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# NNSA Senior Leadership Team in Place

## Deputy Administrator for Defense Nuclear Nonproliferation Confirmed

The National Nuclear Security Administration now has all four members of its Senate-confirmed senior leadership team on the job.

Deputy Administrator for Defense Nuclear Nonproliferation, Anne Harrington, was confirmed and began her duties this month joining a team that includes NNSA Administrator Thomas D'Agostino, Principal Deputy Administrator Neile Miller and Deputy Administrator for Defense Programs Don Cook.

"I'm excited to have these energetic, innovative leaders on the

*(continued on page 2)*

# NNSA Completes Largest Fuel Return Campaign

This month, NNSA successfully completed the largest fuel return campaign in the agency's history by removing more than 450 kilograms of Russian-origin highly enriched uranium (HEU) spent fuel from the Maria and Ewa reactors in Swierk, Poland.

The nuclear material, enough to make more than 18 nuclear weapons, was sent back to Russia in a series of five shipments. It included the largest single shipment of HEU spent fuel (187 kilograms), which required the entire fleet of spent fuel transportation casks used for transportation of Russian-origin HEU.

"This major milestone brings us one step closer to achieving President Obama's goal of securing all nuclear material around the world within four years," said NNSA Administrator Thomas D'Agostino. "These shipments also support the goals of the April 2010 Nuclear Security Summit where 47 nations committed to strengthening nuclear security and reducing the threat of nuclear terrorism. Our close partnership with Poland to eliminate this excess nuclear material reduces the risk that it could be stolen by terrorists and sets an important example for other countries to follow."

*(continued on page 3)*



**STRENGTHENING NUCLEAR SECURITY:** Polish security stands guard as highly enriched uranium awaits secure return by rail during the NNSA's largest fuel return campaign.

# Administrator's Corner

As we approach the Holiday Seasons and the cold of winter, thousands of families in our communities and across the country continue to struggle to make ends meet in a tough economic environment. This year's Combined Federal Campaign (CFC) provides each of us an opportunity to improve the lives of those most in need or to support organizations that promote specific areas of interest.

I continue to be impressed by the sense of community that exists throughout our nuclear security enterprise. That is why I was so eager to serve as the co-chair for the Department's recently concluded Feds Feed Families Campaign. All together, the NNSA donated more than 26,000 pounds of canned goods and other nonperishable foods. As a Department, more than 120,000 pounds of food, roughly 10 percent of the total goal set for the entire federal government, was collected.

Over the last decade, we in the NNSA have clearly demonstrated our concern for, and generosity towards those in need. I hope you will join me in continuing this tradition by contributing to this year's CFC.

Since 1961, federal employees have raised more than \$6 billion through the CFC, the world's largest and most successful annual workplace charity campaign. Charities are finding it harder than ever to meet the increased demands for services this year, so even the smallest contributions can go a long way to helping those most in need of assistance.

Let's all do our part and make this year's CFC a huge success. Thank you!



Tom D'Agostino

## NNSA Senior Leadership Team in Place

*(continued from page 1)*

job," D'Agostino said. "NNSA's work in all of its core mission areas is vital to the President's nuclear security agenda, and I believe we have a strong team in place to meet the nation's expectations and overcome any challenges we encounter along the way."

Harrington most recently served as director of the U.S. National Academy of Sciences Committee on International Security and Arms Control. Before that, she served at the U.S. Department of State as an expert on nonproliferation and cooperative threat reduction.

"I am honored that President Obama has given me the opportunity to lead NNSA's nonproliferation programs and work with our international partners to prevent nuclear proliferation and strengthen our nation's security," said Harrington. "I look forward to working with the talented and dedicated nuclear security professionals working across our enterprise and around the world to keep the American people safe and secure."

In a formal ceremony held earlier this month at U.S. Department of Energy headquarters, Secretary of Energy Steven Chu officially swore in Miller, Cook and other top DOE officials.



**IMPROVING SECURITY, REDUCING COSTS:** The Nevada National Security Site (NNSS) has brought the first of three Mobile Detection Assessment Response System robots online to improve security patrols at remote portions of NNSS. The small autonomous robot is remotely operated from a command center and designed to perform random patrols.

# 32 Years of Reactor Conversion

An NNSA delegation led by Principal Deputy Administrator for Defense Nuclear Nonproliferation Ken Baker participated in the 32nd Annual International Meeting on Reduced Enrichment for Research and Test Reactors (RERTR) in Lisbon, Portugal, this month.

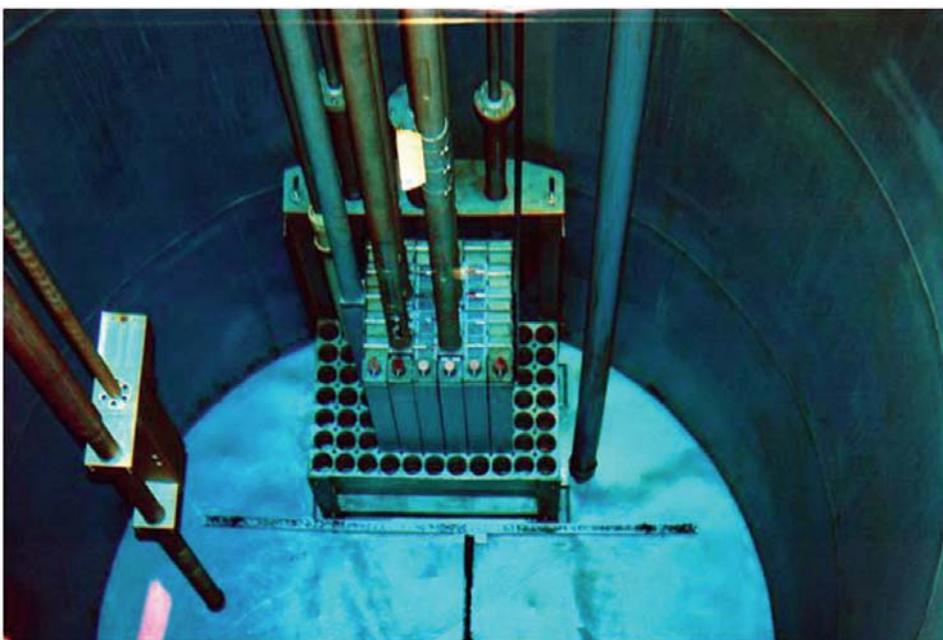
RERTR brought together 179 technical and policy experts from 25 countries and the International Atomic Energy Agency (IAEA) to discuss ways to minimize the use of highly enriched uranium (HEU) through the conversion of research reactors and medical isotope production facilities to low enriched uranium (LEU) while maintaining capabilities to perform fundamental research and produce critical medical isotopes.

Delivering the keynote address at the opening of the conference, Baker said he is "extremely proud of the work we have done to date to advance international HEU minimization." Concerning NNSA's work to reduce the global threat posed by HEU he said, "the National Nuclear Security Administration's Global Threat Reduction Initiative (GTRI) has partnered with dozens of countries worldwide, many of whom are represented at this

conference, to convert research reactors to operate with LEU fuel while maintaining their ability to complete their vital mission objectives."

GTRI has addressed approximately one-third of an

world, GTRI has advanced international HEU minimization efforts by successfully converting or verifying the shutdown of 33 research reactors since GTRI's founding in 2004, including the conversion of all domestic U.S.



**REDUCING GLOBAL THREAT:** A new low enriched fuel reactor core is loaded into Purdue University's PUR-1 research reactor that was converted by the Global Threat Reduction Initiative in 2007.

estimated 200 civilian research reactors eligible to convert from HEU to LEU.

Through cooperative efforts with partner countries around the

research reactors that can convert with existing qualified LEU fuel. Of these reactors, 24 are international reactors and nine are U.S. domestic reactors.

## NNSA Completes Largest Fuel Return Campaign

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NNSA's Global Threat Reduction Initiative (GTRI), in close coordination with Poland, the IAEA and the Russian Federation conducted the shipments over the past 12 months. NNSA and Poland share a long history of cooperation on nuclear nonproliferation issues, including two previous shipments, facility security upgrades and technical cooperation to prepare for conversion of the Maria research reactor from HEU to low enriched uranium.

NNSA has now removed or assisted with the disposition of more than 2,850 kilograms of HEU and plutonium – enough material to make more than 110 nuclear weapons.

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# NNSA Committed to Energy Efficiency, Savings

NNSA continues its strong commitment to energy efficiency and savings across the nuclear security enterprise, a goal reflected by several recent environmental awards and accomplishments this month.

"At NNSA, we are committed to ensuring that we are effective stewards of the environment at each of our facilities and the surrounding communities," said NNSA Administrator Thomas D'Agostino. "I am proud of the work done across the enterprise on innovative uses of technology and groundbreaking efforts to promote energy efficiency across the complex."

## Sandia Photovoltaic Car

A photovoltaic (PV) vehicle created by Sandia National Laboratories received a 2010 GreenGov Presidential Award, which recognizes extraordinary achievement in pursuit of



**ENVIRONMENTAL STEWARDSHIP:** This photovoltaic vehicle, created by Sandia National Laboratories, received a 2010 GreenGov Presidential Award for Leadership in Environmental, Energy and Economic Performance. The goal of the project was to reduce grid-tied energy use, increase renewable energy use, and implement solutions for reducing greenhouse gas emissions.

President Obama's Executive Order 13514 on Federal Leadership in Environmental, Energy and Economic Performance.

The solar-powered vehicle was developed by a

cross-functional Sandia team including an Energy Management team and Fleet Services Organization. The goal of the project was to reduce grid-tied energy use, increase renewable energy use, and implement solutions for reducing greenhouse gas emissions.



**RECOGNIZING EXCELLENCE:** Shaw AREVA MOX Services was awarded a Leadership in Energy and Environmental Design (LEED) Gold Certification for the MOX Administration Building at the Savannah River Site in Aiken, S.C. The LEED Gold Certification, awarded by the U.S. Green Building Council, recognizes facilities and communities for excellence in environmental leadership and energy efficiency.

**LEED Gold Certification**

Shaw AREVA MOX Services was awarded a Leadership in Energy and Environmental Design (LEED) Gold Certification for the MOX Administration Building at the Savannah River Site in Aiken, S.C. The LEED Gold Certification, awarded by the U.S. Green Building Council, recognizes facilities and communities for excellence in environmental leadership and energy efficiency.

In addition, two new fire stations at the Nevada National Security Site are designed to LEED standards and are expected to achieve LEED Gold Certification in 2011.

*"I am proud of the work done across the enterprise on innovative uses of technology and groundbreaking efforts to promote energy efficiency across the complex."*

Thomas D'Agostino, NNSA Administrator

**EStar Awards**

Five NNSA sites received Environmental Sustainability (EStar) awards from the Department of Energy. The awards recognize projects that demonstrate excellence in pollution prevention and sustainable environmental stewardship.

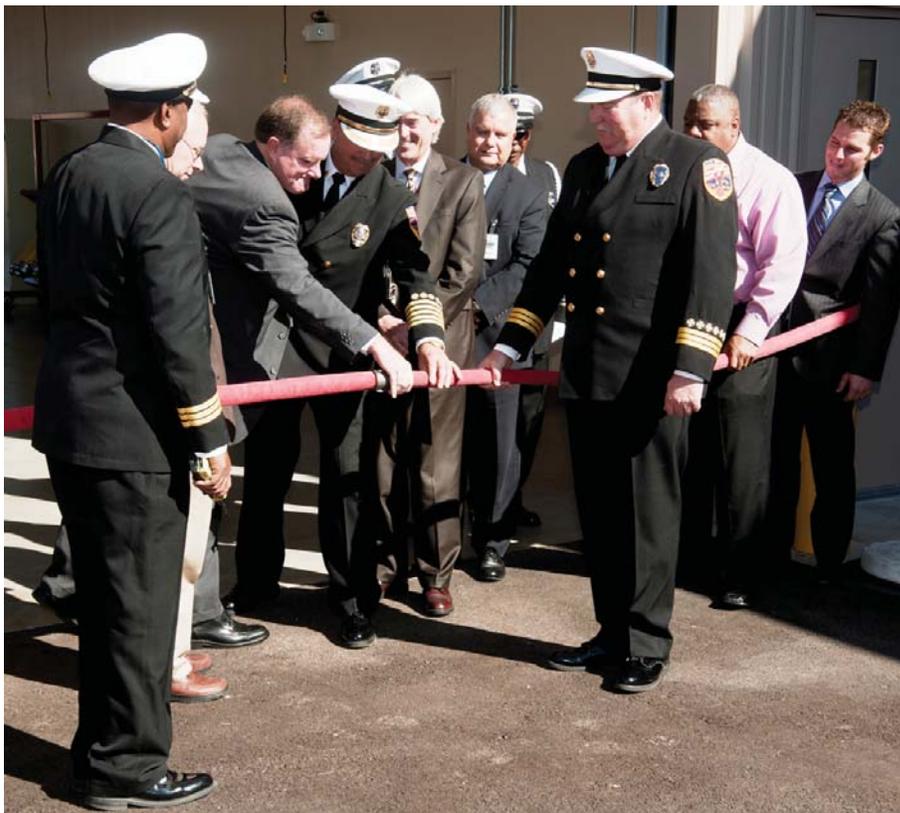
Lawrence Livermore National Laboratory was recognized for its Water Conservation Test Bed Project, which collected and transported between 90,000 and 210,000 gallons of rainwater per year from a non-industrial rooftop to underground storage tanks, significantly decreasing the amount of potable water used for irrigation.

Los Alamos National Laboratory's Chemistry and Metallurgy Research Radiological Laboratory Utility Office Building Integrating Planning, Design, Procurement and Construction project was honored for achieving the LEED Silver Certification.

Pantex was recognized for identifying and implementing opportunities for improved mission and environmental performance results from environmental management systems "aspects analyses."

Sandia National Laboratories received its award in recognition of its successful efforts to increase the use and purchase of recycled electronic components.

The Sustainability and Stewardship Program at the Y-12 National Security Complex helped transform Y-12 into a greener and leaner operation.



**DESIGNED TO LEED STANDARDS:** Michael Thompson, NNSA assistant deputy administrator for Infrastructure and Construction, and Nevada National Security Site Fire Chief Charles Fauerbach help decouple a fire hose to open the new Fire Station No.1. They were joined by representatives from the Nevada Congressional delegation and Nevada Site Office management. The fire station is designed to LEED standards and is expected to achieve LEED Gold Certification in 2011.

# The Science of Nuclear Security

## NNSA Nonproliferation Program Develops Cutting-edge Dental Implant Technology

Production of a new dental implant that uses stronger alloys allowing the tooth to bond more quickly to human bone officially started after U.S. Sen. Tom Udall flipped the switch at an event that took place earlier this month at the Esthetic Dental Arts laboratories in Albuquerque, N.M.

The technology was developed and brought to market as part of NNSA's Global Initiatives for Proliferation Prevention (GIPP) program, which advances global nonproliferation efforts by applying the expertise of former weapons of mass destruction personnel to commercial research and development projects.

Created under a three-year partnership between Los Alamos National Laboratory, several Russian institutes and New Mexico-based Manhattan Scientifics, the new nanotitanium implant is stronger than conventional alloys and integrates much more quickly with human bone. It is the first dental implant made with nanotitanium that has been approved by the Food and Drug Administration and should result in long-lasting implants and faster post-surgery healing.

"NNSA's GIPP program prevents the spread of nuclear materials, technology and expertise by promoting cutting-edge science and technology built using the expertise of former weapons experts," said NNSA Principal Assistant Deputy Administrator for Defense Nuclear Nonproliferation Ken Baker. "The program generates peaceful and commercially viable projects while achieving a critical nonproliferation goal."

To date, the GIPP program has engaged more than 17,000 experts from more than 180 facilities in the former Soviet Union, Libya and Iraq. Since 1994, GIPP has partnered with more than 160 U.S. companies, multinational corporations and small innovative businesses to promote high-tech commercial research and development projects.

*The technology was developed and brought to market as part of NNSA's Global Initiatives for Proliferation Prevention program, which advances global nonproliferation efforts by applying the expertise of former weapons of mass destruction personnel to commercial research and development projects.*

## Pantex Authorized to Begin Work on B53

NNSA has authorized the Pantex Plant to begin dismantlement of the B53 weapons system.

This follows an extensive NNSA safety review that included approval of a Documented Safety Analysis and completion of a Nuclear Explosive Safety Study.

This authorization means NNSA can now perform work on all weapons systems.

"Gaining authorization to begin dismantlement of the B53 is a significant step forward for NNSA and the nation," said NNSA Deputy Administrator for Defense Programs

Don Cook. "It confirms NNSA's commitment to support President Obama's goal of reducing the number of nuclear weapons and their role in the U.S. national security strategy. Completion of NNSA's Seamless Safety for the 21st Century (SS-21) project for the B53 marks the first time in over a decade that NNSA has the required authorizations in place to work on all nuclear weapon types in our nation's inventory."

The B53 weapons system, which was introduced into the stockpile in 1962, served a key

role in the United States' nuclear deterrent until its final retirement in 1997. The B53 was built at Iowa Army Ammunition Plant in Burlington, Iowa. The B53 is one of the longest lived weapons ever fielded. This megaton-class weapon is about the size of a mini-van and weighs approximately 10,000 pounds. Its sheer size and weight provided many challenges for the project team responsible for developing a dismantlement process that meets the requirements for the SS-21 process.

## Big Month for the National Ignition Facility

October was an important month for NNSA's National Ignition Facility (NIF). Within a week of announcing its first integrated ignition experiment, the NIF team won the prestigious Project of the Year Award from the Project Management Institute for the construction of the world's largest and most energetic laser system.

"NIF is an example of what the NNSA labs do best," said NNSA Administrator Thomas D'Agostino. "We are bringing together the best minds in science, engineering and technology to solve some of the nation's greatest challenges, and

complete one of the largest and most complex projects in history. To be recognized by the Project Management Institute with such an important honor is recognition of the important and outstanding work being done by our contractors and federal oversight teams."

At the close of FY 2010, NNSA's 192-beam laser system fired 1 megajoule of energy into its first cryogenically layered capsule, raising the drive energy by a factor of thirty over experiments previously conducted at the Omega laser at the University of

Rochester. With the completion of this test, NIF began the next phase of the campaign that will culminate in fusion ignition tests.

The experiment demonstrated the integration of the complex systems required for the ignition campaign. For this experiment, the target was filled with a mixture of tritium, hydrogen and deuterium tailored to enable the most comprehensive physics, a necessary step on the path to demonstrating fusion ignition. All systems – and 26 target diagnostics – operated successfully.

## DOE Collects 120,000 Pounds of Food for "Feds Feed Families" Campaign

*NNSA, Sites Play Critical Role in Nationwide Anti-hunger Effort*

Between June and September, NNSA and the Department of Energy engaged in a government-wide effort to combat hunger, collecting more than 120,000 pounds of food across the nation as part of the second annual "Feds Feed Families" campaign. DOE's total was more than 10 percent of the overall goal set for the entire campaign.

This month, NNSA Administrator Thomas D'Agostino, who co-chaired the DOE effort, proudly

announced that NNSA and its sites across the nuclear security enterprise collected more than 26,000 pounds of food.

"NNSA and our sites are committed to supporting the goals of the Department of Energy and improving the world around us," D'Agostino said. "Whether we are securing vulnerable nuclear material around the world or donating much-needed food for our communities, NNSA is ready to respond. This effort speaks volumes about our employees, and I want to personally thank them for their efforts."

The annual "Feds Feed Families" campaign is a government-wide program led by the Office of Personnel Management in partnership with the Chief Human Capital Officers Council. The food drive is designed to mobilize federal

workers across the country in a time when food banks are seeing an increase in demand.

Contributions across the nuclear security enterprise included:

- Service Center (including OIG, NA-10 and NA-22 offices at the SC: 12,963 pounds to Road Runner Food Bank
- Savannah River Site: (Office of Defense Nuclear Nonproliferation programs and the Savannah River Site Office combined): 2,595 pounds to Golden Harvest Food Bank
- Y-12 National Security Complex: 1,781 pounds to Second Harvest Food Bank
- Pantex Plant: 1,000 pounds to High Plains Food Bank
- Lawrence Livermore National Laboratory: 983 pounds
- Kansas City Plant: 600 pounds to Harvesters Community Food Bank.



**FEDS FEED FAMILIES FESTIVAL:** In July, DOE hosted officials from several federal agencies to raise awareness and donations for the "Feds Feed Families" nationwide food drive .

## NNSA's Kansas City Plant Meets Major Milestone Critical for Nuclear Safety

NNSA's Kansas City Plant recently met a major milestone with the successful completion of a ten-year production run of the W87 Mechanical Safe Arming Detonator (MSAD).

More than 1,000 MSAD kits were built over ten years. The MSAD is a discriminator stronglink, a critical component for nuclear safety requirements.



This intricate part protects the nuclear weapon by preventing unintended activation by outside sources. The miniature notches on a MSAD pattern wheel correspond to a particular series of pushes and pulls which rotate the

wheel into a position making the weapon operable. One unique signal is capable of creating the particular series of pushes and pulls, ensuring that naturally-occurring signals or an improper input are incompatible with weapon operation.



**SUPPORTING NATIONAL SECURITY MISSION:** Kansas City Plant (KCP) employee Sandra Hernandez demonstrated the W76-1 Arming, Fuzing & Firing Final Inspection process to General Kevin Chilton, Commander, U.S. Strategic Command. General Chilton toured KCP and thanked KCP employees for supporting the national security mission.

## NNSA, DoD, UK Sign Nuclear Threat Reduction Agreement

NNSA Administrator Thomas D'Agostino and officials from the U.S. Department of Defense and the U.K. Ministry of Defence recently signed a cooperative agreement between the United States and the United Kingdom that will help facilitate the exchange of information about nuclear threat reduction (NTR).

"Being able to effectively share best practices, collaborate whenever appropriate to maximize available resources and engage in valuable real-time peer review in this important area are the NTR objectives," said NNSA Deputy Under Secretary for Counterterrorism Steven Aoki. "After more than two years of joint negotiations, NNSA is proud to participate with the Department of Defense and our counterparts in the United Kingdom in the ongoing effort to counter nuclear terrorism and nuclear proliferation."

The agreement reflects the recognition of dynamic international developments and the importance to the United States and the United Kingdom of working together to address the twin dangers of nuclear proliferation and nuclear terrorism.

It also will elevate to equal status the technical exchange on counter-proliferation, countering nuclear terrorism, and arms control and treaty verification technologies with the larger stockpile-related scientific exchange activities.

Finally, the agreement formally permits non-Mutual Defense Agreement agencies, such as federal law enforcement, diplomatic, homeland and national security communities, to participate in and guide collaborative efforts for the whole-of-government approach to these difficult national security matters.