

Newsletter

Week of Sept. 12, 2005

Vol. 6, No. 19

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The Laboratory has modified procedures for rehiring retirees, under guidance from a new Director's Instruction. Revisions to the policy on rehiring retirees were based on a recommendation from a team chaired by Mike Burns of the associate directorate for weapons programs.Page 2



Former Director Hecker to teach at Stanford

Opportunity has been knocking on former Laboratory Director and Senior Fellow Siegfried "Sig" Hecker's office door, but until recently he's been too busy to notice.Pages 4 and 5

Laboratory sponsors CO2 summer research program

Climate science may have picked up some new recruits as college students and early career scientists from across the country converged on Northern New Mexico this summer to learn more about the emerging field of carbon sequestration.Page 7



Lab Night at Isotopes Park

About 750 Lab employees and family members attended the third Laboratory/Northern New Mexico Night at Isotopes Park.Page 8



Many studies show that sleep or the lack there of can affect mood, performance and health. On average, how many hours do you sleep each night, and do you think you are getting enough sleep? If not, why? Learn what your co-workers had to say on Page 6.


Newsletter

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Susanna Delano of Biotechnology, Spectroscopy and Isotope Chemistry (B-3) loads *b. anthracis* DNA for analysis of the DNA to determine which exact strain it belongs to. The Laboratory has analyzed thousands of samples from around the world and created a centralized computer database of the variations in the different strains. The inset photo is anthrax DNA. Photos by Kevin N. Roark

Lab creates Bioforensics Analysis Research and Development Center

by Nancy Ambrosiano

In October 2001, "anthrax-letters" laden with *B. anthracis* bacteria spores appeared in various locations around the nation. To help authorities trace the source of the deadly letters, bioforensic analysts, Los Alamos scientists among them, worked diligently to pinpoint the specific strain of bacteria used.

This summer, recognizing Los Alamos' technical capabilities, the Department of Homeland Security allocated \$4 million for a new research and development program in bioforensics under the sponsorship of the National Bioforensic Analysis Center of the DHS. To meet this challenge, Los Alamos has consolidated its subject matter expertise and bioforensic research and development capabilities to form the Los Alamos Bioforensics Analysis Research and Development Center.

The new center will work to develop, evaluate and validate novel methods and techniques that can be used to support bioforensic analysis for the NBFAC. Bioforensics involves examining traces of a biological agent from a bioterrorism act, biocrime or investigation, as well as naturally occurring biological agent release. The research and development work at the center will enable bioforensic analysts to answer crucial questions, such as what kind of biological agent was used, where and when it was made and how it was prepared.

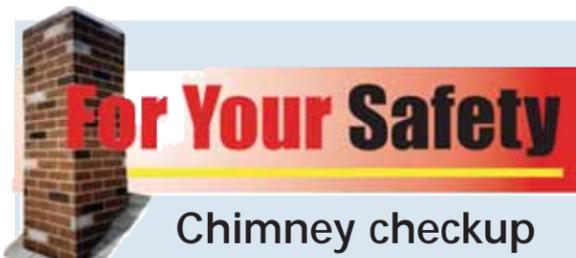
Through the use of several different technologies, researchers involved in bioforensics will develop, evaluate and validate the tools needed to characterize specific information about an agent that will help to determine whether it was released intentionally or appears naturally in the environment.

The programs of the Los Alamos Bioforensics Analysis Research and Development Center, involving approximately 30 individuals, focus on three specialized areas of bioforensic-analysis research and development. Researchers in the first program work to develop and identify molecular signatures of agents to develop genotyping tools. The second program focuses on developing techniques for identifying unique chemical and physical signatures of agents for clues about a sample's formulation. In the third program, researchers address issues involved in sample management, such as method standardization.

"The Bioforensics Analysis Research and Development Center provides organizational focus and makes our capabilities in bioforensics more accessible to the sponsors," said Babetta Marrone of Molecular Microbiology and Immunology (B-1), principal investigator on the effort. Researchers involved in bioforensic analysis are using a collection of laboratories in the Bioscience (B) Division that already are dedicated to this and related research.

"Physically, the labs are set up to consolidate activities that have special requirements, such as work with select Biosafety Level-2 agents," said Marrone. Biosafety

continued on Page 3



Chimney checkup

Early fall is a good time for an annual chimney inspection and cleaning, so repairs and improvements can be done before the chilly winter weather sets in.

Problems with a fuel-burning appliance or fireplace, a chimney, vent or air-circulation system can cause carbon monoxide poisoning.

A blocked or defective chimney on a fireplace or woodburning stove can result in a chimney fire. Fires in creosote buildup do not always burn themselves out; they often spread to the roof and interior of the building at the cost of lives and property.

Earth tremors and extreme weather conditions can damage chimneys and vents. A defective chimney can topple in an earthquake.

The following are reminders about chimney maintenance:

- Have the chimney professionally cleaned at least yearly.
- Make sure the chimney is equipped with a cap to keep out animals and debris.
- Have the chimney checked for damage after an earthquake, windstorm, flood or lightning strike.
- Install carbon monoxide detectors in the home to prevent poisonings by this deadly gas.

• Ensure adequate air circulation when using a fuel-burning device such as a fireplace. In a house with airtight construction for energy conservation, a fire can lack the needed oxygen to burn cleanly, and carbon monoxide gas can collect in the living area.

Have the chimney and venting system inspected each year by a qualified service person. He or she can detect damage and defects, which can result in accidents and injuries. The local fire department can provide more information on chimney safety. Many fire departments also will do a site specific inspection upon request.

Director's Instruction provides guidance on hiring of UC retirees

The Laboratory has modified procedures for rehiring retirees, under guidance from a new Director's Instruction.

Revisions to the policy on rehiring retirees were based on a recommendation from a team chaired by Mike Burns of the associate directorate for weapons programs. This team reviewed a 2004 Director's Instruction on returning retirees and recommended modifications. The team subsequently joined the "Fix-It" initiative created by Laboratory Director Bob Kuckuck to investigate and brainstorm solutions to issues raised by staff and various Laboratory organizations. The "Fix-It" initiative is led by the Chief Science Office (CSO).

The new Director's Instruction supersedes prior Laboratory policies and guidance and rescinds the previous DI requiring director approval for rehire decisions (DI 04-006.1) issued on July 7, 2004.

Under the Director's Instruction, authority for rehiring retirees shifts from the Director's Office to division leaders. The instruction also outlines explicit rehiring criteria and requires associate directors' concurrence on any rehire proposal.

The new instruction emphasizes the Internal Revenue Service requirement that a retired UC employee must have a true separation from service before working in any capacity covered by the Director's Instruction. The Human Resources (HR) Division leader is responsible for confirming that a true separation from service has occurred.

In determining sufficient justification to rehire a retiree, division leaders must consider whether there is a sound business basis (to bring back a retiree). And at least one of the following four criteria for rehiring of a UC retiree must be met:

1. The retiree possesses unique, expert knowledge in a specialized field, leading to a need for ongoing consultation services of no more than 30 days per calendar year.
2. The retiree is assigned to a specific task that can be completed in one year or less.
3. The retiree is hired for the purpose of mentoring new staff members. Mentoring is a one-time request, for up to three years total.
4. The retiree is hired to perform work pending completion of the hiring process for, issuance of a security clearance to, or access to programs by the person designated as the retiree's replacement.

Division leaders are prohibited from discussing the potential for rehire before any employee's retirement or prior to the completion of an employee's true separation from service. The DI also requires that retiree services be acquired through normal Laboratory procurement policies.

To help ensure that managers are cognizant of the impacts that returning retirees may have on the work force, the Laboratory is modifying work force tracking reports to include numbers of retirees. The Executive Board will periodically conduct a review of those data.

For more information, including rehiring procedures and exclusions, see the Director's Instruction at policies.lanl.gov/pods/policies.nsf/MainFrameset?ReadForm&DocNum=DI04-006&FileName=di04006.pdf online (Adobe Acrobat Reader required).

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Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.

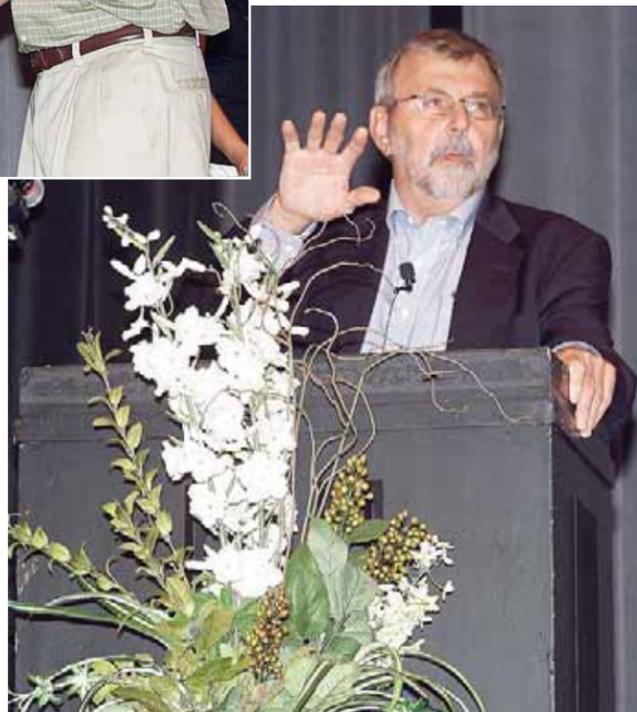


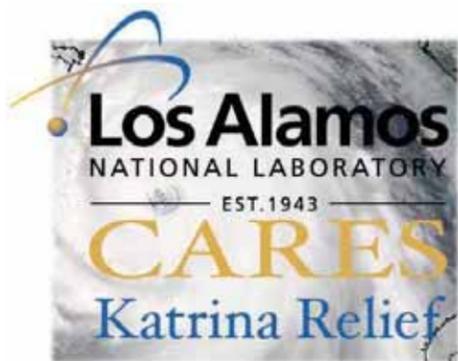
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Ceremony honors distinguished performers

Laboratory Director Bob Kuckuck congratulates Nathan Bultman of Weapon Design Services (ESA-WDS) at the 2004 Distinguished Performance Award ceremony in the Duane Smith Auditorium at Los Alamos High School. Bultman received an Individual Distinguished Performance Award for his leadership, energy and design innovation on the Laboratory's coupled-cavity linac project. At right, Laboratory Director Bob Kuckuck makes welcome and opening remarks at the award ceremony. Eight individuals, seven small teams and 17 large teams received awards. For more information, see the week of Aug. 15 Los Alamos NewsLetter. Photos by Presley Salaz, Information, Records and Media Services (IM-9)





Lab joins community in hurricane relief efforts

In a memorandum to Laboratory employees, Director Bob Kuckuck supported employee involvement with community hurricane relief efforts.

"Many of you are expressing a strong desire to help our neighbors a few states away," Kuckuck wrote. "We have an opportunity to join others in our community to help provide disaster relief. I support employee efforts to assist hurricane recovery efforts and encourage you to provide a personal contribution and/or initiate grassroots fundraising efforts (i.e. bake sales, Frito pie luncheons, garage sales, etc.)."

Lab employees wishing to make monetary contributions to Hurricane Katrina relief efforts can do so through accounts established at Los Alamos National Bank and Valley National Bank in Española. Contributions in the accounts will go toward Red Cross disaster relief efforts, said Lillian Montoya-Rael, Community Relations Office (CER-30) director and Laboratory point of contact for Laboratory relief efforts. The LANB account number is 357626-01; the Valley National Bank account number is 08841578-01. Funds can be deposited in person or electronically. Checks should be made out to the Red Cross.

The director's memo suggests that each organization assign a representative who will serve as a central collection point for contributions, which will be accepted through Friday (Sept. 16). Organizational representatives should coordinate with Community Relations by calling 7-2194.

In addition to financial assistance, the Laboratory is exploring whether its technical and support capabilities can be of value to the relief effort, as well as other avenues through which individual employees may contribute skills and abilities.

At this time, employees who wish to provide hands-on assistance to relief efforts outside of official Laboratory duties should follow policy guidelines under AM 322. The Laboratory is working with Laboratory Counsel (LC) to understand or identify other potential mechanisms for employees to aid in relief efforts.

Day & Zimmerman/Protection Technology Los Alamos, which manages the Laboratory security force, is in the process of establishing a payroll-deduction system for donations. PTLA personnel who have questions about the effort should contact James Lucero at 5-1339.

"Our service to the nation transcends our traditional central mission," said Kuckuck. "Therefore, your personal choice to contribute to hurricane relief efforts can add additional meaning to the service you provide to our national community each day."

Update on Appendix F

Reduction in security incidents contributes to Measure 8.4

by Scott Gibbs, chief security officer and acting associate director for Security and Facility Operations (ADSFO)

For the Laboratory to have sound security, we need two things — a robust security program that provides the framework of policies, tools and infrastructure within which to conduct classified work, and workers who are aware of the security risks of their work and take appropriate measures to protect information and material. This latter component is the heart of Integrated Safeguards and Security Management and an important component of Appendix F measure 8.4. In this measure, we committed to improvement in ISSM during the 2005 fiscal year.

One measure of our ISSM performance is the number and severity of security incidents that occur during the year. The severity of security incidents is categorized according to the Incident Measurement Index (IMI), established in DOE Order 471.4 "Incidents of Security Concern." Incidents range from IMI-1 (those that pose the most serious threats to national security interests or assets, create serious security situations, or could result in deaths in the work force or general public) to IMI-4 (those that could pose threats to the Department of Energy by adversely impacting the ability of organizations to protect DOE safeguard and security interests). For example, bringing a personal cell phone into a security area is categorized as an IMI-4.

If we compare the period from Jan. 1 to Aug. 1, 2005, with the same period in 2004, [the Laboratory] experienced a 53 percent reduction in the number of IMI-1 and -2 security incidents, the most serious categories. There was a reduction of 25 percent across all IMI categories combined. Equally important is that as an institution we are making sure that security issues are reported. In 2004, only 45 percent of the security incidents were self-reported. Thus far in 2005, 70 percent have been self-reported. The entire Lab should be proud of this significant achievement.

In the last year we've seen workers at all levels integrating more security into all of their activities and this focus has paid off. Thanks to all of you who have contributed to improving ISSM.

Lab creates ...

continued from Page 1

levels are defined by the Centers for Disease Control and Prevention. Biosafety Level-2 containment and practices are standard for work involving infectious agents that can cause moderate hazards and for which treatment is available.

The Department of Homeland Security's NBFAC effort was created to improve coordination across agencies responding to bioterrorism. At Los Alamos, the new center is configured to reflect the organization of the NBFAC and is conducting research and development to develop, evaluate and validate techniques that can be used in bioforensic analysis through the NBFAC operational program. This type of arrangement enables the Los Alamos center to be better aligned with the national center and other sponsors of bioforensic work. This affiliation ensures that response to a biological threat agent provides what Marrone described as "a faster translation of new discoveries into operations."

B Division has more than 200 researchers and technicians as a resource for national biological science needs. Past achievements for which the Lab has been credited include the development of the science of flow cytometry, fundamental work evolving into the Human Genome Project, advances in the genetic analysis of pathogens and more.

Planning for the future

by Tom Bowles, chief science officer



Times are changing in many ways, and everyone at the Laboratory is concerned about the future. The causes for concern seem to be ubiquitous — they include the increase in violence by terrorists, the possible spread of nuclear materials, the safety of our soldiers, the continued spread of AIDs, the impact of natural disasters, the rising price of gasoline Of course, closer to home are the concerns about decreased support of the weapons complex and the re-bid of the [management] contract. While the list seems daunting, as I started writing this column, one thing struck me: We at the Laboratory are working to find solutions to all of these problems.

The future of the Laboratory is based on a solid foundation of excellence in science and engineering. Our threat reduction efforts are developing better means to prevent terrorism and to halt the spread of nuclear materials; we are developing new capabilities to better protect our soldiers; we are studying how the AIDs virus mutates and how to develop new vaccines; our large-scale computational capabilities allow us to forecast the track of hurricanes, thus providing guidance for evacuations and restoration efforts; we are developing capabilities for a new and safer generation of nuclear reactors while also developing new fuel cells and novel superconductors to reduce power transmission losses In the weapons program, our efforts on the Reliable Replacement Warhead may lead to weapons that are safer, use fewer hazardous materials and are reliable without having to resume nuclear testing. [Regarding] the contract, we are developing a high-level, prioritized science roadmap that will serve us throughout the contract transition as the basis for the science and engineering that allows us to perform our missions.

When I look at the future, there are many issues that one can worry about. What I find so encouraging is that every employee at Los Alamos is providing capabilities that are needed to address those concerns. While I have no doubt that the next year will be unsettling, I also am personally convinced that the Laboratory has a strong and vital long-term future.

New door opens

Former Director Sig Hecker to



Former Laboratory Director Sig Hecker

by Karen E. Kippen and Hildi T. Kelsey

Opportunity has been knocking on former Laboratory Director and Senior Fellow Siegfried “Sig” Hecker’s office door, but until recently he’s been too busy to notice.

For Hecker, the Laboratory’s fifth director from 1986 to 1997, the past eight years as senior fellow have been filled with researching plutonium and grappling with global nuclear issues. He has made significant contributions to the study of plutonium aging, rekindled an interest in plutonium research in a new generation of Lab scientists, helped reduce the nuclear dangers in Russia and assessed firsthand the nuclear threat posed by North Korea.

But when the Laboratory’s management contract went up for bid, it required Hecker to consider issues closer to home. “It forced me to think about my future and what I wanted to do, if and when I wanted to officially retire from the Laboratory,” he said.

And now Hecker has opened the door, letting it swing wide to reveal a new opportunity, one that allows him to continue to make a lasting impact.

He retired from the Lab at the end of June and heads west this fall to California, where he will fulfill his long-held dream of teaching by becoming a visiting professor at Stanford University’s Center for International Security and Cooperation.

“The principal question I asked myself was ‘how can I best make an impact?’ How to make an impact is something that lives with you once you are in a position like being director of Los Alamos,” he said. “And because of that position and the role our Lab plays in national and international affairs, I have had enormous opportunities. Those doors opened for me when I was director, and they have opened for me again [as] former director.”

However, Los Alamos hasn’t seen the last of Sig Hecker. In fact, he returned to the Lab as its first director emeritus just a day after he officially retired. The honorary title, which is bestowed by the University of California president, allows him to “keep my library card,” Hecker joked. It also permits him to continue his plutonium research and maintain his association with the Laboratory, which he joined as a graduate student in 1965.

“What I like to do is in concert with what goes on in Los Alamos. Keeping my office, badge and clearance allows me to continue to contribute,” he said.

Ever the wannabe ski bum, Hecker plans to retain his house in Los Alamos and return from California during the winter quarter. “From a professional standpoint, plutonium science is an automatic attraction to come back here [to Los Alamos]. Personally, my real love is the mountains — I intend to keep coming back. In fact, if and when I really retire, it will be in Los Alamos.”

But right now, retirement is not the right word for Hecker. “I am basically just changing jobs,” he explained.

This fall, Hecker will co-teach a class on technology and national security with former Secretary of Defense William Perry. The university also would like him to mentor students, he said, and expects him to continue his research on nonproliferation issues.

Due to his immeasurable experience in the international nuclear arena — especially his pioneering role in developing a cooperative nuclear program with the Russians following the collapse of the Soviet Union — Hecker will have no trouble fulfilling this commitment.

“I was able to contribute in some measure to the overall reduction of the nuclear dangers in the world, specifically in Russia where I dealt with the fate of nuclear workers and weapons materials security,” said Hecker, who as Laboratory director in 1992 made an historic trip to the Russian weapons laboratory at Sarov, the Russian Los Alamos, just weeks after the dissolution of the communist empire. He has since traveled to Russia more than 30 times, working with members of the Russian Academy of Sciences and scientists at the Russian federal nuclear centers on issues relating to nuclear security, terrorism and plutonium science.

He recently studied firsthand the nuclear situation in Northeast Asia. In January 2004, the globe-trekking metallurgist made another historic trip — this time to North Korea, where as he later testified before Congress, he held a glass jar of their “product,” which his hosts offered as proof that they had reprocessed spent plutonium fuel rods into weapons-grade material.

As valuable as his previous nuclear encounters are to his continued nonproliferation efforts, they will be equally important if not more significant in the classroom. Hecker’s fall class, “The Role of Technology in Defense Policy,” focuses on “the interaction of technology and national security policy,” he said.

Rather than just working with textbook examples, Hecker said he feels his personal, real-life experience with nuclear weapons, nuclear energy and diplomacy will allow him to communicate a message to his students in a way that really matters to them. “I will be able

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teach at Stanford

to talk in the first-person on how [technology and national security] play out in places like North Korea and Iran," he said. "I know I learn best when I'm really interested and it means something to me."

George Kaschner of Structure/Property Relations (MST-8) said he expects the new professor to be a charismatic and motivating teacher. "Focus and passion" are just two lessons Kaschner said he learned from Hecker, who five years ago asked [Kaschner] to be his co-author on the Trunk Handbook, and whose enthusiasm for the work has rubbed off on the protégé. Completing the definitive guide to a plutonium alloy "will be a milestone piece of work for my career," Kaschner said. It's also a duty he doesn't take lightly. "I feel Sig has invested in me, and I have to return in kind, and more, and fulfill those expectations."

Since the 300-student class is open to both technical and nontechnical graduate and undergraduate students, Hecker said his goal is to "explain science so people of different backgrounds can understand." He admits that he finds the "challenge of always being prepared" exciting. "When you walk into the classroom, you have to have done your homework," said Hecker.

Yet, Joe Martz, who was mentored by Hecker, said homework is an unknown concept to the man he described as "a wonderful encyclopedia" and whose "depth of knowledge is only exceeded by his ability to explain the subtlest of concepts in the clearest of terms."

Martz, the reliable replacement warhead capture and project director in the Principal Associate Directorate for Nuclear Weapons Programs, and Hecker began collaborating on plutonium aging studies when Hecker stepped down as director in 1997 to return to research.

The research environment was something Hecker said he had "lost touch" with during his years in the Administration Building, but rediscovered in his "terrific home" in the Materials Science and Technology (MST) Division. "Being surrounded by technical people who are doing materials research has been an inspiration to me, and in some way I hope I have helped them," he said.

Although Hecker could be a difficult mentor "only because his expectations are so high," Martz said he has been an inspiration as an innovative thinker with a deep sense of ethics. "As good as Sig is as a teacher and communicator, what I admire most are his ethics and his morals and his understanding of where his work fits within the larger context of society."

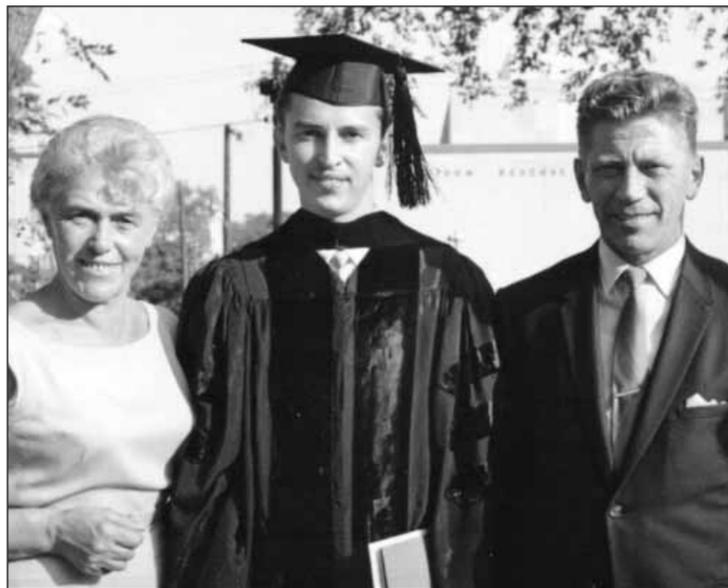
Stepping into this role of professor/mentor was of interest to Hecker 37 years ago when he originally received an offer to teach at the University of Illinois, but chose instead to pursue a career at the Lab. Fate, therefore, must have played a part in Hecker's decision to attend a 2003 Stanford University Center for International Security and Cooperation-hosted workshop in California. The association intensified, and when the center offered Hecker the chance to work there more extensively, he was attracted by the opportunity to "never stop learning."

However, Stanford's gain is not Los Alamos' loss. At Los Alamos "students and postdocs are our lifeblood," Hecker said. As a Stanford professor, he will have the "pulse on some of the best and brightest at one of the best universities in the country." He hopes to convince some of those stellar students to spend time on the hill doing research.

In an academic atmosphere where diverse views thrive, he also aims to gain a more balanced perspective on issues central to the Lab's mission with regard to national security, counterterrorism and nonproliferation. With that better balance of social science and diplomacy, "you can put technology in a proper context," he said. "I hope to be able to bring back here a more well-rounded view of those issues."

In return, he hopes to educate students and the public about "all things nuclear," something he described as "particularly challenging" given many have a fear of the topic. But when Hecker thinks of nuclear reactions, his thoughts go to the benefits of nuclear energy for the future and understanding the beauty of plutonium's 5f electrons. "I would like [the public] to have a better, more down-to-earth understanding and discussion of all things nuclear," he said.

So, it appears Hecker has enough on his plate to keep him busy until ... perhaps his next retirement? In the meantime, he and his wife Nina are looking forward to exploring the sights in the Bay Area and delving into all the unique cultural activities California living has to offer, even if Palo Alto real estate prices have sent the couple into "sticker shock."



Flanked by mother, Maria Mayerhofer, and stepfather, Robert Mayerhofer, Sig graduates from Case Western Reserve University in Cleveland in 1965 with a bachelor's degree in metallurgy. That same year, he came to Los Alamos as a graduate student.



Ever the wannabe ski bum, former Laboratory Director Sig Hecker plans to retain his house in Los Alamos and return from California during the winter quarter.

'Being surrounded by technical people who are doing materials research has been an inspiration to me, and in some way I hope I have helped them.'



You really know the Cold War is over when the scientific director of a Russian weapons lab, Yevgeny Avrorin, right, presents the director of a U.S. weapons lab with a piece of a dismantled Russian nuclear warhead inscribed "From Russia with love." The exchange took place during the 50th anniversary commemoration in 1993.

So...what do you think?

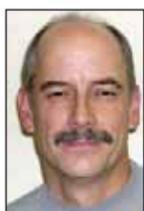
Q. Many studies show that sleep or the lack thereof can affect mood, performance and health. On average, how many hours do you sleep each night, and do you think you are getting enough sleep? If not, why?



Ernesto Espinosa of Fire Protection (EOO-Fire)
Usually I get about six hours of sleep. That is pretty good for an average day, although toward the end of the week I might feel a little more tired.



Kim Wright of the Public Affairs Office (CER-20)
I usually get between seven or eight hours, but I wake up a lot during the night. So I think I am a little sleep deprived because once I wake up it takes a while to get back to sleep.



Bryan Fearey of the National Security Directorate (DDNS)
I get about six hours of sleep per night, if I'm lucky. Usually it's enough; occasionally I might get a little extra.



Jeffrey Martin of Nuclear Design and Risk Analysis (D-5)
I get about six hours of sleep, although it is usually interrupted. I wake up around two to three times per night. Many days it is not enough.



Judy Marriott of DDNS
I don't have a sleep problem. I average about six to seven hours a night. I couldn't function otherwise.



Cesar Coronado of Materials Management (SUP-3)
I get about seven hours, and I don't think it is enough. If I could improve my sleep, I would try to finish my college homework earlier, so I would have more time to sleep.

PEOPLE



Balice new chair of ecological society's statistics section



Randy Balice

Randy Balice of Ecology (ENV-ECO) is the new chair of the statistics section of the Ecological Society of America. The organization, which was founded in 1915, is a nonprofit association of scientists who promote ecological science, conduct research and use ecological science to address environmental issues. As chair of the statistics section of the Ecological Society of America, along with the help of other officers, Balice will perform such duties as sponsoring symposia; conducting the competition for the student presentation award; hosting a Web site; representing the interests of the section at the ESA Executive Council; and organizing and conducting the section business meeting held at the organization's annual meeting.

"The purpose of the section is to encourage research in statistical theory and methodology applied to ecological problems; to sponsor forums for presentation of advances in statistical ecology; and to facilitate communication between the disciplines of statistics and ecology so as to enhance statistical design and analysis in ecological research," Balice said. To become elected as an officer for ESA, one has to become part of its 9,000 member organization and have a strong background in statistical ecology.

Balice has worked at the Laboratory since 1996. He has a bachelor's degree in biology and a master's degree in geography from the University of Utah. He also has a doctorate in forestry, wildlife and range sciences from the University of Idaho. To augment and strengthen his graduate education, Balice also completed extensive coursework in mathematics and statistics, and served as a statistical consultant for four years.

Burns takes presidential appointment position in Washington



Mike Burns

Mike Burns, acting principal deputy associate director for weapons physics (ADWP) has accepted a presidential appointment as special assistant to the president for nuclear defense, part of the Homeland Security Council.

Burns will be senior director for nuclear and radiological defense, one of five senior directors in the HSC.

"The job is to work with the federal departments and agencies, with the Office of Management and Budget, and with the Congress and other authorities to implement the president's strategy for combating nuclear terrorism," said Burns.

Burns began the new job in Washington, D.C., last week.

Leaving Los Alamos — the town and the Lab — for an undetermined period of time comes with a full measure of personal and professional sacrifice for Burns, his family and his co-workers in ADWP.

"This is most certainly not about wanting to leave the Laboratory for any reason," said Burns. "But we are in a global war against terrorism; America has a military presence in harm's way overseas, so when the president calls and you possess a level of expertise that can truly help out you simply do not say no."

The Laboratory has a long tradition of providing technical expertise to policy makers in Washington, and Burns said he and his family accept the challenge of his being away from home and having to leave the Laboratory for a federal position. "The Lab has a culture and history of national service. Even with all of our uncertainty, the contract competition, external investigations and inquiries, etc., the country still calls on Los Alamos when there are vitally important jobs to do," said Burns. "We must fight hard to maintain that reputation."

The Burns family has answered the call before. From April 2003 to August 2004 Mike Burns served in Washington as the director of the Office of National Laboratories in the Department

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In Memoriam

Edwin Bemis Jr.

Lab retiree Edwin Bemis Jr., 85, died July 14. He was born Nov. 5, 1919 in Littleton, Colo.

Bemis received his bachelor's degree in physics from the University of Colorado. He served in the U.S. Navy from 1944-1946 and joined the Lab in 1947, retiring in 1980. During his tenure at the Lab he worked in the former Health (H) Division.

He is survived by his daughters, Christen Howell of El Rancho, M'Lou Stevens of Washington D.C. and Sandy Geoffrion of White Rock.

Barbara Jo Hemberger

Laboratory retiree, Barbara Jo Hemberger died June 29. She was 54.

Hemberger attended the University of Tennessee. She worked at the Laboratory from 1986 to 2003, where she was a chemical technician in Advanced

Chemical Diagnostics and Instrumentation (C-ADI).

She is survived by her husband, Philip; her parents, Mary and Bo Glovier; brother Jim; and other relatives.

William Wood

Lab retiree, William Wood, died July 13. He was 80.

Born in Terry, Mont., Wood served in the U.S. Navy from 1942 to 1946. He received a bachelor's degree in chemistry from Montana State College in 1947 and a doctorate in chemistry from California Institute of Technology in 1951. During his employment at the Lab from 1950 to 1981, he was part of the former GMX Division; former Dynamic Experimentation Division (M-DO); and Condensed Matter and Statistical Physics (T-11).

Wood is survived by his children, Bernard, Elisabeth, Richard and John; six grandchildren; and a sister Jean Marie.

Burns ...

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of Homeland Security and his wife, Carol, of Isotope and Nuclear Chemistry (C-INC), later came to Washington to serve as senior policy analyst in the Office of Science and Technology Policy, part of the Executive Office of the President.

"This is another example of the nation tapping into the knowledge base at Los Alamos," said Laboratory Director Bob Kuckuck. "We'll certainly miss Mike's abilities and experience, but we understand that he's needed in Washington right now. He's leaving to do an important job, and we wish [Mike] and Carol all the best."

PATENT AWARDS

Editor's note: Some of the individuals listed below are no longer employed at the Laboratory but were at the time they applied for the patent.



Recently issued patent awards

Method for determining and modifying protein/peptide solubility

Patent No. 6,867,042, issued March 15

Geoffrey Waldo of Cell Biology, Structural Biology and Flow Cytometry (B-2)

Biaxially textured composite substrates

Patent No. 6,884,527, issued April 26

James Groves, Stephen Foltyn and **Paul Arendt** of the Superconductivity Technology Center (MST-STC)

Noninvasive characterization of a flowing multiphase fluid using ultrasonic interferometry

Patent No. 6,889,560, issued May 10

Dipen Sinha of Electronic and Electrochemical Materials and Devices (MST-11)

Method and apparatus for biological material separation

Patent No. 6,890,740, issued May 10

Donna Robinson of Genomic Sequencing and Computational Biology (B-5)

Influenza sensor

Patent No. 6,893,814, issued May 17

Basil Swanson and **Xuedong Song** of Spectroscopy, Imaging and Molecular Chemistry (B-4) and **Clifford Unkefer** of Biotechnology, Spectroscopy and Isotope Chemistry (B-3)

Electron radiography

Patent No. 6,894,278, issued May 17

Frank Merrill and **Christopher Morris** of Subatomic Physics (P-25)

Dual ion-beam assisted deposition of biaxially textured template layers

Patent No. 6,899,928, issued May 31

James Groves and **Paul Arendt** of the Superconductivity Technology Center (MST-STC) and **Robert Hammond**

Capillary-discharge based hand-held detector for chemical vapor monitoring

Patent No. 6,900,734, issued May 31

Yixiang Duan of Chemical Sciences and Engineering (C-CSE)

Laboratory sponsors CO₂ summer research program

by Todd Hanson

Climate science may have picked up some new recruits as college students and early career scientists from across the country converged on Northern New Mexico this summer to learn more about the emerging field of carbon sequestration. The students participated in the Research Experience in Carbon Sequestration (RECS) program hosted by the Laboratory and the Department of Energy's Fossil Energy program.

The program is designed to align with the core elements of DOE's carbon sequestration efforts. The program was co-hosted by EnTech Strategies, a Washington, D.C.-based carbon sequestration consulting firm, at the College of Santa Fe with field work at KinderMorgan CO₂'s SACROC site, an enhanced oil recovery operation in Snyder, Texas.

According to Julianna Fessenden of Hydrology, Geochemistry and Geology (EES-6), RRES co-director, "RECS is a first-of-its kind summer research program for undergraduates, graduates, and early career professionals interested in technologies, theory, economics, and novel approaches to capturing CO₂ in geological settings."

"The program offers a unique opportunity," adds RECS Co-Director Pamela Tomski from EnTech Strategies. "At RECS, experts from academia, industry and government laboratories present information on carbon dioxide separation, capture, long-term storage, monitoring and mitigation."

RECS was organized by the Laboratory's Office of Energy and Environment Initiatives (OEEI) in coordination with the Institute of Geophysics and Planetary Physics (IGPP). OEEI is a Strategic Research Directorate (ADSR) program office tasked with supporting and promoting the Laboratory's energy and environment thrust areas. IGPP promotes and supports new research ideas, which can be further developed through seed funding into major programs supported by federal or other funding sources.

According to OEEI's Melissa Miller, RECS principal investigator, "Evidence suggests atmospheric CO₂ levels have increased dramatically due to expanded use of fossil fuels and that those levels will continue to increase over the next century. Unless major changes are made in the way we produce and use energy — and particularly, how we manage carbon dioxide — we could encounter significant environmental problems."

The RECS program is a follow-up to last year's United States-Norway program on carbon capture and geologic storage, which was a collaborative effort between the National Energy Technology Laboratory, DOE's Office of Clean Energy Collaboration and the Norwegian Research Council. The 10-day program was held in Santa Fe for 20 graduate and early career professionals from the United States and Norway.



Hugo Lam, left, of Yale University, Weon Shik Han from New Mexico Institute of Mining and Technology and Emilio Zavala-Sosa, right, from the National Autonomous University of Mexico conduct air isotope measurements at the KinderMorgan carbon dioxide SACROC site in Snyder, Texas, as part of the Research Experience in Carbon Sequestration program. The students are using syringes and glass flasks to collect air to measure the carbon isotopes of the carbon dioxide within the air to determine from where it has originated.



Students in the Research Experience in Carbon Sequestration program co-hosted by Los Alamos work on the Princeton Stabilization Wedge Game, which offers hand-on experience with the challenges involved in reducing emissions. Photos by Melissa Miller, Office of Energy and Environment Initiatives (OEEI)



Anthony Puckett of Weapons Response (ESA-WR) shows his 2-year-old daughter Jillian the view from club-level seats at Isotopes Park. The Puckett family were VIP guests of Isotopes mascot Orbit at the Aug. 28 game won by the Isotopes.



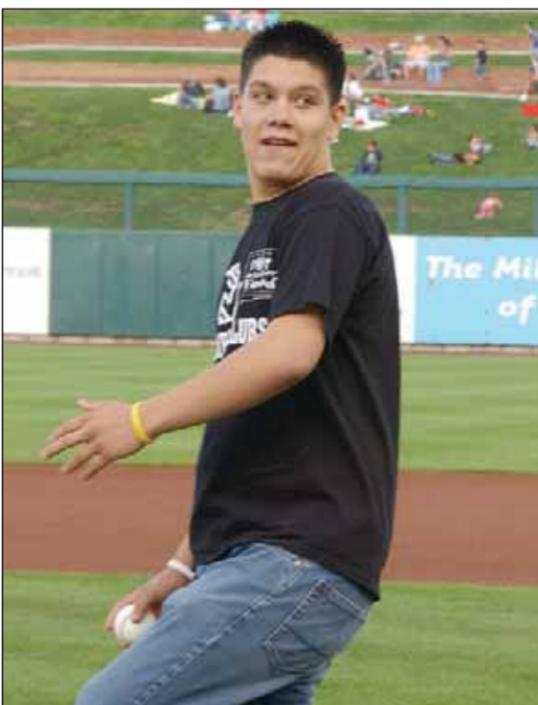
Lab Night at Isotopes Park



Melissa Salazar Porter of the Principal Associate Director for Nuclear Weapons Program (PADNWP) gets the third Laboratory/Northern New Mexico Night at Isotopes Park off to a rousing start by performing the national anthem. At left is Chris Holland of the Albuquerque Isotopes. About 750 Lab employees and family members attended and more than 10,000 fans watched the game on Fan Appreciation Night at the ball park.



Members of the Protection Technology Los Alamos honor guard present colors at the Laboratory/Northern New Mexico Night at Isotopes Park. Right to left are Capt. Ron Huerta, Lt. Joe Lopez, Lt. Ted Atkins, Lt. Judy Griego and Commander Lt. John Kelly, back to camera. Protection Technology Los Alamos is the Laboratory's protective force contractor.



Kacy Ramos of Santa Fe and a member of the Santa Fe Boys and Girls Club, throws a ceremonial first pitch at the Laboratory Northern New Mexico Night at Isotopes Park. Ramos is the club's youth of the year.



Laboratory Director Bob Kuckuck, who threw out one of the ceremonial first pitches, and Santa Fe Boys and Girls Club Director Al Padilla, joins Samir Morrow, right with microphone, Jamilah Morrow and Brandon Cavazos, center, in the third base coaching box for "Take Me Out to the Ball Game" during the seventh inning stretch. Photos by Ed Vigil