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Russian Border Crossings Will Be Secured

In just four years, all of Russia's official international border crossings, including airports, seaports, railways and land crossings, will be equipped with radiation detection devices to prevent nuclear smuggling in or out of the country. As a part of a landmark agreement signed between the United States and Russia, both NNSA and the Russian Federal Customs Service (FCS) will pay for and install the sensitive detection equipment.

"As our counterproliferation and anti-terrorism partnership with Russia grows stronger, the security provided through this agreement will not only make Russia safer, but it will also increase the security of the United States and our allies in the region," said NNSA's Acting Administrator Bill Ostendorff.

Under the new accord, the

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Nuclear Weapons Dismantlements Increase By 50 Percent

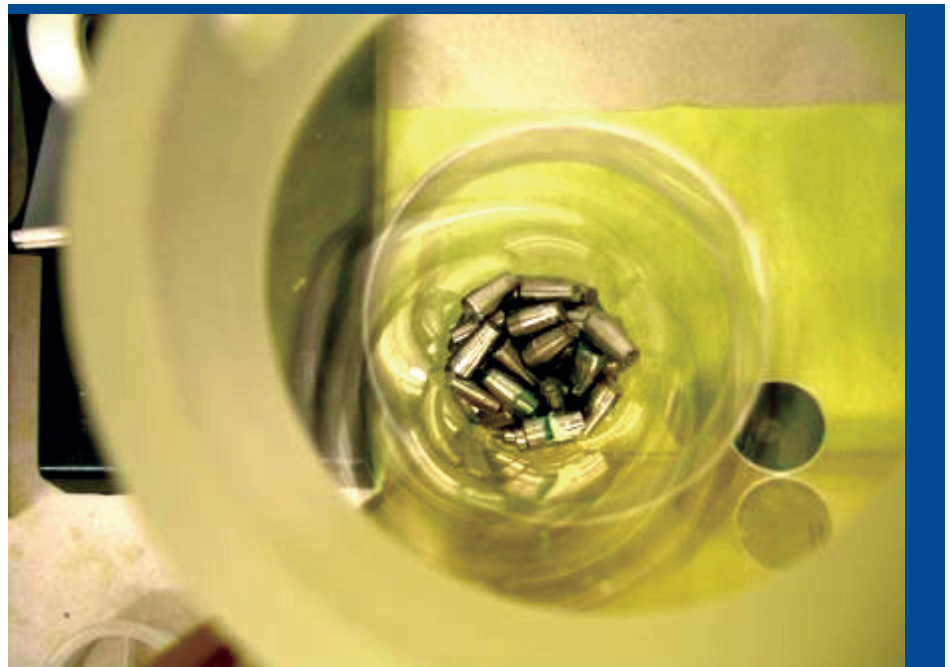
The rate of NNSA's weapons dismantlements has increased by 50 percent over last year's level and will continue at the sharply higher rate for the rest of the year.

"NNSA is committed to carrying out the President's vision of the smallest stockpile consistent with national security needs," said Bill Ostendorff, NNSA's acting administrator. "By dismantling nuclear weapons safely and efficiently, we are ensuring that the weapons can no longer be used again. This increased

dismantlement work demonstrates that this country is serious about nonproliferation."

NNSA established a goal to increase the dismantlement rate of retired nuclear weapons by nearly 50 percent, but because of dramatic improvements in procedures, tools and policies NNSA was able to reach this goal four months ahead of schedule. In order to increase its dismantlement capacity, NNSA made substantial

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14,998, 14,999, 15,000!: Just a handful of radioactive sealed sources recovered by NNSA's global threat reduction program. These sealed sources containing americium-241 were inspected in California for packaging and delivery to Los Alamos National Laboratory in May. The project surpassed the 15,000 mark for total excess sources removed for safe and secure management by NNSA. See pages four and five for more on the program.

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United States and Russia will share the security costs, with each providing approximately half of the funding, and all of the crossings will be secured by 2011 - six years ahead of schedule. The agreement also covers the long-term sustainability of the installations, ensuring that Russia will maintain and repair the equipment into the future. From 2009 to 2013, NNSA will transition over to Russia the maintenance and repair of the NNSA-provided equipment.

NNSA, through its Second Line of Defense (SLD) program, is working cooperatively with FCS to secure approximately 350 border crossings in Russia by installing fixed radiation portal monitors that can detect smuggled nuclear and radiological material, providing handheld detection instruments, and conducting training programs for Russian customs officials.

FCS reported that in 2006 there were 50,000 responses to alarms in Russia from fixed portal monitors and hand held equipment provided by NNSA and the FCS. Of these alarms, over 480 cases of illicit trafficking of nuclear and radioactive material, including goods with unacceptable levels of ionizing radiation, were identified and responded to by the appropriate Russian authorities. Russia began installing radiation control equipment at its crossing points in 1996.

NNSA's SLD program works with foreign governments at border crossings, airports and seaports to install specialized radiation detection equipment and train officials to detect and respond to smuggled nuclear and other radioactive materials.

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investments in previous years across the nuclear weapons complex to hire additional technicians, purchase the right equipment and tools, and develop better safety and security procedures.

In 2004, President Bush directed that the size of the nuclear weapons stockpile be reduced nearly 50 percent by 2012 - making it the smallest since the 1950s. As a result of the increase in dismantlements and reductions, the stockpile will be one-quarter of its size at the end of the Cold War.

"Since taking his oath of office, this President has authorized a nearly one-half reduction in the size of U.S. nuclear weapons stockpile. This shows a true commitment to shrinking our country's nuclear forces," said Ostendorff. "At NNSA, we've been able to make the President's commitment a reality by investing wisely in the people and tools necessary to get the dismantlement job done."

Meeting this highly ambitious dismantlement goal took the effort of NNSA's entire nuclear weapons complex. This includes the three national nuclear weapons design laboratories (Los Alamos, Lawrence Livermore, and Sandia national laboratories), the Kansas City Plant, the Savannah River Site, the Y-12 National Security Complex, and the Pantex Plant.

The dismantlement process begins at Pantex where the high explosives are removed from the special nuclear material, and non-nuclear components are either processed on site or are sent to other facilities within the complex. Y-12 further dismantles the uranium components. Other non-nuclear components are sent to Savannah River (e.g., pressure storage devices) and Kansas City (e.g., electrical components) for final processing. NNSA's Office of Secure Transportation moves the special nuclear material and some parts between sites, ensuring that the work is completed securely and on schedule.



NATIONAL SECURITY

STUDENT: Steven Lawrence, assistant manager for site operations at the Nevada Test Site, is the only individual from the Department of Energy and NNSA selected in the current fiscal year to attend the prestigious National Defense University (NDU) Program within the Industrial College of the Armed Forces. Located at Fort McNair in Washington, D.C., the NDU mission is to guide military and civilian leaders worldwide to address national and international security challenges through multi-disciplinary educational programs.

MEGAPORTS DEAL: Secretary of Energy Samuel W. Bodman (right) signs a Megaports agreement with Mexican Minister of Finance and Public Credit Agustin Carstens. The United States and Mexico have a history of cooperation in nuclear nonproliferation work, and the two nations are jointly preparing for a large, international emergency response exercise to be held in Mexico in 2008. The agreement paves the way for NNSA to work with Mexican customs to install radiation detection equipment at four Mexican seaports.



Y-12 Continues Consolidation Efforts

NNSA's Y-12 National Security Complex has completed the first phase of a major effort to relocate and consolidate facilities and equipment associated with the evaluation and assessment of nuclear weapons components.

Y-12's Quality Evaluation (QE) and Stockpile Surveillance Program is responsible for assessing multiple aspects of the nuclear weapons stockpile, including component integrity, design compatibility and safety. It is a key Y-12 mission and is intended to maintain confidence in the safety and reliability of the nation's nuclear weapons stockpile.

As an important facility in NNSA's nuclear weapons complex, Y-12 is the nation's only source of secondaries and other components associated with nuclear weapons. Y-12 is operated by BWXT Y-12 for NNSA.

Theodore Sherry, manager of the Y-12 Site Office, said, "The consolidation of this function has enabled Y-12 to eliminate the need to transport materials onsite, to reduce costs and to increase the safety and security of these important activities. This is a key part of our overall infrastructure reduction initiatives and supports the long term modernization of the plant."

Completion of the first phase of relocation has enabled Y-12 to meet its requirement under the Design Basis Threat, a set of security requirements to protect against credible threats against NNSA assets and operations. The consolidation of these activities has allowed Y-12 to avoid significant increases in overall security costs.

George Dials, president and general manager of BWXT Y-12, said, "Relocation and consolidation of this portion of quality evaluation is a significant accomplishment in BWXT

Y-12's overall goal of making these facilities as safe and secure as possible and accomplishing these tasks in an efficient and cost-effective manner."

Under Y-12's QE program, assessments of the reliability and functionality of weapons components, both assemblies and subassemblies, begin with preproduction and continue throughout each weapon's stockpile life until retirement. Close coordination with NNSA's weapons design labs (Los Alamos and Lawrence Livermore national laboratories) enabled Y-12 to continue to perform this essential mission without any disruption during the relocation effort. More than 200 BWXT Y-12 employees were involved in the relocation effort.

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NNSA Recovers More Than 15,000 R

As a result of just-completed work, NNSA's Office of Global Threat Reduction has recovered 15,000 radioactive sealed sources, which are now securely stored at Los Alamos National Laboratory (LANL) in New Mexico and at other contractor facilities.

NNSA's source recovery activities are based principally at LANL, removing and securing radioactive materials that could be at risk for theft or diversion for use in a dirty bomb.

The program recovers excess, unwanted, or abandoned radioactive sealed sources and other radioactive material.

Permanent disposal for some of the sources began in 2005 and was expanded during 2006. The 15,000th source came from a company near Los Angeles, which used the source to manufacture quality-control gauges for the plastic and paper industry. Three hundred and six obsolete and defective sources,

small tungsten-shielded, teardrop-shaped items, each contain about 150 millicuries of americium-241.

The three-person team from LANL inspected and

storage pending approval for disposition.

NNSA has removed more than 170,000 curies of unwanted

EXPOSURE MINIMIZED: Occupational radiation exposure during recovery operations is minimized using concepts of time, distance and shielding. In this example, neutron source handling and packaging efforts are preplanned and efficient. Distance is maximized by using long-handled tools. Shipping containers incorporate neutron shielding to minimize dose during packaging, storage and through disposition.

packaged the sources, then loaded them into special drums for shipment to the lab. The sources are held for interim

radioactive material from owners who had no other disposition path. The sealed sources were once used in applications ranging from nuclear-powered cardiac pacemakers to gauges used in paper manufacturing and petroleum exploration.

"The source recovery project has achieved the goal of providing an end-of-life disposition pathway for the sealed source life cycle in the United States, including



SEALED SOURCE TRANSPORT: A sealed source containing 33 curies of plutonium-238 is placed into a field-sealable capsule by a LANL team member. Once closed, the capsule meets the "Special Form" requirements of the U.S. Department of Transportation and IAEA. It is an indispensable tool for transportation of unwanted radioactive sources for threat reduction operations.

Radioactive Sources In U.S.

sources for which no disposal pathway previously existed," said LANL's Senior Project Leader Julia Whitworth. "The team's efforts guarantee continued medical and other beneficial uses of sealed sources, and solve the disposition problem of unwanted sources for future generations."
 In 2006,

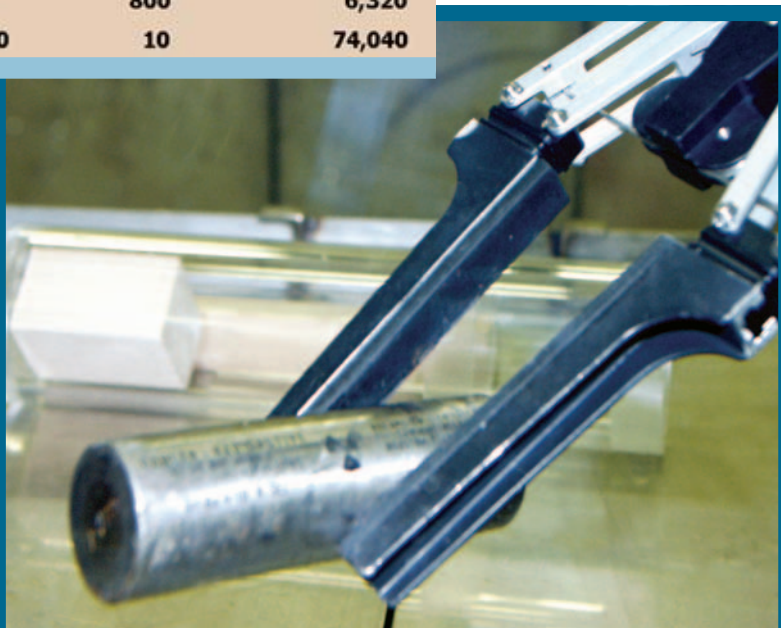


NNSA also began recovering unwanted or unused U.S.-origin sealed sources distributed overseas. The LANL team has so far repatriated radioactive sources from Africa and Australia.

Several other projects with foreign countries, coordinated with the State Department and the International Atomic Energy Agency, are planned this year. For instance, NNSA is also participating in multi-agency cooperative efforts with Chinese authorities in support of radiological facility security operations during the 2008 Beijing Olympics.

Recent accomplishments include obtaining international certifications for using LANL's S300 shipping container and field-sealable special form capsules.

| Nuclide | Sources | Curies |
|---------------|---------|--------|
| Americium-241 | 11,100 | 13,900 |
| Plutonium-238 | 2,200 | 11,000 |
| Plutonium-239 | 500 | 760 |
| Cesium-137 | 400 | 8,870 |
| Cobalt-60 | 800 | 6,320 |
| Strontium-90 | 10 | 74,040 |



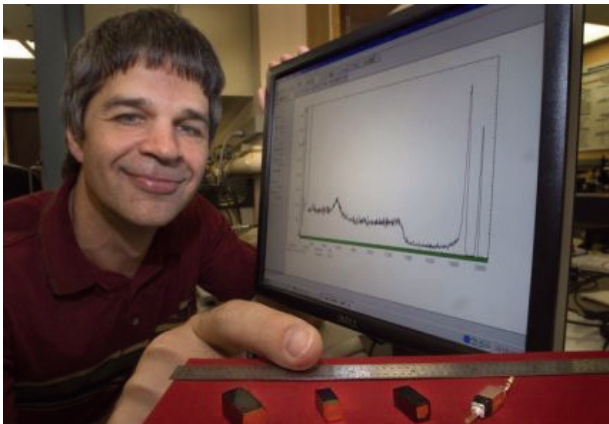
SEALED SOURCE VERIFICATION: NNSA's recovery team at LANL often uses a neutron hot cell with manipulators to inspect and verify sealed-source isotope and activity markings etched on recovered radioactive sources, such as this americium-241/beryllium neutron source.

Source Recovery Project Facts

- NNSA has recovered radioactive sealed sources from more than 600 domestic locations, plus Australia, the Middle East, and several countries in Africa. Recoveries in at least four new countries are planned through 2008.
- The recovery team consists of 12 dedicated LANL scientists and engineers who recover an average of 2,300 sealed sources per year.
- The project established a disposal pathway for actinide sealed sources. More than 3,700 sealed sources, containing more than 7,000 curies of activity, have been disposed.
- NNSA and LANL's recovery team are providing demonstrations, training and technical support through the IAEA and U.S. State Department to develop regional sealed source consolidation and disposal capabilities in developing nations around the world.
- A typical drum of material recovered weighs more than 500 pounds.
- In FY 2007, the sealed source recovery project assisted an IAEA mission to assess inventories of sealed sources in six Central American countries.

NNSA Improves Technology For Radiation Detection

New detection devices to monitor, locate and identify illicit nuclear and radiological material are being developed by Department of Energy researchers. Funded by NNSA, scientists at the department's Brookhaven National Laboratory have improved the performance of radiation



CUTTING EDGE RESEARCH: Brookhaven physicist Aleksey Bolotnikov demonstrates cadmium zinc telluride crystals at various steps in radiation detector fabrication. The tall, narrow peak in the spectrum on the computer screen is an indicator of the detector's superior performance.

detectors, making the technology more accurate and cost-effective. "At NNSA, we work closely

with our national laboratories to counter the proliferation threat posed by illicit transfers of nuclear material," said William Tobey, head of NNSA's nonproliferation programs. "This new detection technology gives us one more tool to use. It will help NNSA to do its job better around the world and could even help other agencies and private companies here in the United States."

He said NNSA has the U.S. government's only long-term research and development program devoted to preventing the spread of nuclear and radiological materials.

"In practical terms, the improved devices will be able to detect more minute quantities of radiation, detect radioactive materials more quickly or from greater distances, better identify the source of the radiation, and distinguish illicit sources of concern from common, naturally occurring radioactive materials," said Brookhaven physicist Aleksey Bolotnikov, one of the inventors.

NNSA's Office of Nonproliferation Research and Development conducts cutting-edge research, development, testing and evaluations. Together with the expertise of the department's national laboratories, the office improves the United States' ability to counter terrorism, and detect and deter the proliferation of weapons of mass destruction.

PNNL, U. Of Washington Help NNSA Achieve China Export Control

Pacific Northwest National Laboratory's Center for Global Security is partnering with a Chinese university in a new initiative directed at institutionalizing nonproliferation export control education in China and engaging China in cooperative nonproliferation activities.

"China has made significant progress in export control over the past decade and is proud of those accomplishments," said Mark Leek, project co-director. "Export control could become an area of strength for China and create new opportunities for expanding our nonproliferation efforts there."

The education collaboration is undertaken as part of the center's partnership with the University of Washington's Jackson School of International Studies called the Institute for Global and Regional Security Studies. The U.S. partners are working with Dr. Shen Dingli of Fudan University in Shanghai, which possesses what is arguably China's most fully developed and robust arms control and nonproliferation curriculum.

NNSA's International Nuclear Export Control Program is funding the efforts to incorporate export control into the university curriculum, with the prospect it would be established as a center of export control educational resources for a number of Chinese universities and other institutions of higher learning.

The program involves a Chinese professor spending the summer studying at multiple U.S.-based non-governmental organizations and the University of Washington before returning to Fudan to teach principles learned during the visit. In return, Fudan University will host a workshop for about 10 universities and education-related organizations.

"We hope this curriculum collaboration on export control will be extended to include the areas of safeguards, material protection control and accounting, border security, and other areas," Leek said.

Sandia Develops Power-free Device For Weapon Gas Sampling At Pantex Plant

The internal atmosphere of a nuclear weapon can reveal important seal integrity and material aging information. For these reasons, gas sampling and analyses are a necessary part of NNSA's weapon disassembly and inspection procedures.

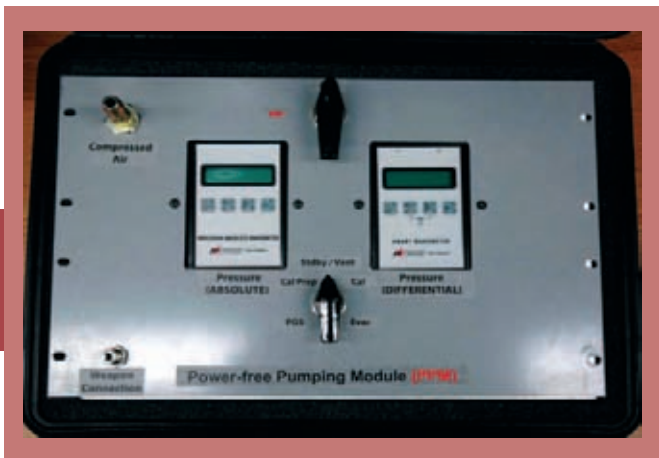
Right now the only hardware qualified to perform gas sampling

procedures is an alternating current powered gas cart called a Phoenix cart that cannot be used for gas sampling operations during lightning warning periods at the Pantex Plant in Amarillo, Texas.

To alleviate the problem, a new instrument has been designed and prototyped at Sandia National Laboratories in Albuquerque, N.M., with funding from NNSA's enhanced surveillance campaign. Designed as two separate modules, the Power-free Pumping Module (PPM) and Power-free Gas Sampler (PGS) provide all the functionality of the Phoenix cart while being light and compact enough to be transported in a suitcase type package.

The PPM/PGS does not require AC power, enabling its use even during the frequent summer lightning warnings at Pantex. Using prototype

SUCCESSFUL DEMONSTRATION: Front panel of the Power-free Pumping Module prototype showing relatively simple operation.



hardware, the operation, validity and functional advantages of the PPM were successfully demonstrated recently. Pantex managers who attended the demonstration recognized the increased efficiency and productivity that is possible with the technology.

A joint Sandia/Pantex implementation product realization team (funded through NNSA's directed stockpile work) is actively pursuing production-level development and deployment of the PPM with a goal of having it on-line by the end of this fiscal year. Advancement of the companion PGS prototype is currently underway by NNSA.

Nevada Site Office Aviation Program Garners Multiple Awards

The aviation program team at NNSA's Nevada Site Office (NSO) with its contractor partner National Security Technologies, LLC earned several awards recently.

It earned a unique distinction by winning all of the awards in the Department of Energy's annual Aviation Management Awards competition. The NSO team set itself apart with its outstanding performance of the 24/7 radiological incident response mission of the Remote Sensing Laboratory out of Nellis and Andrews Air Force bases.

Individual department awards

went to William Colucci, who won the 2006 John Cooley Aviation Operations/Support Professional Memorial Award for his service as the operations supervisor, and Joseph M. Ginanni, who won the Management Professional Award for his contribution to safety, efficiency and effectiveness.

After winning all of the department awards, the NSO team was nominated for the government-wide Federal Aviation Awards sponsored by the General Services Administration.

Out of the 21 participating agencies for the federal awards,

the NSO team earned the prestigious top prize in the small aviation operation (less than 20 aircraft) category, making this the second time in three years that it has won this award.

All of the awards recognize outstanding contributions to the safety, efficiency, and effectiveness of flight programs. Recipients will receive certificates for the federal awards during a ceremony in July, and the department awards feature engraved trophies.

First Year Of LANS Management At LANL Was 'Challenging And Successful'

In the year since Los Alamos National Security, LLC (LANS) assumed the management and operating contract for NNSA's Los Alamos National Laboratory on June 21, 2006, mission milestones have been met and significant improvements have occurred in safety and security along with recognition of outstanding science, Director Michael Anastasio said in a recent memo to all employees.

He went on to say it was a year of challenges and successes with boosts in efficiency and effectiveness and the development of institutional goals to help ensure the future of the lab.

"We have a clear vision: Los Alamos, the premier national security science laboratory for the 21st century," Anastasio said. "At the end of our first year together, we have overcome many obstacles and made substantial progress to realize our vision. I am proud of your hard work. While it's been a tough year, it's been a good year, and I encourage you to take time to reflect."

Among the lab's notable achievements, Anastasio said that there has been a dramatic improvement in safety with 30 percent fewer injuries than in the prior year. Also, increased costs have been absorbed without sacrificing mission or commitment to employees, and physical security and cyber security have improved by reducing risks and eliminating and consolidating classified material.

Additionally, he said, a 30 percent cut in the amount of classified removable electronic media was achieved along with a one-fifth reduction in classified computing systems; a reduction of vault-type rooms by 15 percent; and expansion of drug-testing and physical searches. The laboratory also began a new era of fully contained high-explosive activities at the Dual Axis Radiographic Hydrodynamic Test facility and fielded a successful launch of the Cibola Flight Experiment.

"We plan and act for a successful and sustainable future," he said. "We've adopted 12 large-scale, long-term goals and concrete commitments toward achieving them, such as successfully launching the first phase of the Roadrunner supercomputer and launching a Super Vault Type Room prototype effort."

"We're more accountable and reliable than ever," Anastasio said in his memo. "We added dimensions of oversight and accountability including a demanding and expert Board of Governors, a contractor assurance system and accountability to our colleagues and employees through performance-based leadership."



OPSEC AWARDS: The Operations Security (OPSEC) program at NNSA's Nevada Site Office recently won two first-place awards for multimedia achievements. This represents the 11th and 12th times in the last 13 years that the site office has earned these awards. In addition, the program has captured two American Society for Industrial Security Awards for its web site and an identity theft video.

The site office program was honored by the Interagency OPSEC Support Staff (IOSS) in the electronic and printed media categories for an outstanding video and four posters (one shown above), all of which are related to security awareness.

The IOSS developed and runs the national awards program, which is open to government agencies that support national security programs. Each year, nominations are received from the various government agencies such as the Air Force, Navy, Army, Central Intelligence Agency, and the Federal Bureau of Investigation.

OFF TO COLLEGE:

Douglas Dearolph, of NNSA's Y-12 Site Office, has been selected to attend the U.S. Naval War College in residence. The Naval War College, located in Newport, R.I., is a highly select senior service school and an international crossroads where corporate, academic and government leaders meet to exchange innovative ideas. Dearolph serves as the assistant manager for Engineering, Safety and Environment for the Y-12 Site Office.

