



Secretary Bodman Visits Nevada Test Site, Pantex Plant



DOE1 AT U1a AND PANTEX: Secretary of Energy Samuel W. Bodman is briefed (above) in the U1a test complex at the Nevada Test Site by Los Alamos National Laboratory scientists. The Secretary is standing in front of a 2.4 MeV X-ray machine, which provides high energy X-rays to scientists when a subcritical experiment is conducted. In the photo on the right, the Secretary and Mrs. Bodman view the "Wall of Heros," photos of 78 Pantexians who have or are currently serving in Iraq and Afghanistan.



National Laboratory Directors Come Together To Highlight GNEP

Directors of NNSA's national laboratories joined together recently with the directors of six other Department of Energy (DOE) labs to announce their support and collaboration for the Global Nuclear Energy Partnership (GNEP) – a key part of President Bush's Advanced Energy Initiative.

"The Global Nuclear Energy Partnership demonstrates the enormous role that advanced nuclear science and technology can play in making the world a better, cleaner, safer place to live by providing abundant, affordable, emissions-free energy while reducing the threat of nuclear weapons proliferation. The national labs will help us realize this vision," said Deputy Secretary of Energy Clay Sell.

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National Laboratory Directors Come Together To Highlight GNEP

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Under GNEP, the labs will work together to support advanced technologies to recycle spent nuclear fuel and promote emissions-free nuclear energy in a more proliferation-resistant manner.

“As the use of nuclear energy expands globally, it is essential that it occurs in a fashion that actually reduces the fears of nuclear proliferation,” said Bob Kuckuck, interim director of Los Alamos National Laboratory. “We can accomplish this by integrating modern safeguards and nuclear materials management concepts into future nuclear fuel cycles from the very beginning of the process, not adding them after the fact.”

Lawrence Livermore National Laboratory Director George Miller said, “U.S. leadership in developing advanced safeguards and security technology is paramount to protect against diversion of nuclear materials by states or sub-state actors. It is critical that we work with suppliers and the International Atomic Energy Agency on an international framework and mechanism for supply, storage and disposal in concert with the global development of technology for advanced fuel recycle, fast reactors and small-scale reactors.”

Tom Hunter, director of Sandia National Laboratories, said, “Taken together, the nuclear fuel-focused technologies to be developed and demonstrated in GNEP will be an enormous step forward in solving both proliferation and waste management concerns. While the nation must have the Yucca Mountain nuclear waste repository, a successfully implemented GNEP can eliminate the need for additional repositories.”

Other DOE science labs participating in the GNEP effort are Argonne National Laboratory, Brookhaven National Laboratory, Idaho National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, and Savannah River National Laboratory. For more information on GNEP, visit www.gnep.energy.gov.

President Nominates Tobey To Lead NNSA's Nonproliferation Work

President Bush recently nominated William H. Tobey to become NNSA's deputy administrator for defense nuclear nonproliferation. Tobey's nomination will require confirmation by the U.S. Senate.

Tobey currently serves as director of counterproliferation strategy for the National Security Council. Prior to this, he worked for several investment banking firms. Earlier in his career, he served as director of defense policy and arms control for the National Security Council. Tobey received his bachelor's degree from Northwestern University and his master's degree from Harvard University.

NNSA Works With Kazakhstan To Stop Nuclear And Radioactive Material Smuggling

As part of the overall U.S. strategy to prevent nuclear and dangerous radiological materials from falling into the hands of terrorists, NNSA has signed an agreement with the government of Kazakhstan to create a partnership under the Second Line of Defense program.

U.S. Ambassador Ordway joined Kazakhstan Customs Control Committee Chairman Askar Shakirov in signing the accord. The agreement will pave the way for NNSA to work collaboratively with the Kazakhstan Customs Control Committee to install radiation detection equipment at strategic border crossings throughout Kazakhstan to identify and deter illicit nuclear or radiological materials.

“Establishing strong border security partnerships with willing partners such as Kazakhstan is critical to preventing the

smuggling of nuclear and other radioactive materials. The U.S. and Kazakhstan share a strong commitment to keeping nuclear weapons beyond the reach of terrorists,” Secretary of Energy Samuel Bodman said.

Under the agreement, NNSA's Second Line of Defense program will work together with Kazakhstan officials to install radiation detection and integrated communications equipment and train law enforcement officials to detect nuclear or radiological material smuggled inside cargo.

The Second Line of Defense program is a worldwide initiative that uses detection and deterrence to minimize the risk of nuclear proliferation, illegal trafficking and terrorism. It works by installing radiation detection equipment and training personnel at strategic international border locations, airports and seaports.

Sandia Dedicates Microfab and Microlab Facilities

A Microlab and Microfab - two of three key elements of the half-billion-dollar Microsystems and Engineering Sciences Application (MESA) facility at Sandia National Laboratories in New Mexico - have been formally opened.

MESA is the largest construction project ever undertaken at Sandia. The three building complex will

be a critical part of NNSA's future nuclear weapons complex. It will be used to develop the technology necessary to keep the U.S. nuclear weapons stockpile safe, secure and reliable. The research, development and simulation NNSA needs to carry out its national security mission will also be conducted at the MESA facility.



president of Science, Technology, and Research Foundations and chief technology officer; Tom Hunter, president and laboratories director; Rep. Heather Wilson, R-N.M.; Sen. Jeff Bingaman, D-N.M.; and Sen. Pete Domenici, R-N.M.

The primary intent of the MESA facility is to combine the expertise of three groups – electronics, photonics, and computer visualization – to more quickly imagine and design better microelectronic devices to support NNSA's national security needs.

Still to be completed for the MESA project is the Weapons Integration Facility. It is expected to be structurally finished later this year and operational in fiscal year 2008.

MESA DEDICATION: Attending the MESA ribbon-cutting ceremony at Sandia Labs were, from left, Patty Wagner, NNSA Sandia Site Office manager; Tom D'Agostino, NNSA deputy administrator for Defense Programs; Rick Stulen, Sandia vice

Oldest Y-12 Worker Retires

After 52 years and eight months working at the Y-12 National Security Complex, 84-year-old Ray Waldrop has decided that it is time to retire.

As recently as October - when it was confirmed that the research and development engineer was the plant's oldest employee - Waldrop declared he was having "too much fun" to quit his work.

"I had been thinking about retiring for a long time, but my mind wasn't made up," he said. "I don't like to make decisions based on mixed feelings."

Waldrop came to Oak Ridge from Nashville with his wife in 1948, at the encouragement of Waldrop's mother-in-law. "She believed I could find a good job here," he explained.

He began working for Fairchild Engine and Airplane Corp. and then left for Y-12 when he was hired as an assistant foreman for the plant's Alloy Deployment Program. In 1954, he transferred to Y-12's Development Division.

"I don't really have any big plans," Waldrop said of his retirement. "I'll be gardening, bowling and overseeing the business I founded." Waldrop's grandson, Jeffrey, is vice president of his business. "Oh! I'll also be catching up on my sleep - that will take a week or two," he added, grinning.

Waldrop said he feels "privileged and honored" to have been a member of Y-12's Technology and Development Division for all these years.

"This is a group of people who are highly intelligent and skilled; they were all instrumental in winning the Cold War. They're the cream of the crop. I'll miss them very much," Waldrop said.



Ray Waldrop

A New Day At Los Alamos

On June 1, Los Alamos National Laboratory began a new era under the management of Los Alamos National Security (LANS), LLC, a partnership of the University of California, Bechtel, BWX Technologies and Washington Group International.

By integrating top science and scholarship with leadership, innovation and best business

environment necessary for new scientific and engineering breakthroughs that allow the U.S.

“Building upon LANL’s rich history and the accomplishments of its people, we now look toward an even brighter future.”
Laboratory Director Michael Anastasio

to meet a broad suite of national security challenges. LANS fields a highly skilled management team of nuclear experts and industry

Area 3. The new \$97 million, 275,000 square-foot NSSB houses 700 staff members and includes a 600-seat auditorium and lecture hall, and a 400-space parking garage. Employees began moving in May.

The laboratory celebrated the NSSB opening with an open house that featured a ribbon-cutting ceremony and included tours of the facility and the unveiling in the NSSB courtyard of a Pentagon remnant that memorializes the attack on September 11, 2001.

The laboratory is poised again to break the boundaries of computing performance, recently initiating procurement of a new supercomputer that is designed to provide computational power exceeding that of any facility in the world.

The new Los Alamos computer, nicknamed “Roadrunner,” is expected to run scientific calculations of highly complex phenomena that are 10 times more detailed than available from any existing computer. It will also establish Los Alamos as the leading contender to win the worldwide race for a sustained performance level of 1 petaflop, or a billion million computations per second.

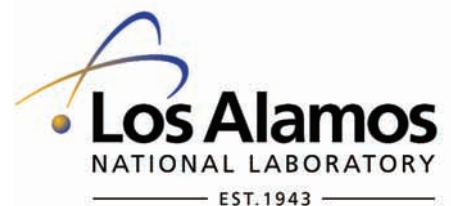


LOS ALAMOS NATIONAL LABORATORY: A high southwest view of Los Alamos National Laboratory in New Mexico.

leaders, all focused on making Los Alamos the premier national security laboratory for the 21st century.

Also new at Los Alamos is the National Security Sciences Building (NSSB) at Technical

practices, the new Management & Operating contractor intends to foster the secure, efficient





NATIONAL SECURITY SCIENCES BUILDING: Left to right, John Brown of LANL, NNSA Administrator Linton F. Brooks, Congressman Tom Udall, Interim LANL Director Bob Kuckuck, Senator Pete Domenici, Vic McNallie (Hensel Phelps), University of California Regent Norman Pattiz, and New Mexico Governor Bill Richardson participate in the NSSB ribbon-cutting ceremony.

Los Alamos Since World War II

Fission Bomb Research: As soon as World War II ended, LANL demobilized. Senior scientists, including Robert Oppenheimer, Hans Bethe, and Enrico Fermi, returned to their pre-war university positions, and younger staff members left to enter graduate school. As a result, nuclear weapons work languished until the summer of 1946. Los Alamos continued to design fission bombs into the 1950s.

Hydrogen Bomb Research: Along with fission bomb development, Los Alamos also conducted research on the hydrogen bomb. The idea for a hydrogen bomb came from the thermonuclear study of stars conducted in the 1930s by Hans Bethe. The first hydrogen bomb was detonated in 1952.

Miniaturization: Beginning in the late 1950s, delivery systems, such as ballistic missiles, governed design changes in nuclear weapons. Nuclear weapons had to be reduced in size to fit into the much smaller spaces of nose cones. Miniaturization of weapons was a dominant theme in nuclear weapons development throughout the 1960s.

Stockpile Stewardship: By the early 1970s the number of new weapons designed and built began to decline. Increasing emphasis was placed on improving and upgrading weapons already in the stockpile, as well as enhancing safety. With the current ban on nuclear weapon testing, other methods, primarily computer simulation, are now used to ensure the safety of the United States stockpile through Science Based Stockpile Stewardship. The safety, security and reliability of the stockpile will remain the key priority well into the 21st century.

NNSA Teams Up With State Department To Engage Iraqi Scientists

NNSA's Office of Global Security Engagement and Cooperation (GSEC), the Department of State and the Civilian Research and Development Foundation (CRDF) have signed a statement of objectives for a cooperative effort to engage Iraqi scientists to reduce their vulnerability to recruitment by terrorist organizations or rogue states.

The Iraqi Research and Development Initiative (IRDI) statement calls for a pilot research competition to support civilian research and development projects for Iraqi scientists. These projects will support ongoing reconstruction efforts in Iraq in areas such as water, energy, radiation safety, and materials science.

In the last three years, all three organizations mounted parallel, yet distinct, efforts in Iraq. NNSA provided the technical expertise crucial to developing scientific proposals, and developed a baseline understanding of the Iraqi science and technology community; the State Department established the Iraqi International Center for Science and Industry, which awards grants to scientists to redirect them towards civilian work; and CRDF, which is expanding its work to include Iraq, applied its proposal writing capabilities to help Iraqi scientists meet international standards. Working collaboratively, the new IRDI effort will allow for increased synergies, as well as an increased reach into the Iraqi scientific community.

The IRDI statement complements ongoing activities under NNSA's Global Initiatives for Proliferation Prevention, a major GSEC program that is responsible for redirecting WMD scientists in Russia, the former Soviet Union, and Libya into civilian, non-military work.

Over the course of these three years, NNSA has supported a multi-phased project survey, prioritization of needs and a call-for-proposals to engage Iraq's scientific community. This project began with a baseline survey of over 200 scientists, and particularly illustrated Iraqi needs in public health, water and the environment. In 2004, NNSA supported two studies of Iraq's infrastructure in public health and water.

Recently, NNSA funded six proposals in the areas of radiation safety and material science, and sponsored a "train the trainers" workshop for Iraqi scientists on biosafety concepts and procedures.

GSEC is part of NNSA's overall goal of keeping nuclear material, technology and expertise out of the hands of terrorists. The IRDI program will help to reduce the proliferation threats associated with scientist recruitment by terrorists, while also strengthening the scientific infrastructure of Iraq.

Sultans Of SWAT



NNSA's Special Response Force in the Office of Secure Transportation (OST) placed fifth in the Original SWAT World Challenge held recently in Little Rock, Arkansas. Teams compete by invitation-only based on their previous performance in SWAT competitions and their reputation for professionalism, toughness and skill. Pictured are Troy White (left) and Aaron Betts. Other team members are Donnie Bluche, Mark Hulihan, Charles Kendrick, Scott Lykens, Joshua Scherrey, Frank Tagle, and Vic Zachary.

John O'Connor, director of the competition, said in a letter to Acting Assistant Deputy Administrator Dennis Reese, "The competition is fierce and there is no room for error if you want to come out on top. I can report to you that your officers performed superbly in a difficult competition. Their fifth place finish in their first year of competition was noteworthy and has gained them an automatic invitation to the 2007 competition. But perhaps more importantly, they were superb representatives of DOE and we were proud to have them in the competition. They are a well-led group and their department and professional approach to the competition reflects positively on all DOE's law enforcement officers, especially the OST."

Global Threat Reduction Initiative: Two Successful Years Of Reducing Nuclear Threats

In the past two years, NNSA has removed more than eight nuclear weapons worth of highly enriched uranium, and secured more than 400 radiological sites around the world containing over six million curies - enough for approximately

“The Global Threat Reduction Initiative is an important part of the President’s 2006 National Security Strategy to protect Americans.”

Linton F. Brooks

6,000 “dirty bombs.”

This critical work has been carried out by NNSA’s Global Threat Reduction Initiative (GTRI), which recently celebrated its two-year anniversary. This program works with partners around the world to reduce the threat posed by high-risk, vulnerable nuclear and radiological materials, which could be used by terrorists to make a nuclear weapon or dirty bomb.

“The Global Threat Reduction Initiative is an important part of the President’s 2006 *National Security Strategy* to protect Americans,” Linton F. Brooks, the head of NNSA, said. “In just two years, GTRI has worked with our international allies to significantly step up international efforts to secure vulnerable nuclear and radiological materials. The Bratislava agreement between Presidents Bush and Putin has accelerated our efforts to keep dangerous materials out of the hands of terrorists.”

GTRI’s specific accomplishments to reduce the threat from both nuclear and radiological materials since 2004 include:

NUCLEAR MATERIAL THREAT REDUCTION

Accelerated Conversion of Research Reactors From the Use of Highly Enriched Uranium to Low Enriched Uranium

- In fiscal year 2006, six research reactors will be converted to operate with low enriched uranium (LEU) instead of using highly enriched uranium (HEU), which can be used to make a nuclear weapon.

Accelerated Removal of Russian-Origin HEU Fresh and Spent Fuel

- Since May 2004, GTRI has doubled the number of shipments to return Russian-origin research reactor fuel. During the past two years, eight shipments have successfully taken place to remove and return to Russia more than 89 kilograms of Russian-origin HEU.
- As a result of the Bratislava Joint Statement on Nuclear Security Cooperation issued by Presidents Bush and Putin in February 2005, GTRI has developed an overall prioritized accelerated schedule of shipments. By the end of 2006, all shipments to return eligible Russian-origin HEU fresh material will be completed; and by the end of 2010, all shipments to return eligible Russian-origin HEU spent fuel currently stored outside of reactor cores will be completed.

- In accordance with this accelerated schedule, during the next five months, GTRI is planning to repatriate more than 200 kilograms of Russian-origin HEU fresh fuel from facilities worldwide.

Removal of U.S.-Origin Research Reactor Spent Fuel

- Since 2004, more than 78 kilograms of U.S.-origin HEU in spent research reactor nuclear fuel was returned to the United States from Germany, Austria, Greece, Japan, the Netherlands and Sweden.

Removal of “Gap” Material

- Significant progress has been made to secure nuclear material that was not covered by other pre-existing nuclear material threat reduction programs. This material is referred to as “gap” material.
- More than 35 kilograms of U.S.-origin HEU fresh material was safely returned in two shipments from Canada and Belgium.

RADIOLOGICAL THREAT REDUCTION

- Physical protection upgrades have been completed in over 40 countries at more than 400 radiological sites, including industrial, medical, and commercial facilities.
- In the United States, during the past two years, GTRI removed 2,700 at-risk radiological sources totaling 74,350 curies, enough for more than 74 dirty bombs.

Eight Pollution Prevention Awards Given To Four NNSA Sites

Eight innovative NNSA initiatives have received Best-In-Class Awards in the annual DOE/NNSA Pollution Prevention Awards Program. The awards recognize outstanding environmental achievement associated with mission operations.

In a recent letter to NNSA employees, Administrator Linton F. Brooks said, "The results of the work recognized by these awards is reduced environmental liability and waste management costs, increased efficiency in our operations and improved health and safety conditions."

Additionally, 14 of the 34 programs nominated for the awards were submitted for consideration to the prestigious White House "Closing the Circle" Environmental Awards, which recognize accomplishments from all federal agencies. Last year, Sandia National Laboratories/NM and the Pantex Plant received "Closing the Circle" awards.

Recipients of the 2006 awards are:

- ◆ Los Alamos National Laboratory for three projects: *Innovative Tools and Approaches for Environmental Management Systems Implementation at LANL*; *LANL Green Engineering Standards*; and *Metal Molds for Plutonium Aliquot Production*
- ◆ Lawrence Livermore National Laboratory for two projects: *LLNL Space Action Team Assets for Value Contracts*; and *Replacement of SF-6 With Ultra-Zero Air in Site 300 Flash X-ray Systems*
- ◆ Nevada Test Site for two projects: *JASPER Project* and *NTS Fleet Petroleum Reduction*
- ◆ Y-12 National Security Complex for one project: *Partnering at Y-12 through Y-12's Multi-organizational Reduce, Reuse, Recycle Team*

New E-Questionnaire For Investigations Saves Time And Money

NNSA recently launched the Electronic Questionnaire for Investigations Processing (e-QIP) to manage and process employee clearance investigations more efficiently. NNSA processes over 10,000 security investigation packages a year and e-QIP will result in significant time and cost savings, including saving over \$25,000 a year in postage.

Developed for the U.S. Office of Personnel Management (OPM) e-QIP is a web-based, automated system for electronically processing clearance investigations forms. As an individual enters data into the online database, e-QIP conducts a

screen-by-screen validation of the security form to reduce the number of incomplete security forms.

NNSA applicants and incumbents (federal and contractor) are now able to electronically enter, update and release their personal investigative data over a secure Internet connection to the NNSA site offices for review. The site offices then electronically transmit the security forms to the NNSA Service Center Personnel Security Department for review, approval and submission to OPM to begin the investigative process.



Under the leadership of Michael Bodin and Patricia Smith in the Office of Defense Nuclear Security, NNSA coordinated with OPM to provide e-QIP training for site office personnel, and to implement and deploy the new program.

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