Los Alamos NATIONAL LABORATORY EST. 1943

NewsLetter 2005

Week of Jan. 2, 2006 Vol. 7, No. 1

UC-Bechtel led team wins management contract

Los Alamos National Security LLC (LANS) will be the new manager of the Laboratory, effective June 1. LANs is a limited liability corporation made up of the University of California, Bechtel National Inc., BWX Technologies Inc. and the Washington Group International Inc. Department of Energy Secretary Samuel Bodman made the contract announcement Dec. 21 in a live broadcast to employees.

"I congratulate the LANS team — Bechtel, the University of California, BWXT and the Washington Group International — for their successful bid," said Bodman. "… Let me also congratulate the employees at Los Alamos National Laboratory. This is an exciting day for you because it assures a robust and dynamic future for this hallowed institution. There has been quite a bit of turmoil and uncertainty over the last few years. Today's announcement is designed to relegate that tumult to the past and to usher in a new era of invaluable, cutting-edge science at Los Alamos."

"This is an historic time, not unlike the period exactly 60 years ago when Los Alamos moved on from being a single project to becoming a much broader, world-class scientific laboratory. I believe we are now making a similar transition to the next level of excellence in providing science in support of the national interest," said Laboratory Director Bob Kuckuck.

The day after the announcement, National Nuclear Security Director Linton Brooks and Michael Anastasio, president of LANS — who will become Los Alamos director June 1 — traveled to the Lab to speak to employees. Following his talk, Anastasio sent a message to employees reiterating that LANS was honored to be selected to manage and operate the Laboratory starting in June and that they are "deeply committed to fostering great science and delivering it to the current and emerging missions of the Laboratory." Anastasio also noted that the goal over the transition period laid out by the National Nuclear Security Administration is to make the transition as smooth as possible for employees and their families. He said LANS will listen carefully to what Laboratory employees and community stakeholders have to say through a series of visits and meetings that will allow employees to interact directly with members of the LANS leadership team.

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The year in review

With the release of the draft Request for Proposal (RFP) for the competitive selection of a management and operating contractor for the Laboratory, the year 2005 began with a certain amount of uncertainty. Despite that uncertainty, Lab employees reveled in some outstanding technical achievements and scientific breakthroughs, took pride in honors bestowed on co-workers and colleagues, welcomed distinguished visitors and dedicated facilities.

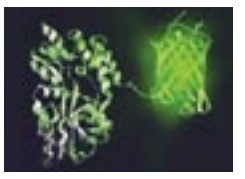
The vast majority of employees ended 2005 much as they began it, dedicated to doing the best job possible on behalf of our nation. With a new year before us that no doubt will be filled with its share of challenges and accomplishments, it is important to recall high points of the year that was. The pages that follow contain a summary of some of the Lab's technical and scientific accomplishments, awards, visitors and events during 2005.

Technical/programmatic accomplishments

Los Alamos wizardry to aid new Mars Science Laboratory

The Los Alamos laser unit, called ChemCam, uses laser-induced breakdown spectroscopy to measure the chemical content of the target samples.

Having analyzed Mars from afar via orbiting satellite, instruments developed at the Laboratory will next be on their way to play in the Martian dirt. The two Los Alamos instruments aboard NASA's planned Mars Science Laboratory rover, scheduled for launch in 2009, are a laser unit to measure elemental composition of rocks and soils and an X-ray diffraction device to analyze minerals in complex soil and rock samples from a different perspective.



Scientists develop split green for tagging protein

Scientists working at the Laboratory have developed a new protein-tagging and -detection system based on a process for "splitting" a green fluorescent protein. The method can be used to detect protein aggregation within the living organisms and will be useful for high-throughput studies of protein structure and protein production and for studying diseases, like Alzheimer's, that are associated with protein misfolding and aggregation.

Los Alamos muon detector could thwart nuclear smugglers

J. Andrew Green of the Physics (P) Division inspects the drift tubes that make up one pair of detectors for the muon radiography prototype.

Trillions of cosmic rays that constantly bombard Earth could help catch smugglers trying to bring nuclear weapons or materials into the United States. Laboratory scientists have developed a detector that can see through lead or other heavy shielding in truck trailers or cargo containers to detect uranium, plutonium or other dense materials. Their technique, muon radiography, is far more sensitive than X-rays, with none of the radiation hazards of X-ray or gamma-ray detectors now in use at U.S. borders.

Jerry Barton of Applied Chemical Technologies (C-ACT) calibrates the temperature position of the carbon dioxide jet for Snow-Machining applications.

Snow brings green machining to Laboratory

Scientists working at the Laboratory have developed a novel machining technique that uses a jet of solid carbon dioxide (CO2) to cool/lubricate the surface of metal parts and remove the cut material during machining. Called Snow-Machining, the process could someday eliminate the use of oil-based or synthetic chemical fluids for metal cutting and metal parts cleaning in industry.

Successful experiment supports weapon maintenance

Using the world's most powerful flash X-ray machine, the Laboratory successfully detonated and captured a high-resolution X-ray image of a mock-up of imploding nuclear weapon components. The experiment, conducted at the Dual Axis Radiographic Hydrodynamic Test Facility, supports continued maintenance of a key component of the U.S. nuclear deterrent, without a return to underground testing.

"I am pleased that the Department of Energy has made its choice and look forward to working with DOE, the Lab and its employees in ushering in a new era for Los Alamos."

—Sen. Pete Domenici, R-N.M.

"Los Alamos National Laboratory has benefited tremendously from its six-decade association with the University of California. I am confident that this new management team will ensure that [the Laboratory] remains one of our nation's most important research laboratories."

— Sen. Jeff Bingaman, D-N.M.

"The Laboratory has always played a critical role in the Los Alamos community and Northern New Mexico. I look forward to working with Los Alamos National Security to ensure strong working relationships in our communities to promote economic development and job growth."

—Rep. Tom Udall, D-N.M.

"I believe that this team, which includes the current contractor, the University of California, and a consortium of New Mexico higher education institutions, will be best for the Lab, the country and my State of New Mexico.

—Gov. Bill Richardson

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NewsLetter

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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.

NNSA National Nuclear Security Administration

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Message from UC President Dynes

Editor's note: The following is from an all-employee memo to Laboratory employees from University of California President Robert C. Dynes.

Robert C. Dynes

[On Dec. 2], the Department of Energy announced that our team, Los Alamos National Security LLC (LANS) — made up of the University of California, Bechtel National, BWX Technologies and Washington Group International — was chosen as the future manager of Los Alamos National Laboratory. Clearly, the leadership of the University of California; your future director, Michael Anastasio; and the entire Los Alamos National Security LLC team are very pleased with this decision.

I am proud of all of our employees — current and former — who have contributed their talent and dedication to the mission of Los Alamos, and I am grateful to those who worked tirelessly in recent months on our team's contract proposal. I truly believe that LANS' strong proposal and leadership team will provide the Laboratory with the tools to make even greater contributions to national security and scientific discovery in the future.

Since the final days of the Second World War, together, we have served this nation, providing unparalleled scientific and technological excellence while ensuring the safety, security, and reliability of our nation's nuclear stockpile. The tremendous hard work and dedication of all of our employees at Los Alamos and throughout the university system allows us to stand tall today.

The decision today by DOE begins a new era for Los Alamos and all of us. Our team will now commence the transition to a new management team at the Laboratory. This will take some time — change is never easy. Having worked with many of you and having seen the great work that emerges from the Laboratory, I know that you will rise to the challenge of change and continue to meet the mission goals set by DOE and Congress. I also know that you will continue to provide our country with the cutting-edge scientific and technological excellence that keeps our nation on the frontiers of science.

As you are aware, Michael Anastasio has been designated the director of the Los Alamos National Laboratory. He did a tremendous job leading our team in the competition and his leadership expertise will be invaluable to the future of the Laboratory. I know many of you have worked with him in his current role as director of the Lawrence Livermore National Laboratory. Director Anastasio, a nuclear physicist, has more then 25 years of experience in national security and nuclear weapons. He is expected to move to Los Alamos shortly as part of the transition team efforts.

While we are particularly pleased with the department's decision, a significant amount of work awaits all of us to ensure that the new LANS team is properly in place on June 1. In the coming weeks, you will receive a variety of communications from LANS outlining its transition plans and its benefits. UC also will provide you with information about the transition so that you can take the necessary steps to ensure a seamless continuation of your benefits and employment. The LANS transition plan, as well as the university's efforts to close out the current contract, are designed to minimize disruption for you, your families and the work of the Laboratory.

Again, thank you for your hard work and dedicated service to our nation. Just as the great scientific minds of an earlier generation did when they first came to Los Alamos in the midst of a terrible global conflict, I know you will continue to chart new frontiers and help solve some of the greatest problems of our time. All of us at the University of California look forward to being a part of the great science yet to come at Los Alamos.

Sincerely,
Robert C. Dynes

Laboratory Director Bob Kuckuck, center, greets National Nuclear Security Administration Director Linton Brooks, right, as Michael Anastasio, president of Los Alamos National Security LLC, left, looks on. Brooks and Anastasio were in Los Alamos to speak to Laboratory employees following the Department of Energy announcement that the University of California and Bechtel led team, Los Alamos National Security LLC, had won the contract to manage the Laboratory. During Brooks' talk, he said the decision to award the contract to the LANS team was a "professional decision made by professionals for the right reasons" and noted that he was really pleased with the decision. "I think that what we're going to have here are all of the strengths that we brought from the university in the past, coupled with the strengths of the industrial partners," said Brooks. *Photo by LeRoy N. Sanchez*

2005: THE YEAR IN REVIEW

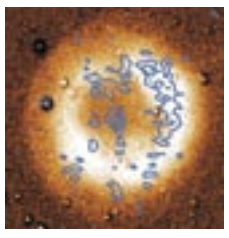
Lab researchers bridge the super-conductivity gap

Laboratory scientists working with a researcher from Chonnam National University in South Korea have found that magnetic fluctuations appear to be responsible for superconductivity in a compound called plutonium-cobalt-pentagallium (PuCoGa5). The discovery of this "unconventional superconductivity" may lead scientists to a whole new class of superconducting materials and toward the goal of eventually synthesizing "room-temperature" superconductors.

Researchers develop fingerprint detection technology

Scientists working at the Laboratory have developed a novel method for detecting fingerprints based on the chemical elements present in fingerprint residue. Known as micro-X-ray fluorescence, or MXRF, the technique has the potential to help expand the use of fingerprinting as a forensic investigation tool.

Scientists model physics of stellar burning



A Laboratory scientist working with astronomers from around the world has validated a computer model that predicts the rebirth and stellar burning and mixing processes of evolved stars. The discovery is a leap forward in the understanding of how stars like the sun evolve through violent outbursts during their evolution.

Study uncovers bacteria's worst enemy

Laboratory scientists have found that the successful use of bacteria to remediate environmental contamination from nuclear waste and processing activities may depend more upon how resistant the bacteria are to chemicals than to how tolerant they are to radioactivity. The results of a Laboratory study may help make bacterial bioremediation a more widespread method for cleaning up sites contaminated with actinides and other radionuclides.

Lab's ALEXIS satellite completes its mission

The Array of Low-Energy X-ray Imaging Sensors, or ALEXIS, satellite, launched April 25, 1993, made its last ground station contact with the Laboratory in April. The $17 million Department of Energy-funded satellite lasted well beyond its nominal one-year mission to demonstrate its telescope and radio-receiver technology for nonproliferation applications and past a three-year lifetime engineering estimates gave it.

Largest computational biology simulation mimics life's most essential nanomachine

Researchers at the Laboratory have set a new world's record by performing the first million-atom computer simulation in biology. Using the "Q Machine" supercomputer, Los Alamos computer scientists have created a molecular simulation of the cell's protein-making structure, the ribosome. The project, simulating 2.64 million atoms in motion, is more than six times larger than any biological simulations performed to date.

Airborne Los Alamos instruments test for toxins from fire/aides in Katrina effort

A unique hazard-detecting plane, supported by Los Alamos scientists and operated by the Environmental Protection Agency, was on duty to warn first responders and residents with information about potential chemical hazards during a Houston oil refinery disaster. The plane, a twin-engine Aerocommander 680 aircraft, is equipped with a multi-spectral infrared mapping system and a Fourier Transform Infrared spectrometer package called ASPECT. Later in the year, the ASPECT plane was in the Gulf Coast area assisting in the aftermath of Hurrican Katrina.

Scientists develop novel multicolor light-emitting diodes

A team of scientists at the Laboratory have developed the first completely inorganic, multicolor light-emitting diodes based on colloidal quantum dots encapsulated in a gallium nitride semiconductor. The work represents a new "hybrid" approach to the development of solid-state lighting. Solid-state lighting offers the advantages of reduced operating expenses, lower energy consumption and more reliable performance.

Quantum Darwinism: The reality of reality?

Laboratory researchers recently proved a mathematical theorem supporting quantum Darwinism — a quantum form of natural selection. Quantum Darwinism sheds new light on the workings of environment-induced superselection or einselection — a process proposed a quarter century ago to explain the behavior of quantum systems that are open (that is, that continue to interact, however, weakly, with their surroundings). In quantum Darwinism "survival of the fittest" is key.

Los Alamos instrument to be on NASA IBEX mission

A new NASA mission, IBEX, will probe the very edge of the solar system, capturing the quiet hum of a vast, distant shock wave. One of its two instruments is a compact Los Alamos device called the High Energy Neutral Atom Imager. The mission, called the Interstellar Boundary Explorer satellite, will launch in 2008 and carry two Energetic Neutral Atom cameras out beyond Earth's magnetosphere, where they will watch for telltale particles ricocheting back across millions of miles from the outer boundary of the solar system.

The Hubble Space telescope captured the image of the bow shock around the very young star, LL Ori.

Los Alamos project completes two-month recovery effort

A two-month effort by the Lab's Off-Site Source Recovery Project has recovered 13 unique, large radioactive sealed sources from several locations around the nation. The recoveries are part of the National Nuclear Security Administration's nationwide effort to reduce risks to the public and the environment associated with radioactive material. During the same period, almost 500 other types of sources also were collected across the country by the project.

Expanded horizons equals expanded opportunities for young women

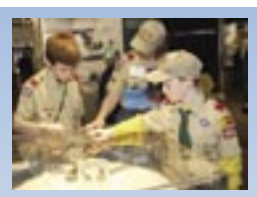
The Northern Chapter of the New Mexico Network for Women in Science and Engineering, with co-sponsorship from the Lab, held its annual Expanding Your Horizons (EYH) — technical career workshops for young women. The EYH program, which promotes the continuing advancement of science and mathematics education for young women in grades eight through 10, attracted 162 female students.

Los Alamos Employees' Scholarship Fund awards scholarships

Sixty high school seniors and college students received 2005 Los Alamos National Laboratory Employees' Scholarship Fund scholarships. Since the Los Alamos Employees' Scholarship Fund program began in 1998, 315 scholarships have been awarded, and Laboratory workers have donated more than $1 million to the scholarship fund since its creation.

Jemez Pueblo students learn about GIS, make maps

Jemez Pueblo students visited the Lab's geographic information systems lab where they were introduced to and given hands-on experience in geographic information systems. Technical staff members in the GIS Lab talked about how they use GIS for research on everything from critical infrastructure protection to water resource management to carbon sequestration.



Scouts descend on Bradbury Science Museum

A contingent of more than 100 boy and girl scouts from Amarillo, Texas, visited the Laboratory's Bradbury Science Museum in April. The group was scheduled to travel to Trinity Site in southern New Mexico the following day.

Diversity Cinema debuts

"An Amazing Grace," a video that chronicles how Martin Luther King Jr. came to lead the civil rights movement of the 1950s and 1960s, was the first in the former Diversity Office's (DVO) "Diversity Cinema" initiative, which provides an occasional lunch-time opportunity to learn about heroes and historical figures from all cultures and backgrounds, as well as other diversity-related topics.

2005: THE YEAR IN REVIEW

Operations

Release 3a to expedite purchasing process
The Enterprise Project's Release 3a software product debuted in April. Release 3a facilitates selected purchasing functions for Laboratory employees. With the new software, employees will utilize the Enterprise Project's Oracle interface to request or approve the purchase of both simple fabrication services (such as custom circuit boards) and personal safety items, such as safety glasses, computer glasses, safety shoes and protective clothing.

Ceremony marks completion of nuclear materials upgrade project

A ribbon cutting celebrated the completion of Phase I of the Nuclear Materials Safeguard and Security Upgrades Project. The project involved improving and expanding security at key Laboratory locations, such as Technical Area 55, the Plutonium Facility. The program finished almost a year ahead of schedule and under budget without a reportable incident or lost workday with more than 500,000 hours worked, including construction.

Lab, Sandia collaborate with state universities to bundle patents
The Laboratory and six other New Mexico research institutions in February signed an Inter-Institutional Agreement that allows bundling of patents and is intended to spur economic development. The Laboratory, along with Sandia National Laboratories, Science and Technology Corporation at the University of New Mexico, New Mexico State University, New Mexico Institute of Mining and Technology, The MIND Institute and the National Center for Genome Resources, participated in a public signing ceremony.

Then Laboratory Director Pete Nanos signs a memorandum of understanding with Valles Caldera Trust Executive Director Ray Powell.

Memorandums of agreement
In 2005, the Laboratory signed several memorandums of agreement. The University of New Mexico signed an MOU establishing the New Mexico Center for Isotopes in Medicine, a partnership between the Lab and UNM's Health Science Center. In May, an agreement addressing pressing national security issues in energy infrastructure security, remote sensing, space weather, climate sciences and computational sciences was signed with the National Center for Atmospheric Research. Also in May, the Lab signed an agreement with the Valles Caldera National Preserve to provide the preserve with environmental and geological research the will lead to a greater understanding of the preserve.

Laboratory signs agreement to develop carbon nanotube fibers
The Laboratory in April signed a cooperative research and development agreement with Carbon Designs Inc., to collaborate on the development of ultra-strong fibers made of carbon nanotubes that are expected to be many times stronger than any current engineering materials. Carbon Designs Inc., plans to initially invest $2 million in the joint effort.

WIPP waste leaves Los Alamos

The first shipment in nearly 18 months of WIPP-bound waste left Los Alamos on April 13. The Laboratory's shipments to the Waste Isolation Pilot Plant resumed when a truck carrying TRUPACT containers left Los Alamos for the Carlsbad disposal site.

Kuckuck named interim Laboratory director
In May, University of California President Robert Dynes appointed Robert W. Kuckuck as interim Laboratory director, replacing Director Pete Nanos who left the Laboratory to pursue a new opportunity with the Department of Defense in Washington, D.C.

SERF's up
A new facility that will save nearly 21 million gallons of water a year — the equivalent of about 100 households — became fully operational at the Laboratory. The Sanitary Effluent Reclamation Facility (SERF) at Technical Area 3 will be used to further treat sanitary effluent from the Lab's domestic wastewater treatment facility.

Laboratory, UC Santa Barbara establish the Institute for Multiscale Materials Studies

The Laboratory has formed a partnership with the College of Engineering at the University of California, Santa Barbara, to create the Institute for Multiscale Materials Studies. Other institutes created during the year were the UC San Diego's Jacobs School of Engineering and the UC Santa Cruz Institute for Scalable Scientific Data Management.

Office of Equal Opportunity and Diversity formed
The Diversity Office (DVO) and the Office of Equal Opportunity (OEO) merged to form the new Office of Equal Opportunity and Diversity (OEOD). Organizationally, it is part of the Human Resources (HR) Division.

KSL makes changes to shuttle service
A new shuttle service partially replaced KSL Services' existing taxi service in July. The new shuttle service is designed around an economic and utilization study of usage, by location and time. The study provided significant data and insight on how to improve the KSL taxi service to make it more economical and efficient, while improving service for core service areas.

Bioforensics Analysis Research and Development Center created at Los Alamos

This summer, recognizing Los Alamos' technical capabilities, the U.S. 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 biofo-rensic analysis for the NBFAC.

KSL Services outreach supports Lab's Math and Science Academy
KSL Services, the Laboratory's facility and site support services contractor, presented a check for $200,000 to the Los Alamos National Laboratory Foundation for the Laboratory's Math and Science Academy.

Food in abundance at student picnic
Shade was a welcome relief from the hot sun for students and their mentors at the annual Laboratory student/mentor picnic at Urban Park.

DX demonstrates capabilities for students
The Dynamic Experimentation (DX) Division conducted a student demonstration shot in July at Technical Area 36. The demonstration shot provided an opportunity for more than 300 students — they observed the shot from a half-mile away — from organizations within the weapons directorate to observe the detonation of 500 pounds of high explosives.

Drive collects supplies for upcoming school year

This year, the Laboratory lent a hand to local school districts by sponsoring a school supplies collection drive. The new giving program focuses on items children need most: crayons, pencils, pens, paper, spiral writing tablets, notebook binders, boxes of tissue, color pencils, glue and round point scissors. The school supplies were donated to about 20 schools in the Española, Mesa Vista, Pojoaque, Santa Fe and Los Alamos school districts.

Students tour magnet laboratory

Students attending the Summer Science Program at the Laboratory toured Los Alamos' High Magnetic Field Laboratory. The Summer Science Program is a residential enrichment program in which gifted high school students complete a challenging, hands-on research project in celestial mechanics.

2005: THE YEAR IN REVIEW

Innovative protein-analysis center funded at Los Alamos

Los Alamos' Bioscience (B) Division has a new center dedicated to the study of the molecular machines in our cells — proteins. The new Los Alamos Integrated Center for Structure and Function Innovation, is one of 10 facilities nationwide that the National Institutes of Health is funding as part of the next generation of research to follow the former Human Genome Project.

Museum gets new Little Boy replica

This summer, the Laboratory's Bradbury Science Museum received a new "Little Boy" replica. Damian Andrus, a co-fabricator, built the Little Boy replica — it weighs about 1,000 pounds — out of steel and plastic. The new model replaces a previous model of Little Boy, which was removed from public display for security reasons.

Approaching the home stretch on National Security Sciences Building

Grass, trees and other landscaping outside the new National Security Sciences Building at Technical Area 3 are a sign that workers are approaching completion. The 275,000-square-foot facility will replace the present Administration Building, which opened in 1956. The NSSB will be home to 700 staff members, and includes a 600-seat auditorium and lecture hall and a 400-space parking garage east of the Otowi Building, which is already open.

Alternative work schedules return

After a one-year hiatus, alternative work schedules for Laboratory employees resumed in September. The 9/80 work schedule was suspended Aug. 30, 2004, following the Laboratory's suspension of activities in July of that year.

Redesigned Daily Newsbulletin debuts

Since the Daily Newsbulletin was launched in September 1996, it has served as a timely source for a variety of Laboratory news and information for the work force. In April, a redesigned Daily Newsbulletin was unveiled to update the look and allow for the introduction of some additional features.

Ceremony marks opening of dispatch center at EOC

Officials from the Laboratory, National Nuclear Security Administration and Los Alamos County were on hand to celebrate the opening of the Consolidated Dispatch Center at Los Alamos' Emergency Operations Center at Technical Area 69. The Consolidated Dispatch Center is a collaboration between the NNSA, the Lab and Los Alamos County, and it was funded through Cerro Grande appropriation funds. One of the goals of the new dispatch center is to have all of the emergency management functions under one roof with the Laboratory, including the Los Alamos Police Department, Los Alamos Fire Department, Los Alamos County and the Lab's fire alarm system, which includes alarm testing and maintenance.

Omega Canyon bridge gets sprucing up

The bridge over Omega Canyon that connects the Laboratory with the Los Alamos town site was spruced up. Clauss Construction of Lakeside, Calif., received a $1.14 million contract to do the work for the Laboratory. The work called for the contractor to paint the steel members below the concrete roadway, including all beams supporting the concrete roadway, the columns, bracing and arch.

Fix-It team notes progress, successes

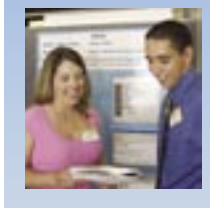
Since Laboratory Director Bob Kuckuck's Fix-it team was created last summer, it has successfully resolved several "bite-sized" issues raised by employees as presenting obstacles to doing work more efficiently. The Fix-It team investigates and brainstorms solutions to issues raised by staff and various Laboratory organizations. The group meets regularly to identify potential problems for solution and to appoint champions to ensure resolution of these problems.

Tech Lab opens at the Bradbury Science Museum

In November, the Bradbury Science Museum unveils its new multipurpose discovery space, Tech Lab. Tech Lab marks the beginning of a new focus for the museum. The museum has always focused on education through its exhibits and its outreach programs. Now, the Bradbury Science Museum is moving toward an emphasis on education inside the museum through interactive experiences and personalized programs. Science demonstrations and activities will change periodically and the public is encouraged to stop in frequently to check out the latest happenings in Tech Lab.

Technical Area 18 early move celebrations

David Crandall, left, National Nuclear Security Administration assistant deputy administrator for research, development and simulation, talks with Dave Beck, acting associate director for weapons engineering and manufacturing (ADWEM), at a Technical Area 18 early move celebration. The TA-18 Relocation Project began with the first shipment of Category I and II materials from TA-18 in December 2004. A total 560 individual containers were shipped, 210 off-site and 350 on-site. With the completion of the early move project, 60 percent of the nuclear material formerly housed at TA-18 now resides at the Device Assembly Facility.



Students, their research showcased at symposium

Anita Salazar of Modeling, Algorithms and Informatics (CCS-3) talks about her research with Angelo Ortiz of Departmental Computing (CCN-1) at the annual Laboratory Student Symposium. The symposium included exhibits, professional development seminars, a continental breakfast and lunch.

Lab Program gives 'hands on' experience

Thirty students from around the world had a unique summer experience courtesy of the Laboratory's Summer of Applied Geophysical Experience (SAGE) program. Now in its 23rd year, SAGE is a educational program designed to introduce students in geophysics and related fields to "hands on" geophysical exploration and research. The program emphasizes both teaching of field methods and research related to a variety of basic and applied problems.

We have liftoff

Apprentice rocket scientists watch as one of their rockets lifts off at Overlook Park. The children attended rocket-building workshops at the Bradbury Science Museum then launched their finished products. The Bradbury Science Museum sponsors the rocket-building workshops as part of its science education and outreach program to the public.

Record turnout at High-Tech Halloween

A youthful Spiderman watches as Tweedle-Dee and Tweedle-Dum crawl-through the kaleidoscope box at the 11th annual High-Tech Halloween at the Laboratory's Bradbury Science Museum. Youngsters could see their reflections as they made their way through the box, one of 17 separate activities at High-Tech Halloween. The event returned after a one-year hiatus with more than 2,400 visitors.

2005: THE YEAR IN REVIEW

Awards

Lab employees receive Awards of Excellence in Technology Transfer

Laboratory employees Wu-chun Feng of Advanced Computing (CCS-1) and Laboratory Fellow Tom Terwilliger of Cell Biology, Structural Biology and Flow Cytometry (B-2) recently received 2004 Awards of Excellence in Technology Transfer from the Federal Laboratory Consortium (FLC). The awards recognize outstanding work with industry to turn Los Alamos technologies into commercially useful products. In addition, Susan Sprake of the Technology Transfer (TT) Division was selected as FLC Representative of the Year, an honor recognizing an individual FLC representative who has made the most significant contribution to the FLC program in the past year.

Four Los Alamos physicists honored by American Physical Society

Four Laboratory physicists are new fellows of the American Physical Society for their outstanding contributions to physics. Steve Elliot, David Montgomery, David Moore and John Singleton were among 201 scientists nationwide elected as American Physical Society fellows in 2004.

Lab communicators win 18 Society for Technical Communication awards

Communication Arts and Services (IM-1) staff members and their Lab colleagues won 18 awards in the 2004-2005 Southwest Regional Publications, Art and Online Competitions sponsored by the Phoenix chapter of the Society for Technical Communication. Within the three STC award categories listed in descending order, Lab communicators earned one Distinguished Technical Communication Award, eight Awards of Excellence and eight Awards of Merit. In addition, Gail Flower, an IM-1 graphic designer, won the Best of Show award in the Technical Art Competition for the cover and section dividers she designed for the 2003 Laboratory Directed Research and Development progress report.

Lab organizations earn seven NNSA Pollution Prevention Awards

Laboratory organizations received seven out of the 13 2005 Pollution Prevention Environmental Stewardship Awards given nationally by the National Nuclear Security Administration. The awards are based on a Department of Energy complexwide competition that acknowledges pollution prevention, recycling and affirmative procurement accomplishments.

Jia named Asian American Engineer of the Year

A Los Alamos scientist widely known for his innovations in the field of electronic materials and high-temperature superconductivity was named the 2005 Asian American Engineer of the Year by the Chinese Institute of Engineers USA. Quanxi Jia, a Laboratory Fellow since September 2003 and currently the Device Team Leader in the Superconductivity Technology Center of the Materials Science and Technology (MST) Division, was been honored for his many outstanding scientific and technical achievements.

Lab's Kratzer recognized for efforts with supercomputing challenge

David Kratzer of High Performance Computing Systems (CCN-7) received the Governor's Awards for his efforts at making the Adventures in Supercomputing Challenge a success. Kratzer is the longtime coordinator of the challenge. He shared the award with Bill Blackler, president of the Challenge Board of Directors.

Baker/Htoon receive Postdoctoral Distinguished Performance Awards

Gary Baker of Actinide, Catalysis and Separations Chemistry (C-SIC) and Han Htoon of Physical Chemistry and Applied Spectroscopy (C-PCS) are recipients of the Postdoctoral Distinguished Performance Awards. The annual award recognizes outstanding and unique contributions by Lab postdocs that result in a positive and significant impact on the Laboratory's programmatic or scientific efforts or status in the scientific community.

Harlow, Longmire awarded 2004 Los Alamos Medal

Laboratory Fellow Francis "Frank" Harlow and Conrad "Connie" Longmire, both Lab retirees, are recipients of the 2004 Los Alamos Medal. The Los Alamos Medal is the highest honor the Laboratory can bestow upon an individual or small group. Nominees for the medal are judged on strict selection criteria that include making a contribution that changed the course of science, facilitating a major enhancement of the Laboratory's ability to accomplish its mission, having a significant impact on Lab sustainability and establishing a major direction for Los Alamos and/or the nation.

Two Laboratory technologies receive nanoscience awards

Two technologies developed by Laboratory scientists are winners in the 2005 Nano 50™ Award competition by Nanotech Briefs, a digital publication from the publishers of NASA Tech Briefs. The recently announced winners of the 2005 Nano 50 awards, which are designed to recognize "the 50 best of the best" in nanotechnology, include the development of four-centimeter-long carbon nanotubes and the graphite lattice production technology.

Laboratory captures four R&D 100 Awards

Laboratory scientists captured four of R&D Magazine's 2005 R&D 100 Awards. The latest winners bring the Laboratory's total to 87 awards over the past 18 years. The projects recognized are

- CartaBlanca: A High-Efficiency, Object-Oriented, General-Purpose Computer Simulation Environment
- MESA: Measuring Enzyme-Substrate Affinities
- nanoFOAM: A Metal-Nanofoam Fabrication Technique
- NESSUS: Probabilistic and Uncertainty Analysis for Large Scale Complex Systems

Former employee on International Space Station

Former Laboratory technical staff member John Phillips celebrated his 54th birthday aboard a rocket bound for the International Space Station. Phillips was onboard a Russian-built rocket that reached the space station April 17. He spent 179 days in space, returning to Earth on Oct. 10.

Stamp dedication recognizes Manhattan Project era scientists

Robert Valentine of Murray State University in Kentucky impersonates Manhattan Project era physicist Richard Feynman at a stamp dedication at the Los Alamos Post Office. The dedication centered on the accomplishments of Feynman and John von Neumann and featured stories about their lives and how they both influenced the Lab and the world of science and mathematics.

Storm dumps hail over parts of Los Alamos

The calendar said it was July, but on the afternoon of July 19, it looked more like December after a storm cell passed over parts of Los Alamos, dropping pea- and golf ball-sized hail and leaving vehicles in a parking lot at Technical Area 3 partially submerged. More than one inch of precipitation was recorded at the Technical Area 6 measuring station, but no precipitation was recorded at the TA-53 measuring station, according to Laboratory meteorologists.

Great Garbage Grab

The "Legal Counsel Refuse Wranglers" in Laboratory Counsel (LC) won the traveling trash trophy in the second Great Garbage Grab at the Lab clean-up contest. The team picked up 83 bags of litter and refuse over the two-week reporting period. Sponsored by ENV and Nuclear Waste and Infrastructure Services (NWIS) divisions, the event raises awareness of litter prevention and beautification in a spirit of friendly competition.

2005: THE YEAR IN REVIEW

Alexander Balatsky, Dan Winske, James Theiler, John Singleton, Andrew Hime, Michael Baskes and Gary Wall

Kuckuck names seven new Laboratory Fellows

Recognizing the highest levels of technical accomplishment at the Laboratory, Director Bob Kuckuck named seven distinguished scientists as Laboratory Fellows. The 2005 Fellows are Alexander Balatsky, Condensed Matter and Statistical Physics (T-11); Michael Baskes, Structure/Property Relations (MST-8); Andrew Hime, Neutron Science and Technology (P-23); John Singleton, National High Magnetic Field Laboratory (MST-NHMFL); James Theiler, Space and Remote Sensing Sciences (ISR-2); Gary Wall, Primary Design and Assessment (X-4); and Dan Winske, Plasma Physics (X-1).

Lab personnel receive NNSA awards

Robert Larsen and Noah Pope of Safeguards Systems (N-4), and deceased Lab employee Charlie Hatcher were honored with National Nuclear Security Administration Outstanding Service awards for their service to NNSA's Materials Protection, Control and Accounting mission in the states of the former Soviet Union.

Los Alamos weapons program employees receive DOE/NNSA Awards of Excellence

More than 300 Laboratory employees were recognized for outstanding achievements by the Department of Energy and National Nuclear Security Administration with Defense Programs Awards of Excellence. Defense Programs Awards of Excellence are given to both federal and contractor employees for significant achievements in quality, productivity, cost savings, safety or creativity in support of the nuclear weapons program.

Distinguished Performance Award winners announced

Eight individuals, seven small teams and 17 large teams are recipients of 2004 Distinguished Performance Awards. The annual awards recognizes individuals, small and large teams for job performance above and beyond what is normally expected. See the Aug. 15, 2005, issue of the Los Alamos NewsLetter for more information about the winners.

Laboratory organizations receive Quality New Mexico awards

Internal Assessments (AA-2) and Training Services (PS-13) are 2005 Quality New Mexico (QNM) Piñon recognition recipients. The groups were recognized for steady progress on their process improvement paths and dedication to quality principles. In addition, KSL Services Utilities Division also received a Piñon recognition for its work at the Lab. KSL Services is Los Alamos' site support services contractor.

Neil Harrison, Robert Roussel-Dupré, Rick Luce and Bob Little

Laboratory names 2005 Fellows' Prize recipients

Four Los Alamos technical staff members are recipients of 2005 Fellows prizes for outstanding research and leadership. Neil Harrison of Los Alamos' High Magnetic Field Laboratory (MST-NHMFL) and Robert Roussel-Dupré of Atmospheric, Climate and Environmental Dynamics (EES-2) received the 2005 Fellows' Prize for Outstanding Research. Rick Luce of the Research Library (STB-RL) and Bob Little of Material Science (X-7) received the 2005 Fellows' Prize for Leadership. The Fellows' Prize for Research honors individuals for outstanding research performed at the Lab, published within the past 10 years, and exerting a significant disciplinary or programmatic impact.

Visitors

Abercrumbie gives Lab's King Day talk

Eric Abercrumbie, director of Ethnic Programs and the African-American Culture and Research Center at the University of Cincinnati, spoke passionately about Martin Luther King Jr. and his legacy in a talk at the Laboratory.

NNSA information technology chief visits Laboratory

Linda Wilbanks, center, chief information officer for the National Nuclear Security Administration, was at Los Alamos to receive briefings on the Lab's Enterprise Project and other information technology issues

Energy secretary visits Lab

Secretary of Energy Samuel Bodman, in his first visit to Los Alamos, was both complementary of Lab staff and upbeat about its future. "I consider it an extraordinary personal and professional honor to be here with you. I am in awe of the scientific excellence and historic significance Los Alamos presents," Bodman said. In the photo, Bodman, right, talks with Greg Swift of Condensed Matter and Thermal Physics (MST-10), left, and Fred Mortenson of the Applied Physics (X) Division. Bodman was confirmed as energy secretary Jan. 31

Emergency responders take part in HAZMAT Challenge

New Mexico State Police emergency personnel respond to a valve pipe leak during the first day of the ninth annual HAZMAT Challenge sponsored by the Lab. The challenge tests the hazardous materials response skills of emergency responders. Eleven teams from New Mexico, Texas and Oklahoma participated in this year's challenge.

Orbit visits Laboratory, spreads fun

Orbit and Isotopes personnel were at Los Alamos to meet with Lab employees and family members. Orbit also made an appearance at the Bradbury Science Museum, viewing the displays and interacting with museum visitors. The third Laboratory-Northern New Mexico Night Sunday at Isotopes Park was held Aug. 28.

Lab observance honors nation's veterans

Lt. Joe Lopez, left, of Protection Technology Los Alamos and C-Ensign Jonathan Ussery of the Los Alamos High School Junior Naval ROTC program raise the American flag at the Laboratory's Veterans Day observance. There are approximately 950 employees working at the Lab who are veterans, in addition to several hundred subcontract personnel who also are veterans.

Lab joins community in hurricane relief efforts

In a memorandum to Laboratory employees, Director Bob Kuckuck supported employee involvement with community hurricane relief efforts. Employees initiated a grassroots fundraising effort by holding bake sales, Frito pie luncheons, garage sales, etc. Later in the year, the Laboratory made it possible for employees to donate vacation leave to others for assistance in hurricane recovery efforts, or to convert accrued vacation time into a cash donation to qualified relief organizations for recovery efforts.

2005: THE YEAR IN REVIEW

UC Regent visits Lab

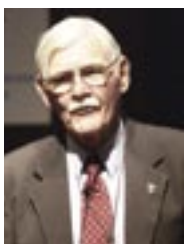
University of California Regent Norman Pattiz paid a get-acquainted visit to the Laboratory. Pattiz came to the Laboratory for a briefing on Lab programs and a historical overview. He also toured several Laboratory facilities and attended poster sessions highlighting the Lab's scientific research programs.

Governor gives pep talk to Lab employees

Governor Bill Richardson told Laboratory personnel that the work they perform is important to New Mexico and the nation during a talk at the Laboratory. During his upbeat and often light-hearted remarks, Richardson poked fun at politics and his relationship with Los Alamos. But he was serious about science and said he supported the University of California's decision to submit a proposal to the Department of Energy to continue operating Los Alamos.

State Environment Department managers visit Laboratory

Bureau and division chiefs from the New Mexico Environment Department were at the Laboratory to receive briefings and tour several Lab facilities, including the Radioactive Liquid Waste Facility at Technical Area 50. At left is Dennis Pepe, NMED's Department of Energy Oversight Bureau acting chief and center is James Rogers of the DOE. Behind Rogers, wearing hat, is Edward Hansen of NMED's Solid Waste Bureau. The NMED visitors were briefed on Lab air and water quality programs and on Los Alamos' environmental stewardship and management programs.



Benjamin recounts Trinity Test at Heritage talk

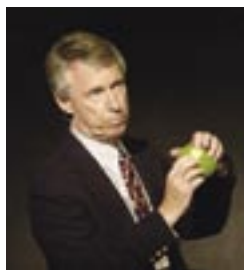
Thirty seconds after the first atomic bomb exploded, the shock wave rolled over Ben Benjamin, who was manning an array of cameras atop a bunker six miles west of Ground Zero. Benjamin, a key member of the U.S. Army contingent at Los Alamos during the Manhattan Project, was at the Laboratory to present a talk as part of the Laboratory-sponsored Heritage Series Lectures.

Griego sings, talks about Northern New Mexico culture, history

Northern New Mexico College President Jose Griego entertained a Laboratory audience with songs and stories of Northern New Mexico culture at a presentation at the Lab. Griego's talk was part of the Laboratory's observance of Hispanic Heritage Month.

Visitors to Los Alamos mark 60th anniversary of Japan bombings

Members of Pax Christi and other groups wore sackcloths to depict penitence and conversion to nonviolence at a demonstration for the 60th anniversary of the dropping of the atomic bomb at Hiroshima. An estimated 300 people came to Los Alamos for the peaceful demonstration.



Robertson discusses neutrinos at Lab talk

University of Washington professor Robert Hamish Robertson used props to discuss recent findings about solar neutrinos during a Director's Colloquium Thursday in the Physics Building Auditorium at the Laboratory. He also showed a viewgraph of text reproduced from a telegram written by then Laboratory scientists Frederick Reines and Clyde Cowan to German physicst Wolfgang Pauli in which they discussed research on and the detection of neutrinos from fission fragments.

Sen. Bingaman, Kuckuck discuss Laboratory issues

U.S. Sen. Jeff Bingaman, left, D-N.M., talks with Laboratory Director Robert Kuckuck during a visit to Los Alamos. The director briefed Bingaman on Laboratory management and discussed several matters, including Area G expansion and the reliable replacement warhead project.

Lab employees learn of shuttle vulnerabilities at talk

James Walker of Southwest Research Institute delineated the causes of the Columbia space shuttle crash and discussed the monitoring efforts behind the Discovery mission during his talk titled, "From Columbia to Discovery: Understanding the Impact Threat to the Space Shuttle."

Lewis discusses future Air Force technologies at Director's Colloquium

Mark Lewis, the United States Air Force's chief scientist, talked about future Air Force technologies at a Director's Colloquium. As chief scientist for the Air Force, Lewis serves as chief scientific adviser to the chief of staff and secretary of the Air Force, and provides assessments on a wide range of scientific and technical issues affecting the Air Force mission.

A front row seat to history

Leon Smith of the 509th Composite Group and one of the seven elite members of the fuzing group who worked on both atomic bombs in the 1940s, took Laboratory employees on a journey through the historical events of World War II through the window of his own unique experiences. Smith, who was drafted in the U.S. Army and served as a cadet of aviation communications, was involved in the building and testing of electrical systems in both atomic bombs, as well as their assembly and installation in the B-29s that carried them.

UC President's Council meets at Laboratory

Lab Director Bob Kuckuck and Lawrence Livermore National Laboratory Director Michael Anastasio talk with Bob Van Ness, left, University of California assistant vice president for laboratory management, before the start of the UC President's Council meeting. The council heard updates on the status of the Laboratory contract, performance reports on Appendix F objectives, stockpile stewardship and budgetary matters.

In Memoriam

Hans Bethe

Manhattan Pioneer and Nobel Laureate Hans Bethe died Sunday in Ithaca, N.Y. at the age of 98.

Born on July 2, 1906 in Strasbourg, Alsace-Lorraine, Germany, Bethe headed the Theoretical (T) Division at Los Alamos from 1943 to 1946. Prior to joining the Manhattan Project, Bethe taught physics at Cornell University. He joined Cornell in 1935 after arriving in the United States as a refugee from Nazi Germany. After World War II, Bethe returned to Cornell and remained until he retired as professor emeritus in 1975.

In 2001, Bethe, along with former Laboratory Director Harold Agnew, was honored with the first Los Alamos National Laboratory Medal. Bethe was lauded for his role as a "scientific visionary and leader, mentor and role model to the Laboratory from its inception." The medal is the highest honor given by the Laboratory to an individual or group.

Phillip Morrison

Manhattan Project pioneer Philip Morrison, a distinguished theoretical astrophysicist, died April 22. He was 89.

Morrison, who was at Los Alamos in the 1940s during the crash project to build the world's first atomic bomb, was a professor emeritus at the Massachusetts Institute of Technology.

Born in Somerville, N.J., in 1915, Morrison was associated with the Manhattan Project, first at the University of Chicago and later at Los Alamos.

Morrison was part of the contingent of Laboratory technical staff members who traveled to Trinity Site in southern New Mexico in July 1945 for the testing of the bomb.

He later traveled to Tinian from which the two bombs dropped against Japan were launched. And he traveled to Hiroshima to view the aftermath of the bombs. Morrison left Los Alamos in September 1946, returning to academic life at Cornell and MIT.