



Russian Weapons-Grade Plutonium Reactor Shutdown Ahead Of Schedule

The first shutdown of a weapons-grade plutonium production reactor in over 15 years occurred in Seversk, Russia, under a cooperative program with NNSA. Rosatom, the regulatory body of the Russian nuclear complex, successfully completed the shutdown to help eliminate weapons-grade plutonium production in Russia. It is the first U.S.-aided shutdown of a plutonium production reactor in the former Soviet Union, and has happened eight months ahead of schedule.

"Elimination of the production of nuclear weapons-grade plutonium at the Seversk site is an historic nonproliferation milestone," said Deputy Administrator William Tobey, who oversees NNSA's nuclear nonproliferation work. "We have been working with our Russian partners for years on this important effort."

The reactor shutdowns are 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

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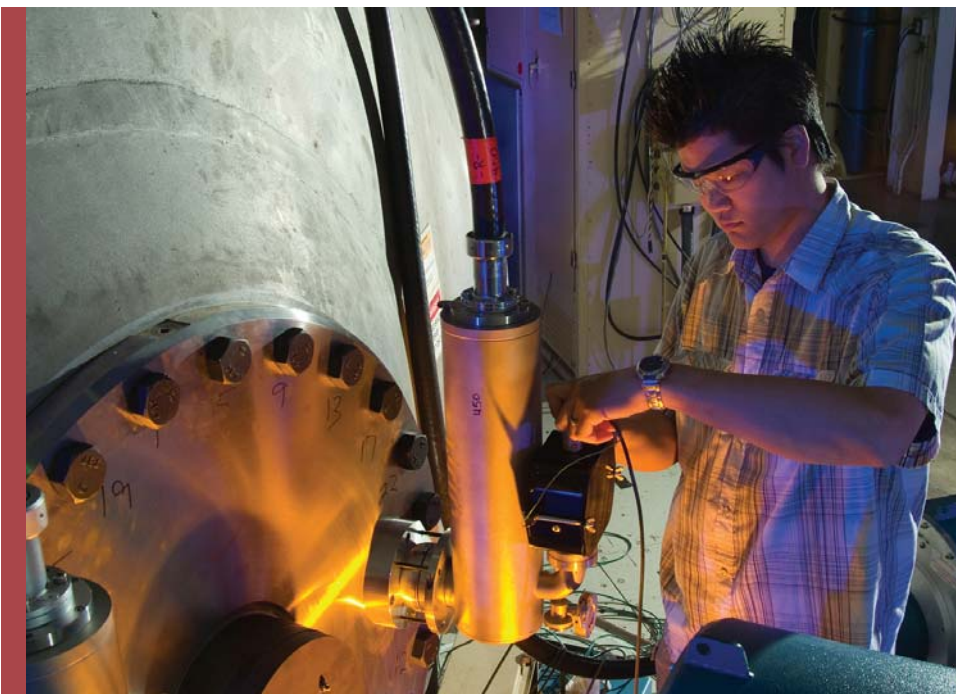
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NNSA Unveils New Cyber-Security Network

A new secure information network that will allow for more secure and reliable cyber-connections between all the NNSA sites has been inaugurated by Administrator Thomas D'Agostino.

"The Enterprise Secure Network is not only critical to the security of our nuclear weapons program, but to our efforts to transform the Cold War nuclear weapons complex to a 21st century national security enterprise," said D'Agostino at the unveiling ceremony in North Las Vegas, Nev. "Over time, we have seen the number and types of threats to NNSA and other government information systems increase dramatically. We must be on the leading edge of cyber security to protect our data at rest, in transmission, and from

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EXPLOSIVE RESEARCH: Bradley Wong prepares for a test at NNSA's Lawrence Livermore National Laboratory's High Explosives Application Facility (HEAF). Under Complex Transformation, HEAF has been designated as an NNSA Center of Excellence for High Explosives Research and Development. See pages 4 and 5 for more on HEAF.



SECURE COMPUTING: Bill Huntman (left), associate chief information officer for the Department of Energy, Thomas D'Agostino, NNSA administrator, and Dr. Linda Wilbanks, chief information officer for NNSA, cut the ribbon on the new Enterprise Secure Network located in North Las Vegas, Nevada.

Survey Presents Top Supporters Of HBCU Programs

The National Nuclear Security Administration is listed among the top supporters of Historically Black Colleges and Universities (HBCUs) in the sixth annual survey conducted by U.S. Black Engineer & Information Technology magazine. The deans of the Accreditation Board for Engineering Technology-accredited HBCU engineering programs and the Advancing Minorities' Interest in Engineering corporate academic alliance completed the survey.

In completing the annual survey, the deans of the HBCU engineering programs, which produce 33 percent of the country's black engineers, considered the following factors: support for infrastructure modernization and enhancement, research, participation on advisory councils, faculty development opportunities, scholarships, student projects, stipends, co-ops, and career opportunities.

The 11 HBCUs invited to participate in the survey were: Alabama A&M University, Florida A&M University, Hampton University, Howard University, Jackson State University, Morgan State University, North Carolina A&T State University, Prairie View A&M University, Southern University and A&M College, Tennessee State University and Tuskegee University.

The magazine will salute the top corporate and government agencies in the deans' edition of the magazine, and they will be recognized at the HBCU Engineering Deans Power Breakfast during the 2009 National Black Engineer of the Year Award - Science, Technology, Engineering and Math conference.

external and internal sources."

The network is a secure computing environment based in Nevada that encompasses all NNSA facilities and will be used to facilitate the exchange of classified and controlled data. It includes all classified communications and computing systems and services, software applications, system data, security services, and other associated activities to ensure timely information flow of NNSA's full spectrum of data sharing and business missions.

Russian Reactor Shutdown

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provides fossil-fuel heat and electricity to replace Russia's remaining plutonium production reactors that have been used to heat the cities. NNSA and Rosatom are currently working to provide this replacement capacity so that the final reactor operating in Zheleznogorsk can be shut down no later than 2010, which will permanently cease Russian weapons-grade plutonium production.

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 now produce weapons-grade plutonium as an unwanted by-product.

Good Samaritan Office Of Secure Transportation Agents Provide Assistance

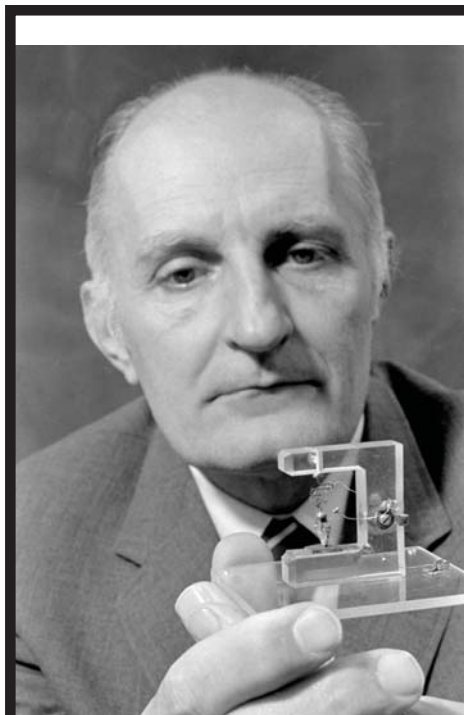
The everyday presence of NNSA Office of Secure Transportation (OST) federal agents on streets and highways throughout the nation sometimes places them in situations to use their training and expertise to render assistance to other motorists involved in accidents or medical emergencies.

In recent months agents have provided aid at the scene of a fatal traffic accident and for an apparent heart attack victim in a parking lot. Squad Commander Ed Thornburg, Lead Agent Jeff Land and Agent Jamie West from the Eastern Command in Oak Ridge, Tenn., arrived at the scene of what was described as a horrific accident involving two vehicles at a retail center in Oak Ridge in which three persons died and two others were injured.

In a memo to John Watts, director, OST Agent Operations Eastern Command, Oak Ridge Police Department Sergeant Mark Coffey wrote, "I was informed that Mr. Thornburg obtained a fire extinguisher and put out a fire that was flaming up between the two vehicles before emergency workers arrived. Mr. Land, who I understand is a paramedic, actually entered one of the vehicles to render aid to the injured driver, and Ms. West cradled a three-year-old girl who was also injured in the accident. I observed Ms. West's actions myself and can attest that she managed to keep the little girl very calm and aided in the situation immeasurably. Mr. Land had what appeared to be a fresh wound to his leg, which I assume, occurred while he was rendering aid. Mr. Thornburg has also visited the surviving victims and their families in the hospital, which is also commendable. I would like to personally express my thanks to your personnel for their assistance in this tragic situation, and state that their actions were of great assistance and very possibly prevented further injury and loss of life."

In a separate incident at a gas station parking lot in Lexington County, S.C., OST agents Tom McGhee, Andrew Hilton and Ken Britton came to the assistance of a 58-year-old man who had collapsed after complaining of pain in his left arm. Agent McGhee quickly checked for breathing and began CPR, using an automated external defibrillator from the OST vehicle's emergency kit. The defibrillator analyzed the patient and indicated CPR should be resumed and was continued through multiple cycles. The Lexington County Emergency Medical Service arrived and took over the scene from OST agents. It was later confirmed that the patient did not regain consciousness.

"These kinds of selfless and courageous acts by OST agents speaks to the quality of our agent force. I think it is also important to note that in each of these instances the agents did not neglect to guard and protect their vehicles even as they attempted to help save lives," said NNSA's Deputy Administrator for Defense Programs Robert Smolen.



MORGAN SPARKS WITH

TRANSISTOR: Morgan Sparks, a former director of NNSA's Sandia National Laboratories, inventor of the first practical transistor and a longtime civic leader in Albuquerque, N.M., died May 3rd at his daughter's home in Fullerton, Calif. He was 91 years old.

Sparks served as Sandia Labs director from 1972 until his retirement in 1981.

Prior to Sandia, Sparks had a 30-year career with Bell Laboratories in New Jersey and is best remembered as the person who fashioned the first practical transistor, the semiconductor device that has revolutionized almost every aspect of modern life.

Current Sandia Director Tom Hunter said, "Morgan was president when I was a young staff member at Sandia. He set the framework for Sandia to become a multiprogram laboratory. He was widely recognized for his ability to engage the labs in many new areas that proved to be important for our future. He made a big impact on all of us. I spent some time with him at the Nevada Test Site in the early '70s. He was a credit to the lab and, true to our mission, provided exceptional service to the nation."

Livermore's High Explosives

Tucked into a faraway corner of Lawrence Livermore National Laboratory (LLNL) in California, scientists, engineers and technicians are conducting explosive work - literally and figuratively - as part of NNSA's efforts to keep the nuclear stockpile safe and secure.

The High Explosives Application Facility - better known as HEAF - is a state-of-the-art explosives research center that features a variety of experimental capabilities found nowhere else. HEAF activities support LLNL's Energetic Materials Center, a national resource for research and development of explosives, pyrotechnics and propellants.

HEAF brings scientists, engineers and technicians - both experimental and theoretical - together to address nearly all aspects of high explosives (HE): research, development and testing; material formulation and characterization; and performance and safety tests. In fact, no other facility in the world supports such a multidisciplinary mission under one roof.

"There is no other facility that comes with these credentials," said Randy Simpson, associate program leader, of LLNL's Weapons and Complex Integration Principal Directorate.

"HEAF is well positioned for its national role."

This collective expertise is just one reason NNSA, in its plans for Complex Transformation, has proposed making LLNL its Center of Excellence for High Explosives Research and Development (R&D), with HEAF specifically identified as the HE R&D locus. Complex Transformation is NNSA's vision for a smaller, safer, more secure and less expensive nuclear weapons complex that leverages the scientific and technical capabilities of the workforce and meets national security requirements.

Understanding and controlling the behavior of high explosives is a crucial aspect of NNSA's science-based Stockpile Stewardship Program - by unraveling the mysteries of detonation or advancing energetic materials, LLNL scientists and engineers are able to improve the safety and performance of weapons systems.



ART INTO SCIENCE: Researchers are transforming explosive art into science, using the Lawrence Livermore National Laboratory's test chambers at HEAF.

"These advances would not be possible without HEAF,"

Simpson said. "High-energy explosives play a role vital to proper weapons function. Only a precisely controlled high explosive detonation can lead to the desired weapon performance."

In addition to nuclear weapons energetics, HEAF conducts important experiments in synthesis, formulation, detonator development, surveillance and diagnostics development - to name a few - in the study of

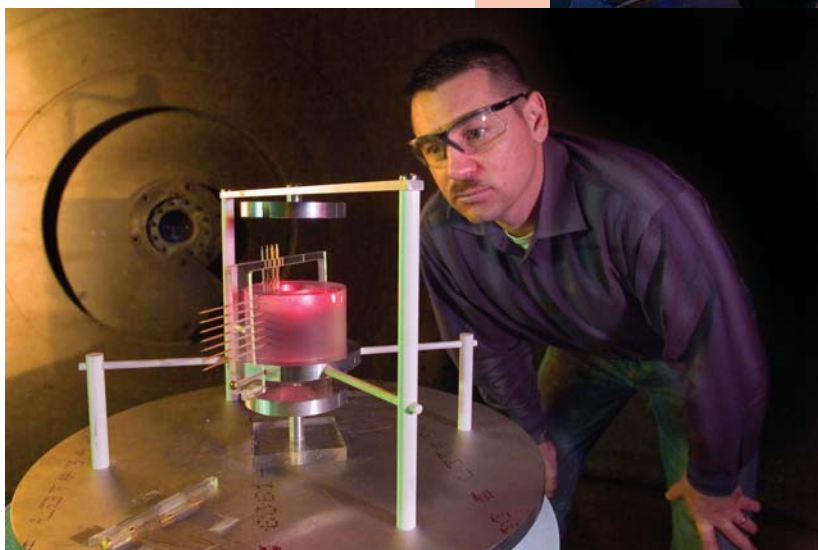
Facility Has Many Applications



nuclear weapons energetics, counterterrorism, conventional defense and improvised explosive devices.

HEAF has seven large firing tanks with capabilities to detonate explosives ranging from a 30-inch diameter tank rated at 7.5 grams to a 16-foot-diameter tank rated at 10 kilograms. The facility also has a 100-millimeter gun that fires into a specially designed tank for high-velocity impact studies. This gun is capable of firing at up to 2.5 kilometers (or 8,200 feet) per second. For perspective, a NATO 7.62-millimeter rifle bullet travels at approximately 3,000 feet per second.

"Through HEAF experiments we can understand the fundamental characteristics and physics of the explosives and behavior of materials under the extreme conditions experienced during an explosion," explained Jon Maienschein, principal deputy director of the Energetic Materials Center. "HEAF is a national resource."



MULTIDISCIPLINARY MISSION: HEAF brings scientists, engineers and technicians -- both experimental and theoretical -- together to address nearly all aspects of high explosives. Chuck Cook (above, left) and John Molitoris (left) are part of the HEAF team that conducts research, development and testing; material formulation and characterization; and performance and safety tests. No other facility in the world supports such a multidisciplinary mission under one roof.



GLOBAL BURST: The 50th nuclear detonation detection payload of the Global Burst Detection system was launched to its medium earth orbit from Cape Canaveral, Fla. These payloads are jointly developed by Los Alamos National Laboratory and Sandia National Laboratories under the guidance of NNSA's Office of Nonproliferation Research and Development. The launches support the nation's capability to monitor nuclear explosions from space by expanding the global detection network.

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U.S.-Russian Transportation Security Cooperation Milestone

NNSA and Russian officials recently attended a demonstration of a prototype truck convoy in Nizhny Novgorod, Russia. The convoy is the first of six that will be used for the secure transport of special nuclear material (SNM) between Russian nuclear sites.

"Transportation of nuclear materials is one of the most vulnerable aspects of material protection control and accounting systems," said David Huizenga, assistant deputy administrator for NNSA's Office of International Material Protection and Cooperation. "These convoys will make possible a substantial reduction of the threat of diversion of nuclear materials while in transit between nuclear sites in Russia."

Equipped with advanced communications technology for shipment tracking and security, the convoys will be distributed to Russian sites and commissioned for use later this year.

Although NNSA has provided assistance to the Russian Federation in the area of truck and railcar security since 2000, the truck fleet represents the first time that it will provide for inter-site transport of SNM. Overall, the project has provided 103 railcars and 167 trucks.

Because of the vast distances between many of Russia's nuclear facilities, nuclear materials historically have been transported primarily by rail. However, rail transport can be slow and difficult to coordinate, and delays at terminals and en route can pose security risks. The new truck convoys will give Russian nuclear sites flexibility in determining which transportation mode offers the best security for each shipment.

Sandia MESA Project Gets Green Certification

The Sandia National Laboratories Microelectronics and Engineering Science Applications (MESA) project, which was among initiatives from across the NNSA complex included in the "Getting the Job Done" category of Secretary of Energy Samuel Bodman's recent Achievement Award, has been granted Leadership in Energy and Environmental Design (LEED) certification and represents the first microelectronics facility in the world certified by the U.S. Green Building Council.

The MESA MicroFabrication Facility was also designed with modern force protection and anti-terrorism features to protect engineers and scientists in the mission critical microelectronics and weapons integration facilities.

The MESA integrated project team was comprised of technical experts from NNSA's Sandia Site Office and Sandia

management, project controls, construction management, environment, safety and health, financial controls, testing and



MESA: The setting sun reflects off the glass of the cylindrical training center attached to Sandia's new MicroLab building. The building is the second of three to come online of the defense laboratory's \$500 million MESA project.

labs staff with responsibility for nine project functions: project

inspections, document controls, procurement, and risk management.

The overall project is currently 98 percent complete and was three years ahead of schedule and \$40 million under budget while maintaining the original scope.

Bill Jenkins, MESA project manager, said the MESA project kept green in mind during the entire construction project.

"With the goal of improving our environment and saving energy and resources over the facilities' lifetime, the MESA laboratories were designed with LEED sustainable design."

**Bill Jenkins
Mesa Project Manager**

Recapitalization Program Funds Water And Electrical System Improvements At Y-12, Pantex

NNSA's Y-12 National Security Complex in Oak Ridge, Tenn. has started construction of a \$62.5 million potable water system upgrades project and NNSA's Pantex Plant in Amarillo, Texas, is ahead of schedule in its \$19 million upgrade of a 30-year-old electrical distribution system. Both projects are funded by the Facilities and Infrastructure Recapitalization Program.

The program's mission is to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex. The program applies new direct appropriations to address an integrated, prioritized series of repair and infrastructure projects focusing on deferred maintenance that will significantly increase the operational efficiency and effectiveness of the NNSA weapons complex.

The Y-12 project is a key part of complex transformation, which is resulting in the construction of new facilities, upgrading of utilities and tearing down of old buildings. A major utility upgrade, the new system will provide Y-12 with a reliable and cost-effective source of potable water.

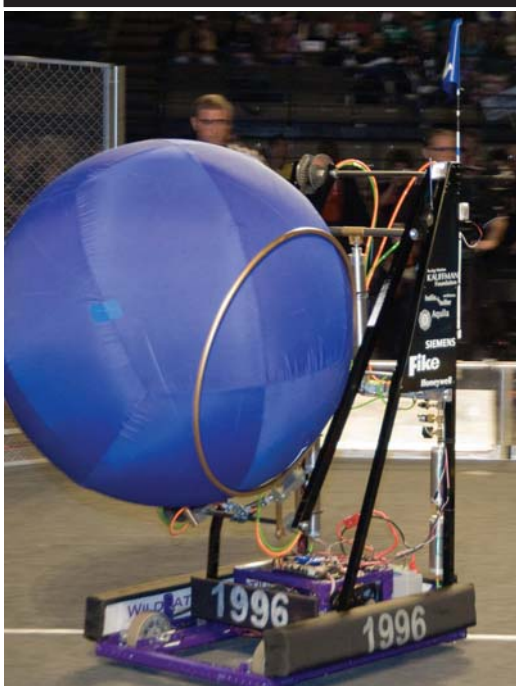
The two-year project includes: two new 220-foot-tall, two-million-gallon water tanks, pumps, and distribution piping to provide a new primary and backup water supply to the Y-12 plant; underground pipe repairs and replacement of more than 9,000 feet of deteriorated original cast iron water mains; and sprinkler system modifications.

"Ninety percent of the Pantex overhead distribution system is 30 years old or more," said Mike Green, B&W Pantex line item project manager. "The power lines and poles have surpassed their expected life span and need to be replaced. Our goal is to install an electrical distribution system that can reliably meet the safety and security needs of the site for many years to come."

The objective of the recapitalization project at Pantex is to extend the life of the electrical distribution system, reduce equipment failures, eliminate safety hazards, reduce maintenance and improve overall system reliability. When completed, the project will refurbish portions of the plant's electrical distribution network as part of a major investment in the plant's infrastructure.



INFRASTRUCTURE UPGRADES: As part of the new electrical distribution system at the Pantex Plant, approximately 19 miles of overhead line will be replaced.



BOTBALL: A robot constructed by a Kansas City, Mo., high school team with support from employees of NNSA's Kansas City Plant (KCP) transports a blue trackball during the recent For Inspiration and Recognition of Science Technology (FIRST) Robotics regional competition in Kansas City.

The competition's "game" changes every year. This year's challenge was to build a robot that could move and manipulate huge trackballs.

More than 40 KCP staff members gave their time and talent to mentor 13 of the 55 student teams entered in the competition. Honeywell, which manages KCP, also contributed \$15,000 in community grants to help fund the competition.

KCP engineer Rex Brown was named winner of the Woodie Flowers Award for being an outstanding mentor.

FIRST Robotics helps high school students discover how interesting and rewarding the life of engineers and researchers can be.