Reflections

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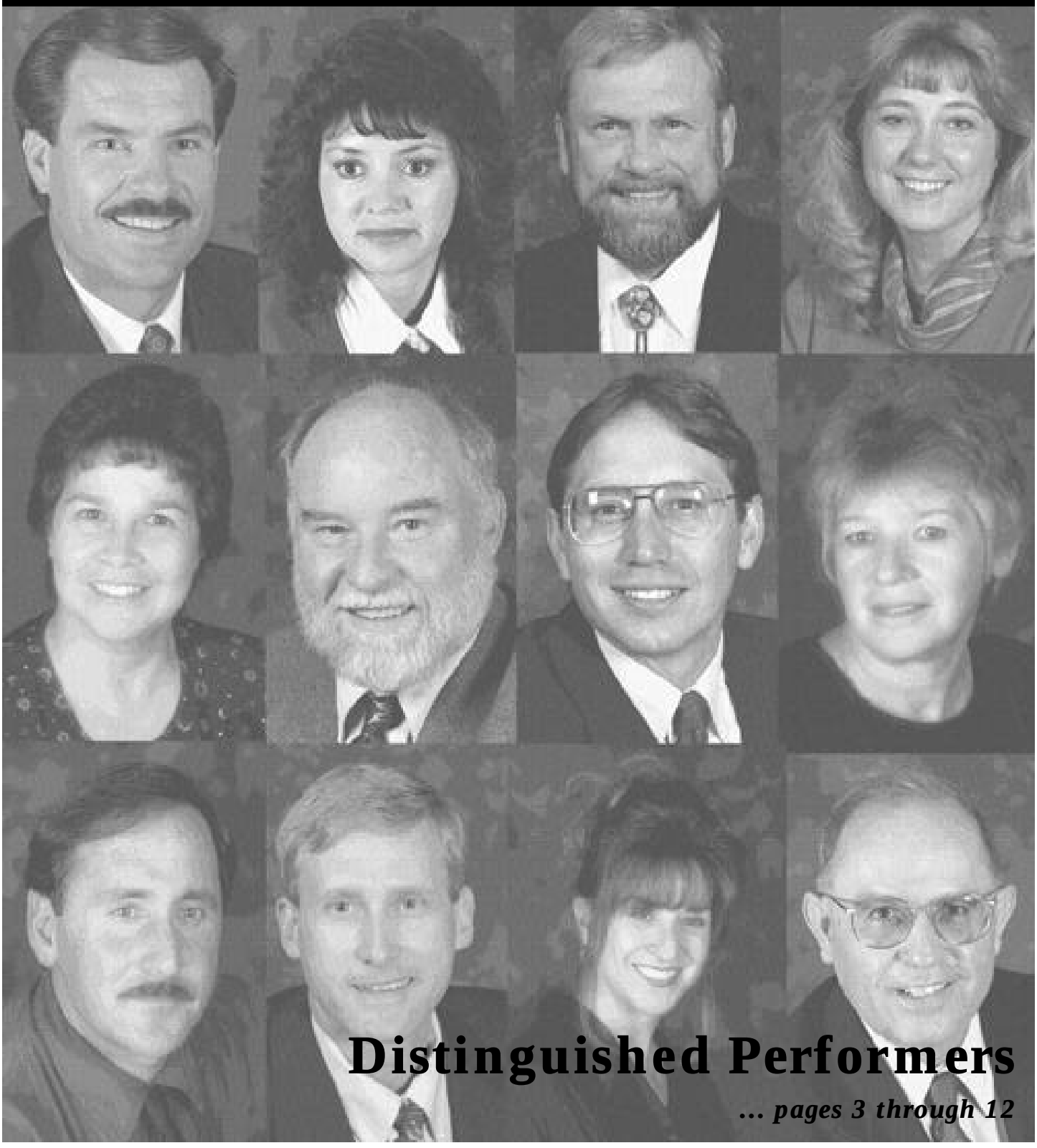

Distinguished Performers

... pages 3 through 12

A Department of Energy/University of California Laboratory

Inside this issue ...

Cover by LeRoy N. Sanchez and Edwin Vigil

Reflections

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editor's journal

"Way to go"

It's that time of year again. The air is cooling down from the summer heat, the leaves are turning a brilliant gold and crimson, the federal government has just started a new fiscal year, football season is in full swing, catalogues hawking Thanksgiving, Christmas and Hanukkah buys are starting to clutter mailboxes, and the Lab is honoring employees whose work has advanced science, contributed to successful projects and improved the workplace.

In this issue of "Reflections," we bring you the 12 individuals, seven small teams and eight large teams who were recognized as distinguished performers this year (see pages 3 through 12) for accomplishments in 1997. The honorees were noted in the Daily Newsbulletin shortly after they were announced in August and ceremonies were scheduled in their honor during September. However, we like to acknowledge their achievements in "Reflections" each year and provide more information about their accomplishments.

This year we have added more pages to the issue to accommodate photos of all the individuals and all the winning teams (in the past we have not run photos of the teams).

We wanted to include the names of all the large team winners, but there are quite a few and doing so would have made the issue even larger — and more pages for this issue would have put a serious dent in our printing budget. The names of small and large team members were listed in the Aug. 7 Daily Newsbulletin, which can be accessed online through the Newsbulletin archives (http://www.lanl.gov/projects/PA/News/newsarchive.html). Team member names that were not initially provided to the Newsbulletin were noted in the Aug. 13 Daily Newsbulletin. If you recognize or know any of the large team winners, offer your congratulations the next time your paths cross. In fact, offer a "way to go" to all the winners you come in contact with.

Their accomplishments are deserving of recognition. These individuals and teams were honored for a wide variety of achievements. Their contributions range from creating an experimental test bed for weapons testing calculations, promoting high-tech entrepreneurs, developing a comprehensive portfolio of educational projects that promote science and math among students and teachers to contributing to heart disease and stroke research.

The distinguished performers are the bulk of this issue, but I hope you take a look at the couple featured in Spotlight on Page 12. They demonstrate that Lab employees are "high-stepping" performers off the job as well as on it.

Correction

In the August "Reflections," Russell T. Pack of Theoretical Chemistry and Molecular Physics (T-12) was inadvertently omitted as coauthor of the two-part series of papers for which Brian Kendrick won this year's Postdoctoral Publication Prize (see "People" section). The Postdoctoral Publication Prize is given every other year, or biennially.

Lab employees recognized for outstanding achievements

During 1997, Laboratory employees created an experimental test bed for weapons testing calculations, designed and installed the world's most powerful pulsed-field magnet, developed ways for Russian nuclear scientists to use their skills, kept offices functioning smoothly during major transitions, promoted high-tech entrepreneurs, demonstrated a way to convert gasoline to electricity, launched an innovative satellite and maintained a strong record in science education.

For these achievements — and many others — 12 individuals and members of seven small teams and eight large teams were honored with Distinguished Performance Awards.

Individual and small-team award winners, who were scheduled to be honored during a Sept. 22 ceremony, were cited for their contributions to Laboratory programmatic efforts or its status in the scientific community. Large-team winners were recognized for performing at levels far above normal job assignments, completing projects with broad impacts and demonstrating innovation and teamwork.

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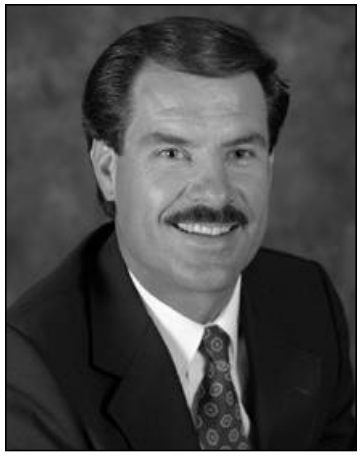
Greg Buntain, DX-2

Richard Castro, MST-6

Brandy Duran, CST-18



Warren Finch, BUS-5

Individual awards

Greg Buntain, DX-2

As project leader for high-explosives (HE) surveillance, Greg Buntain of High Explosives Science and Technology (DX-2) makes vital contributions to stockpile stewardship.

When Buntain took over HE surveillance, it was a low-level effort averaging $300,000 in expenditures. Buntain introduced new diagnostic tools for understanding the attributes determining HE service lifetimes. He also spent considerable time briefing the Department of Energy, the Department of Defense and other entities to raise their awareness of how HE aging affects stockpile safety and reliability.

The JASONs, an academic national defense study group formerly critical of stockpile HE studies, now acknowledges the success of Buntain's efforts. After Buntain's briefings, JASON chair Sid Drell stated in the group's influential "Signatures of Aging" report that "studies of HE related to aging are strong and have shown rapid development in focus."

That vigorous focus can be attributed to Buntain's guidance, as can the project's increased level of support — $3.5 million in direct DOE funding. Buntain has helped make the Lab a premier explosives research institution.

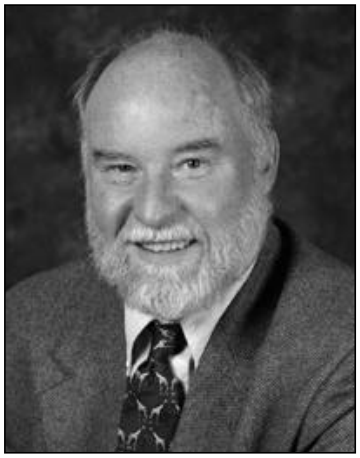
Richard Castro, MST-6

Richard Castro of Materials Technology: Metallurgy (MST-6) solved a key problem blocking fusion energy research.

continued on Page 4

Distinguished performers

Daniel Grove, ESA-WE



Robert Hixson, DX-1

Geraldine "Geri" Lujan, BUS-8

JoAnn Montoya, MST-6

continued from Page 3

Design teams for the International Thermonuclear Experimental Reactor (ITER) — a proposed multinational experiment to demonstrate the feasibility of a fusion tokamak — knew top performance required a beryllium coating on plasma-facing surfaces. However, plasmas erode surfaces, so a reliable in situ repair method was needed. Beryllium deposition by plasma spray was a suggested answer, but groups attempting it had failed.

Castro broke through to success. He and his team developed the Laboratory's Beryllium Atomization and Thermal Spray facility, established it as a DOE user facility, and through Castro's innovative methods, proved they could produce a beryllium coating of near-theoretical density and thermal conductivity. Castro's methods are now officially recommended for ITER, and the project's international director has awarded all ITER plasma spray work to the United States.

Castro has greatly enhanced the reputations of Los Alamos and the nation in the international fusion community.

Brandy Duran, CST-18

Brandy Duran of Chemical and Environmental Research and Development (CST-18) is a significant contributor to the Containment Cleanout program for the Dual-Axis Radiographic Hydrotest (DARHT) facility.

DARHT, which will be operational in 1999, will use large steel vessels for capturing hazardous and radioactive emissions from hydrotest shots. CST-18's Containment Cleanout program provides the chemical processes for recovering uranium and separating hazardous metals from the debris generated by the contained shots.

Duran's data, collected during years of work in uranium oxidation and lead extraction chemistry, form the basis of those recovery processes. She also carried the lion's share of responsibility for the optimization process, pushing efficiencies to greater than 90 percent, and played a lead role in planning and executing pilot tests.

With her insight and cost consciousness, Duran found alternatives that allowed the program to reduce equipment size, simplify process steps, eliminate unnecessary operations and minimize waste byproducts. Her efforts exemplify her dedication and professionalism.

Warren Finch, BUS-5

A junior contract administrator with Procurement (BUS-5), Warren Finch contracts all real estate requirements, obtaining leased spaces for Laboratory groups and programs. He also assists with service contracts.

Finch approaches his job with a remarkable problem-solving skill and a strong customer focus. He carefully matches customers to the right spaces and guides them through a contract system that can be daunting to the uninitiated. Nor is he above handling minor emergencies. Clients speak with admiration about a man who will help them get locks recored and air conditioning installed to assure them of the proper work space. Typical of his extra level of effort were his interactions with Los Alamos Public Schools in which he negotiated an agreement allowing his client to move in before the formal lease signing.

Additionally, Finch is painstaking in his desire to find the best buy. To date, he is personally responsible for $84,000 in cost savings for the Laboratory.

Daniel Grove, ESA-WE

Maintaining the W76 warhead, backbone of U.S. nuclear deterrence, means Los Alamos must replace aging parts, including the gas transfer component. That component's replacement, the W76 Acorn, was planned for 1998 entry into the stockpile; however, verifying its performance on schedule proved a challenge. The tritium-loaded Acorn needed testing in realistic shock and vibration environments, testing assigned to a new, still-unready Savannah River facility. The Laboratory needed an interim testing facility.

As head of the W76 Environmental Testing Team, Daniel Grove of Weapon Engineering (ESA-WE) converted a K-Site facility (ESA-MT) from nonnuclear to temporary nuclear status fully compliant with current regulations — a first-time feat. To do it, Grove assembled and coordinated a multidisciplinary Laboratory team, developed the previously nonexistent administrative framework for approvals, and satisfied more than 1,000 pages of regulations. He finished the work on time, safely and within the restricted budget.

The W76 Acorn was a "must-produce" situation that Grove's creativity and dedication made possible.

continued on Page 5

Distinguished performers

Belinda Padilla, CIT-TC

Cathy Schuch, CST-DO

Gerald Tafoya, BUS-3

John Vigil, STB/LDRD

continued from Page 4

Robert Hixson, DX-1

Robert Hixson of the Detonation Science and Technology group (DX-1) was a prime force in reestablishing sound experimental plutonium science at the Laboratory.

The Lab has a history of leadership in shock wave physics, especially in relation to plutonium science, but because of diminished funding and shifting programmatic priorities, it was losing that position. Within the Laboratory, Hixson brought attention to the reasons for reemphasizing that strength. He also worked hard to communicate the value of such work to the DOE and the DoD, stressing the need for a plutonium experimental program to support future understanding of the stockpile.

The reputation that underlies Hixson's influence is based on solid scientific accomplishment. He helped establish and designed many of the TA-55 launcher experiments and was an important participant in the Nevada Test Site subcritical Rebound and Stagecoach experiments. Coupled with this technical expertise, Hixson's perseverance and vision have helped us renew support and funding for a vital experimental program.

Geraldine "Geri" Lujan, BUS-8

A member of the Laboratory's Business Support Services (BUS-8), Geraldine "Geri" Lujan stepped in to help two Physics (P) Division groups, Neutron Science and Technology (P-23) and Subatomic Physics (P-25), tackle difficult financial issues in the summer of 1996.

Having recently lost their financial support personnel, both groups faced budgetary disorder and large projected overruns. Lujan organized group-specific "Budgeting for Managers" sessions and worked many overtime hours on financial forecasts, cost corrections and action plans. Issues took on a new level of difficulty when part of P-23 split off to reorganize as part of Neutron and Nuclear Science (LANSCE-3). Suddenly Lujan was looking at program budgets that overlapped both groups. But she persisted and brought everyone to a successful FY97 close — a "within budget" finish.

Group members attribute this success to Lujan's extreme dedication and willingness to do more than expected. She replaced confusion with efficient group business policies, "demystified" Laboratory financial processes for her clients and mentored a new financial analysts who could pick up the load.

JoAnn Montoya, MST-6

A materials technician for Materials Technology: Metallurgy (MST-6), JoAnn Montoya supports many Laboratory programs by preparing and analyzing metallographic samples and interpreting the results. But that is only the beginning of her accomplishments.

One of her many outstanding achievements came in 1997 when she developed an improved procedure for preparing niobium and tantalum samples. Her innovations eliminate manual polishing while producing a superior finish. The impact of this development brought an invitation to present her work at the fall 1997 meeting of the American Society of Materials, where Todd Leonhardt of NASA's Lewis Research Center asked her to sit on a special panel of metallography experts.

Leonhardt describes Montoya as "one of the top metallographers in the world." He is not alone in recognizing her expertise. A four-time judge for an annual International Metallographic Society (IMS) competition, she is now the first Hispanic woman elected to the IMS Board of Directors. In that role, she serves on the ASM/IMS education committee.

Belinda Padilla, CIT-TC

The new DOE/UC prime contract calls for Los Alamos to proactively nurture regional spin-off/start-up businesses based on Laboratory technologies. In response, Belinda Padilla of the Lab's Technology Commercialization Office (CIT-TCO) is working to develop innovative mechanisms for stimulating a spirit of entrepreneurism and promoting the formation of new high-tech businesses.

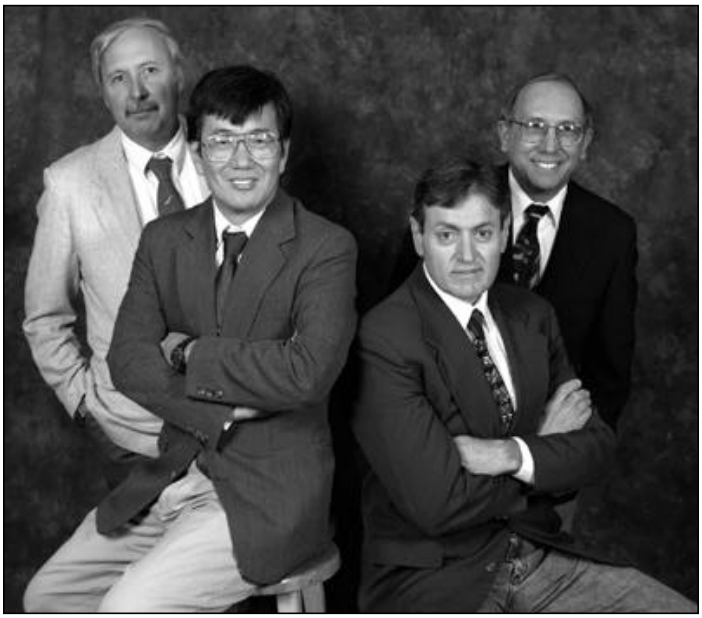
Padilla has been instrumental in designing, implementing and overseeing several elements of the TCO program. She has identified Laboratory technologies with high commercialization potential and produced a series of entrepreneurial training workshops for Laboratory and Northern New Mexico participants. These workshops have won rave reviews ranging from "wonderful" and "excellent" to "the best workshop I've attended."

Padilla also created an innovative summer internship program, which recruits top-notch, mid-program MBA students with technical backgrounds and previous work experience. These students team with Laboratory and regional entrepreneurs to launch high-tech start-up ventures.

continued on Page 6

Distinguished performers

Science Education Program Team



Application of a Dynamic Mix Model Team

continued from Page 5

Cathy Schuch, CST-DO

Cathy Schuch, executive office administrator for the Chemical Science and Technology (CST) Division, has anchored the division office through several restructurings over the past four years. Never settling for "just doing the job," Schuch has kept CST running smoothly and efficiently while guiding, teaching, counseling, and befriending new group leaders, staff and administrative personnel.

Schuch believes in quality for all aspects of CST Division, both technical and administrative, and therefore unselfishly mentors the support personnel around her. To promote administrative excellence, she formed the CST Administrative Advisory Group, a complement to CST technical and operational advisory committees, and constantly encourages higher and higher levels of achievement.

She sets an admirable example of customer focus. In fact, CST personnel see her as the one source for everything they need. Her formidable institutional knowledge means that she can either answer or find the answer to any question. Schuch proves the importance of support positions.

Gerald Tafoya, BUS-3

A Business Planning and Budgeting (BUS-3) employee assigned to the Environment, Safety, and Health (ESH) Division, Gerald Tafoya has been an ESH property administrator for three years but the division's sole PA for the past year. In that position, he supports more than 800 employees and tracks some 4,500 property items with a combined value of $21 million. He is responsible for the division's wall-to-wall property inventory, its compliance with property performance measures and management of its 88-vehicle fleet, the Laboratory's second largest.

Tafoya's high-efficiency process improvements are responsible for his ability to handle PA activities alone. He does so with unprecedented success. He has kept the division 100 percent compliant with property control measures every month since November 1997 and has made ESH the only division with no underutilized vehicles.

For Tafoya, efficiency means service. He has personally solved long-standing procedural difficulties with salvage and always responds rapidly to customer needs.

John Vigil, STB/LDRD

John Vigil regularly carries a full workload in the Laboratory Directed Research and Development (LDRD) office, but in 1997 he added leadership of an effort to defend the LDRD program against possible cuts.

Heading a study group from DOE headquarters, the DOE Albuquerque and Oakland offices and the three Defense Programs laboratories, Vigil produced Laboratory Research and Development: Innovation and Creativity Supporting National Security, a crucial report detailing LDRD activities and documenting their benefits for national security. It provides factual support for continued LDRD funding.

Because LDRD allows DOE laboratories a percentage of their funding for innovative research, Congress scrutinizes the program closely, often with an eye to curtailing or even eliminating it. Vigil was coordinating six strong-willed players with a lot to lose, but his persistence guided the report from bare bones concept to publication in just six months, in time for the summer 1997 congressional committee deliberations.

Small team awards

Science Education Program Team

The Science Education Program Team from Science and Technology Base Programs (STB) has made Los Alamos the model for science education within DOE. Five years ago, the Laboratory's Science Education Program had the lowest

continued on Page 7

ESA-EPE Fuel Cell Engineering Team

Laser Plasma Light Source Team

continued from Page 6

funding among the DOE laboratories. Under this team's leadership, however, that situation has reversed. The program is now the highest funded and has maintained that position for three years.

This team has created a broad, comprehensive portfolio of 24 projects, all designed to get students and teachers excited about science and math at every grade level. Participation is proof of the team's success. Last year, 2,385 students, teachers, administrators and parents took part in the various projects. In addition, the team's record for establishing a broad participant diversity is outstanding.

Team members' commitment to promoting science and math literacy is exemplary, and the quality of the program is a testament to their dedication, perseverance and creativity.

The team includes Dennis Gill of the STB Program Office (STB-EPO), Dolores Jacobs of Science Education (STB-SE) and Abad Sandoval of University Programs (STB-UP).

Application of a Dynamic Mix Model Team

This team has augmented our knowledge of primary performance in a nuclear weapon, thereby moving us closer to the goals of scientific stockpile stewardship.

Weapons designers have long wanted a widely applicable method for predictively modeling how materials will mix in a weapon's primary. Some methods have proved successful in individual cases but incapable of accurately describing a series of experiments. A team of Nuclear and Hydrodynamic Applications (X-NH) designers and Hydrodynamic Methods (X-HM) code developers has now developed a new hydrodynamics-based model, incorporated it in a simulation code, and validated its utility against data from the Nevada Test Site, successfully modeling 19 NTS experiments of five different weapons systems. This is the first method capable of successfully describing such a wide range of experiments. It has won the interest of designers at Los Alamos and Lawrence Livermore national laboratories, and the United Kingdom's Atomic Weapons Establishment and is expected to play an important role in future stockpile certification.

Team members are Teh-Chin Cheng and Anthony Scannapieco of X-HM, and Thomas Gorman and Donald Wade of X-NH.

ESA-EPE Fuel Cell Engineering Team

In a landmark achievement, the Fuel Cell Engineering Team from Energy and Process Engineering (ESA-EPE) made significant contributions to the first-ever demonstration of the conversion of gasoline to electricity. This technological feat shows great promise for powering cleaner-burning, more efficient vehicles.

In the conversion method demonstrated, gasoline was reformed to produce a hydrogen-rich gas stream that was fed to a proton-exchange-membrane fuel cell stack to generate electricity. Team members developed a critical component for that demonstration, a carbon monoxide (CO) clean-up system. This system reduced the feed-stream's CO concentration to levels low enough to allow fuel cell operation. Without it, a successful experiment would not have been possible.

The demonstration has garnered important recognition. Both the president and the secretary of energy proclaimed it an important technological step toward a new generation of vehicles. Newsweek magazine, in a story on important scientific breakthroughs for the twentieth century, hailed it as one of the two key advances worldwide during 1997.

Members of the team are Michael Inbody, Nicholas Vanderborgh, Kenneth Stroh and Jose Tafoya of ESA-EPE.

Laser Plasma Light Source Team

Plutonium and its alloys and compounds are among the most complex and least understood materials. This team's creation of a laser plasma light source should allow our knowledge and understanding of plutonium, its compounds and other transuranics to advance more in the next two or three years than it has in the past two to three decades.

continued on Page 8

Laser Thrombolysis CRADA Team

Saber Development Team

continued from Page 7

Synchrotron-based photoemission spectroscopy is the traditional technique for measuring the electronic structures of materials. However, safety concerns severely limit the use of a synchrotron light source with plutonium. To circumvent that problem, the team provided a safe alternative with its LPLS, resulting in a new approach to photoemission spectroscopy. The team members' bold creativity allowed them to make the first resonant photoemission measurements of the electronic properties of plutonium. This remarkable achievement not only opens entirely new avenues for exploring the physics and chemistry of plutonium and other transuranics, but it also substantially advances research aimed at developing a first-principles, predictive equation-of-state for plutonium.

Team members are Aloysius Arko, Kevin Graham and John Joyce of Condensed Matter and Thermal Physics (MST-10).

Laser Thrombolysis CRADA Team

The Laser Thrombolysis Team is a major participant in the attack on heart disease and stroke, both primarily caused by blood clots.

Under a cooperative research and development agreement, Los Alamos is applying modeling and simulation expertise from the nuclear weapons program to helping perfect a cost-effective, laser-catheter clinical procedure called laser thrombolysis. This method is used for removing blood clots in arteries and vein grafts without residual damage to the blood vessel wall. Through their modeling efforts, team members made exceptional contributions to the scientific understanding of the physical phenomena underlying laser-induced clot removal. Furthermore, they extended the results of their numerical models for laser thrombolysis to studies of instabilities in the radial collapse of spherical cavities, so their work also has produced greater understanding of weapons physics, inertial confinement fusion and sonoluminescence.

SQUID Microscope Team

Team members are Edward Chapyak and Robert Godwin of Nuclear and Hydrodynamic Applications (X-NH), Robert Hermes and Keti Trajkovska of Polymers and Coatings (MST-7); Dennis Paisley of Detonation Science and Technology (DX-1) and Richard Scammon of Engineering Analysis (ESA-EA).

Saber Development Team

Shaped charges, which are formed by using high explosives configured around metal to produce a jet, can fulfill a variety of functions. For one particular class of applications, a new shaped-charge design was needed. The Saber Development team — personnel from Weapon Materials and Manufacturing (ESA-WMM), Weapon Engineering (ESA-WE), and Nuclear and Hydrodynamic Applications (X-NH) —

continued on Page 9

continued from Page 8

accepted the challenge of developing this new design.

For its work, the team decided on an entirely new approach. The usual procedure is to define a desired configuration and then test its effectiveness. Instead, the Saber team focused first on the desired effect, then explored end games to discover what theoretically would achieve that effect. They worked backward to the most effective configuration.

The team's method produced a product that, when manufactured and experimentally tested, proved itself remarkably successful.

Members of this innovative team are Raul Brunner (ESA-WMM); LeRoy Wampler (ESA-WE); and John Budzinski, Jeremiah Kerrisk, John Meier and Warren Sparks (X-NH).

ARIES Pit Disassembly and Conversion Team

SQUID Microscope Team

A Biosciences (P-21) team is adapting SQUID (superconducting quantum interference device) sensors for the Enhanced Surveillance program so they can be used in the surveillance of nuclear weapons.

SQUID sensors are used to measure the small magnetic fields associated with brain activity, but this team recognized their potential for imaging the magnetic field anomalies associated with material defects. The sensors can detect anomalies even in subsurface layers, which is particularly important for the nondestructive evaluation of nuclear weapons materials and components.

This team has designed and fabricated a SQUID microscope based on sensors cooled by liquid nitrogen and is now refining the design for improved sensitivity and resolution. Team members have interviewed potential users at Oak Ridge's Y-12 plant to ensure compliance with their "real-world" needs and have responded graciously to numerous requests for presentations to officials from the Nuclear Weapons Technology Program Office and DOE, distinguished visitors and the press.

Members of this team are Leroy (Lee) Atencio, Michelle Espy, Robert Kraus Jr., Andrei Matlachov and Patrick Ruminer, all of P-21.

Large team awards

60 Tesla Magnet Development and Commissioning Team

The 60 Tesla Magnet Development and Commissioning Team has designed, installed, and commissioned a quasi-continuous magnet of record capability in the National High Magnetic Field Laboratory here at the Laboratory. At 60 tesla, in combination with field duration and volume, this is the most powerful magnet in the world. The National Science Foundation has acknowledged it as a tool that will allow "new discoveries to be made at the frontiers of materials research."

60 Tesla Magnet Development and Commissioning Team

Team members pushed themselves to extraordinary design and engineering achievements while addressing the difficult issues of power supply, power conversion and control, and magnet design and construction. The magnet they created is innovative in employing nine free-standing, mechanically independent, nested coils. Its unique liquid nitrogen cooling system allows an unprecedented productivity of one pulse per hour.

Although the concept of the quasi-continuous magnet was proved about 25 years ago, only two other institutions have tried to develop such a magnet. Both

continued on Page 10

Distinguished performers

FORTE Team

continued from Page 9

abandoned their efforts because of power and design problems. Only the Los Alamos team had the creativity and skills to succeed.

ARIES Pit Disassembly and Conversion Team

The United States has committed to downsizing its nuclear stockpile and making excess plutonium available for international inspection and ultimate disposition.

The ARIES Pit Disassembly and Conversion Team has completed a pilot system that proves the feasibility of that commitment.

ARIES — the Advanced Recovery and Integrated Extraction System — converts plutonium pits (the core of a nuclear weapon) to unclassified metal ingots or oxide powder, then seals that material in double-walled containers for long-term storage until final disposition. Nondestructive assay allows the contents of the unopened containers to be verified for treaty compliance.

This team began work on design and integration of the TA-55 demonstration line in 1996. Through aggressive scheduling, it completed the installation in June 1998. The resultant system will generate data to be used for construction of a full-scale pit disassembly line at another site. It meets the rigorous operating requirements for a nuclear facility, holds transuranic waste to an absolute minimum and supports all possibilities for final disposition of the converted plutonium.

This team's work represents, in the finest sense, the Laboratory's response to its core mission: reducing the global nuclear danger.

English Concept Team

In the post-underground testing era, aboveground testing (AGEX) and numerical simulations must guarantee the reliability of the nuclear stockpile. The Laboratory must be able to address weapons physics issues and resolve defects and aging effects as they arise in the stockpile. Toward this goal, the English Concept Team has created an experimental test bed for radiation hydrodynamic calculations that is producing weapons-relevant results at existing pulsed-power and laser facilities.

This team, led by Bernhard "Bernie" Wilde and Robert Chrien, represents a strongly creative collaboration among theorist, experimentalist, and fabricators. Working at the Nova laser at Lawrence Livermore National Laboratory and the Z pulsed-power machine at Sandia National Laboratory, the team members developed unique experimental capabilities suitable for investigating weapons physics issues.

The experimental results are being used to test and guide new code development in the Accelerated Strategic Computing Initiative (ASCI) program. The success of this concept adds a major new thrust to the use of AGEX facilities in the Science-Based Stockpile Stewardship program. It also sets a standard for other laboratories in the high-density-physics community.

FORTE Team

FORTE (fast on-orbit recording of transient events) has successfully addressed a treaty monitoring problem of 30-years duration. This experimental satellite proved the workability of a sensor that can discriminate electromagnetic pulses generated by nuclear explosions from those

continued on Page 11

English Concept Team

continued from Page 10

produced by other sources, both natural and manmade.

The FORTE Team began work five years ago with Sandia National Laboratory, the U.S. Air Force and more than a dozen commercial contractors. Team members designed and built high-sensitivity radio frequency receivers that give FORTE a bandwidth capacity 50 times greater than previous satellite-borne EMP receivers, developed new discrimination algorithms, and carefully coordinated ground and satellite software. Their reduction of the satellite's overall weight with an all-composite frame (the first one in space) was lauded by Discovery magazine as one of most innovative advancements in aerospace technology.

FORTE was launched aboard a Pegasus XL rocket in the summer of 1997. Its resultant data demonstrate the feasibility of an autonomous EMP detection system. The FORTE team has solved a critical national security need.

Medical Radioisotope Production and Distribution Program: Strontium-82 IPP Project Team

Medical Radioisotope Production and Distribution Program: Strontium-82 IPP Project Team

The Department of Energy's Initiatives for Proliferation Prevention (IPP) project works to develop commercial outlets for Russian nuclear scientists, thus discouraging them from selling their weapons skills. In late 1996, the Laboratory's Medical Radioisotope Research program developed IPP proposals to import irradiated targets from Russia to supplement the three strontium-82 suppliers (including Los Alamos) for North American medical markets. Strontium-82 is the source of rubidium-82, a radionuclide used in analyzing certain types of coronary disease.

The team supporting this effort — Nuclear and Radiochemistry (CST-11) personnel and Business Operations Division customs experts — faced a sudden crisis when the three strontium-82 suppliers announced in the spring of 1997 that upgrade and maintenance activities would stop their production during the first half of 1998. The Russian supply line had become essential.

Team members displayed superior ingenuity and dedication under tremendous pressure. They established a new processing capability at TA-48 and arranged the logistics for transporting the radioactive Russian targets safely and legally, meeting all regulatory requirements. As a result, the first strontium-82 from Russian sources was shipped to market from Los Alamos on Jan. 8, 1998.

Pit Manufacturing Integrated Plan Team

Pit Manufacturing Integrated Plan Team

Los Alamos was tasked in late 1996, through a DOE Record of Decision covering the Stockpile Stewardship and Management Program, with a limited pit manufacturing mission.

The implementation of this vital mission involves a multitude of ongoing efforts, including designing new manufacturing processes, ensuring reliable certification without nuclear testing, producing an early development unit to demonstrate all manufacturing processes and producing the first stockpile-ready pits by 2001.

The technical challenges were equaled by the organizational ones. The job of the Pit Manufacturing Integrated Plan Team was to lay out a path for managing the work and meeting all the goals. Team members

continued on Page 12

Distinguished performers

Rotary Contour Gauge Inspection Recovery Team

continued from Page 11

successfully produced a master plan encompassing plutonium casting, pit assembly, facility maintenance and upgrades, and product testing and certification. The plan merges schedules for vastly diverse activities into a logical whole, accurately conveying linkages and interdependencies across seven Laboratory divisions.

The team members brought distinction to the Laboratory through their long hours of dedicated work and their extraordinary level of teamwork. Their efforts led to completion of an early development pit that is the first pit made in the United States since 1989.

Rotary Contour Gauge Inspection Recovery Team

The hemispherical shells for the Laboratory's experimental weapons applications require careful inspection with rotary contour gauges to ensure their dimensional accuracy. Because of outdated equipment, however, the Laboratory's inspection capability disappeared just as a more aggressive experiment schedule was needed to support stockpile stewardship.

Formed in December 1996, the Rotary Contour Gauge Inspection Recovery Team set out to establish two new and independent systems. It completed the Los Alamos Ring Rotacon, the world's most advanced rotary contour gauge, and refurbished a set of Sheffield gauges salvaged from Rocky Flats. Sheffield refurbishment proved to be a special challenge because past modifications had never been documented. In spite of the difficulties, the team had reestablished the Laboratory's inspection capability by mid-September 1997.

With that done, the team refused to allow its newly acquired expertise to be dispersed. It created quality assurance, calibration and process qualification procedures for shell inspection and gave the Laboratory its first formal team of precision inspection engineers and technicians.

The Rotary Contour Gauge Inspection Recovery Team solved a crisis for a flagship Laboratory program.

Target Fabrication and Development Team

The Target Fabrication and Development Team enhanced its worldwide reputation by fulfilling three challenging assignments to create targets for laser and weapons physics experiments in the Inertial Confinement Fusion program .

For the University of Rochester's direct-drive cylinder campaign on its Omega laser, it produced 22 of four different targets, all difficult to assemble — they are miniature and quite fragile — and with stringent design requirements to avoid damaging the laser optics. The team met all requirements, enabling researchers to reach the goals of a full week of experiments.

For Lawrence Livermore National Laboratory's Nova laser, team members created equally successful indirect-drive, double-shell targets on the same miniature scale. These shells are used for ignition concept experiments in support of the future National Ignition Facility. In its third assignment, the team completed a demonstration beryllium shell as a NIF target, delivering it 18 months ahead of DOE's schedule. This shell's flawlessness places Los Alamos in the lead for NIF beryllium target fabrication.

This team's accomplishments bring the Lab prestige and world recognition in weapons physics and laser ignition research.

Target Fabrication and Development Team

Lab chemist named Fellow of international women's program

Carol Burns

Laboratory chemist **Carol Burns** of Chemical and Environmental Research and Development (CST-18) is the latest Lab employee to become a Fellow of the International Women's Forum's Leadership Foundation Fellows Program.

The program, begun in 1994, helps outstanding women in business, government, science, academia and other professions advance in their fields with the help of prominent women business leaders who serve as mentors.

Burns said she did not yet know who her mentor will be, but past mentors for the program have included CNN senior correspondent and anchor Judy Woodruff; Motorola (Canada) Chair, President and Chief Executive Officer Micheline Bouchard; Lockheed Martin Corp. Vice President Susan Pearce; and Colgate-Palmolive Executive Vice President and Chief of Operations Lois Juliber.

The IWF selects only 12 women nationwide each year. Burns was nominated through the local New Mexico chapter by Director John Browne and Warren "Pete" Miller, acting deputy director for Science, Technology and Programs.

"The local chapter of the International Women's Forum contacted them earlier this year, asking if they knew of any woman at the Laboratory whom they felt might be deserving

continued on Page 14

Tape recognized for outstanding contributions

Jim Tape

Jim Tape of Nonproliferation and Arms Control (NIS-NAC) has received the Institute for Nuclear Materials Management's Meritorious Service Award. The INMM is an international professional organization dedicated to helping ensure that nuclear materials are properly protected, managed, handled, stored and used for purposes approved by treaty or law.

The Meritorious Service Award is given to those members who have demonstrated outstanding contribution or service to nuclear materials management and the institute. Tape, who currently serves on the board as INMM immediate past president and is a 22-year INMM member, received the award during the organization's annual meeting in Naples, Fla.

Tape also has held the position of vice president and has served on several committees within the organization, including the Education, Executive and Long-range Planning committees.

Indeed, INMM specifically recognized Tape for his past and current contributions to the organization. "I had no idea that I was even nominated for an award," said Tape. "I was shocked when my name was called at the meeting."

He added, "I believe there are great opportunities for the organization to continue to play a role as the primary professional society devoted to the responsible management of nuclear materials. As a politically neutral, international nongovernmental organization, it can go places and provide a forum for technical exchanges that are sometimes not possible in more official channels."

Tape currently is program manager for NIS-NAC, a position he has held since 1993. He first came to the Laboratory in 1975 working the Nuclear Materials Assay Group. He later became deputy group leader for the Safeguards Assay Group. In 1982, Tape became project manager for Program Development, Nuclear Regulatory Commission Safeguards Programs and International Safeguards Programs in the Energy Division Safeguards Program Office. Prior to his current assignment, he was deputy division leader for the Nuclear Technology and Engineering Division.

Tape also currently is a senior technical adviser to the U.S. delegation for the United States/Russian Federation/ International Atomic Energy Agency Trilateral Initiative for the Verification of Excess Weapons-Origin Fissile Material.

Tape has a bachelor's degree in physics from the Johns Hopkins University and a doctorate in nuclear physics from Rutgers University.

In Memoriam

Fred Reines

Former Laboratory scientist Frederick Reines, who discovered the neutrino while a staff member at Los Alamos in the 1950s, died Aug. 27 in the University of California, Irvine's Medical Center in Orange, Calif. He was 80.

Reines received the Nobel Prize in physics in 1995, and his neutrino detector is in the lobby of Administration Building at Technical Area 3. Neutrinos are elementary particles that individually have the smallest mass, yet collectively may account for much of the mass of the universe.

Born March 16, 1918, in Patterson, N.J., Reines joined the Laboratory in 1944 after earning his doctorate degree in physics from New York University. He remained on the staff through 1959. During his tenure at Los Alamos, Reines worked in the Lab's Theoretical (T) Division. He was a senior fellow emeritus at the Laboratory and professor emeritus of physics at UC, Irvine, at the time of his death.

It was during his time in T Division that Reines, along with colleague Clyde Cowan and others, built the sophisticated "Herr Auge" detector, which had 300 liters of liquid scintillator, with 92 photomultiplier tubes surrounded by hundreds of tons of lead shielding.

Reines is credited with starting the scientific field now known as particle astrophysics.

Reines also was an accomplished vocalist who loved light opera and performed in several early performances of the Los Alamos Light Opera.

More information about Reines also is available at http://www.nobel.se/laureates/physics-1995-2-autobio.html online.

Reines is survived by his wife, Sylvia; son, Robert, of Ojo Sarco; daughter, Alisa K. Cowden, of Trumansburg, N.Y.; and six grandchildren.

Gifts in Reines' memory can be made payable to UC, Irvine at UCI Foundation: Frederick Reines Memorial Fund, UC Irvine, School of Physical Sciences, Dean's Office, Irvine, Calif. 92697-4675.

continued on Page 14

September employee service anniversaries

45 years
Francis Harlow, T-3

40 years
Albert Charmatz, NIS-9
Fabiola Romero, BUS-1

35 years
Charles Lehman Jr., NMT-7

30 years
Richard Browning, ESA-EA
Mary Garcia, TSA-4
Ronald Krantz, CIC-15
Mary Montoya, ESH-12
Sandra Padilla, BUS-5

25 years
Kenneth Apt, NIS-7
Linda Davis, FE-6
Michael Elder, ESA-EPE
Horace Gasca, ESA-FM-ESH
John Jarmer, LANSCE-7
Robert Malone, CIC-ACL
Joe Martinez, EES-15
Vivian Martinez, BUS-2
Ruben Mazanares, MST-7
Albert Migliori, MST-10
David Montoya, ESA-WMM
Jay Norman, NWT-PO
Patrick Rodriguez, P-22
Charles Snell, X-TM
Thomas Taylor, MST-6

20 years
Deborah Bennett, TSA-10
David Chen, LS-6
Ritsuko Davis, NIS-RD
Manfred Gehrmann, LANSCE-2
Rayenell Goldman, HR-POLICY
Paul Lewis, LANSCE-DO
Jerry Lugo, NMT-6
Richard Martin, T-12
James McAtee III, ESH-DO
John Meier, X-NH
Pamela Paine, CIC-1
Jen-Chieh Peng, P-25
Joyce Roberts, LANSCE-12
Luis Roybal, CIC-4
Leonard Salazar, BUS-3
W. Robert Scarlett, NIS-6
Katherine Valdez, CIC-1
Jackie Vigil, CST-7
Michael Webb, NIT-9
Thomas Wehner, TSA-3
Douglas Weiss, CIC-12

15 years
Peter Adams, X-TA
Daniel Barnes, X-PA
Cathy Blossom, ESH-1
Fredric Bolton, ESH-10
Michael Boor, CIC-15
Donald Chavez, MST-6
Marc Clay, ESH-7
D. Wayne Cooke, MST-8
Joseph Cortez, NMT-5
J. Wiley Davidson, TSA-3
Trudi Foreman, CST-18
Timothy George, NMT-9
Steven Greene, P-DO
Leigh House, EES-4
Roger Johnston, CST-1
Richard Light, CIC-7
Catherine Majerus, HR-5
Carolyn Martinez, BUS-5
Linda Meincke, LS-3
Laurel Mortensen, CIC-13
Carter Munson, P-24
Russell Powers, EM-SWO
Paul Rivera, BUS-4
Frances Romero, BUS-5
Katherine Salgado, T-CNLS
Francis Sena, DX-4
Jerilyn Thornton, FE-1
Turner Trapp, NMSM-NCR

10 years
Audrey Archuleta, LANSCE-DO
Johnny Collins, X-CI
Bruce Cotrell, LC-BPL
Pamela Criscuolo, HR-5
Thomas Farish, TSA-3
Lavere Hiteman Jr., ESA-WE
Kyran Kemper, CIC-DO
S.H. Kinzer-Ellington, ESH-OIO
Nancy Lehnert, LS-5
Ricky Lopez, ESH-5
Linda Lowe, NMSM-NCR
Cynthia Martin, NMT-3
Paul Mombourquette, MST-6
Carl Necker Jr., MST-6
Donald Olivas, CIC-7
Lloyd Schempp, ESA-WMM
Josef Schillig, MST-NHMFL
Louis Schulte, NMT-6
Jeane Strub, CIC-14
Robert Thornton, DX-5
Thomas Zawodzinski, MST-11

5 years
James Coons, ESA-WMM
Daryl Grunau, CIC-ACL
George Havrilla, NMT-1
Joan March, ESH-13
Paula Martinez, CIC-13
Rodolfo Martinez, CST-4
M.R. Mascheroni, CIC-1
Deesh Narang, CIC-10
Todd Pozzi, ESH-12
Alex Puglisi, ESH-19
Barbara Sinkule, CST-7
John Tapia, BUS-8
Kevin Walter, MST-8
David Wayne, NMT-1

Continued from Page 13

Edgar Rynd

Laboratory retiree Edgar Rynd died Aug. 18 in Albuquerque. He was 81. Rynd was born in Meadsville, Pa., and attended Case Western Reserve University in Cleveland. Rynd was a military veteran who served in the U.S. Army from 1944 through 1946 before joining the Laboratory's Special Engineering Detachment a year later as a field engineer. He retired in 1982 from the former Weapons Engineering (WX-1) group and for a short while was a consultant to the Lab.

Paul Joseph Moore

Laboratory employee Paul Joseph Moore died Aug. 13 after an extended illness. He was 57. Moore served as an electrical-mechanical technician in Weapons Materials and Manufacturing (ESA-WMM). He modified, maintained, installed and upgraded components and systems for the explosives processing operations necessary for the continual support of the weapons program. Moore was hired by the Lab in 1980 after serving in the United States Air Force for 20 years. He first worked as a technician in High Explosive Implosion Systems Development (WX-3) and in Engineering and Information Resources (ESA-12). Moore received an associate's in applied science degree in engineering from the Community College of the Air Force.

LeRoy D. Sanchez

Laboratory employee LeRoy Sanchez died Aug. 7 while on medical leave. He was 53. A native of Los Alamos, Sanchez graduated from Los Alamos High School and received a bachelor's degree in civil engineering from New Mexico State University. Sanchez worked in Utilities and Infrastructure (FE-8, formerly FSS-8) where he served as the Lab's traffic engineer. He was in charge of maintaining Lab roads, bridges, sidewalks and signs. He ensured that transportation routes were safe and structurally sound. Sanchez came to the Lab in 1989 as a civil engineer in the former Maintenance and Operations (ENG-6) where he became section leader.

Lab chemist named Fellow ...

continued from Page 13
of consideration. The first opportunity they had to let me know they had suggested me was in the St. Louis airport," Burns recalled.

The program spans 32 days spread throughout the year and includes attending two IWF global conferences, studying for a week at the John F. Kennedy School of Government at Harvard University and spending 10 days with their assigned mentors. Because of the program format, Burns does not need to take a leave of absence from the Lab.

Burns, an 11-year Laboratory employee, also will receive ongoing leadership development training in areas such as corporate diversity issues; working with the media; corporate governance; and telecommunications and technology for the new millennium.

"I am looking forward to meeting women in leadership positions outside of the government sector and establishing a good, solid network with them. I want to get a flavor of women leadership roles in a different environment," said Burns.

The former New Mexico Presidential Scholar received her bachelor's degree in chemistry from Rice University and her doctorate in inorganic chemistry from the University of California, Berkeley. Burns also is a former J. Robert Oppenheimer Fellow.

This month in history

October

1492 — Christopher Columbus and crew sight land in the present-day Bahamas

1871 — The Great Fire destroys Chicago

1944 — Gen. Douglas MacArthur "returns" to the Philippine Islands

1947 — Chuck Yeager pilots the world's first supersonic airplane flight, reaching Mach 1.105

1956 — The International Atomic Energy Agency is established

1963 — The Limited Test Ban Treaty prohibiting atmospheric testing is signed by the United States, Soviet Union and United Kingdom

1972 — The first Albuquerque International Hot-Air Balloon Fiesta is held

1982 — The Laboratory's Tritium Systems Test Assembly is dedicated

1986 — The Weapons Neutron Research Facility is designed as a national facility for neutron scattering

1992 — The world's first portable free-electron laser produces its first beam at the Laboratory

1993 — Congress votes to terminate the Superconducting Super Collider then under construction in Texas

1995 — A ceremony is held at Fenton Hill to inaugurate the Milagro gamma ray observatory

1997 — John Browne is selected as the Lab's sixth director

Syndicated material

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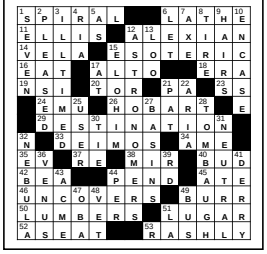
September solution



spotlight

Hooked on country-western dance

by Courtney Armbruster

For many people the thought of country-western dancing evokes images of hayseeds and fiddles, but the fast-paced world of competition dance is undoubtedly modern.

"What keeps me coming back [to country-western dancing] is the desire to be able to be more intimately linked to music through movement," says dancer Tom Cook of Foreign Weapon Technologies (NIS-9). He and his wife, Linda, have been dancing in the competitive circuit for a number of years. A group class in San Diego, Calif., piqued their interest, and they were soon selected to join a competitive team. With the extra coaching they received, their interest in the technical aspects of dance increased.

Tom Cook of Foreign Weapons Technologies (NIS-9) and wife, Linda.

The couple is a member of the United Country Western Dance Council and competes only in council tournaments. So far, they have been in 10 nationally sanctioned events and have placed in nine of them. At the Colorado Country Classic, June 25 through 28, they placed fifth in both the cha-cha and the west coast swing. Dancing in the pro-am division with his coach in the Halloween in Harrisburg Country Dance Festival (Penn.) Oct. 30 through Nov. 3, Cook placed first in the male novice champion category. In a pro-am competition, amateurs dance with a professional and are judged on the quality and accuracy of their moves.

Competitions also feature "Jack and Jill" dances, in which each individual draws his or her partner out of a hat before beginning. Dancing with an unfamiliar partner allows the judges to notice how well each person knows the fundamentals of the moves. Partners are usually graded separately and have the chance to move on to the next level in the tournament.

The Cooks currently compete at the intermediate level, but they hope to move to advanced in the future. They train with a personal coach in Fort Collins, Colo., once a month and also travel to Albuquerque to meet with another personal coach once a month. Cook said he and his wife practice one to two hours a night.

Cook said his favorite dance is the west coast swing, a style that is heavily competed in both country-western and ballroom dancing. He pointed out that the disciplines of ballroom and country-western are slowly converging. Many of the dances overlap, and ballroom participants are increasingly drawn towards the more laid-back and informal country-western style.

Although looser in form than ballroom, country-western dance is very fast-paced. For competition two-step, the minimum beats per minute allowed for music is 186, and music of 194 to 198 bpm is often chosen. "It's good exercise because it is so rapid-moving," Cook explained. Some styles resemble ice skating as the couple dances across the length of the floor in quick, fluid motions.

The Cooks most recently danced at the 10th Annual New Mexico Dance Fiesta in Albuquerque Sept. 25 through 27. They are looking forward to the Paradise Country Dance Festival in San Diego, Calif. Oct. 23 through 25. San Antonio, Tex., will be the host for the World Championship of Country Western Dance Worlds VII Dec. 30 through Jan. 3, and the Cooks hope to fare well against national and international couples.

"One of the fun things about dancing is meeting people from all over the world and establishing friendships," Cook said.

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