



NNSA Announces End Of Plutonium Production In Seversk, Russia

NNSA has announced that the second plutonium-producing reactor in Seversk, Russia, was shut down ahead of schedule, ending the proliferation risk of the dangerous nuclear material. NNSA and its Russian counterparts at Rosatom announced the first reactor shutdown on April 20, 2008.

Today's milestone ends 43 years of weapons-grade plutonium production in Seversk, formerly the Russian secret city codenamed Tomsk-7.

"The shutdown of the second reactor at Seversk brings us another step closer to eliminating the production of nuclear weapons-grade plutonium in Russia," said William Tobey, NNSA's deputy administrator for defense nuclear nonproliferation.

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NNSA Labs Will Play Prominent Role In U.S. National Security

The National Nuclear Security Administration science, technology and engineering capabilities will serve a broader national security mission in the future, based on a direction recently approved by U.S. Secretary of Energy Samuel Bodman. NNSA is moving from the outdated, Cold War-era nuclear weapons complex into one that is smaller, safer, more secure, and less expensive.

"NNSA's national security laboratories - Los Alamos National Laboratory, Sandia National Laboratories, and Lawrence Livermore National Laboratory - and the Nevada Test Site have world class scientists, engineers and capabilities that are national assets," said NNSA Administrator Thomas D'Agostino. "To respond to the evolving 21st century global security threats, NNSA will bring our enterprise to bear on solving large, urgent national security challenges."

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HOUSE TESTIMONY: Administrator Thomas D'Agostino (center) makes a point about Complex Transformation at a recent hearing of the House Armed Services Subcommittee on Strategic Forces. He was joined by the heads of NNSA's



eight sites. They are (left to right): Dennis Hayes, Washington Savannah River Company manager for Defense Programs at SRS; Darrel Kohlhorst, president and general manager of Babcock and Wilcox Technical Services Y-12, LLC; Vince Trim, president of Honeywell FM&T, which manages the Kansas City Plant, Administrator D'Agostino; Michael Anastasio, director of Los Alamos National Laboratory; George Miller, director of Lawrence Livermore National Laboratory; and Tom Hunter, director of Sandia National Laboratories. Not pictured are J. Greg Meyer, president and general manager of Babcock and Wilcox Technical Services Pantex, LLC; and Stephen Younger, president of National Security Technologies, LLC, which manages the Nevada Test Site.

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“NNSA’s commitment and investment in this effort will help prevent the proliferation threat of weapons of mass destruction by bringing to an end the production of this dangerous nuclear material.”

The Russian reactors were originally operated to produce weapons-grade plutonium with heat and electricity as a by-product from the early 1960s until 1993. Since 1993, the reactors have operated to provide heat and electricity for Seversk and nearby areas, and they produced weapons-grade plutonium as a by-product. Under the 1997 Plutonium Production Reactor Agreement between the United States and Russian Federation, this plutonium could not be used for weapons. NNSA and Rosatom are also working to provide replacement capacity for the final reactor operating in Zheleznogorsk so that it can be shut down on schedule, no later than 2010, permanently ceasing Russian weapons-grade plutonium production.

The reactor shutdown was made possible by a joint program between NNSA and Rosatom. NNSA’s Elimination of Weapons Grade Plutonium Production program is working with Rosatom on the closure work and provides fossil-fuel heat and electricity to replace Russia’s remaining plutonium production reactors.

NNSA Will Play A Prominent Role In National Security

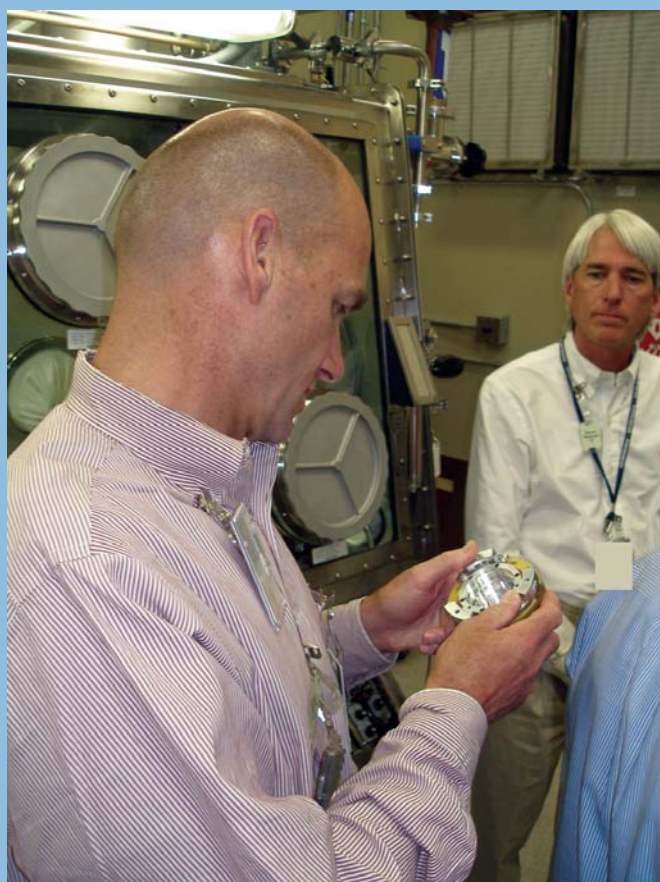
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As part of this effort, it will also leverage the scientific and technical capabilities of its workforce to meet the needs of evolving national security requirements for the future. NNSA, its national security laboratories, and the test site have reached a consensus that their future mission encompasses the full spectrum of national security interests.

Some examples of this type of national security work include:

- Supporting war fighter needs in Iraq with IED modeling and analysis;
- Assisting in the safe recovery and securing of a potential radiological device or a lost or stolen U.S. nuclear weapon;
- Helping identify, among other things, the source of a nuclear device, its effects, and the persons or groups responsible using technical nuclear forensics;
- Developing and deploying integrated systems for countering aerosolized bioterrorist releases and bio-decontamination technologies.

NTS TOUR:
 NNSA Administrator Thomas D'Agostino, forefront, examines a JASPER target holder at the Nevada Test Site's (NTS) Device Assembly Facility (DAF). JASPER stands for Joint Actinide Shock Physics Experimental Research. Behind D'Agostino is one of two glove boxes inside the DAF where JASPER targets will eventually be assembled. Acting Nevada Site Office Manager Steve Mellington looks on. D'Agostino and DOE Acting Deputy Secretary Jeff Kupfer recently toured facilities at NTS.



NNSA News is published monthly by the Office of Congressional, Intergovernmental and Public Affairs. David A. Campbell, Director. Editors: Casey Ruberg, Al Stotts, Bryan Wilkes. Assistant Editor and Design: Barbara Courtney. Contributors: Laura Bailey, B&W Pantex; James Giusti, DOE-SR; Darwin Morgan, Nevada Test Site; James Rickman, Los Alamos Lab; Tanya Snyder, Honeywell FM&T/KCP; Katie Sylvester, NNSA HQ; Jerry Truax, NNSA HQ; Steve Wyatt, Y-12 Site Office.

Y-12 Completes Major Life Extension Program Milestone

NNSA's Y-12 National Security Complex has reached a major milestone in the Stockpile Stewardship Program with completion of the canned subassembly production for the B61 Life Extension Program (LEP). Most nuclear weapons in the U.S. stockpile were produced anywhere from 30 to 40 years ago, and the United States has not conducted an underground nuclear test since 1992. Now NNSA must use science-based research and development to extend the lifetime of the current weapons in the stockpile. By extending the "life" of a current weapon, or time that a weapon can safely and reliably remain in the stockpile without having to be replaced or removed, NNSA is able to maintain a credible nuclear deterrent without producing new weapons or conducting new underground nuclear tests.

Under the LEP, B61-7 and B61-11 strategic nuclear bombs are being retrofitted with the refurbished canned subassemblies produced by Y-12. The subassembly contains the secondary -- the second stage of modern thermonuclear weapons. The retrofit, which is designated Alteration 357, will significantly extend the life of these strategic bombs.

Ted Sherry, Y-12 site office manager for NNSA, said the completion of the refurbishment for a major weapon system in the stockpile is a significant accomplishment for Y-12. "In a time of challenging budgets, it is important that Y-12 safely, securely and efficiently complete refurbishment programs on schedule and within budget," he said.

Darrel Kohlhorst, president and general manager of B&W Y-12, said Y-12 employees feel a tremendous sense of accomplishment. "When they faced challenges, the employees tackled them head-on and met all the programs goals. I personally congratulate them on a job well done," he said.

Work on the alteration also benefited from Y-12's Throughput Improvement Program, or YTIP. Several YTIP actions resulted in lowering costs to ensure the final schedule was achieved within budget.

Since 2004, Y-12 has completed production on two life extension programs (LEP): the W87 and the B61 ALT 357, and has started a third, the W76 LEP. The first production unit for the W76 LEP will be completed later this summer.

Y-12's Directed Stockpile Life Extension Programs are focused on the production of refurbished secondaries and/or replacement weapons components. The B61 ALT 357 involved a NNSA complex-wide team that included Los Alamos and Sandia National Laboratories, the Pantex Plant, the Kansas City Plant, and the Savannah River Site. While canned subassembly production at Y-12 is completed, final assembly at the Pantex Plant in Amarillo, Texas, and delivery of retrofitted bombs to the U.S. Air Force will continue through December 2008.

HAIL AND FAREWELL IN DEFENSE PROGRAMS:

Air Force Brigadier General Jonathan D. George is NNSA's new principal assistant deputy administrator for military application. George arrives just as Martin (Marty) Schoenbauer is departing Defense Programs as principal assistant deputy administrator for operations to become the next executive director of the Department of Energy Office at the U.S. Embassy to the People's Republic of China.



Jonathan D. George

Prior to joining NNSA, George was the deputy commanding general of the Combined Security Transition Command in Afghanistan at the U.S. Central Command in Kabul. He has commanded a bomb squadron, a bomb group, an air expeditionary wing, a bomb wing and an intelligence, surveillance, reconnaissance wing. He is a command pilot with more than 4,000 flying hours in various strike, reconnaissance and training aircraft.

Schoenbauer will serve as the Secretary's representative and senior DOE representative in China. Schoenbauer has been with Defense Programs since 1993, first as a naval officer and then as a senior civilian. He has held a wide variety of management positions, including performing the duties of the deputy administrator for defense programs, a Presidentially-appointed position, for much of 2007 before Bob Smolen assumed the position in November.



Robert L. Smolen (left) and Marty Schoenbauer

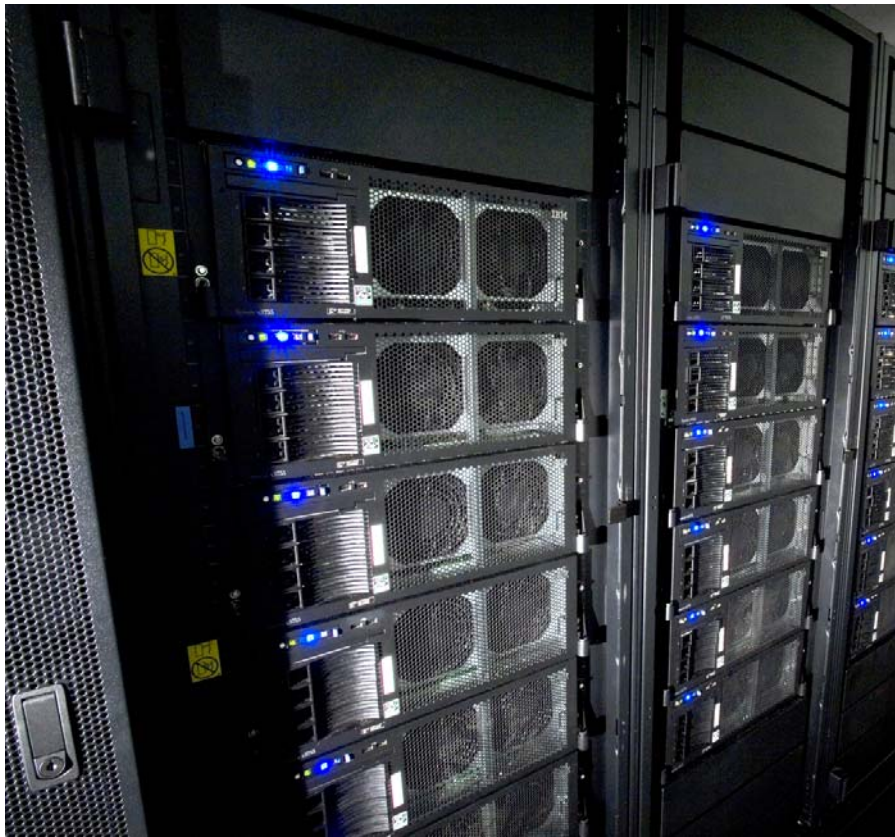
NNSA's New Roadrunner

Faster

NNSA's Los Alamos National Laboratory is home to Roadrunner, the world's fastest supercomputer, which is the first to achieve a petaflop of sustained performance. In other words, the Roadrunner supercomputer can process a million billion calculations each second. The speed gives scientists the ability to quickly render mountainous problems into mere molehills or model systems that previously were unthinkably complex.

Roadrunner will be used by NNSA to perform calculations that vastly improve the ability to assess the U.S. nuclear weapons stockpile reliability without conducting underground nuclear tests.

"This enormous accomplishment is the most recent example of how the U.S. Department of Energy's world-renowned supercomputers are strengthening national security and advancing scientific discovery," said Department of Energy Secretary Samuel Bodman. "Roadrunner will not only play a key role in maintaining the U.S. nuclear deterrent, it will also contribute to solving our global energy challenges, and



ROADRUNNER PROGRAMMERS:

Left to right: Sriram Swaminarayan, Ben Bergen, John Turner, Mike Lang, Tim Kelley, and Jamaludin Mohd-Yusof, represent the programming teams that proved Roadrunner could achieve its performance goals.

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st Computer In The World



open new windows of knowledge in the basic scientific research fields."

To date, computers have been unable to match human performance on such visual tasks as flawlessly detecting an oncoming automobile on the highway or distinguishing a friend from a stranger in a crowd of people. Roadrunner is now changing the game.

"Roadrunner ushers in a new era for science at Los Alamos National Laboratory," said Terry Wallace, associate director for Science, Technology and Engineering at Los Alamos. "Just a week after formal introduction of the machine to the

A MILLION BILLION CALCULATIONS: The full-scale Roadrunner system, named in honor of New Mexico's speedy state bird, broke the performance record at IBM's Poughkeepsie, N.Y. facility. The full machine will be moved to Los Alamos beginning in July, and the first computing applications are expected to begin running on the machine in January 2009.

world, we were already doing computational tasks that existed only in the realm of imagination a year ago."

The laboratory worked collaboratively with IBM, the manufacturer, for six years to deliver a novel

computer architecture that can meet the nation's evolving national security needs. The result has redefined the frontier of supercomputing, not only by crossing the one petaflop threshold, but also by introducing a new paradigm for the future.

Based on the results of inaugural trials, Los Alamos researchers believe they can study in real time the entire human visual cortex-arguably a

human being's most important sensory apparatus.

The ability to achieve human levels

of cognitive performance on a digital computer could lead to important insights and revolutionary technological applications. Such applications include "smart" cameras that can recognize danger or an autopilot system for automobiles that could take over for incapacitated drivers in complex situations such as navigating dense urban traffic.



MASSIVELY PARELLEL: If each of the 6 billion people on earth had a hand calculator and worked together on a calculation 24 hours per day, 365 days a year, it would take 46 years to do what Roadrunner would do in one day.

MOX Project Uses Computed Radiography

The MOX Fuel Fabrication Facility project has become the first major nuclear construction project in the United States to make exclusive use of computed radiography to inspect the ongoing installation of over 80 miles of piping. Computed radiography combines conventional radiography with digitized computer imaging to provide reliable imaging of construction work to ensure the construction meets safety and quality assurance standards.

Computed radiography has many advantages over traditional x-ray film. The imaging plates used in computed radiography can be re-used an indefinite number of times, eliminating film costs. The images are electronically scanned and available on your computer screen in less than 90 seconds. Images can be printed, emailed, or inserted into word documents for others to examine. Because images may be archived on either local or remote disks, expensive warehouse space and maintenance for film storage are no longer required. Moreover, the images are easy to retrieve and can be electronically transmitted instantaneously to others, allowing multiple inspectors or engineers the efficiency of real-time evaluation of the same radiographic image regardless of their location.

The MOX project also uses computed radiography for safety and environmental reasons. Computed radiography uses lower intensity radiographic sources which reduces the radiation risk to the workforce and minimizes the stoppage of work activities in the area while imaging is occurring. In addition, computed radiography does not require chemicals to process the radiographs, so the personnel and environmental hazards associated with conventional film processing are eliminated.

Livermore Lab's National Ignition Facility Saves Big

Special recycling efforts have saved the National Ignition Facility (NIF) and Photon Science Principal Directorate at NNSA's Lawrence Livermore National Laboratory in California more than \$1.7 million, thanks to a collective effort on the part of NIF administrators and one self-described recycling fanatic.

NIF, the largest, most energetic laser in the world, is being built at Livermore for inertial confinement fusion research in support of NNSA's Stockpile Stewardship Program to ensure the safety and reliability of the nation's nuclear weapons stockpile.

Approximately \$1.64 million in savings has been realized through one NIF recycling effort that began in 2003.

Greg Rogowski is an optical coordinator who oversees shipments of large optics for the 192-beam NIF laser. The slabs of laser glass necessary to make NIF work are delivered to Livermore in containers called PET-Gs (for glycol-modified polyethylene terephthalate, similar material used to make your soda bottle). The containers are nested within sturdy wooden containers that are comparable in size to a three-drawer filing cabinet or a mini-refrigerator.

The crates are kept in a warehouse near NIF until the optics are ready for use. In the past, the empty crates were returned to the warehouse, where they did little more than gather dust until they were designated for a dumpster.

That's when Rogowski stepped in. "I don't like seeing things go into a garbage can when they don't need to go in there," he said. "There's no use in sending something that can be reused to the landfill."

To date, Rogowski has arranged for 153 shipments - about 40 crates and up to 196 PET-Gs make up a shipment - for a total savings of \$1.64 million.

Previously NIF had money to purchase these items on a yearly basis, but by recycling and keeping an even flow of product going back to NIF's vendors on a monthly basis, the money

saved can be used for other purposes in NIF. "For every crate we recycle, that is money that can stay within the program," Rogowski said.



RECYCLING SAVES: NIF's Greg Rogowski makes sure that the crates that held laser glass as well as the optics acrylic cases are recycled.

NNSA Future Leaders Program Graduates And Inducts

ONCE AND FUTURE LEADERS: NNSA Future Leaders who entered the program in June 2006 (top photo) recently graduated in a ceremony at which Administrator Thomas D'Agostino was the keynote speaker. Raymond Greenberg, Director of NNSA's Office of Human Capital Management Programs, also spoke at the event. In addition to the participant's families and friends, officials from various NNSA offices across the complex attended the ceremony. In June, 32 members of the fourth Future Leaders class (bottom photo) were sworn in by Greenberg.



The Future Leaders Program (FLP) hires and develops recent college graduates to assume the duties of NNSA's mission critical positions as they become vacant in the future. Over the course of the two-year program, participants are required to complete at least ten weeks of classroom training and serve on at least two rotational assignments in offices other than their home offices. Participants are assigned to their respective home offices upon graduation from FLP. Institutions of higher education represented by the class of 2008 include the University of California, Berkeley; Penn State; Johns Hopkins University; Case Western Reserve University; University of Maryland; University of Tennessee-Knoxville; University of New Mexico; and Florida State University.



Nonproliferation Treaty Marks Fourth Decade

July 1, 2008, marked the 40th anniversary of the day the Nuclear Nonproliferation Treaty (NPT) was signed by the United States and 61 other nations. With the help of NNSA, the U.S. has taken steps to comply with the treaty's goal to reduce the nuclear weapons stockpile and move towards a world without nuclear weapons.

President George W. Bush has said that nuclear weapons remain an essential element of U.S. national security strategy, but he has asked for the lowest possible number of nuclear weapons consistent with national security needs, thus enabling a dramatic reduction of the nuclear arsenal, consistent with the treaty's goals.

In 2002, President Bush signed the Moscow Treaty with the Russian Federation, which set a goal of reducing operationally deployed strategic nuclear weapons to between 1700-2200 by 2012. Two years later President Bush unilaterally cut the U.S. nuclear weapons stockpile in half - with goals for further reduction of almost 15% by 2012. The stockpile will then be at its lowest level since the Eisenhower era and at about one-quarter of its level at the end of the Cold War.

The U.S. has not deployed a new nuclear weapon in 20 years, nor conducted an underground nuclear test since

1992. Instead, NNSA scientists maintain current warheads well beyond their original life using sophisticated supercomputers and machines to test the safety, security and reliability of U.S. weapons in NNSA labs and not in the desert.

NNSA has significantly increased dismantlement rates over the last few years and has removed roughly 15,000 weapons-worth, of highly enriched uranium and almost 7,600 weapons-worth of plutonium from defense stocks.

Leading by example, NNSA is helping fulfill the goal of the NPT of moving towards a world without nuclear weapons.

Security Competition Winners

Wackenhut Services Incorporated—Savannah River Site near Aiken, S.C., won the top award at the Department of Energy's (DOE) annual Security Protection Officer Training Competition (SPOTC) held recently in Albuquerque, N.M. A team from the Kansas City Plant placed second overall in the three-man team competition and another Wackenhut team from the Y-12 National Security Complex in Oak Ridge, Tenn., placed second in the overall competition.

SPOTC is a tactical, skills-oriented firearms competition that is held at the DOE National Training Center's Safeguards and Security Central Training Academy located on Kirtland Air Force Base in Albuquerque. The four-day competition was open to teams of protective force officers from the DOE community all over the nation. Wackenhut has captured the Secretary's Trophy four out of the last five years. For additional information on SPOTC, visit www.spotc.doe.gov.

Pictured below are teams from Y-12 and the Kansas City Plant.



NNSA Team Walks For A Cure

Representatives of NNSA's Office of Defense Nuclear Nonproliferation joined over 3,500 other walkers for the 2008 Avon Walk for Breast Cancer. The event is a two-day walk in which participants journey a total of 39.3 miles in support of advancing access to medical care and research for finding a cure for breast cancer.

Each member of Team Joyce, named after Joyce Connery, who used to work in the office of defense nuclear nonproliferation, raised at least \$1,800 each and spent months training for the grueling 2-day route that began in the heart of downtown D.C. Together the team raised over \$22,000 by hosting several fundraisers, which included bake sales, a date auction, and a chili cook-off.

"I am overwhelmed by the support of my friends and colleagues at NNSA. They were there for me through my breast cancer diagnosis and treatment with kind words, funny stories, head scarves, and rides to the doctor," said Connery, captain of Team Joyce. "When I decided to do the Avon walk, a group of amazing women laced up their sneakers to join me and the whole organization supported the effort."



TEAM JOYCE: NNSA's Office of Defense Nuclear Nonproliferation pauses for a photo in front of the U.S. Department of Energy's Forrestal Building during the 2008 Avon Walk for Breast Cancer.