



LOS ALAMOS NATIONAL LABORATORY: A high southwest view of Los Alamos National Laboratory in New Mexico. Energy Secretary Spencer Abraham has decided to conduct separate competitions for Los Alamos and Lawrence Livermore National Laboratories. The Los Alamos contract will be competed first. See story on page three.

Brooks Submits Stockpile Report To Congress

Administrator Linton F. Brooks, on behalf of the Secretaries of Energy and Defense, has submitted a classified report to Congress showing a significant reduction in the nation's total nuclear weapons stockpile by 2012.

The stockpile contains reserve warheads that back up the operationally deployed nuclear weapons. In 2001, President Bush announced that the operationally deployed force would be reduced to 1,700 to 2,200 nuclear weapons by 2012. His decision was later codified in the Moscow Treaty.

Here is the text of the unclassified cover letter submitted to Congress with the report:

“Dear Mr. Chairman: “On behalf of the Secretary of Energy and the Secretary of Defense, I am pleased to submit a report on a revised nuclear weapons stockpile plan as requested in the conference report to accompany the Energy and Water Development Appropriations Act, 2004.

Nevada's Kathy Carlson Focuses On People

For Kathy Carlson, manager of the Nevada Site Office, the achievements of her successors is how she measures her personal success. “To know I helped develop technically competent leaders who are the best trained and who are better than I am, then I know I will have succeeded.”

Carlson is the proud mother of two: Nikki, a 20-year-old junior at the University of Nevada, Reno and Chris, a 17-year-old high school senior. She



NEVADA SITE OFFICE MANAGER: Kathy Carlson confers with Jay Norman, deputy manager for tests and operations.

considers her daughter and son her greatest accomplishment. This coming from a woman who began her career

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Stockpile Report

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“The President on 13 November 2001 announced his decision to reduce to 1700-2200 operationally deployed strategic nuclear warheads by the end of 2012—a two-thirds reduction from then-current levels. This dramatic reduction in nuclear forces—the most significant in the nuclear age—was codified in the Moscow Treaty.

“Historically, deployed nuclear forces have been supported by a stockpile reserve that ensures that America’s military readiness is not compromised. As the number of operationally deployed warheads

declines, stockpile reserves take on even greater importance. The Nuclear Posture Review calls

for a nuclear stockpile that supports the operationally deployed force and includes a reserve of warheads that could be used to augment the operationally deployed force or to provide replacements for warheads that experience safety or reliability problems.

“The size and composition of this stockpile has been the focus of a great deal of analysis in the Administration. Recently, the President approved a stockpile plan that would substantially reduce the current stockpile. Detailed information about this plan is included in the enclosed report.

“By 2012, the United States’ nuclear stockpile will be the smallest it has been in several decades. In recommending this stockpile plan to

the President, we recognize that maintaining the nation’s nuclear deterrence with a much smaller stockpile means that we must continue Administration efforts to restore the nuclear weapons infrastructure. The Nuclear Posture Review calls for a “responsive infrastructure” to ensure that we retain the ability and expertise to respond to geopolitical changes that may challenge American security in the future or to address potential problems that affect the safety or reliability of weapons in the current stockpile.

“The Administration’s work to restore a modern infrastructure includes, among other things, three ongoing initiatives: (1) planning for a Modern Pit Facility to restore the nation’s ability to manufacture plutonium parts for nuclear warheads;

(2) an advanced concepts program to enable scientists and engineers at the national nuclear weapons laboratories to retain critical skills and to provide the United States with means to respond to new, unexpected, or emerging threats in a timely manner; and (3) enhanced test readiness. Completion of these programs and the realization of a responsive infrastructure will offer opportunities for the United States to reduce further the nuclear stockpile secure in the knowledge that the nation has enhanced its capabilities to respond to possible future challenges to its security.”

Sincerely,
Linton F. Brooks
Administrator

Kathy Carlson

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as an entry level health physicist at Idaho.

After five years in Idaho, Carlson got the job that would define her career. She entered into the nuclear weapons domain of the former Albuquerque Operations Office. There she quickly moved up the ranks and in the course of 20 years, oversaw several different weapons systems programs, and became the manager of the former Kirtland Area Office.

While proud of her accomplishments in Albuquerque, and getting the nod to lead the Nevada Site Office, she quickly comes back to her family. Her husband Dave and son Chris are competitive triathletes. “My life is following my boys and watching them compete,” said Carlson. But they soon will follow and watch her compete. Carlson is slated to do her first triathlon in San Diego in June and will follow that up with a competition in Minneapolis in July.

The trip to Minneapolis is a return home. As a native Minnesotan, Carlson likes to use hockey analogies around the work place. When it comes to project management, safety, security or just getting the job done her mantra is simple, “Keep your eye on where the puck is going.”

“If people focus on the job at hand, practice safety, take into account security, then their chance of having a 100% successful project is almost guaranteed,” said Carlson.

Keep your eye on where the puck is going. While it is an over-simplified analogy, it has served Kathy Carlson well in her 30-plus-year career. She only hopes it can work as well for the people who follow behind her.

DOE To Conduct Separate Competition For Los Alamos And Livermore National Labs

The Department of Energy (DOE) will conduct separate competitions for the management of Los Alamos and Lawrence Livermore National Laboratories, both now managed by the University of California. In order to separate the two competitions, DOE will extend the current contract for the Lawrence Livermore National Laboratory beyond its September 30, 2005, expiration date.

“I have concluded that it is very important to ensure we have the broadest possible competition for future contracts,” said Energy Secretary Spencer Abraham. “Separating these two competitions

will achieve that result.”

Secretary Abraham had announced in April 2003 his intention to conduct a competition for the management of the Los Alamos National Laboratory, which has been managed since its founding by the University of California on a noncompetitive basis, when the current contract expires in September 2005.

The department had also previously announced its intention to conduct a competition for the management of Lawrence Livermore National Laboratory. The question it had not decided was whether these

competitions should be linked, conducted as a single solicitation or separated. The Secretary’s decision is a result of significant internal study and is influenced by the recommendation of the Secretary of Energy Advisory Board’s Blue Ribbon Commission on the Use of Competitive Procedures for Department of Energy Laboratories.

The competition for the management of the Los Alamos National Laboratory will be conducted by NNSA, which will announce the schedule for the request for proposal in the near future.



LINTON BROOKS AT FORT CHAFFEE: Administrator Linton F. Brooks (right) talks to Steve Hafner, assistant deputy administrator for secure transportation. In the background is an escort vehicle used in convoys by NNSA’s Office of Secure Transportation (OST). Brooks was at Fort Chaffee, Ark., to preside over the graduation of 24 new agents who will help guard and transport NNSA nuclear weapons materials. Fort Chaffee is a primary training center for OST. Brooks said, “With the increased emphasis on security since September 11, the demands on the federal agents who accompany this material have never been higher. They have risen to this challenge magnificently.”

Andrew Bieniawski Departs DOE Moscow Office

Andrew Bieniawski, executive director of the DOE/NNSA Moscow Office since August 2001, has returned to Washington, D.C. and is heading up Secretary Abraham's newly announced Global Threat Reduction Initiative (GTRI) in the Office of Defense Nuclear Nonproliferation.

The mission of GTRI is to remove and/or secure high-risk nuclear and radiological materials and equipment around the world that pose a threat to the United States and the international community. This initiative will comprehensively address all vulnerable nuclear and radiological materials throughout the world and secure and/or remove these materials and equipment of concern as expeditiously as possible.

In his three years directing the Moscow office, Bieniawski was a driving force behind the implementation of DOE's nonproliferation programs in Russia. He also contributed to the successful development of the U.S.-Russia Energy Working Group, established by President George W. Bush and Russian President Vladimir Putin.

The successful implementation of DOE's nonproliferation programs in Russia and the activities of the U.S.-



MOSCOW OFFICE DIRECTOR: Andrew Bieniawski (right) speaks with Russian Federal Agency for Atomic Energy (FAAE) Director Aleksandr Rumyantsev.

relationships he developed with his Russian counterparts were instrumental in facilitating

implementation of all DOE programs in Russia.

Vershbow said Bieniawski provided exemplary leadership for the Moscow office. "He has displayed an impressive ability to integrate diplomacy and policy, both in implementing all of DOE's nonproliferation

Russia Energy Working Group include the coordination and support in Russia of over 2,500 travelers each year working on 22 major programs worth \$440 million annually.

While serving in Moscow, Bieniawski received repeated praise from the U.S. Ambassador to Russia, Alexander Vershbow, as well as from senior DOE leadership. Bieniawski's abilities as a leader and manager raised the office to a new level. The

programs and in promoting the successful development of the U.S.-Russia Energy Working Group," Vershbow said. "There is no more productive, creative or collegial office at Embassy Moscow than the DOE operation that Bieniawski headed. He has been a superior performer and we at Embassy Moscow are grateful for his contributions."

News Briefs

Sandia Teams With Native Americans

In an effort to expand teaming efforts with the Native American community, Sandia National Laboratories has entered into a formal Memorandum of Understanding (MOU) with the National Center for American Indian Enterprise Development (NCAIED). Under the MOU, Sandia will notify the NCAIED when Sandia is seeking competitive bids with requirements that exceed \$100,000. NCAIED will then have an opportunity to recommend to

Sandia those qualified businesses from their membership that can bid on the requirement.

Tax Credits To Help Small Businesses

Sandia National Laboratories completed its third year of providing technical assistance to New Mexico small businesses last year through a tax credit passed by the New Mexico Legislature. Nearly 300 small businesses were assisted throughout New Mexico in 2003. The assistance ranged from helping a company make better spark plugs to assisting in the

automation of the New Mexico chili industry.

The New Mexico Small Business Assistance program allows Sandia to utilize a portion of its gross receipts taxes paid each year to provide technical advice and assistance to New Mexico small businesses. During 2003, Sandia received almost \$1.8 million in tax credits, 77 percent of which went to small businesses in rural New Mexico and 23 percent to small businesses in Bernalillo County.

Sandia Knowledge Management Program Launches Tool For Accessing Insights Of Retired Weaponeers

Deriving knowledge from a large amount of raw data is no easy thing. But Sandia National Laboratories' new classified streaming video capability is making the process of turning video data into easily usable information much more efficient.

The new capability, the Knowledge Management Streaming Assets Library (KM-SAL), benefits Sandia's Knowledge Preservation Program. Launched about ten years ago, the idea was to capture knowledge of retiring weaponeers about the work they had done on various nuclear weapons systems. Knowledgeable old hands were interviewed, in classified settings, about how and why they did things the way they did, how they solved problems and how they used scientific engineering insights on some

of the most daunting technical challenges anyone ever faced.

These exit interviews, which are on-going as seasoned veterans retire, preserve weaponeering knowledge in a video format. Although the interviews are captured in the videos, in their raw form it is not well-organized knowledge, just data. It's the ability to draw out relevant pieces of data and re-integrate them in new, coherent ways that transform data back into knowledge.

Sandia's Knowledge Preservation Program has captured some 1,900 hours worth of weapon design related data. Until now, though, it has been difficult to drill into that data pool in an efficient way. A team headed by John Shaw of Sandia's Weapons Knowledge Management Department

was tasked to make the knowledge in the videos more accessible.

A special Sandia development team looked at several commercial packages before they selected Virage VS Archive, a content management system that was created for the super-secret National Security Agency. The system is adept at handling classified video media, with built-in security tools and need-to-know authentication.

Shaw said that ultimately, through secure, classified connections, KM-SAL may make knowledge preservation content available throughout the nation's nuclear weapons complex. For now, KM-SAL is already being used to deliver, in a classified setting, interactive, multi-media, weapons courses.

NNSA Participates In Government-Wide Security Exercise

DOE and NNSA headquarters personnel recently participated in a federal government continuity of operations (COOP) exercise deemed "Forward Challenge '04."

Forward Challenge, led by the Department of Homeland Security, provided agencies within the federal government the opportunity to test their emergency operations plans. The exercise scenario required each federal department or agency to relocate key personnel to alternate facilities outside of the Washington D.C. area. Once at their COOP offices, officials worked to demonstrate their ability to perform essential functions and tested their communications within their agency

as well as with other federal, state and local agencies throughout the country.

DOE and NNSA participated in Forward Challenge along with over 45 other federal departments and agencies. Over 60 NNSA headquarters personnel participated in the exercise; another 40 NNSA employees managed the exercise, collected data and observed.

Working closely with DOE, NNSA demonstrated its ability to relocate key personnel to an alternate facility and to communicate and perform essential functions from the alternate facility during the simulated crisis that compromised its ability to operate from its primary facility.

Jonathan Kiell of NNSA Emergency Operations oversaw the exercise for NNSA.

"NNSA's relocated staff had great support from the Emergency Operations Center, the computer support staff and the security staff," said Kiell. "In addition, the NNSA folks at our alternate facility were very supportive when asked to give up desks and office space to accommodate the Forrestal based personnel."

Kiell also mentioned that based on feedback from the exercise, NNSA will continue to fine-tune its COOP plans capabilities to ensure that it is fully prepared in the event of an emergency.

NNSA Nonproliferation Experts Helping Foreign Governments Lock Up Dirty Bomb Ingredients

A team of NNSA nonproliferation and security experts from Sandia National Laboratories in New Mexico is working with NNSA and other DOE laboratories and the governments of four foreign countries to help locate, repackage, move and secure large quantities of medical and industrial radioactive materials that currently are stored in facilities that offer little protection.

Efforts are underway in Lithuania, Greece, Russia and Tanzania. Similar projects in other countries are expected to begin this year. The project is funded through NNSA's Radiological Threat Reduction Program.

"The safekeeping around some large radiation sources in some countries isn't up to the standards we are used to in the United States," said Bill Rhodes, manager of Sandia's International Physical Protection Program. "The goal is to go to the source where a terrorist group might try to steal radioactive material and try to help secure that material."

Protocols for tracking shipments of radioactive materials also can be less rigorous than they are in the U.S., he said. In Lithuania, for instance, where many government records have been misplaced or removed in the transition from the former Soviet government, large radiation sources that have been lost in the shuffle are being found and accounted for before being locked up.

"We give guidance, they implement their own rules and regulations," Rhodes said.

Recommendations include additional physical security devices, like video motion detection and sensors, he said, or it can focus on revision of administrative procedures and standards for the storage, transport, tracking and inventory of materials.

A scoping team first traveled to Lithuania in June 2003 to meet with

"NNSA's role is to work closely with local regulatory officials, hospitals and companies to review protocols and then suggest ways to improve the protection offered by the security systems, if any, of local facilities."

officials of the Lithuanian Radiation Protection Centre (RPC) and other agencies at the invitation of Lithuanian Prime Minister Algirdas Brazauskas, who asked for assistance in a letter to U.S. Energy Secretary Spencer Abraham.

The visit team included Ioanna Illiopulos (NNSA), Tom Coulter (Coulter and Associates), Michael Hasse (Aquila Technologies Group, Inc.), and Rhodes.

The Lithuanians identified 300 sites that they thought contained large quantities of radioactive materials, then culled the list down to 25 high-priority sites where radiation sources needed to be located and secured first. Included in the list were several hospitals where 5,000 to 6,000 curie

cobalt-60 sources had been used.

"As hospitals they were never intended to be high security areas," Rhodes said.

Former Soviet military bases, industrial processing sites and one nuclear waste repository were also included.

Teams of Sandians have returned several times to advise the

Lithuanian government and oversee security upgrades at some facilities, as well as repackaging and transport of some sources to more secure locations. Surplus Sandia radiation-measurement equipment has been donated to the Lithuanian government.

"Basically they needed modern diagnostic equipment to accomplish the objectives of the project," Rhodes said.

"Their two Geiger counters were not enough equipment for the RPC to monitor the whole country."

Lithuania was the first of four governments Sandia is now working with. A Sandia team traveled to Greece in November and plans are underway to complete a project there before the 2004 Summer Olympic Games begin.

A Sandia official also participated in a visit to Tanzania, where contracts for security upgrades were concluded.

**Got an article for the
NNSA Newsletter?**
Submit it for consideration to
AStotts@doeal.gov

NNSA Engineer Discovers Wealth Of Opportunities At DOE NNSA

If you ask Jeng Chang to describe his 20-plus year career at DOE/NNSA in one word, he'll tell you "opportunity." Chang has enjoyed a variety of jobs within the agency, from chemist, to assistant ombudsman, to engineer. He says the breadth of DOE's mission offers opportunities for employees to pursue educational and career goals. Each experience has helped him build on technical and institutional knowledge that have broadened his expertise. Additionally, DOE has enabled him to develop his potential and has prepared him for his current position as a general engineer for emergency management at DOE/NNSA headquarters.

Chang points out that his career has not been easy. "It has required persistence and initiative," said Chang. "But that is the American way, opportunities are available but the individual has to work to make the most of those opportunities."

After receiving a master's degree in analytical chemistry from the University of Missouri, he began his career as a chemist at the DOE Chicago office in 1976. He then served four years as an international nuclear safeguards inspector at the International Atomic Energy Agency (IAEA) in Vienna. After the IAEA, he accepted a position at Savannah River as a general engineer.

While at Savannah River, Chang discovered opportunities to apply his chemical and nuclear expertise at DOE headquarters and took a position as a nuclear engineer for the New Production Reactor (NPR). Following the termination of the NPR

project, he applied his technical expertise as waste management program manager for Weapons Complex Reconfiguration. As a result of downsizing, Chang then moved to the Office of Weapons Surety.



Jeng Chang

Because of his unique background, Chang was then selected for a detail with the Ombudsman at DOE headquarters. After that, Chang returned to work as a construction project engineer before transferring to emergency management.

"I have learned that you must be persistent and focused on your goals. Patience and passion are key elements of success. DOE has given me so many opportunities to apply and advance my education and provide for my family and I am most grateful for that," said Chang.

Pollution Prevented, Money Saved At Y-12

Spring cleaning has taken on a new meaning at Y-12.

Over the last fiscal year and a half, Y-12 has undertaken more than 80 pollution prevention and recycling initiatives resulting in waste reductions/avoidance of approximately 37 million pounds.

That amount of material would fill 822 tractor-trailer trucks. Lined up bumper-to-bumper, that many trucks would stretch a distance of 11 miles.

Along with removing tons of unnecessary material from the Y-12 site, the avoidance of waste generation and recycling resulted in a cost savings/cost avoidance of more than \$5.4 million. In addition to allowing the company to accomplish more work with the same amount of money, the program also is a demonstration of good environmental stewardship.

Jan Gilbert, Y-12 pollution prevention program coordinator, said the program's goal is to eliminate the generation of waste and when that is not possible to find suitable alternatives to waste disposal and as an additional benefit to clean up the site and improve safety.

"The program's efforts include reuse of materials onsite or reuse of materials by other DOE sites or the public, recycling as many materials as possible—thereby conserving natural resources and landfill space and, preferably, eliminating the generation of waste at the source," Gilbert said.

Scientists Develop Novel Fluorescent Thermometer

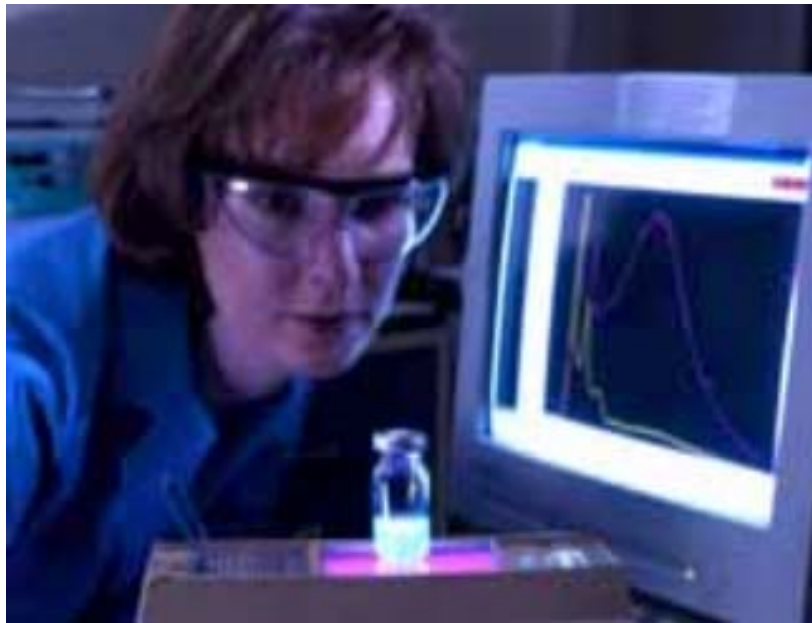
Scientists working at Los Alamos National Laboratory (LANL) have developed a fluorescent material that responds rapidly and reversibly to temperature. The material could be the basis for highly sensitive optical thermometers useful in biological monitoring, medical, industrial and security applications.

Although molecule-based optical thermometers have received a great deal of attention recently, most have limited operational ranges. The LANL thermometer is

accurate to one-tenth of a degree and responds to temperature changes ranging from 77 to 284 degrees Fahrenheit, giving it a wider temperature range than any existing fluorescent thermometer.

The new thermometer employs a luminescent molecule--a luminophore--within an ionic liquid. The smallest drop of the ionic liquid contains trillions of these individual molecular reporters. When the luminophores are illuminated with ultraviolet light, one of its components glows in the ultraviolet (375 nanometer) range of

the visible spectrum and another component glows a different--blue--color near 475 nm. The relative



MOLECULAR THERMOMETER: Los Alamos scientist Sheila Baker and the lab's molecule-based optical thermometer.

intensities of these two bands of light changes dramatically with temperature, thereby creating a color that corresponds with specific

temperatures.

According to laboratory scientist Sheila Baker, "this kind of optical thermometer has the potential for use on so many scales--large and small- that we have only just

scratched the surface of its countless possible applications. For example, when used in a manufacturing setting, the molecular thermometer's real-time monitoring capability may help to optimize industrial processing leading to waste minimization and energy

conservation. On the microscale, this technology could be used for mapping temperature in lab-on-a-

chip and microelectromechanical systems and for locating heat bottlenecks in integrated circuits.

When coupled with flexible fabrics, a reliable bedside and battlefield temperature monitoring device could be created."

In addition to Baker, Los Alamos Frederick Reines, postdoc Gary Baker, and technical staff member T. Mark

McCleskey worked on the development of the

thermometer. The researchers are currently working to advance several promising applications, as well as encapsulating the material to create temperature-sensitive paints.

"When coupled with flexible fabrics, a reliable bedside and battlefield temperature monitoring device could be created."

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