed in us by our nation.

“Safety and security are the most important things that each of us have to deal with on an everyday basis. Appropriately, they are unlike anything else you do. These practices cannot be routine, cannot be automatic and cannot be taken for granted. Each of us has an obligation to ourselves and our country to remain vigilant and to ensure that they are the first and most important parts of each day.

“I’m proud of the work that you do, and I have complete faith in your ability to accomplish the mission in a safe and secure manner. I’m proud of our organization and what we’ve accomplished. This incident, while very serious, will not and cannot change the focus of where we are going as OneNNSA. But we cannot let anything like this happen again. Our work is too important and too necessary.”

## Y-12 resumes nuclear operations

The National Nuclear Security Administration authorized resumption of nuclear operations at Y-12 Aug. 15. B&W Y-12 President and General Manager Chuck Spencer said, “I applaud our employees for their efforts in returning us to operations.

“Recent events have reminded us all that we have to be focused and vigilant and be aware of our environment at Y-12,” said Spencer. “We all have the ability to question things that don’t seem right and stop what we are doing if necessary to ensure operations are conducted safely and securely.”



Chuck Spencer, B&W Y-12 president and general manager

# Key contributor to Y-12's Dosimetry Program awarded **Gold Medal**

The Royal Swedish Academy of Sciences recently awarded Keith Eckerman, Ph.D., the Gold Medal for Radiation Protection for his contribution to international radiation protection work. Eckerman is leader of the Dosimetry Research Team at Oak Ridge National Laboratory with close ties to Y-12.

In 1989, Eckerman and Richard C. Ward developed DOSEXPRT software as a tool for demonstrating regulatory compliance with the U.S. Department of Energy occupational radiation protection order. Eckerman wrote computer code to calculate annual effective dose.

Rhonda Bogard, Y-12's Dosimetry and Records manager, explained, "Rudimentary software packages were available for calculating individual internal dose, but Y-12 needed a program capable of calculating dose for a large population. This program did what would have taken hundreds of people to do manually."

Today, Y-12 uses an updated version of the program, and Eckerman serves as technical advisor.

Lisa Snapp, lead internal dosimetrist at Y-12, chose her career path after taking a class from Eckerman at the University of Tennessee. "Keith was such a great teacher because he was able to enthusiastically communicate his vast knowledge and experiences in the field of internal dosimetry. He made the subject matter come alive for me, and I knew the moment I studied under him that I wanted to pursue internal dosimetry as a career," Snapp said.

Eckerman's daughter, Beth, of Y-12's Communications Services, said, "We joke at home that Dad brought home USA's first gold medal for the summer. However, I know this honor means the world to him. I couldn't be more proud."



Keith Eckerman was awarded the Gold Medal for Radiation Protection at the International Radiation Protection Association International Congress. Eckerman has contributed significantly to Y-12's Dosimetry Program and has both personal and professional ties to Y-12. Pictured with Eckerman (from left) are Lisa Snapp, Rhonda Bogard and his daughter, Beth.

## **QUILTING** for United Way

One of this year's United Way silent auction items is a quilt made by a Y-12 quilting group called Caring Hands. The story of this United Way quilt began in 2010 with a donation of fabric from Anita Stensaker, a former employee in Human Resources, to fellow Y-12er Dottie Kelly from Information Technology. "Anita called me to offer her fabric stash to our group of quilters because she knew the previous year we created a quilt for a United Way silent auction," Kelly said. "I asked her why she would want to get rid of fabric she may want to use after she retired. She laughed and said that she would never do that. Just a few months later Anita suddenly passed away."

The quilters have named this year's project "The Anita Quilt" in memory of Anita Stensaker. This is the second quilt the group has made for the United Way silent auction. The first was the brainchild of Ann Glenn, Information Technology. "Each year, I try to increase my United Way donation," Glenn said. "Three years ago, I realized I just couldn't do it financially. So I looked for another way to help. I put an ad up to see if anybody would be interested in doing a quilt that we could auction. This year's project is special. Anita's legacy is intertwined in this quilt."

There are 1,182 pieces in the quilt, and the ladies estimate they will have more than 200 hours in the project when it is finished.



Allison Arnold (center), a local professional quilter, helped find the pattern and select fabrics from Anita Stensaker's collection. The Caring Hands quilting group (pictured from left to right) includes Melissa North, Becky Bolling, Ann Glenn, Arnold, Karen Langley, Dottie Kelly and Karen Ryan.

# Stainback and his NASCAR connection

Joe Stainback of Program Management was getting tires for the family vehicle in Lynchburg, Va., one day in 1996 when he decided to walk down the street to then-NASCAR driver Stacy Compton's new shop.

"I introduced myself and offered to help with whatever he might need," Stainback recalled. "I ended up reporting to 'work' the next day, volunteering my time to do anything that might help make Stacy's NASCAR team successful."

Stainback built a friendship with Compton and continued to follow his NASCAR teams, but it was always just a hobby. Then in 2006 Stainback enrolled in the University of Tennessee's industrial engineering doctoral program while working at Y-12.

"When I talked to other non-traditional Ph.D. students, I realized that a lot of them never finished," Stainback said. "And it was because they tried to do something work-related at school, and they burned out. My thought process was to make it so I was motivated to finish my degree. So I applied it to my NASCAR hobby."

As an industrial engineer, Stainback is interested in systems. A NASCAR race, he surmised, is a system composed of numerous functions, both human and machine. And one of those functions — communication between driver and crew chief — often relied on ineffective and wasteful practices, including nonspecific language and subjective terms.

Working with Compton's team again, Stainback designed a research project to measure and analyze the communications between a driver and his team. The results turned into Stainback's formal doctoral dissertation, and



Joe Stainback, center, wishes driver Stacy Compton good luck before a 2010 race — and reminds Compton to keep his conversations "lean" during the race.

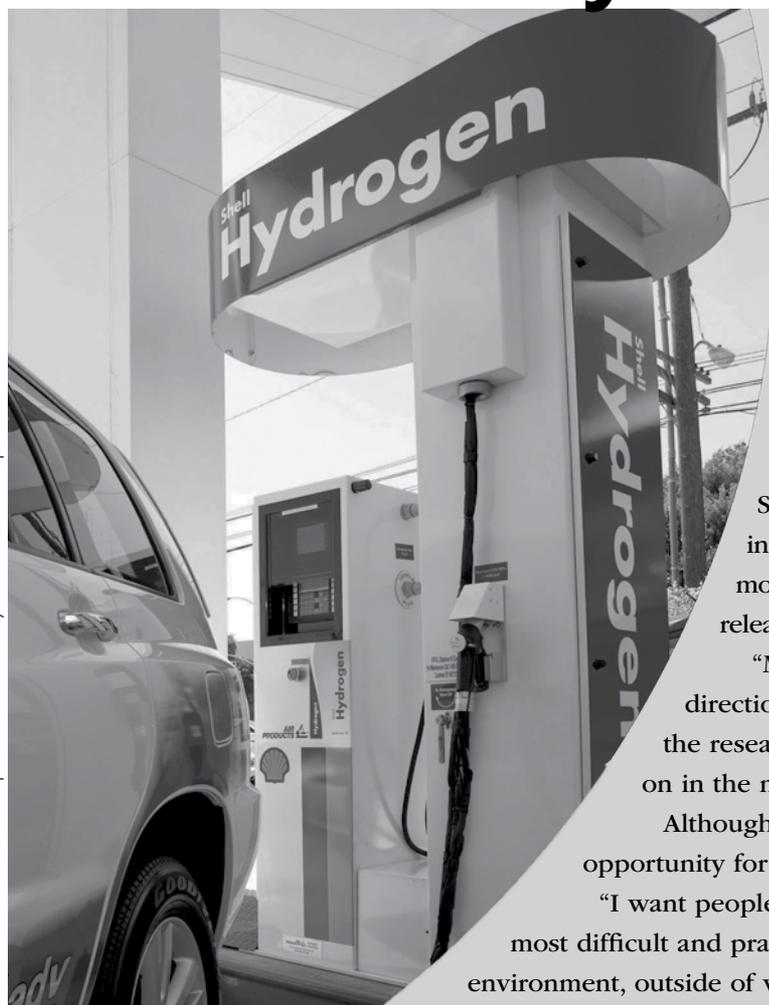
a slimmer version was recently featured as the June 2012 cover story for *IE Magazine*.

"This program really enhanced my ability to think critically," said Stainback, a jointly appointed research assistant professor at UT. "And the company always benefits from furthering employee education. It gives Y-12 more academic tools to be able to solve problems for the U.S. government."

His advice to others debating whether they should continue their education? "It's never too late."

## Road to the hydrogen highway

Photo used with permission of Toyota Motor Corporation.



Toyota plans to sell hydrogen-powered cars by 2015. To reach that goal, the world's largest automaker sought out Y-12 to analyze the science behind making a hydrogen car work efficiently.

Hydrogen storage material, the fuel component for a hydrogen vehicle, is key to efficiency. Toyota developed a metal hydride, a solid chemical compound, that stores hydrogen and releases it under certain conditions. How slowly or quickly hydrogen is released from the hydride determines the vehicle's power and performance. Y-12's research is fundamental to Toyota's objective to create a hydrogen car that drives with the same level of convenience and performance as a combustion engine.

Using nuclear magnetic resonance spectroscopy, Y-12 chemist Ashley Stowe analyzes the hydride samples the car company provides. He uses the instrument to gather data on whether Toyota's proprietary techniques have modified the samples in a way that brings about a more favorable hydrogen release.

"My primary responsibility is to analyze materials, but we also discuss directions of the science," Stowe said. "We talk about the different ways we can do the research, modify the research and use the tools I have to figure out what's going on in the material itself. There are certainly areas of collaboration."

Although little funding is provided for his analyses, Stowe sees this work as an opportunity for Y-12 to diversify its research portfolio.

"I want people to know that Y-12 has the expertise and capabilities to help answer the most difficult and practical questions facing the nation — even though it's outside of the nuclear environment, outside of what everybody thinks it is we do."

# Day of *Vol*-interning

This summer, more than just the University of Tennessee interns qualified as Volunteers when a group of Y-12 student interns gave up their free time to do some work outside the Oak Ridge Children's Museum. The team mulched the gardens, pruned plants, pulled weeds and cleaned up grounds around the museum July 27.

"We had a great time; the museum was very thankful," said Valerie Terrill, Y-12 student programs manager.

Information Technology intern David Prenshaw, a recent graduate of UT's Computer Science program, not only gained real-world experience by working in a collaborative software development environment but also got hands-on team-building experience that the Intern Volunteer Day provided. "It's such a great way to give back to the community," said Prenshaw. "Plus it is a good way to spend some time with the other interns outside the work environment."

A favorite part of Jessica Stroud's experience as a second year intern was working with the people she encountered in Documents and Property Management. Stroud received her undergraduate degree in business administration with a concentration in management from Fisk University. Always open to an opportunity to help others, Stroud also participated in the Intern Volunteer Day. "The interns, like the employees at Y-12, show the community that they will go above and beyond to facilitate change for the greater good," said Stroud.

The Intern Volunteer Day was such a success, it will most likely become an annual tradition. "We would like to make this an ongoing event for the next group of interns," said Terrill.



Summer interns and Valerie Terrill (kneeling) at the first intern Volunteer Day.

## Sweet Success

It's not often that a project succeeds and then exceeds expectations, but that's what happened with the Phased Array Ultrasonics project.

Most people are aware of the medical applications of ultrasonic imaging, since sonograms are often used to create pictures of internal organs. Similarly, Phased Array is an advanced ultrasonic imaging technique used to detect flaws in metal. Although it has been used in industry for 20 years, it took the Plant-Directed Research, Development and Demonstration, or PDRD, project led by Steve Dekanich to prove that it can be used successfully at Y-12.

The goal of the Phased Array Ultrasonics project was to detect flaws of 20 mils (0.020 inches) in materials of interest to Y-12. The project team was able to surpass that goal of 20 mils and detect and image flaws of 2.1 mils (0.0021 inches) — a resounding success.

The process will be used at Y-12 for weld inspections. A probe scans the metal and maps a display on a monitor by bouncing sound waves through the metal. Multiple transducers are manipulated to give a detailed display. A two-dimensional graph results. If a flaw in the metal is detected, the Phased Array system can be calibrated to measure the flaw, not just image it.

Using this initial success as an indicator, Dekanich said it is important to continue developing the technical base for Phased Array Ultrasonics for Y-12 applications.

Dekanich said, "This field-deployable method will provide a rapid means of assessing welds during weld development stages and weld inspections to enable detection and mapping of defects." That's definitely a success to build on.



The Phased Array system equipment.

# An experiment in learning

## lab kits have big impact on schools

Tracy Such, a science teacher at Lenoir City Middle School, and her seventh-grade life and earth science class receive lab kits paid for by Y-12.



Y-12 participated in a program that delivered Lab-in-a-Box kits to seven area school systems last year, and a recent evaluation shows the kits had a significant impact on student achievement. The program was created by the Rural Communities STEM Initiative (RCSI), an Oak Ridge business and education partnership seeking to improve science, technology, engineering and math (STEM) skills of regional K–12 students.

An evaluation by Roane State Community College found that 91.5 percent of students reported that they liked doing the labs, and 85 percent of students achieved a high level (80 percent or greater) of competence in the state standards addressed with each Lab-in-a-Box.

School systems that received the kits were Anderson County, Campbell County, Lenoir City, Morgan County, Oneida Special School District, Roane County and Scott County.

The Lab-in-a-Box set includes “Math: How Biologists Divide,” “Math: Math in the Animal Kingdom,” “Biology: Species, Symmetry and Segments,” “Geology: Mineral Properties and Identification,” “Geology: Understanding the Rock Cycle,” “Chemistry: Do You See What I See,” and “Chemistry: Capture the Rainbow.”

Limited resources mean that teachers often do not have enough lab materials. The Lab-in-a-Box kits include plenty of samples for hands-on learning experiences, and lab lesson plans align with state curriculum standards in the related subjects.

The Roane State Foundation raised private donations to pay for the kits, and Y-12 was one of the donors. The average cost of a Lab-in-a-Box set is \$7,500. Y-12’s donation paid for three lab sets.

## HELPING OTHERS ‘look good ... feel better’

Safeguards, Security and Emergency Services’ Scott Hackler and Tim Morris recently participated in the Leadership Anderson County program and made the most of their final project.

After studying leadership principles, they and their fellow participants began transforming a former doctor’s office into a larger Resource Center at Thompson Cancer Survival Center at Methodist Medical Center.

“We wanted something with sweat equity,” said Hackler, “something that involved more than raising money, but would benefit the community.”

A total of 21 companies donated funds or supplies to the project. Hackler and Morris helped paint walls, pick up furniture and build countertops.

They created a wig room, where patients and survivors can be fitted with a free wig — donated from the American Cancer Society. Down the hall, women can also sit in one of the new American Cancer Society-sponsored “Look Good ... Feel Better” stations and have their hair and makeup done.

“It was a multi-faceted project where things needed to happen in order. We looked at each of our strengths and planned who could do what to get the job done,” said Morris.

Now complete, the center is free and open to the public. “We began this project thinking it’d simply be an effort to spruce up the area,” said Hackler. “Personally, I didn’t know what it could be until the end.”

For more information, contact the center at 835-4530 from 9 a.m.–4 p.m., Monday–Friday.



Y-12’s Scott Hackler and Audrey Ingram of Methodist Medical Center sort hand-knitted hats donated to the Resource Center.

# Around Y-12 ...

- **Don't let safety take a backseat during times of distraction. Although we have the U.S. Department of Energy Voluntary Protection Program Star, we must continue our safe practices.** Sam Lariviere, Y-12's VPP facilitator, said, "Keep your focus on the work to be performed, keep your eye on your task at hand and always keep safety in mind." If someone doesn't follow the established rules for safe behavior, question them.
- **Have you thought about walking in a 5K?** Maybe you've mastered the 5K and are ready for a 10K. Whatever your walking or running level, LiveWise invites you to participate in the fall Couch to 5K® session. All you have to do is dedicate a couple of hours to becoming more physically active. "We offer a progressive training plan to accommodate a variety of fitness levels," LiveWise certified athletic trainer Kayla Kroeschen said. Employees are invited to the information session Sept. 10, at 5 p.m. in Jack Case Center cafeteria.
- **MEDIC will hold a blood drive Sept. 15-18 at Y-12.** All employees and their dependents receive a year of blood coverage if 30 percent of our active payroll employees participate in Y-12 MEDIC blood drives during calendar year 2012. MEDIC supplies life-sustaining blood to all eight hospitals in Knoxville and to 20 other hospitals in 21 counties in East Tennessee and Southeast Kentucky. Blood drives at companies, churches, high schools and communities provide 85 percent of the blood collected by MEDIC.
- **Technology Transfer has cash awards available: T2-2K Award and Technology Support Award.** Entries are accepted through Sept. 30. Winners are announced at the annual Technology Transfer Awards Ceremony to be held this fall. For more information, contact Tammy Graham at 574-2214.
- **Mark your calendars for Oct. 6 and join the B&W Y-12 team at this year's Alzheimer's Tennessee 5 County Alzheimer's Walk at the Oak Ridge Civic Center.** You, your co-workers, family and friends can join the team; sign up at <http://www.alztnevents.org/alztn/CompleteRegistration.asp?fkroledescid=1&campaignid=34>.
- **Make plans to join the B&W Y-12 Light the Night Team for the Leukemia and Lymphoma Society.** The walk will be at Circle Park on the University of Tennessee campus Oct. 25 at 6 p.m. Visit the team's website (<http://pages.lightthenight.org/tn/ETN12/bwy12>) to join. The Leukemia and Lymphoma Society is the world's largest voluntary health agency dedicated to curing blood cancers. If you have questions about the walk, contact team captain Pam Summers at 574-4007.
- **You may be gearing up for autumn cleaning at home, and Pollution Prevention wants to remind you about fall household hazardous waste events.** Find out when an event will be in your community by visiting <http://www.tn.gov/environment/swm/pdf/hazcoll.pdf>.



## 45 years

Maintenance Support: Douglas H. Kitchen

## 44 years

Engineering: Luther E. Galyon Jr.

## 43 years

Resource Management: Argil R. Burress

Production: Pete D. Psihogios

Quality Programs: Robert M. Jones

## 42 years

Engineering: Bernard G. Keylon Jr.

Public & Governmental Affairs: D. Ray Smith

Quality Assurance: Terry A. Chance

## 35 years

Analytical Chemistry: Cecil G. Rayborn and Norman R. Smyrl

Communications Services: Donna S. Griffith

Engineering: Scott D. Johnsen, Phillip B.

Montgomery and Alexander R. Sadlowe Jr.

Material Management: James M. Shotts

Production: James B. Atwater

## 30 years

Engineering: Elliott R. Edwards

Production: Susan R. Baker and Roger K.

Koehler Jr.

Stockpile Programs: Yvonne H. Tracy

## 25 years

Engineering: Susan M. Liner

Information Technology: James E. McCauley IV and Douglas A. Sullivan

Production: Patricia L. Baker, Eric B. Bannon and Robert S. Tapley



Brothers Eden, 5, and Weston Gilliam, 3, of Gatlinburg, Tenn., answer their father's question by pointing to where the stars are, while atop the model rocket at the Children's Museum of Oak Ridge. A \$15,000 grant from B&W Y-12 will be used to transform this area of the museum into a Rocket Room with interactive activities taking children on an imaginary trip to Mars. B&W Y-12's relationship with the Huntsville area also is garnering the exhibit with some donated articles, such as NASA satellites and control panels, to give authenticity to the exhibit. The existing model rocket is a favorite with children and will be refurbished as part of the Rocket Room project.

Volume 12, No. 9

September 2012

www.y12.doe.gov/news/times.php

P.O. Box 2009

Oak Ridge, TN 37831-8245

B&W Technical Services Y-12, LLC, a partnership between Babcock & Wilcox Technical Services Group Inc. and Bechtel National Inc., operates the Y-12 National Security Complex.

#### Managing Editors

Amy Alley:

alleyab@y12.doe.gov

Mary Bryant:

bryantma@y12.doe.gov

#### Layout

Lisa Harris

#### Contributors

Alice Brandon

Ellen Boatner

Ashley Douglas

Ryn Etter

Kathy Fahey

Scott Fraker

Kathryn King

Terry Marlar

Jill McNutt

Brett Pate

Kate Shaw

Ray Smith

Heidi Spurling

Eric Swanson

Marla Vinson

Brian Wagner

Mona Wright

Lisa Xiques

P.O. Box 2009

Oak Ridge, TN 37831-8245

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During his years in the Navy, Matthew Nash circled the world in a Tomahawk-carrying Fast Attack submarine, “seeing some places I wouldn’t have normally seen and a *lot* of ocean.”

## From sailor hat to mortarboard

As a Tennessean, Matthew Nash knew about Oak Ridge National Laboratory and the Tennessee Valley Authority, but it wasn’t until he visited TVA’s website that the U.S. Navy veteran learned about the America’s Veterans to Tennessee Engineers Program — and, through another web link, about Y-12. Nash applied for the program, and in May, he became Y-12’s second graduate.

Nash, who began the University of Tennessee’s bachelor’s program in nuclear engineering in January 2010, started a part-time job at Y-12 four days later.

“The veterans’ program does not guarantee students part-time work,” Nash said. “You’re guaranteed a job only after you get a degree.” He feels fortunate that Y-12 was flexible in accommodating his university schedule; moreover, his part-time job provided him with work experience, a clearance and an understanding of how Y-12 operates.

Enrolled in Engineering’s 2-year rotation program for new hires, Nash became ensconced in Criticality Safety in July. As a part-timer, he worked in Development, Technology Integration, Nuclear Procurement Engineering and Test Engineering. “The experiences help me know what other groups do and who to contact.”

He also recommends the America’s Veterans to Tennessee Engineers Program to others. “I met a vet taking classes at UT and told him about it. He applied, and he’s now at USEC [the United States Enrichment Corporation].”

After a long-awaited college dream come true — the summer off — Nash is back at UT taking graduate courses in nuclear engineering.