

Los Alamos
NATIONAL LABORATORY

NewsLetter

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Spiking plutonium

by Jim Danneskiold

Sometime after midnight on Feb. 25, 1941, in a cramped, third-floor laboratory at the University of California in Berkeley, Glenn Seaborg, Joseph Kennedy and Art Wahl for the first time isolated a new, man-made element, number 94, one that would change the world.

Today that element, plutonium, is the main ingredient of weapons in the U.S. nuclear stockpile. Those weapons now are older — and the plutonium inside them has been aging longer — than any earlier stockpile weapons. So researchers at the Laboratory's plutonium facility are trying to hurry along the plutonium aging process to learn how long the metal, and the weapons, will last.

The nation stopped making new weapons in 1989 and ceased underground nuclear testing in 1992. Researchers at the Lab, who designed five of the seven weapon systems in the U.S. stockpile, play a major role in certifying each year that those weapons are safe, secure and reliable. Certification depends on understanding how the weapons' plutonium cores, known as pits, will change with age.

"We have to learn how to predict the properties of plutonium as it ages in the weapons, and to do that, we need plutonium that's been around as long as plutonium has been on the planet," said Joe Martz, manager of the Enhanced Surveillance Program.

The crucial experiment involves "spiking" samples of nuclear weapons plutonium, the isotope known as Pu-239, with 7.5 percent of the plutonium-238 isotope, which decays about 300 times faster. Plutonium-238, because of its high decay rate, is normally used to provide electrical power for deep-space probes such as the Galileo mission to Jupiter and the Cassini mission to Saturn.

The hamburger-sized spiked samples, cast at Los Alamos on May 13 should age roughly 16 times faster than the plutonium-239 in U.S. nuclear weapons.

"Every day that passes, the spiked plutonium will be aging more than two weeks," said Dave Olivas, the metallurgical engineer who is running the experiment with physicist Franz Freibert. Both work in Nuclear

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LANSCE/LAMPF: After 30 years, it's still 'a new and great venture'



Senior Fellow Louis Rosen, center, with Laboratory Director John Browne (left) and Los Alamos Neutron Science Center (LANSCE) Division Leader Paul Lisowski at LANSCE's 30th anniversary in June 2002. Rosen was honored June 20 at LAMPF's anniversary, together with Donald Hagerman, former associate division leader for operations, and Lewis Agnew, former LAMPF group leader. Photo by LeRoy N. Sanchez

by Bill Dupuy

The year was 1968. And an innovative, soon-to-be-built science facility just happened to become — largely through the vagaries of how government funding is timed — the centerpiece of the Los Alamos National Laboratory's 25th anniversary celebration planned for that year.

Today, that facility — the Los Alamos Meson Physics Facility (LAMPF), now known as the Los Alamos Neutron Science Center (LANSCE) — is at center stage again. This time, the Laboratory is marking the facility's 30th anniversary. Funded in 1968 and completed in 1972, it has made rich advancements in medium energy physics with pions, muons, protons and neutrons; materials science; radiography; and defense science.

As planners of the Laboratory's 25th anniversary noted at the time, any of a number of different events in 1968 could have been used as the focal point for celebrating the institution's 1943 start up. But it turned out that tight federal spending limits were suddenly eased early in 1968, paving the way for construction of the long-planned LAMPF. That news got everyone's attention. The LAMPF go-ahead was not only the headline event of 1968, it was, "... the start of a new and great venture," as Louis Rosen, the facility's principal architect and its division leader, said at the time.

Rosen was honored June 20 at LAMPF's anniversary, together with Donald Hagerman, then associate division leader for operations, and Lewis Agnew, then-LAMPF group leader.

Today's world-class high-intensity pulsed proton source at Los Alamos had its origins in LAMPF, where researchers led by Rosen and others developed the world's most powerful linear accelerator, providing pulses of 800-million-electron-volt protons at a repetition rate of up to 120 per second and an average current of 1 milliampere. That achievement marked a new era for the Laboratory and cemented the institution's leadership role in nuclear physics.

An adjunct to LAMPF, the Weapons Neutron Research (WNR) facility, was built in the early 1970s to provide an intense neutron source that could be used to obtain nuclear data needed for weapons design. The present-day Manuel Lujan Jr. Neutron Scattering Center grew out of the WNR facility. Both are key elements of today's active LANSCE research program.

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Los Alamos NewsLetter

The Los Alamos NewsLetter, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at newsbulletin@lanl.gov, by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below.

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Los Alamos National Laboratory is operated by the University of California for the National Nuclear Security Administration (NNSA) of the U.S. Department of Energy and works in partnership with NNSA's Sandia and Lawrence Livermore national laboratories to support NNSA in its mission.

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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Spiking plutonium ...

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Materials Science (NMT-16). "When the samples have aged for the equivalent of 60 years, we'll measure all their properties."

This means Olivas and Freibert won't know for certain whether their efforts have paid off for four years, although they plan periodic checks to compare the spiked plutonium to metal inside stockpile weapons.

The researchers began preparing for the experiment in 1998 by building a compact replica of the pit manufacturing line at Rocky Flats, where U.S. nuclear-weapon cores were made from the mid-1950s until 1989. They prepared the Pu-238 metal and combined it with Pu-239, alloyed the metal with other materials, heat treated it and shaped it, with every step closely mimicking the way weapons pits were fabricated at Rocky Flats. The starting plutonium was actually made at Rocky Flats, just before it closed, to ensure its authenticity.

They prepared nine identical samples spiked with the Pu-238 and nine of plain Pu-239, and compared their characteristics: fundamental structural, physical, chemical and mechanical properties, such as electrical resistivity and elastic constants, and metallic properties such as density, chemistry and strength.

"At birth our samples are fraternal twins, and we've done the DNA analysis to make sure," Martz explained.

Now they must wait and see how the metal ages, like watching a video of a plant growing that's played on fast forward.

Aging in stockpile weapons has been subtle so far, but to understand the aging effects after 60 years, scientists can't simply multiply the effects they've seen in 20-year-old plutonium by three, the current age of the oldest weapons in the stockpile. This is because plutonium is the most inherently unstable of all the metallic elements, and some aging effects may appear suddenly after years of stable behavior.

The team expects to see subtle changes in the density of the spiked plutonium and in the growth of helium within its molecular structure, similar to aging effects they've observed in stockpile plutonium.

By analyzing the samples at birth and as they age, the researchers hope to prove they have made plutonium that is nearly identical in nature to metal manufactured into weapons at Rocky Flats. By comparing the samples to the oldest material in the stockpile, they hope to determine whether the accelerated aging process accurately mimics the way weapons pits change as they age.

"Most things age from the outside in, but plutonium is much more unique because it also ages from the inside out," says former Laboratory Director Sig Hecker, a plutonium metallurgist and technical adviser to the experiment.

As plutonium atoms decay, they break down into uranium atoms and helium nuclei, both of which are highly energetic. The helium nuclei eventually combine with other helium nuclei to form helium gas bubbles inside the plutonium metal. The newborn uranium atoms continuously knock plutonium atoms out of place; in fact, about one of every 10 plutonium atoms in a pit are knocked out of position by uranium atoms each year. Most return to their original locale, but some are permanently displaced.

"It's not enough simply to accelerate the initial displacement of the plutonium atoms and the damage caused by this radioactive decay, we also have to raise the temperature of our samples to accelerate the subsequent healing of the damage, just as it happens in a real weapon," Olivas explained.

A lot is riding on the experiment. The measurements of density, symmetry and other changes in the spiked plutonium will become sentinels for the plutonium in the stockpile. They will tell the scientists and engineers who continuously track the health of nuclear weapons whether the pits will survive for 60 years and longer.

That predictive capability will be crucial for policy-makers who must decide when to replace stockpile pits.

Los Alamos has been working to recapture the capability to make a small number of pits, and is scheduled to produce its first certified stockpile pit in 2007, a year after the experiment should yield results. But the United States has not yet decided when and where to build a facility to make new pits, nor how many that new plant should make each year.

"Intelligent experiments such as this will inform the policy community that when they do need to return to larger-scale manufacturing, they can do so at the optimum environmental and fiscal costs," Martz explained.

"This will provide the only data on 60-year-old plutonium, and that's why this experiment is so crucial to the success of stockpile stewardship," he added.



Above: Claudette Trujillo, a materials accountability specialist in Nuclear Materials Science (NMT-16), assists with rolling the spiked plutonium on a laboratory-scale rolling mill (foreground). Photo by Joe Martz, NMT-16

Left: The spiked plutonium casting yielded nine "cookies," one of which is shown here. Photo by Dave Olivas, NMT-16

ESA reports 500 days without a lost workday

by Kathryn Ostic

Engineering Sciences and Applications (ESA) Division achieved in June a significant safety milestone of 500 days without a lost workday. This represents 3 million work hours of safe work.

"The Integrated Safety Management program is resulting in cultural changes that allowed us to achieve this milestone," said Earle Marie Hanson, ESA Division leader. "This milestone could not have been reached without full engagement by ESA employees in evaluating safety hazards, practicing safe behaviors and taking the responsibility to stop work if they believe it to be unsafe," she added.

"In 1996, the Laboratory established a goal to reduce workplace injuries and illnesses. At that time, ESA also started its own effort to track and promote a specific goal of eliminating injuries resulting in lost workdays. Not only is safety important so that we may accomplish our job-related tasks, but also so that everyone can enjoy their families, friends

and hobbies outside work," said John Ruminer deputy ESA leader. The organization includes approximately 1,000 employees and comprises 10 groups as well as Johnson Controls Northern New Mexico dedicated crafts and other on-site Lab support organizations, such as the Business Operations (BUS) and Human Resources (HR) divisions. ESA's mission is the stewardship of nuclear weapons and enabling engineering technologies.



Prototype testing of a flexible heat-pipe design.

tains explosive machining facilities, environmental testing laboratories, explosive magazines and special machine shops in addition to highly specialized areas such as the Weapons Engineering Tritium Facility, Fuel Cell Research Facility and robotics and radiography laboratories.

"Good engineering, safety and security go hand in hand. To execute our mission, we must ensure that all of our work is performed safely and securely and in compliance with all applicable safety, security, waste management and environmental protection regulations and standards," said Hanson.

Dan Macdonell of Facility Management (ESA-FM-ESH) said, "Employee and management commitment, with support of a strong ESA environment, safety and health

team; improving communications at all levels; implementing integrated safety management; identifying and correcting potentially hazardous situations; and increasing employee awareness contributed to ESA's accomplishments."

"ESA's 500 days without a lost workday case is a noteworthy success. ESA is a large division that performs many complex and potentially hazardous activities, so the potential for injury is high," said Phillip Thullen, deputy leader of the Health, Safety and Radiation Protection (HSR) Division. "I believe their success is based on caring for the well-being of people. They use the Laboratory safety systems and processes as tools to accomplish safety goals. Every division should strive to emulate their success."

ESA also is committed to improving the environment. Last year the division was recognized by the New Mexico Environmental Department for its environmental management efforts over the past 5 years that have promoted environmental protection.



AN ESA technician machines hardware.

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The organization includes approximately 1,000 employees and comprises 10 groups as well as Johnson Controls Northern New Mexico dedicated crafts and other on-site Lab support organizations, such as the Business Operations (BUS) and Human Resources (HR) divisions. ESA's mission is the stewardship of nuclear weapons and enabling engineering technologies.

The division monitors and assesses the health of aging nuclear weapons and ensures the safety and reliability of the nuclear weapons stockpile. ESA also main-



Above: An ESA staff member performs tritium operations in the Neutron Tube Target Loading process.

Left: An emergency response team prepares radiography equipment at an accident site. Photos courtesy of ESA Division

ESA received the Green Zia Environmental Excellence Program award for achievement-level. Green Zia is a voluntary program sponsored by the NMED with involvement from state, local and federal agencies; academia; private industry; and environmental advocacy groups.

"The achievement award is the highest level in the program that a division ESA's size can be granted. The award provides evidence of a positive ISM culture that is evolving at the Laboratory," said Ruminer.

For more information about ESA Division, go to www.esa.lanl.gov/ online.



Survey due back July 26

Survey packets were mailed this month to more than 12,000 University of California Laboratory employees and retirees in a continuing effort to inform them of impending health-insurance cost increases and to gather information from them to help address the problem.

The survey should be returned by Friday, July 26, either by mail in the envelope provided or online at www.lanl.gov/health.

For more information, see the July 15 Daily Newsbulletin at www.lanl.gov/newsbulletin online.

LANSCE/LAMPF ...

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In the 1990s, the Laboratory directed its linear accelerator programs principally to neutron and proton research and applications. The accelerator complex was renamed LANSCE in 1995. With the end of the Cold War, the Department of Energy's Office of Defense Programs determined that LANSCE would be an important element of its science-based stockpile stewardship program and took over stewardship of the facility.

LANSCE now comprises the former LAMPF component facilities and the Manuel Lujan, Jr. Center for Neutron Scattering created in the 1980s. The complex also includes a variety of associated experimental areas, spectrometers and other instruments, with four new instruments having gone online in the past 12 months alone.

Despite its advances over the years, spallation neutron science made possible by the powerful linear-accelerator work done at LAMPF is still a relatively young field. With the increased emphasis on its scientific output, the facility that began as LAMPF remains in 2002 as it was envisaged in 1968, in the words of Louis Rosen, "...the start of a new and great venture."

Don't want spam in your e-mail?

"Waitress: Well, there's spam, egg, sausage and spam that's not got much spam in it."
—Monty Python

by Jim Danneskiold

No doubt one of the first electronic mail messages that went across the ether once people figured out how to collect addresses into mailing lists was a clever piece of junk mail, or "spam."

Today, no matter how loudly people protest their hatred of unsolicited bulk e-mail, it piles up, clogging mailboxes and networks.

"Spam is becoming an increasing administrative headache and an annoying waste of time to all the e-mail users at the Laboratory," said Richard Kendall, Los Alamos' Chief Information Officer (CIO).

The CIO and staff of Network Engineering (CCN-5) have assembled some advice on "What can I do about spam e-mail?" with a Web page available at <http://network.lanl.gov/email/spam.shtml> online.

Nearly all spam is commercial advertising sent to addresses that are found by stealing mailing lists, scanning mail groups or searching the Internet for addresses with automated search engines.

Spam goes out in such huge quantities that it can clog even the largest networks, like those at the Laboratory. Some spam is offensive, other junk mail proposes illegal activities, such as funding Nigerian bank fraud schemes. And a few spam messages contain executable computer code that could damage computers or networks.

Los Alamos blocks mail from most known sites that forward spam, which cuts out much of the junk mail before it's delivered to a lanl.gov e-mail address.

But the spammers are relentless, and most Laboratory staff have noticed an increase in spam over the past few months.

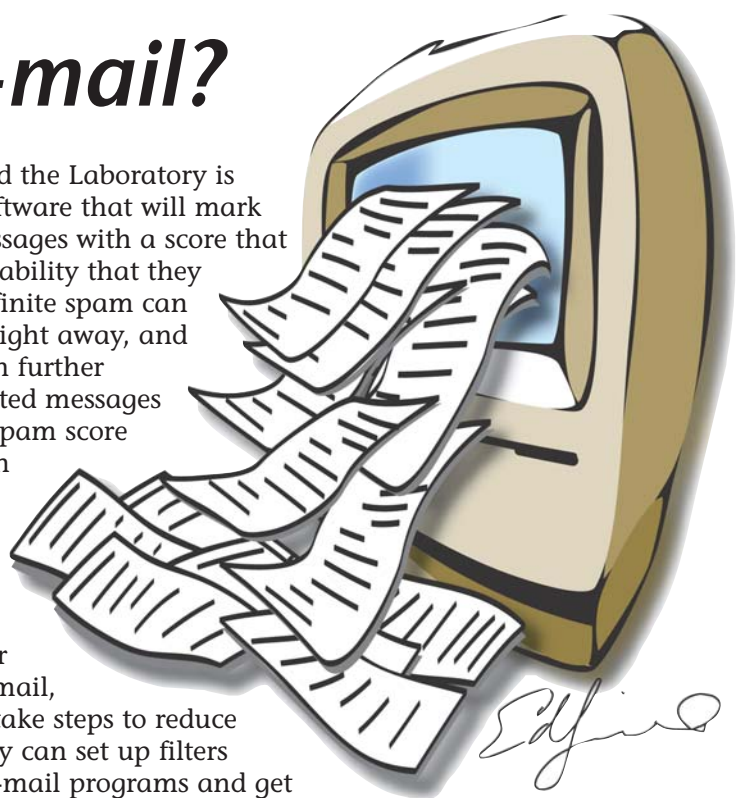
"We are working now to put up an institutional spam detector," Kendall said.

Kendall said the Laboratory is evaluating software that will mark incoming messages with a score that rates the probability that they are spam. Definite spam can be discarded right away, and employees can further screen unwanted messages by using the spam score information in their desktop filters.

Laboratory employees won't be held responsible for unsolicited e-mail, but they can take steps to reduce the flood. They can set up filters within their e-mail programs and get help with other defense tactics from the Desktop Computing (CCN-2) Help Desk at 5-4444, ext 851.

The Web site provides some other important advice for the frustrated spam recipient:

- Don't reply to a spam message, even to ask to be removed from a spam mail list. Replying to spam serves only to validate your e-mail address, and you will likely get even more spam.
- Don't go to a Web-page link in a spam message. This also will allow the spam site to validate your e-mail address and spread it around to even more spam sites.
- Don't spam the spammer. This is a game for them; they have a lot more time to spend playing than you do, and you will always be the loser.
- Don't subscribe to open mailing lists and list servers. Spammers can post to these lists and send unwanted e-mail to all members.



Support-contract bids narrowed to three

by Kevin Roark

The Laboratory is in the process of selecting a contractor to provide facility maintenance support, a process that began in April. As part of the process the Laboratory provided potential contractors with a list of high-level objectives and requested that firms respond with innovative technical and management approaches for meeting those objectives.

With the June 11 deadline for submitting proposals now past, a Laboratory evaluation committee has completed its initial screening of six total submissions for the facilities maintenance and site support services contract and has narrowed the field to three teams.

The three remaining bidders are Day and Zimmermann Inc.; Infrastructure Services Los Alamos (a joint venture of Kellogg, Brown & Root Inc., Shaw Infrastructure Inc. and Los Alamos Technical Associates); and Washington Group Integrated Services of Northern New Mexico (a partnership of Washington Group International and Northrop Grumman).

The current contractor, Johnson Controls Northern New Mexico, did not submit a proposal. However, Johnson Controls World Services was a member of one of the unsuccessful teams.

The original request for proposals provides certain employment assurances for the majority of JCNM's employees. Specifically, the request for proposals provides that the successful bidder will be required to recognize existing bargaining representatives and comply with existing collective bargaining agreements as permitted by law.

This provision effectively protects the wages and benefits of union employees who are hired by the new contractor. The bidders also were required to address "work-force stability," which calls for all companies to include in their proposals a plan to utilize the incumbent work force. The final contract will include a clause that requires the successful contractor to give preference in hiring to JCNM employees, should any unanticipated displacement occur.

Additional key provisions of the request-for-proposal call for bids to include small-business utilization and economic development. Demonstrating a commitment to partnering or subcontracting with small

businesses is an important component of the source-selection process. The successful bidder will be encouraged to support existing economic development efforts under way in Northern New Mexico and propose new economic development initiatives.

The three remaining bidders now have been invited to make presentations to the evaluation committee, made up of Laboratory senior managers, during July. The committee will re-evaluate the proposals based on those presentations and provide final rankings to Joe Salgado, principal deputy Laboratory director and source-selection official, who will make the final selection.

State extends comment period on corrective action order for Lab

The New Mexico Environment Department has extended to July 31 the public-comment period deadline regarding its draft order to the Laboratory for environmental investigation and cleanup. The draft order was the subject of public information hearings in Española, Los Alamos and Santa Fe earlier this month.

The University of California Board of Regents filed an appeal in both state and federal court of the "determination of imminent and substantial endangerment to health and the environment" that accompanied the draft order. The Lab has said it will respond to the draft order by the state's deadline.

For information about the May 2 draft order, go to the Environment Department's Web site at www.nmenv.state.nm.us/OOTS/Public Notices/LANL_Order_PubMtgsPDF.pdf online (Adobe Acrobat Reader required).

For information about the public-comment-period extension, go to www.lanl.gov/orgs/pa/newsbulletin/2002/06/28/LANL_Notice_of_Extension1.pdf online (Adobe Acrobat Reader required).



Vulnerabilities of the foreign traveler

by Kevin Roark

Understanding the vulnerabilities of a Lab employee traveling in a foreign country — from the viewpoint of the foreign intelligence service — will be the subject of two talks by Connie Allen, a former U.S. Army CI officer and senior instructor with the Army's Advanced Counterintelligence Training Center. The presentations, sponsored by Internal Security (ISEC), are July 30 in the Physics Building Auditorium from 9 to 11 a.m. and 2 to 4 p.m. The talks are open to all Laboratory badgeholders.



Connie Allen

Allen's talks aim to teach employees to think like a foreign intelligence service officer; to see themselves from the intelligence agent's perspective; and to understand how and why a person on foreign travel might become a target of, or be vulnerable to, an operation run by a foreign intelligence service.

The presentations will help employees learn to recognize the mission, methods and means of foreign intelligence services. Employees will be able to discuss the roles and techniques of physical and technical surveillance used against Americans overseas as well as the intelligence implications of liaison and technical exchanges. The overall goal of the presentations is to give employees the tools to recognize and identify the unanticipated intelligence-collection threat by knowing what constitutes an "informative asset" and an "access agent."

Allen is currently a professor at the Centre for Counterintelligence and Security Studies, a Washington, D.C., consulting institute. She had a distinguished Army career that included several high-profile counterintelligence investigations, including a counterespionage operation during 1991's Operation Desert Storm, according to her Centre biography. She is credited with writing the definitive "how to" guide on foreign intelligence "sting" operations for the Department of Defense.

Allen is a graduate of the University of Maryland and received her master's degree from Boston University. She also attended the FBI National Academy and is a member of the American Society for Training and Development.

MBA students intern at the Lab

by Michael Carlson

Fourteen students mastering the art of business, who are part of a three-month summer intern program headed by the Industrial Business Development (IBD) office, find the Laboratory to be a welcome place of opportunity and discovery.

As participants in the program, students who completed the first year of a master's of business administration program at a college or university are eligible to work at the Lab on a limited-term basis. Their duties include developing marketing plans for emerging technologies.

Students employed in the Lab's MBA program are typically in their late 20s and early 30s and usually have backgrounds in the professional business world, program coordinator Belinda Padilla said.

"They're so creative," noted Padilla. "The students come in and always take a new look at what we're doing."

Returning student Riccardo Savini believes he is a perfect fit for his job as an intern in IBD. From northeastern Italy, he came to the United States to earn a master's of science and technology commercialization degree from the University of Texas. He said work at the Lab is helping him develop a background in business.

He said he's excited about the new group of summer students who arrived at the Lab this June. He thinks working with fresh faces will be fun and exciting, and he said it will give the IBD office a chance to work on a long list of projects.

Doruk Aytulu received his undergraduate degree in mechanical engineering from his native Turkey and is enjoying his second summer in Los Alamos. He said his reason for obtaining employment at the Laboratory is to get a better perspective of high-tech businesses. He also wants to improve his knowledge of high-tech business development.

"I try to understand different technologies nobody has heard of," Aytulu said. "It's a fun challenge, especially working with people from various Laboratory organizations."

Aytulu recently received a master's degree in business administration from San Diego State University. Thanks to his time as a student at the Lab, Aytulu was recently hired as a regular full-time contractor, a position he said his wife encouraged him to accept.

Aytulu said he loves to read high-tech magazines, including *Popular Science* and *Popular Mechanics*. He also enjoys studying aviation, an interest he said he's had since high school.

Irene Chen and Erica Briggs are new to the Lab this summer and have spent their first couple of weeks getting used to life in Los Alamos.

Chen attends the University of California, Berkeley. A former software developer for Oracle Corp., she describes herself as being "all about software." She said she came to the Lab to get her feet wet in business development. She credits her parents with helping her determine her interdisciplinary career path; her mother is in the import/export business and her father is a computer programmer.

"I like working at the Lab because there is the possibility to contribute to a greater cause."

Chen enjoys opera, cooking, reading and computers. She considers herself a homebody. Thrilled with the idea of being near Santa Fe, she hopes to spend time attending concerts and exploring other cultural events.

A graduate of San Diego State University's MBA program, Briggs likes the idea of working with high technology. She previously worked for the Tennessee Valley Authority and said her experience there was interesting and stimulating.

With a background in biology, she's hoping to get a firm understanding of the business side of science. Like Chen, Briggs ultimately would like to work for a public institution like the Lab.

"I enjoy interacting with intellectuals and working toward the public good," Briggs said.

Briggs enjoys hiking, opera, reading and tinkering with automobiles. She became interested in opera while living in Europe. She hopes to attend concerts and learn to cook New Mexican cuisine while living in Los Alamos.



Doruk Aytulu



Irene Chen



Erica Briggs



Riccardo Savini



Fulton new leader of P-23



Doug Fulton

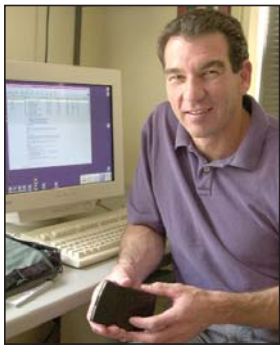
Doug Fulton is the new group leader for Neutron Science and Technology (P-23). He served as team leader and acting deputy group leader for Hydrodynamics and X-ray Physics (P-22) and deputy group leader for P-23 before becoming the group leader.

Fulton has been a Lab employee for 16 years. He has won various awards through the Laboratory, such as Nuclear Weapons Program Award of Excellence for "Outstanding Accomplishment by Utilizing Innovative Laser Design" presented to the Bright Source team in 1991, Distinguished Performance Award for "Contribution on the Subpicosecond High Brightness Accelerator in 1994" and the Los Alamos Award for "Design of X-ray Imaging for Pegasus Shots" in 1996.

He received his bachelor's degree in physics from the University of Texas and his doctorate in physics from the University of Maryland.

Dreicer named special adviser in science and technology

Jared Dreicer of Space Data Systems (NIS-3) is the new special adviser to Bill Press, deputy Laboratory director for science and technology.



Jared Dreicer

Dreicer's duties include working directly with Press and other Senior Executive Team members on special assignments within the Director's Office on a broad array of issues, including science and technology, strategic hiring, institutional computing, general

and administrative infrastructure, and external recognition and awards.

Dreicer came to the Lab in 1980 as a graduate research assistant for the former Solar Energy (Q-11) group. His career at the Lab includes positions as principal investigator, project leader and team leader.

Dreicer has a bachelor's degree in economics from the University of California at San Diego and a master's degree in computer science from the University of New Mexico. He is completing his dissertation in computer science in high performance computing fault tolerance.

Guilmette receives Distinguished Scientific Achievement Award

The Health Physics Society recently awarded its Distinguished Scientific Achievement Award to **Raymond Guilmette**, team leader for Radiological Dose Assessments in Radiation Protection (HSR-12). The award recognizes Guilmette for his 30 years of research in internal dosimetry and radiation toxicology. The citation accompanying the award reads, in part: "His wide and varied research interests have been focused at different stages of his career on factors influencing the intake and uptake of radionuclides via different routes of exposure, the subsequent retention of these radionuclides in different body organs, and their eventual excretion from the body by different routes. This information has been organized and used to construct new, improved biokinetic models and used to compute internal doses both prospectively for health physics planning purposes and more importantly, for retrospective investigations of individual exposure cases.



Raymond Guilmette

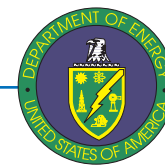
"He also has been heavily involved in the conduct of life-span studies of the early occurring and the late-occurring biological

effects of internally deposited radionuclides in laboratory animals. These studies have provided a wealth of information on these biological effects that many times have not been available from other sources, particularly from exposed humans.

"Results of these studies have strengthened our knowledge and understanding of the possible health risks of internally deposited radionuclides. His research has also involved major studies in how to reduce these health risks through the early removal of internally deposited radionuclides by new and improved methods."

Guilmette came to the Laboratory in November 2000 from Lovelace Respiratory Research Institute, formerly the Inhalation Toxicology Research Institute, in Albuquerque.

He earned his bachelor of science degree in nuclear engineering from Rensselaer Polytechnic Institute, Troy, N.Y.; his master's is in environmental health sciences from New York University, New York City; and his doctorate in radiological health also is from New York University.



NEWS FROM DOE

Erickson named manager of Office of Los Alamos Site Operations

Ralph Erickson earlier this month began his new job as manager of the Office of Los Alamos Site Operations. Erickson's appointment to the post was announced by Gen. John Gordon, outgoing head of the National Nuclear Security Administration.



Ralph Erickson

The Office of Los Alamos Site Operations (formerly the Los Alamos Area Office) has about 100 employees.

Erickson has worked for the Department of Energy for 28 years, most recently as associate administrator for facilities and operations. In this role, his duties encompassed field operations support; infrastructure; environment, safety and health activities; project management; and safeguards and security.

He also has been chief operating officer for defense programs for NNSA. He worked at the Nevada Test Site and Savannah River Site in South Carolina from 1971 to 1984 and from 1989 to 1992, was director of the Information Services Laboratory at Virginia Tech University.

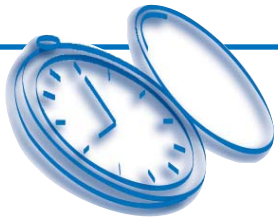
From 1992 to 2000, Erickson was director of DOE's Office of Eastern Operations for the Office of Environmental Management.

Erickson has a bachelor's degree in mechanical engineering from California State Polytechnic University and a master's degree in mechanical engineering from the University of South Carolina. He is a graduate of the Industrial College of the Armed Forces (National Defense University) and the Federal Executive Institute.



Pancakes anyone?

Flipping pancakes in Santa Fe is Jamie Langenbrunner, left, of Primary Design and Assessment (X-4); and waiting to serve the pancakes are Debbi Wersonick of the Community Relations Office (CRO); Noor Khalsa of Materials Science (DX-7); Vanessa De la Cruz, also of CRO; and Kien-Yin Lee of Thermo-nuclear Applications (DX-2). The Laboratory was a "Stars" sponsor and the Laboratory Foundation a "Stripes" sponsor of the 27th annual Pancakes-on-the-Plaza breakfast July 4 on Santa Fe's downtown plaza. Proceeds from the event go to the United Way of Santa Fe County. CRO coordinated the Lab's volunteer team. Photo by LeRoy N. Sanchez



July service anniversaries

40 years

Richard Henderson, HSR-12

30 years

Garry Allen, RRES-WD
Roger Bartlett, NIS-2
Thomas Davis Jr., ESA-WSE
Crail Hammond, C-AAC
William Krauser, X-DO
Allen Schmiedicke, IM-8

25 years

William Armstrong, EES-11
James Craig, EES-7
Terrance Goldman, T-16
Jerry Martinez, IM-5
Charlene McHale, NIS-6
Arsenio Montano, ESA-WMM
Tommy Montoya, P-FM
Rosalind Newmyer, NIS-IT
Lily Reese, PS-DO
M. Clark Thompson, P-22
Alan Van Vessem, BUS-4
Ronald Wilkins, CCN-5
Gregg Woodfin, IM-3

20 years

Karyn Ames, IM-1
David Chastain, PM-DS
Thomas Gorman, X-3
Beverly James, T-4
Gloria Sharp, IM-1
Mike Ulibarri, DX-3

15 years

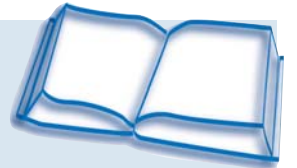
Debra Archuleta, DX-3
Carl Cady, MST-8
Dale Dalmás, DX-8
William Eisele Jr., HSR-12
Steven Goldstein, C-INC
Thomas Granish, S-OSI
William Louis, P-25
Stephen McLin, RRES-WQH
Carleton Tait, C-SIC
Vincent Thomas, X-4
Leonardo Trujillo, NMT-11

10 years

Thomas Burr, NIS-7
Todd Conklin, NMT-3
Byron Denny, ESA-TSE
Robert Dingler, NIS-3
Alison Dorries, RRES-R
Donnette Ehler, DX-4
J. Patrick Garcia, ESA-WSE
Eugene Gavrilov, CCS-1
Gerald George, HSR-1
Robert Gore, X-4
Michael Inbody, ESA-AET
Aden Jackson, PS-PI
Pamela Mascarenas, NMT-3
Eric McNamara, HSR-3
Martin Price, PM-DS
Ruben Rangel, HSR-12
Brian Ray, MST-OPS
Christopher Romero, NIS-6
Ronald Wieneke, NMT-7
Sarah Williams, ESA-MPO

5 years

Jody Armijo, FWO-SWO
Michael Baker, RRES-AT
Fedor Balakirev, MST-NHMFL
Irene Beyerlein, T-3
Michael Blanton, DX-6
Christina Caudill, QIO
Susan Cummings, ESA-FM-ESH
Craig Cunico, ESA-DE
Gina Gallegos, PM-4
Patrick Hochanadel, MST-6
Zachary Huse, ESA-WMM
Sandra Lopez, S-4
Vahid Majidi, C-AAC
Allan Marcus, IM-8
Marlene Martin, BUS-3
Dennis McLain, FWO-WFM
Bruce Panowski, FWO-IIM
Robert Putnam, NMT-16
John Rennie, NMT-4
Gabriel Roybal, LANSCE-5
Jenifer Sattelberger, NMT-4
Michelle Silva, NIS-7
John Thorp, CCS-1
Walter Tuzel, DX-5
John Vandenkieboom, X-2
Patricia Vardaro-Charles, PS-7



This month in history ...

July

1752 — French silk weaver Joseph Marie Jacquard is born. He perfected a loom that used punch cards to program various weaving patterns. Jacquard's method of using punched cards to program patterns was later adopted as an input method for early mechanical and electronic computers.

1862 — The Tax Man Cometh: The United States Congress gives the green light to the tax-centric Revenue Act. The legislation, which was soon signed into law by President Abraham Lincoln, imposed a 3-percent tax on people with incomes between \$600 to \$10,000 and also called for a 5-percent levy on people with incomes reaching more than \$10,000. However, the Revenue Act was perhaps more notable for creating the Bureau of Internal Revenue.

1881 — Sheriff Pat Garrett shoots William Bonney, popularly known as Billy the Kid, to death at the Maxwell Ranch in New Mexico.

1945 — Lab scientists Raemer Schriber leaves Los Alamos for Tinian Island with the core of Fat Man.

1945 — After delivering the makings of the atomic bomb to Tinian Island, the American cruiser Indianapolis heads for Okinawa to train for the invasion of Japan but is torpedoed by a Japanese submarine. This is the U.S. Navy's worst loss, only 318 sailors of the 1,196 crew survived.

1946 — Free medical and dental services end for Los Alamos' 5,000 civilian residents.

1964 — Ranger 7, an unmanned U.S. lunar probe, takes the first close-up images of the moon — 4,308 in total — before it impacts with the lunar surface northwest of the Sea of the Clouds. The images were 1,000 times as clear as anything ever seen through Earth-bound telescopes.

1985 — The first version of Windows is shipped.

1997 — Mars photos on the Internet: Web surfers view the first-ever photos of the surface of Mars, transmitted by the Sojourner, a roving robot deposited by the Mars Pathfinder, an unmanned spacecraft. The robot began transmitting photos on July 4, which were posted on the Internet the same day.

1998 — Newspapers report that a Seattle man collected \$200 under Washington's anti-spam law, which banned unsolicited e-mail that disguised its source. The man was the first person to collect damages under the law.

Correction to June's This month in history: Alan Turing was born June 23, 1912, and died June 7, 1954.



FOR YOUR BENEFIT

Health questions? Ask Mayo Clinic

by Steve Sandoval

“Ask Mayo Clinic” is the new name of the 24-hour nurse line University of California Laboratory employees enrolled in one of its health-care plans can access to obtain health and wellness assistance.

The name change to Ask Mayo Clinic from Health Connection is effective Aug. 1. UC Laboratory employees recently received a card at their homes announcing the name change, and there is no disruption in the nurse-line service during the transition to the new name.

UC Lab employees and their family members have access to Health Connection, the 24-hour nurse telephone line staffed by Mayo Clinic registered nurses 365 days a year, explained Jessica Kisiel of Occupational Medicine (HSR-2). The 24-hour nurse line is part of the Lab's Positive Health Directions program.

Health Connection nurses use their years of experience and reliable medical information from Mayo Clinic to assess symptoms, answer health questions and help employees decide on appropriate care for illnesses and injuries.

Kisiel said the new name better reflects the depth of Mayo Clinic's clinical resources and its ongoing mission of empowering members with reliable health information. She added that UC Lab employees can contact her at 5-4368 for more information about the service and to obtain the toll-free telephone number or write to her at jkisiel@lanl.gov by electronic mail.



Flying the friendly sky ... from home

by John Bass

It's got to be a tough life. You work all day up on "the Hill" and then you have to go home to run your international airline based in Salt Lake City. An entire fleet of aircraft that ranges from twin-engine Beech 1900D turboprops (think Mesa Airlines) to Boeing 747s are constantly going in and out of the world's most exotic locations. Not to mention that you fly some of the routes yourself.

Good thing it's virtual. The daily commute alone to Salt Lake City would be a killer. But, for Jerry Halladay of Imaging Services (IM-4), also CEO of Atlantic Skies Aerospace, it's what he has always dreamed of.

Halladay, a licensed pilot of real airplanes, has been flying flight simulators since they came out. "I got really interested in them because they were as close as I could get to flying and not have to pay for it ... real cheap," he says. "Plus simulators had a lot of instrument stuff you could do ... ILS [Instrument Landing System] approaches, ADF [Automatic Direction Finder] approaches."

Halladay started flying for Atlantic Skies as a virtual pilot several years ago and gradually started taking over some of the Web-site maintenance for the owner. A few years ago, when the owner wanted to move on, Halladay "bought" the airline by simply making a change-of-billing for the Web-server bills. "The whole thing runs me between \$200 and \$300 a year. It's not major money, and I think for a hobby it's pretty cheap. There's a lot more expensive things I could be doing."

Pilot wannabees first have to have a PC-based system with at least Pentium 2- or 3-class computer, MicroSoft Flight Simulator and a good video card (sorry, Macintosh is not compatible). "A lot of it has to do with how much you've invested in your computer systems and peripherals like a flight-control yoke and rudder pedals," said Halladay.

To fly for Atlantic Skies, virtual pilots log on and sign up at www.Atlanticskies.com. Then it's their choice of a route going to and from almost anywhere in the world.

The airline has a fleet of aircraft that can be downloaded, from commuter airliners up to the "heavy iron" of the Boeing variety,

737s, 767s or 747s, each painted up in the Atlantic Skies livery.

When the virtual pilot is ready to go, he or she starts the engines at the gate, listens to the ATIS (Automatic Terminal Information Service) for current takeoff conditions, gets flight clearance, gets clearance for

pushback from the gate, then gets clearance to taxi to the runway. The virtual pilot goes on to contact the tower, get clearance to takeoff, takes off, contacts "Departure" control to get directions out of the area while climbing and flies headings to join the route before contacting the regional ATC (Air Traffic Control) Center. Once on course, the virtual pilot can sit back and enjoy the flight.

When it's time to descend for landing, the entire takeoff process reverses itself until the plane touches down and taxis to the gate at its destination.

Then, it's just a matter of the virtual pilot logging back onto the Atlantic Skies Web site and recording the flight time.

Halladay said, "We suggest you try to fly once a week ... once a month at the minimum. You can have flights as short as 20 minutes, say Seattle to Portland, or you can fly a 24-hour run from Paris to Sydney, Australia, with fuel stops along the way." Halladay noted virtual pilots can speed up flights by as much as 16 times normal — if they don't feel like warming a chair and looking at simulated scenery for hours.

Halladay said Atlantic Skies has about 400 active virtual pilots who range from 12-year-olds to retired airline pilots who do it for fun. Halladay emphasized that the airline's management is readily accessible to anyone who has questions about how to fly the virtual airline. For him, he said it's a wonderful hobby after a day's work at the Lab. "I spend an average of two hours a day either flying or doing supplemental things with the airline."

Though most virtual pilots like to engage in the flashier aspects of aviation, like flying fighters in dogfights, there are the virtual pilots like Halladay, and the rest of the Atlantic Skies staff, who just like driving the "big iron."

"I wasn't the fighter-pilot type, I was more 'Let's go move a bunch of people around the country.' I like that idea. Every time I look up in the sky and see a contrail I say 'That shoulda been my office.'"

Pilots are like that.



Atlantic
Aerospace Corporation



Jerry Halladay



As a virtual pilot for Atlantic Skies Aerospace, Jerry Halladay of Imaging Services (IM-4) lines up for takeoff in a Beech 1900D at the Austin, Texas, municipal airport with a load of passengers heading to Houston. Current weather has Halladay making an instrument departure in the middle of a downpour. Photos by LeRoy N. Sanchez

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