

Sandia and Lockheed Martin honored with Presbyterian Healthcare Foundation's Award of Excellence

Prestigious community award recognizes Labs' achievements for 'the benefit of mankind'

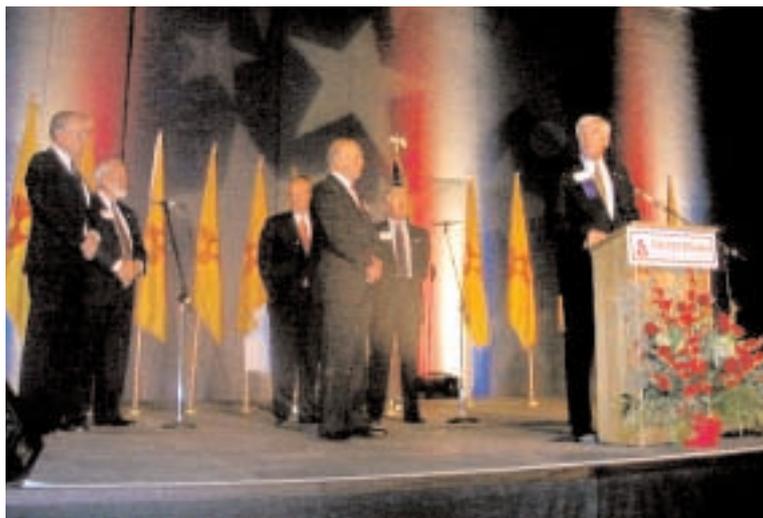
By Bill Murphy

It began, as befits an occasion with connections to the Presbyterian Healthcare Foundation, with a prayer: "You who are the Crafter of the Cosmos, Weaver of the helix, Igniter of stars, we whom you shaped from star dust seek your presence."

So prayed the Rev. Bill Dorman in an invocation at the beginning of a special evening on May 18 in which the Presbyterian Healthcare Foundation presented Sandia/Lockheed Martin with its prestigious Award of Excellence.

Dorman, Director of Pastoral Services for Presbyterian Hospital, continued, "This night we acknowledge those who have committed their individual and collective gifts of intellect and creativity to benefit and serve society at large, and to protect our nation and the international community from the ravages of war and terrorism. . . . Bless us this night with the nourishment of food and friendship, even as we pray that all people may likewise be blessed to sit at tables safely, securely, and thankfully."

At the gala Albuquerque Convention Center event, a who's who of several hundred community leaders turned out to help the Foundation honor Sandia with the award, which has been presented 25 times since 1969. The audience included more than 100 Sandians as special invited guests of the Foundation. Among featured speakers were



LABS PRESIDENT C. Paul Robinson (at lectern), NNSA Administrator Gen. John Gordon (at far left) and Lockheed Martin official John Freeh (center foreground) join Presbyterian Healthcare Foundation officials during the presentation of the Foundation's Award of Excellence.

National Nuclear Security Administration Administrator Gen. John Gordon, US Sen. Pete Domenici, and NBC News special foreign correspondent Dr. Bob Arnot.

The Award for Excellence was developed as a way for the Foundation to acknowledge an individual or organization that has made significant con-

tributions to the community, the state, and the nation for the benefit of mankind. Previous recipients have included distinguished New Mexico leaders such as Clinton P. Anderson, Wilson Hurley, and Pete Domenici.

In welcoming remarks, Presbyterian Healthcare Services President and CEO Jim Hinton said, "Tonight as individuals and as a community, we have the opportunity to personally say thank you to the men and women of Sandia National Laboratories. For you are heroes to New Mexico, heroes to America and heroes to all in this world who crave peace.

"Sandia is simply one of the most influential organizations in the world. You are dedicated to helping our nation secure peace and freedom through technology. You exemplify 'excellence' of scientific achievement in defense systems, energy security and environmental integrity and many other areas."

The 'Sandia grunt' gets a laugh

Hinton drew some chuckles of recognition when he talked about the "Sandia grunt." As a child, he recalled, he would sometimes ask his uncle, a Sandia researcher, what he did at work. The response, Hinton said, was usually a grunt, a mum-

(Continued on page 4)

US, Mexico sign pact to nurture border-area development lab

Sandia and The United States-Mexico Foundation for Science have formalized a framework for joint development of the Bi-National Sustainability Laboratory concept. See Howard Kercheval's story on **page 4** for details.

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Just in time for copter's revival, manufacturer seeks Labs' help to evaluate simpler, better rotor system

Sandia/FAA Airworthiness Assurance Center puts Bell Helicopter's new composite rotor hubs to the test

By John German

In Afghanistan the US military relied on helicopters to insert troops into dangerous terrain, rain fire on adversaries, and rescue soldiers in peril.

As a war-fighting tool, the chopper is hotter than ever. And at least one major US manufacturer's new birds feature technology tested and improved at Sandia.

Labs researchers at the FAA Airworthiness Assurance Center (AANC) near the Albuquerque Sunport have been working with Bell Helicopter since 1997 to evaluate rotor hubs made from composite materials rather than traditional aluminum and steel.

The new, stronger composites — essentially many layers of fiberglass stacked together and hardened with epoxy resins — are resistant to failures caused by the growth of cracks as the materials age. More important, they allow for simpler rotor hub designs that require no hinges, gears, or bearings.

Bell is using data gathered by the AANC to refine its new "bearingless rotor" design — now available on Bell military helicopters, including the Marines' Super Cobra attack helicopter, the Army's Kiowa Warrior gunship, and the multi-service Huey transport, as well as several commercial choppers — and to substantiate flight certification and maintenance procedures for the new designs.

Bell's four-bladed bearingless system "provides unprecedented agility, substan-

(Continued on page 5)

Traditional helicopter rotors are supported by an orchestration of hinges, gears, and bearings.



BETTER ROTORS — Phil Walkington (6252) holds a piece of a composite rotor hub being tested at the AANC for Bell Helicopter. The chopper is a Bell 206 (TH-57 in military jargon), one of several aircraft test specimens located at Sandia's Airworthiness Assurance Center (AANC) near the Albuquerque Sunport. (Photo by Randy Montoya)

Building a better barcode at Sandia: Spread-spectrum concept is key **3**

Forklift rodeo challenges drivers to show off their skills, knowledge **7**



8 Irv Hall, Darlene Leonard earn NM Public Service Awards

9 DOE Secretary Abraham outlines nation's 2002 energy posture

What's What

Sandians get many national awards and recognition, but it's especially nice when a prestigious group in our own backyard shows special appreciation for what we do. The Presbyterian Healthcare Foundation presented its 2002 Award for Excellence to the men and women of Sandia/Lockheed Martin May 18, for "technological advancements and unrivaled contributions to the security and well-being of our community, our nation, and the world."

It was presented at the Albuquerque Convention Center at an impressive dinner ceremony attended by several hundred community leaders, Presbyterian Healthcare officials, and Sandians. Strong words of praise for Sandia's national security work came from a distinguished lineup of speakers - Sen. Pete Domenici, NNSA Administrator Gen. John Gordon, NBC News special correspondent Dr. Bob Arnot, and several Presbyterian officials.

"Pres" does not give this award lightly. This is the first time since 1993 that it has given its excellence award to anyone and the very first time it has gone to an entire organization. Past awards have always gone to individuals. It was a proud night for Sandia and all Sandians. Read more about it in Bill Murphy's page 1 article.

* * *

Fit to be "tied:" The Presbyterian awards dinner mentioned above was a dress-up affair, and one of my colleagues who attended said the Sandians attending looked pretty darn spiffy. He said he didn't even realize that Sandia men owned that many ties. There may be no connection, but the Goodwill stores' stock of neckties is reportedly at an all-time low.

* * *

One good golf cart story deserves (begets, at least) another, and Carla Mewhinney (6823) sent one that's a real knee-slapper.

"In the early days of remotely controlled 'walk-along' carts," she says, "they followed the golfer around by homing in on a beacon the golfer clipped to his belt. We normally played golf at a course which was built on the side of some hills that were on the approach path to Fairchild AFB, Wash. This was during the days of the Vietnam War and B-52s were stationed at Fairchild. We were watching someone demonstrate how great his new remote-controlled cart was as a B-52 made an approach to Fairchild while testing some of his electronic jamming equipment. Imagine our surprise when the new golf cart took off after the B-52 and followed it right over a cliff, with the owner running along behind it yelling at it to stop. Those carts never seemed like such a good idea around that golf course after that."

* * *

And another. A colleague recalls another earlier-generation cart that had a bit of a hair-trigger. Playing one fine day, he walked down to his lie, the cart jostling along behind, and, arriving at the ball, selected a club and stuck the controller in his back pocket.

He waited his turn, and after hitting off the fairway, turned to put the club away and continue along the way, but - no golf cart. After searching in ever-widening circles, he found the errant cart face-to-face (if that's possible) with a tree some distance away.

- Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)

GAO report raises questions, but Labs officials reaffirm commitments, note EEO/AA progress

By Rod Geer

Sandia remains totally invested in "developing and nurturing a diverse workforce - a workforce that is appreciated for and stronger because of its diversity - and we have a track record that reflects progress on many fronts," VP Don Blanton (3000), stresses in the wake of a Government Accounting Office (GAO) report issued last week that was critical of DOE and Los Alamos, Lawrence Livermore, and Sandia national laboratories.

The report - "Actions Needed to Strengthen EEO Oversight" - had been requested late last year by Rep. David Wu, D-Ore., and Rep. Eddie Bernice Johnson, D-Texas. When it was released on May 21, both members of Congress expressed concern regarding reported inconsistencies in the way minorities and women are treated in certain personnel actions. Johnson said there is an expectation that "federal labs should serve as a model to other public and private employers."

Don, VP of Human Resources and Protection Services, says studies of Sandia's EEO/AA profile - including the GAO report - are important and help to identify issues and opportunities for improvement. He adds, "We have some honest differences with GAO analyses of some data." Officials at LLNL and LANL echoed that theme.

The following highlights of the Labs' progress in the EEO/AA arena, along with related areas of needed improvement, were provided by Margaret Harvey, Manager of Diversity, EEO & AA Services Dept. 3053:

- Women constitute about 30 percent of the Sandia work force. In the past decade, the Labs has seen a 24 percent increase in representation of women overall, and a 122 percent increase in representation within management ranks. Nonetheless, based on an analysis of estimated availabilities, the Labs continues to establish placement goals for women within the technical ranks, realizing only a one percent increase in women in technical management since 1998.

- Minorities constitute 28 percent of the Sandia work force. In the past decade, the Labs has seen an 18 percent increase in representation of minorities overall, and a 66 percent increase in professional level jobs (MTS and MLS ladders). Yet, Labs leaders continue to be challenged to institute strategies to attract and hire minorities at rates consistent with estimated availabilities.

- Approximately 11 percent of Sandia's work force consists of Officials & Managers positions. Twelve percent of the African Americans employed at the Labs are Officials & Managers; about 10 percent of the Asian/Pacific Islanders are Officials & Managers. Overall African Americans and Asian/Pacific Islanders comprise six percent of the work force.

- Recent hiring shows that in the past three years, Asian/Pacific Islander participation in Sandia's postdoctoral programs has grown from eight percent to 14 percent to 20 percent. At the same time, four percent of regular technical staff hires in 2001 were Asian/Pacific Islanders.

- Partnerships with the community, including the Hispanic Statement of Cooperation and interactions with Sandia's Tribal Liaison, continue to support Sandia's commitment to ensuring equal employment opportunity.

Don reminds Sandians of Paul Robinson's recent letter about diversity and inclusion in the workplace, printed in the March 22 *Lab News*. Don especially notes this sentence of Paul's: "I urge you to model the best of human behaviors in your dealings with your colleagues, not just to end any discrimination or thoughtless acts which cause offense, but to help fuel a warm and caring atmosphere where no one ever doubts that they are welcomed and valued."

Sandia LabNews

Sandia National Laboratories

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Nuclear weapons symposium features reflections by nuclear tester Robert Brownlee

The Weapon Intern Program will present a classified symposium on Aboveground and Underground Nuclear Testing on June 3-5 in the C117 auditorium of Bldg. 810.

Robert Brownlee will be the keynote speaker. Brownlee has been associated with atmospheric, underground, and other testing since 1955. His story is called "Reflections of an Old Nuclear Tester."

Further information including schedule and registration form may be found at <http://symposium.sandia.gov>. Attendance will require a Q clearance, a need to know, and registration via the web.

Future symposia include: Retired Weapons, Enduring Stockpile, and Aboveground / Underground Testing. For further information contact Andy Rogulich (2911) at 845-9677 or Jim Wolcott (12332) at 844-3613.

Retiree deaths

David B. Holt (age 65)Feb. 18
Eulalio P. Trujillo (82).....Feb. 19
Augustin Pohl (93).....Feb. 22
Iola V. Johnson (92)March 21
Raymond E. Gott (73)April 2
Sam G. Baca (83)April 9
Robert E. Fair (79).....April 9
E. Anthony Ryan (87)April 15
Warren H. Arthur (81)April 16

Sandia team takes barcode to a new dimension

Novel mottled 'spread-spectrum' barcode is analog and multiply redundant; has other advantages as well

By Nancy Garcia

When a research team tackled inventing a new barcode approach for tags or security seals (under a Laboratory Directed Research and Development project initiated by Materials Chemistry Dept. 8722 Manager Bill Even), the group invented a novel way to distribute information in shades of gray.

The mottled design is as easy to scan as the ubiquitous Uniform Price Code's row of lines and can be nearly as affordable in its simplest versions. Its added advantages include substantial robustness and economical security features. The code is readable even if 70 percent is missing or obscured; it contains embedded correction parameters and so doesn't require registration fiducials; it can encrypt and limit access to various levels of information; and it can be reset during inventory, as well as potentially track elapsed time, temperature, or environmental conditions.

The mottled design is as easy to scan as the ubiquitous Uniform Price Code's row of lines and can be nearly as affordable in its simplest versions.

In fact, the code, which resembles the marbled cover of a composition notebook, doesn't actually have to be seen

as a distinct barcode. It can be colored and hidden in a logo, designed to expire after a period of time, or used as a seal to indicate suspicion of tampering.

"There are a large variety of alternatives that we would like people to get out there and run with," says Bill, who began this patent-pending research three years ago.

Unlike the UPC's unique 1-dimensional sequence of bars and spaces that is read as dark and light intervals, this 2-dimensional pattern repeats like a speckled wallpaper print.

"Each bit of data is encoded pseudo-randomly across the entire barcode," says team member Eric Cummings (8358). "All of the encoded bits are then overlaid to form a grayscale, or analog, barcode image. Because each bit of data is spread redundantly across the barcode, you can recover all of the data even when some or most of the barcode is missing — providing you know the key to the



TAMPER-INDICATION — The inventors' envisioned applications include identifying security seals, such as this illustration on a prescription vial.

Sandia California News

pseudo-random code."

They call the invention, which is available for further development and commercialization, a "spread-spectrum" barcode.

Even if ripped or written over, the pattern still reveals its embedded information when scanned by a regular CCD camera. On the other hand, the average person can't decode the encrypted data, or counterfeit a copy. Higher-end versions that are not just run off a desktop printer can include self-assembled, luminescent particle "fingerprints," temperature-sensitive gels or inks

reset by changing temperature, and chemically sensitive inks to indicate spoilage, among other possibilities.

With guidance from Ivan Waddoups (5845), Bill and the group noticed a void in commercially available options between tags that might cost less than a dime and highly secure seals requiring thousands of dollars' investment. This project targeted that gap with an affordable alternative that can be scaled to either provide economically robust information in a tag and/or confer security as a seal.

Applications, then, could range from basic retailing, warehousing, manufacturing, and



CRYPTIC — When the spread-spectrum barcode exists against an arbitrary background like the one shown above, image acquisition software discriminates the barcode from the surroundings and automatically identifies the data by correlating to an embedded carrier applied only to the barcode itself, as illustrated in the two insets. As evidence of the system's robustness, this scan is sufficient to recover all the data, even though a corner of the tag was not captured in the scan.

industrial or mine safety to secure mail routing, private labeling, and ID badges. At the most secure end with a "rewritable" surface gel for authentication, federal agencies might appreciate the ability to automatically measure damage or tampering to protect currency or goods such as pharmaceuticals, precious resources, or nuclear material.

The distributed-fiducial, scan-correlation concept allows applications in aerospace, nondestructive evaluation, and optical targeting, by enabling global, rapid distortion detection and precision alignment and calibration. Additional team members include Paul Dentinger and Blake Simmons (both 8722), Tony Lajeunesse (8243), Cullen Lee (5907), Bill Cordwell (5931), and former postdoc Jennifer Irvin.



NEED-TO-KNOW — Seals can also be affixed to mail or documents, limiting casual access and controlling information that might be divulged in the embedded data.

Award of Excellence

(Continued from page 1)

ble, a cough, or a discreet clearing of the throat.

"He could never really tell us much about what he did every day," Hinton said. "But I knew it was important. All of us in the family knew it was important. This situation in my family isn't unique. Almost everyone in Albuquerque knows someone who works at Sandia. And while none of us really knows exactly what you do on the job — and you aren't that much fun at cocktail parties as a result — we certainly know very well about your work away from the Lab. You work side by side with us improving the quality of life for Albuquerque and New Mexico.

Sen. Pete Domenici, the most recent previous recipient of the Foundation's award of Excellence (in 1993), spoke with obvious pride of authorship of the circumstances that led to the creation of NNSA as a semi-autonomous agency within DOE.

He praised NNSA administrator Gordon and his leadership in shaping "an entirely new way" of managing the nation's nuclear weapons complex. Domenici said one of his proudest responsibilities during his 30-year US Senate career has been to represent and champion New Mexico's national laboratories. He said one of his most important current "causes" is to advocate a key role for Sandia and Los Alamos in applying their technical and scientific expertise to the challenges of homeland security and the war on terrorism.

Gen. Gordon called Sandia "one of the truly great scientific and technical laboratories in the world," adding, "I am proud that it is being recognized for giving so much to humankind not only on a technical level, but on a community level, as well."

'I can always count on Sandia'

He continued, "I know from my direct experiences the kinds of contributions Sandians make at every level toward the security, prosperity, and well-being of the immediate and greater community. One of the things I have learned during my time at NNSA is I always can count on Sandia to do what is right for our nation. This became even more evident during Sandia's response to the many challenges that arose following the September 11 attacks. When President Bush and Governor Ridge needed solutions to some difficult technical challenges, Sandia was ready to put its vast intellectual capability to work to address these national needs." He noted that Sandia-developed technologies con-



PRESBYTERIAN HEALTHCARE FOUNDATION chairman Robert Jackson, left, C. Paul Robinson, NNSA Administrator John Gordon, and Presbyterian Healthcare Services CEO Jim Hinton display Sandia's Award of Excellence, a painting by artist Dan Stouffer.

tinue to play a vital role both domestically and in combat theaters in the war on terrorism.

In addition to praising Sandia's technical contributions, Gordon cited Sandia and Lockheed Martin's many contributions to the community, specifically citing examples such as Make a Difference Day, Strengthening Quality in Schools, and the National Atomic Museum's Summer Science camp, offered in conjunction with the Hispanic Cultural Center and the Hispano Chamber of Commerce.

A culture such as Sandia's

"I thank the many Sandia employees who are so dedicated to solving technological challenges for improving our world and who volunteer to support so many wonderful local programs," said Gordon. "I also thank Lockheed Martin for its generosity to the community."

Gordon offered warm words of respect and admiration for Paul Robinson and the leadership he has provided, not only at Sandia, but in the community and the nation.

"A culture such as Sandia's does not happen by accident," Gordon said. "When you see an organization performing at this level, you know there is strong leadership involved. At Sandia, Paul Robinson has set the standard for his management team with his own involvement, ranging from leading national boards and advisory groups, to driving nails at a project in Martineztown or painting a Habitat for Humanity house.

"Personally and professionally," Gordon said, "Paul leads by example. He has set a very high stan-

dard for Sandia, and . . . his [colleagues at the Labs] have risen to the challenge at every level."

In his remarks accepting the award on behalf of all Sandians, Paul thanked the foundation and the community, which has provided such a wonderful home for the Labs. He said the opportunity to devote one's life to working in science and technology for the benefit of the nation and the world is profoundly satisfying.

Paul noted that ever since becoming president of Sandia, he has kept a framed quotation from Albert Einstein plainly visible on the wall near his desk. He refers to it often as a touchstone. The words are:

"Concern for man himself and his fate must always form the chief interest for all technical endeavors . . . in order that the creations of our mind shall be a blessing and not a curse to mankind. Never forget this in the midst of your diagrams and equations."

Those words, Paul said, embody the spirit that Sandia tries to bring to all of its efforts.

Lockheed Martin proud of Sandia link

John Freeh, President of Systems Management for Lockheed Martin, echoed Paul's sentiments in thanking the Foundation for the award. He noted how proud Lockheed Martin is to be associated with Sandia and how much they appreciate the overwhelmingly positive relationship they enjoy with the Albuquerque community.

After the formal presentation by Foundation officers of the Award of Excellence, featured speaker Dr. Bob Arnot offered his perspective on the war on terrorism as seen from his position as a special correspondent for NBC news. Arnot, a Middle East expert (a degree in Islamic Studies at Dartmouth, class of 1972) sent a chill through the audience with accounts of interviews with radical Islamic fundamentalists (perhaps two percent of Muslims worldwide, he emphasized) who say their primary goal in life is to work for the obliteration of the US.

Holding up a MicroHound hand-held chem/bio sniffer developed at Sandia, he praised the Labs' technological contributions to the war on terrorism. He noted specifically that Sandia-quality radar imagery has been a vital tool for American soldiers in the field

And as it began, so it ended, with a prayer from Rev. Dorman:

"You whose name is beyond all names, you who collect as well as disperse, send us forth from this place with a renewed commitment to liberty, justice, and freedom for all — those in this city, this state, this land, and our sisters and brothers around the globe with whose destinies our own is interwoven."

US, Mexico sign pact to nurture border-area development lab

By Howard Kercheval

Sandia and The United States-Mexico Foundation for Science have formalized a framework for joint development of the Bi-National Sustainability Laboratory concept to address economic development in the US border region and Mexico.

The framework is set forth in a Memorandum of Understanding (MOU) signed in Mexico City in January by VP and Principal Scientist Gerry Yonas (16000) and Foundation Executive Director Guillermo Fernandez. Felipe Rubio Castillo of Mexico's National Council on Science and Technology (CONACyT) signed the MOU as a witness.

Common goals

The MOU defines how the two parties will "pursue their common goals for increased science and technology cooperation between the US and Mexico and (leverage) this cooperation to improve the quality of life in the border region."

The Bi-National Sustainability Laboratory (BNSL) concept was conceived to tackle seemingly intractable problems of widespread poverty and lack of basic resources such as public health, adequate supplies of clean water, and technology-based economic growth.

Gerry posed the concept to members of the Advanced Concepts Group (ACG), and a team — Maher Tadros, Vipin Gupta, and Jessica Turnley (all 16000), and Gary Jones (1313) — formed around the idea and began to put its pieces into place. Labs

Director C. Paul Robinson talked about the BNSL publicly for the first time at his State of the Labs address to community leaders in February 2001.

The project has recently been moved into Sandia's Energy and Critical Infrastructure Strategic Business Unit where Director Margie Tatro (6200) and others are transitioning it from idea to program. Under the leadership of Paul Klimas (6219), Vipin and Beth Richards (6218) are drafting the internal plan to make this idea a reality.

Several steps in transition

"There are several steps in this transition from concept to project," says Margie, "but three of the most important ones are educating Sandians in the E&CI SBU about the concept, identifying and validating the needs of the potential sponsors, and finding the right people in Mexico who have passion for the project and will champion it there."

She says she sees the BNSL as one important element of improving national security for today through improved border security, and for the future by changing the dynamics that create conflict — and, thus, insecurity — between countries.

"Activities in the ACG are preliminary, conceptual, opening new doors," Gerry says. "It's not really an organization that can — or should — finalize projects." And with the involvement of a new Sandia organization, he is looking at global application of the economic development concept.

"I'm focusing my attention on global border issues — moving toward applying ideas from the BNSL concept to the Middle East," he says. "The

Multi-National Innovation Hub concept is essentially the BNSL concept overlaid on the Middle East. The idea is to bring moderate governments in the region into the process, create sustainable economic development, and stimulate a return to more peaceful times."

That notion was presented to the departments of State, Commerce, and Energy earlier this year, and it raised enough interest at Commerce to prompt an invitation to ACG and BNSL team member Maher to explain it in greater detail in a Washington briefing.

Small meetings involving individual members of the BNSL team and counterparts in Mexico — as well as DOE and other government officials — have been under way since the beginning of the project, and some of those meetings have involved larger, official delegations of one country or the other.

Gov. Ernesto Ruffo, Presidential Commissioner for Northern Border Affairs and a close advisor to President Vicente Fox, led an 11-member delegation to one such meeting in Albuquerque last September. They were briefed on Sandia technology that might be instrumental in border-area economic development.

"Gov. Ruffo has great interest in the project," Fernandez says, "and he could be of great help in realizing it."

Lucinda Vargas, director of Plan Estrategico de Juarez, says that in Juarez, "There's tremendous interest in seeing this initiative work. Leaders in Juarez — speaking mostly from a private-sector per-

(Continued on next page)

Helicopter rotor

(Continued from page 1)

tially increased speed, a smoother ride, a more stable weapons platform, and excellent reliability. It will also reduce crew fatigue and enhance combat mission effectiveness," according to a company web site.

The AANC also is working with several other US helicopter manufacturers and operators to advance the use of composites and associated nondestructive inspection (NDI) procedures industry-wide. (See "What is NDI?" below right.)

Rotors take a licking

"Vibration causes helicopter components, particularly the rotor parts, to wear out faster than in fixed-winged aircraft," says project leader Dennis Roach (6252). "A stronger material and a simpler design provide both engineering and economic advantages."

Bell had been working on its bearingless rotor hub for several years when company officials approached Sandia in 1997, says Dennis. The company sought the AANC's longtime experience with NDI technologies and in evaluating composite materials for aviation applications.

"They wanted help optimizing their blade designs and evaluating the composite material's performance over millions of fatigue cycles," he says. "They also needed an inspection schedule for in-service helicopters to catch defects before they reach critical size."

Simpler rotor hub designs

Traditional helicopter rotors are supported by an orchestration of hinges, gears, and bearings that keeps the blades at their optimum angles during airborne maneuvers. Replacing these contraptions with two long composite planks, stacked perpendicularly at their centers and



IMPROVED INSPECTION — Kirk Rackow (6252) looks for small cracks under a rivet head on the tail section of the AANC's Bell 206 using a nondestructive inspection (NDI) eddy current device. Whereas fixed-wing aircraft accumulate one vibration load cycle per flight during cabin pressurization and depressurization, rotorcraft tolerate two to four cycles per blade revolution. (Photo by Randy Montoya)

affixed directly to the rotor hub (to form an X), required that each plank's thickness be tapered to achieve the needed droop at various rotation speeds.

For the project the AANC developed a custom "biaxial test facility" to evaluate blade samples with various center thicknesses and taper profiles, subjecting them to millions of cycles of bending and twisting under high-g centrifugal forces to simulate the punishing vibration environment a helicopter's rotor endures during flight.

In particular, says Dennis, Bell wanted Sandia to fatigue the composites to accelerate the formation of twist-layer cracks, called delaminations.

Sandia also developed a complementary ultrasonic technique to inspect the hub samples during the fatigue tests to determine how fast the defects grow, how quickly they become critical, and which designs and resin systems create the most rugged rotor hubs.

Safe inspection intervals

As a result of the project, Bell ranked the performances of various complete resin systems, optimized rotor hub designs, and determined safe inspection intervals for its composite rotor hubs.

The company also incorporated the AANC data into a new "damage-tolerance analysis" (DTA) methodology that can accurately predict the onset and growth of flaws in the composite materials.

DTA is an approach to rotorcraft maintenance — an alternative to the traditional "safe-life" maintenance practice (where parts are replaced conservatively before cracks are expected to appear) — that forecasts flaw initiation and growth in structures so that safe inspection intervals can be established to

detect and eliminate flaws.

If adopted widely, says Dennis, the DTA approach would significantly reduce the cost of helicopter maintenance, extend helicopter life, and retain if not improve current levels of safety.

Industry to reap benefits

Widespread adoption of DTA, however, requires the widespread use of NDI techniques. The AANC's rotorcraft program is working to develop and introduce NDI technologies that support DTA-based maintenance to the larger rotorcraft industry.

"We want to help bring both the big service providers and the small outfits up to speed on the advanced NDI technologies that are now available," says Dennis.

The data and methodologies produced as part of Sandia's damage-tolerance analyses and inspection of composite rotor hubs will be made available to US rotorcraft manufacturers, as well as third-party companies and maintenance depots that inspect in-service helicopters.

The AANC is working directly with a team of helicopter manufacturers — including Sikorsky, Boeing, and Bell — as well as large operators, including several companies and the US Navy.

"Increasing niche applications, growing international markets, and the emergence of improved rotorcraft technology are expected to increase the number of helicopters over the next decade," says Dennis. "As this happens, new materials and the optimization of maintenance practices will become more attractive than ever for the rotorcraft industry."

"The main goal of our work is to provide the US rotorcraft industry with information that advances the cause of safety in US aviation," he says.

Bi-National Lab

(Continued from preceding page)

spective — have been present for briefings on how the initiative is progressing and have shown a willingness, desire, and even eagerness to commit their efforts at making this work."

The key value BNSL would bring to the El Paso-Juarez area, she says, is: "Solutions to the many problems that characterize border regions — that have to do precisely with lack of sustainability in the course of development which, in turn, has to do with an insufficient consolidation of the social, technological, and human-capital infrastructure the region needs to foster higher-quality growth."

The BNSL would be an invaluable tool in making possible any number of projects in areas that foster sustainable development in the city of Juarez, which, Vargas says, is a key objective of her organization. They include health and environmental protection as well as technology-heavy initiatives to increase the value of the city's already-existing manufacturing and industrial base.

"Because the MOU signing was an important step," Fernandez says, "the executive committee of the Foundation — two from Mexico, two from the United States — were there for it. The Foundation is interested in the BNSL as a concrete way to strengthen economic and other ties on the border."

The Foundation's involvement also provides a meaningful link to high levels of the Mexican government because Foundation Chairman and Executive Director Pablo Rudomin also serves as science advisor to Fox.

"The BNSL provides a wonderful learning opportunity — one that could extend to other parts of Mexico and bring in people from the United States who might otherwise not become involved in such an international venture," Fernandez says. "And its location on the border also might help to improve economic conditions in regions where opportunity is lacking — southwest Texas, southeast New Mexico, and Chihuahua."

What is nondestructive inspection?

In the past, inspections of in-service aircraft were accomplished primarily by experienced personnel performing periodic visual inspections of critical parts for cracks or other fatigue-related defects.

For years the AANC has been evaluating improved inspection techniques using a variety of nondestructive inspection (NDI) technologies that make it possible to look inside components without dismantling them in an effort to catch defects earlier, before they can become problematic.

Here are some of the common NDI techniques researchers at the AANC use in developing inspection regimen or evaluating aircraft.

Ultrasonics — Disturbances in sound

waves transmitted through a material are detected (sometimes with lasers) to reveal defects.

Eddy current — Disturbances in electrical and magnetic fields induced in metals are detected to determine locations and sizes of flaws.

Thermography — As a material is heated its infrared emissions are imaged. Areas where corrosion or disbands are present propagate the heat differently from flawless areas.

Radiography/computed tomography — X-ray transmissions collected from many angles are digitally mapped to provide cross-sectional views of a component's internal features and material densities.

'Hey there, you with the stars in your eyes'

Mike Pendley helps open window to cosmos through telescope-making workshops

By Bill Murphy

As a kid, there were so many things you wanted to do. For Mike Pendley (5852), building his own telescope was one of them.

But, as John Lennon famously said, "Life is what happens when you're making other plans."

For Mike, other dreams, other ambitions, caught and held his attention and the telescope-making dream was consigned to that deep storage bin of the psyche.

So things stood for decades. Then, in the mid-1990s, Mike decided to join the Albuquerque Astronomical Society, or TAAS. That seemingly inconsequential decision turned out to have major consequences, indeed: it breathed new life into his boyhood dream and ultimately led him to become one of the chief mentors of others in the community who want to build 'scopes of their own.

Not long after joining TAAS, Mike noted a little item in the club's newsletter.

John Dobson, the guru of gurus, the *capo di tutti capi*, the Big Kahuna of amateur telescope making, would be in Albuquerque for two weeks to run a telescope-making class.

"Here's 'the man' himself," Mike thought. He jumped at the chance to sign up.

Dobson, a Manhattan Project veteran already into his 80s at the time, developed the so-called Dobsonian Mount, a simple, easy, reliable — and cheap — way to mount small reflector telescopes. The mount allows a telescope to be easily moved in three planes (up-down, side-to-side, and diagonally) and stay where it's pointed. That easy-to-build mount, much simpler than the complicated equatorial mounts in common use, in turn opened the way to an explosion of home-built scopes.

Mike says he "was turned on" by Dobson's class, and after finishing a 10-inch telescope in two weeks (representing somewhere between 20 and 40 hours of actual work), he concluded "Gee, everybody's gotta do this."

He was inspired by Dobson's ability to demystify the telescope-making process.

"John Dobson is a philosopher," Mike says, "and his philosophy is 'Everybody needs a telescope, and we don't have much time.'" A corollary to his world-view is that a good-enough telescope in hand is better than a perfect scope that you never finish. "If you get it 90 percent right," Mike says, parsing Dobson's philosophy, "it'll serve you well."

Thus armed with his newfound appreciation



ALMOST THERE — Mike Pendley uses a spherometer to calculate the curvature of the 10-inch mirror made by fellow Sandian Dick Fate (6135). Mike and several colleagues offer a twice-monthly, no-cost, drop-in workshop to provide technical assistance to amateur telescope makers.

offer an open-ended telescope-making workshop. It's much less structured. He and partner Ray Collins, a physics teacher at Valley High School, make themselves available twice a month to offer advice to telescope makers at any stage of their progress. The flexibility of the new approach, Mike says, has worked out very well. On any given evening (first and third Wednesdays of every month all year round), anywhere from one or two to six or eight 'scope makers will show up at Ray's classroom at Valley looking for advice and assistance — and, not infrequently, a pep talk.

Having built three complete 'scopes himself, and completed a bunch of mirrors that he's used in classroom demonstrations and to perfect new techniques, Mike says building your own telescope isn't hard. Even so, he allows that most folks who begin a telescope never finish it.

"It's not a skills issue; it's really a matter of staying focused and interested," Mike says.

Mike agrees that a telescope builder probably

isn't going to save a whole lot of money over what he or she might spend buying a commercial 'scope in the 6-inch to 10-inch range. "I'd be willing to bet, though, that you'll end up with a better 'scope — even if it's your first one."

Thanks probably in very large part to the demystifying influence of John Dobson, home-built telescopes are more pervasive than ever. Mike notes that when he first joined TAAS less than 10 years ago, most of the 'scopes at star parties were commercial devices. Today, they're mostly home-built.

So consider: You *might* get a better scope if you build it yourself. You probably *aren't* going to save a lot of money. You might just ask, "Why bother?"

Well, Mike would reply, there *are* some intangibles. Personal satisfaction? Of course. A sense of accomplishment? Sure. A better, more intimate knowledge of your 'scope? 'natch.

But then there's the clincher: "At a party," Mike says, "when you tell someone you just built a device with a mirror that you ground to an accuracy of a tenth of the wavelength of light, you can be pretty sure there's no one else there who can make the same claim. It's cool."

TAAS: The Sandia connection

Mike Pendley isn't the only Sandian with ties to TAAS. Barry Spletzer (15211) is taking the lead in designing a breakthrough equatorial platform for the Dobsonian mount. That platform, designed to be home-buildable, should make the trusty Dobsonian reflectors more versatile than ever. Find out more about Barry's work at the Wednesday workshops. Meanwhile, Dave Kestly (2333) is looking into the possibility of building a TAAS-owned vacuum chamber so telescope makers in Albuquerque can coat their mirrors locally (currently they must ship their precious mirrors out of state for coating). Learn more about TAAS at www.taas.org.

Second annual Forklift Rodeo is one wild ride for Labs' materials handlers

It sounds like something from an Indiana Jones picture: you snake your way through the Valley of the Serpent, then plunge feet-first through the claustrophobic confines of the Grand Canyon. You bob and weave, zig and zag, wheel and spin. And all the while, the clock is ticking. Time is not your friend.

It's the second annual Sandia Forklift Safety Rodeo, the brainchild of Receiving team supervisor Lonnie Trujillo. The Valley of the Serpent and those other things are sections of the rodeo's driving course (see photos on facing page).

The idea for the rodeo, Lonnie says, is to give the Labs' forklift operators a chance to show off their skills, their knowledge of safety (Sandia Safety officer Danny Donald [3122] helps support the rodeo), build team spirit — and just have some fun. There are about 50 certified forklift drivers in the Logistics organizations — Shipping and Receiving, Corporate Storage, and Transportation and Re-application.

Lonnie got the idea for the rodeo, he says, after coming over to Receiving from Facilities. He says he used to send Facilities' heavy equipment operators to a training class in Roswell. "When they came back, all they could talk about was the heavy equipment rodeo on the last day of class. I thought something like that would be perfect for our forklift drivers. They're extremely good at what they do, but they're so close to their own work, I'm not sure they realize how skilled they really are.



The rodeo is a chance to put them on stage and let them show off their talents."

About 20 drivers from Logistics participated in the events this year. Next year, says manager Carolyn Lucero, the competition may be opened up to operators from the Facilities organizations, as well.

Lonnie says one of the major prizes is that each competitor receives a photo of him- or herself with their forklift machine. "It's something they can take home; it's really important that they share these things, that their families know how good they are at what they do," he says.

And the winners? Last year's champ, Roberta Carroll (10263) of Receiving passed on her title to Chris Mehring (10263), also of Receiving. Second place went to Paul Apodaca (10268) of Corporate Storage, and third place went to Bernadette Bazen (10263) of Receiving.

Other high scorers in individual aspects of the rodeo included Norman Begay, Albert Hernandez, Jeff Adams, Daniel Chavez, and Ray Griego.

Folks who helped with the planning included: Liz Carson, Shannon Letourneau, Phil Rivera, Kenny Sanchez, George Bonney, Betty Lord, and Regina Jaramillo.

The participants and organizers were recognized at a luncheon, complete with BBQ and a true rodeo atmosphere.

The Forklift Safety Rodeo was co-sponsored by Safety Engineering and Logistics. — Bill Murphy

The Albuquerque Astronomical Society (TAAS) will offer a free public lecture at UNM's Regener Hall Saturday (June 1) at 7 p.m. NASA Solar System Ambassador (and Sandian!) Len Duda will speak on the Cassini spacecraft's voyage to Saturn, giving a mid-course report for this mission and describing the planned rendezvous with Titan, Saturn's largest moon. Cassini will reach Saturn in July of 2004 and six months later will begin its probe of Titan. For more information about the lecture or about TAAS, check out the web site at www.taas.org.

that telescope-making didn't belong exclusively to an elect priesthood of initiates, Mike volunteered to help TAAS launch a formal telescope-making class.

When he started the class in 1995, Mike says, "I was only slightly smarter about making telescopes than my students, but they didn't seem to notice."

Over the next several years, Mike faithfully offered the class twice a year. It took students through all the steps required to complete a telescope. It was very formal. In week 1 you did step a; in week 2, you did step b, and so on. A couple of years ago, after helping dozens of students complete 'scopes, Mike decided to take a new approach. Instead of a formal class, he decided to

Forklift Safety Rodeo puts drivers in the spotlight



MICHAEL DOMINGUEZ (10268) winds through Valley of the Serpent in the rodeo skills course.



BERNADETTE BAZEN (10263) goes for two in the rodeo fun course. Contestants also negotiated a skills course and completed a written test.

Photos by Randy Montoya

See story on page 6, opposite.



GREG VIGIL (10263) keeps a close eye on his load.



THE WAVE FORMS FROM THE RIGHT — Tammy Sanchez (10257, right), Tara Anderson (10257), David DePolo (10267), and Judy Jewel (10267) cheer on their favorite drivers.



NOTHING BUT NET — Antonio Silva (10267, left) catches the ball shot by Paul Apodaca (10268) during the fun course section of the rodeo.

Darlene Leonard, Irv Hall to receive New Mexico Distinguished Public Service Awards

Two Sandians are among 12 New Mexicans named to receive the state's Distinguished Public Service Awards this week.

Darlene Leonard — Sandia's Volunteer Program manager (12650) — and retired Sandia employee Irv Hall are among the distinguished dozen, selected from across the state. All winners will be honored at a May 31 dinner at the Crowne Plaza Pyramid Hotel in Albuquerque.

New Mexico Gov. Gary Johnson, who earlier visited with the winners in his office, will be on hand at the dinner. David Chu, Undersecretary of Defense for Personnel and Manpower, is scheduled to deliver the keynote address.

"This is an annual celebration recognizing individuals from throughout the state for their outstanding contributions to their fellow citizens," Johnson said. The awards are funded by a nonpartisan foundation, which uses sponsorships and participation in the annual recognition dinner to fund scholarships for New Mexico university students.

Darlene was recognized for her exceptional leadership of many New Mexico volunteer pro-

jects, as well as her "energy, persuasive nature, and attention to detail" in managing the Labs' Volunteer program. Following Sept. 11, she organized a recognition effort for Kirtland Air Force Base guards and their families. With Lockheed Martin and Sandia as corporate sponsors and partnering with the Junior League of Albuquerque, the Corporate Volunteer Council, and KOB-TV, Darlene led a city-wide effort to sustain for Albuquerque the national day of vol-



DARLENE LEONARD



IRV HALL

unteering, called "Make a Difference Day," held the last weekend in October each year. The result was 1,700 volunteers from 35 companies completing 116 projects for 52 nonprofit agencies.

Irv has continued to practice his belief that "what you do is what counts." After a distinguished career as a PhD statistician at Sandia, Irv retired in 1994 and took on the challenges offered by the Habitat for Humanity program.

"Irv has worked to build six homes for low-income families in Albuquerque. Along with his wife Lois, he has also provided financial support to build three additional homes," said Catherine Woodward, Habitat's executive director in Albuquerque. Irv has also helped build homes in South Korea and the Philippines. And this week, Irv and Lois will be paying their expenses to travel to South Africa to help with yet another Habitat home.

Gov. Johnson and Sandia's Don Carson, Director of Communications and Public Relations (12600), chaired this year's community service award process. It is the 33rd year that the award has been given.

Feedback

Q: I ride a motorcycle, as do many Sandia employees. I have had a real problem with a traffic light that will not trip for a motorcycle. I have noticed that other motorcycle riders will wait a reasonable period of time for the light to change. Then they run the red light if no traffic is coming. I have done this myself on several occasions because the light will simply not change unless another vehicle (car or truck) pulls up behind you. The traffic light in question is located just NE of the dome on 12th street. I believe the intersection is at 12th Street and NCO Bypass.

What would the Kirtland Police consider a reasonable amount of time an individual should have to wait for the light to change? I know that they do not want anyone to run traffic lights, but an individual can only wait so long before impatience and frustration take over.

A: We asked the KAFB contractor to check the traffic for proper operation and timing. They did not identify any problems with the timing of the light. A motorcycle should trip the sensor, if it is made of metal. A small motorcycle made of composites or aluminum may not have enough mass to cause a difference in the magnetic field if it is not centered between the two sensor loops. To help ensure proper operation do not pull past the sensors; center the motorcycle between the loops. I can understand the frustration of sitting at a traffic light that doesn't appear to recognize that a vehicle, in particular a motorcycle, is waiting for a change; however, at no time is it safe or acceptable to the KAFB Security Police or Sandia Security to run a red light. The best thing to do is make a safe right-hand turn on the red and find a safe place to turn around and then proceed in the desired direction of travel.

— Ed Williams (7849), Chairman,
Sandia Traffic Safety Committee

Q: With the security checks, it's reasonable to assume that anyone wishing us harm will have a difficult time getting onto the base. Given that, why not restore the convenience of a mailbox outside of Bldg. 822?

A: We have researched the removal of USPS mailboxes at/near New Mexico tech areas. Mailboxes were removed to meet DOE security compliances requirements after 9/11/01. Since the threat to the security of our nation is still very real, there is no intention to replace these mailboxes at this time. However, Sandia Mail Services deliver personal out-going mail to the USPS Post Office daily. Employees can place their stamped mail in the Sandia out-going mailboxes in their buildings/areas. Employees are encouraged to take advantage of this service. In addition, the KAFB Post Office is located at 2nd and F Streets. — Dave Palmer (10200)

She said, he said: Pat Heim speaks of gender differences in the workplace

By Iris Aboytes

Tell me if this sounds familiar. A woman gets dressed up and her husband compliments her and tells her she looks nice. Without skipping a beat she responds, "You're just saying that because you are married to me." Now on the other hand a wife will tell her husband he looks nice, and he also takes no time responding, "I know it."

Both are sincere responses. What makes them so different? That, in essence was the topic of the presentation before a full house at the Steve Schiff auditorium on May 21 by Dr. Pat Heim, "Gender Differences in Work and Communications Styles," sponsored by the Corporate Diversity Team and Corporate Training & Development. For more complete information on her presentation and handouts go to <http://www.heimgroup.com/handouts/index.shtml>.

Some of Heim's key concepts included the "hierarchical vs. flat structure" in which men tend to view the world from a hierarchical standpoint, which is a very goal-focused, linear emphasis giving immediate answers. Women, on the other hand, tend to view the world from a "power-dead-even, flat-structure" standpoint, which is process-focused, using multitasking and an emphasis on talking it over. Heim's overall message is that "people do things for reasons that make



PAT HEIM

sense to them. Both men and women are trying to do the right thing but by two different sets of rules about what is right."

We are born with some definite "hardwired traits," whether a man or a woman. We can grow up being powerful Arnold Schwarzeneggers or soft and feminine Gwyneth Paltrows. Both of these are generalizations, nothing else. We are, after all, individuals — first and foremost.

Extensive research has proven that these "hardwired traits" do exist. Hardwired traits are tendencies prominent in the different genders due to chemicals, neural connections, etc. These are not positives or negatives, they are differences that, it is hoped, we embrace in arriving at positive results.

One of the bookmarks given at the presentation noted, "Good working relationships may mean good differences." Think of all the times you have been on a team and there was team member who made you wonder where his ideas were coming from. Yet some of the wildest ideas are the most innovative solutions once they are considered, advanced, refined, and implemented.

This is just a little insight into the human spirit. Strength, aptitude, sincerity, intelligence, laughter, understanding don't seem to belong in the same story. Sure they do. Each one of us possesses all of them — in different measures. These are all tools we can use to make sure our "hardwire traits" enrich, not devalue, our human worth. In an environment filled with differences, the all-important "respect for the individual" will always rule.

Pat Heim says at least 95 percent of people make differences work. Which percentage are you in?

"Good working relationships may mean good differences."

One year later, Abraham cites national energy policy accomplishments, summons up a vision for the future

One year after President George W. Bush released the administration's National Energy Policy, DOE Secretary Spencer Abraham, speaking before the Detroit Economic Club, offered a scorecard and status report on the policy's recommendations. And he offered a tantalizing vision of the nation's energy future as it is seen by the Bush administration, including a glimpse at a future hydrogen economy.

The National Energy Policy, Abraham reminded his audience, was developed in response to issues that came to the fore in the early months of the new administration: energy shortages in California, production cutbacks among OPEC producers, rising gas and oil prices across the country.

In the face of those challenges, he said, the administration developed a policy that tackled the issue on several fronts simultaneously. The new policy, he said, included specific, actionable recommendations on increasing supply, enhancing efficiencies, promoting energy conservation, advancing a diversity of supply, upgrading infrastructure (particularly the electricity grid), protecting the environment, and providing a vision and path to the energy future.

"Those were the goals" Abraham said, "and the National Energy Policy proposed 105 specific recommendations for action that would meet our short- and medium-term needs and prepare our nation for a leap into a transformed energy future."

"We have made very significant progress toward every one of our goals," he said. "Most of the 105 recommendations could be handled through administrative action, and on these we have either completed or are on our way to com-



ENERGY SECRETARY Spencer Abraham (right) with Labs President C. Paul Robinson during a visit to Sandia in the spring of 2001, not long after his nomination as secretary by President George W. Bush was approved by the US Senate. (Photo by Randy Montoya)

pleting well over three-quarters of the recommendations. . . ."

He said of the 22 specific proposals that required legislative action, 21 have either already been enacted into law, or are contained in either the House or the Senate energy bills that are headed to the House/Senate conference committee.

Abraham offered specific examples of progress so far.

Then, he shifted gears.

"Woven throughout the National Energy Policy is the recognition that we need to change the way we think about energy production and consumption," he said.

"Our plan does more than address today's challenges, or those of the next 20 years. . . . It is designed to transform how energy is produced and consumed for generations to come . . . by harnessing the genius of American science and technology."

Abraham summoned up images of an energy future that the administration hopes to move from the realm of speculative fiction to tangible reality.

"We foresee a world of cleaner, smaller, and more efficient units of power generation. We foresee more individual choice, more competition, and a closer approximation of a true market for energy in America. And we foresee increased reliability, increased supply, and lower prices."

Some of the components of the new energy future would include:

- Distributed energy — a move from almost exclusive reliance on big power plants toward smaller sources of power.

- Replacement of energy transmission systems in which power flows only one way — from a plant

to the home — and, instead, flows two ways.

- Home-based microturbines, allowing users to reap the benefits of their own efficiency by conserving and selling excess power into the grid.

Further out, but still perhaps just over the horizon, Abraham said, are new technologies that could work real revolutions in the energy arena:

- Advanced Generation IV nuclear reactors such as the one the US is currently developing in cooperation with France, Japan, and others.

- High-temperature superconductivity that would allow transmission of power more efficiently over longer distances. "We are working right now on a project with the private sector in which superconductivity increases the capacity of a transmission line by 300 percent," Abraham said.

"Let's go even further and imagine fusion as a realistic source of energy. We have significantly increased our research budgets for fusion energy and we are looking at the possibility of joining forces with other countries to conduct this work."

On a more modest level, Abraham noted that an increase of seven percent in the efficiency of the nation's 800-gigawatt-installed-power-generating base would eliminate the need for almost 200 power plants over the next 20 years and reduce emissions at the same time.

Finally, Abraham tuned to a subject close to the hearts of his Detroit audience: automobiles. "Imagine," he said "not just a new kind of automobile but a new kind of economy. For centuries we have lived and prospered in a carbon-based economy. Fossil fuels powered ships, warmed homes, drove automobiles, fired the revolution in flight and the revolution in information technology. Energy sources like coal and oil once overcame an economy based on horsepower. Imagine a day, not too far off, when our carbon-based economy itself passes from the scene to be replaced, perhaps, by hydrogen."

The National Energy Policy, Abraham said, aims to do two things at once: "moving us forward [to meet current challenges] while it prepares us for a great leap ahead."

"Many of us here today have seen the amused and bewildered look in a child's eyes when we tell him that we used to have only black-and-white TV — with three channels; that we remember a time before e-mail, cell phones, PCs; even keyless entry for automobiles! I believe my grandchildren will wear that same expression when my children someday tell them about the 'old days' . . . you know, when we used to worry about environmental pollution, power outages, and high prices for something called 'gas.'

"Imagine that."

— Bill Murphy

Favorite Old Photo

Great-grandfather jailed for his faith



This is a photograph of my great-great-grandfather Thomas Jefferson Jones (top dead center). He is pictured here proudly sporting his prison duds along with other leaders of his church (the Church of Jesus Christ of Latter-day Saints) who were imprisoned because their faith was out of favor with the federal government. While freedom of religion has always been guaranteed by the First Amendment to the Constitution, it has not always been enforced. In fact my ancestors were driven from their homes many times because their faith was not agreeable to the government.

—Anthony Bentley (2338)

Mileposts



Bruce Affeldt
40 8225



John Finger
40 6211



Vernon Barr
35 8219



John Covan
25 6252



Larry Walker
25 5320



Arlen Weishuhn
25 5934



Terry Macdonald
20 6822



Ann Marie Parkhill
20 3133



Thomas Wubbels
15 12620



Gregory Wyss
15 6410

Recent Retirees



Jay Chamberlain
39 2541



Victoria Gonzales
19 15310



Sharon Jensen
25 5800



Richard McAvoy
39 5734



G. Cook Story
32 8414

176 new digital copiers from Konica now installed; 100 more to come over the next two years

Copiers to be linked via network, which could save Labs up to \$300,000 a year

Lee Cunningham, Manager of Printing & Publishing Dept. 12630, reports that phase 1 of the new Sandia contract with Konica Business Technologies Inc. for the installation of new Konica copiers at the Labs (*Lab News*, March 8) is now complete.

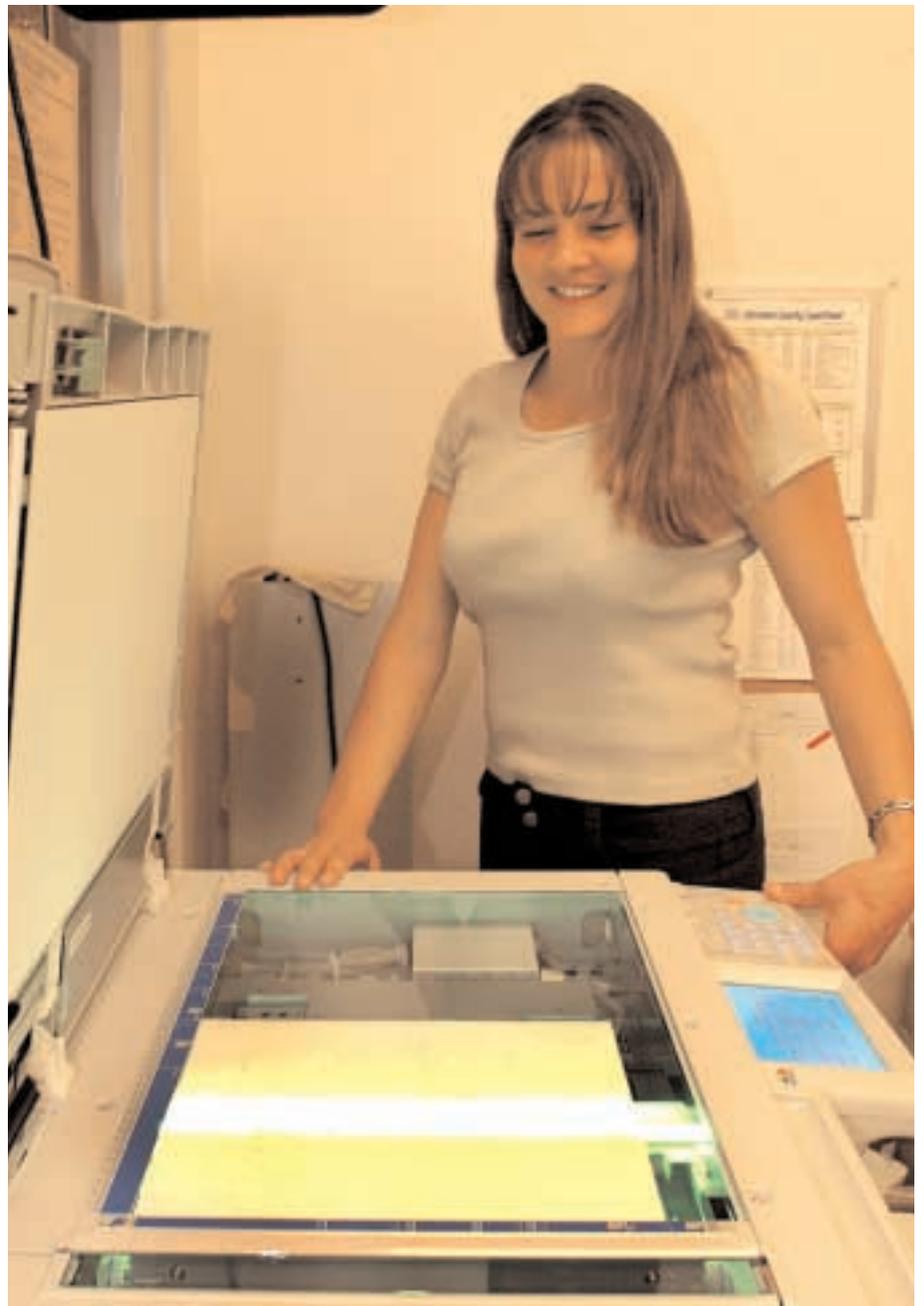
A total of 176 machines were installed in a six-week period after March 4. An additional 100 are to be installed over the next two years.

These are all digital copiers capable of being connected to a network. This feature represents a significant step forward in making these copiers easier and more efficient to use, Lee says. Rather than having to walk to the copier to make copies, users will be able to send copying work directly to the copier/printer from their desktop.

Network implementation, Phase 2, is scheduled to begin about the middle of June. According to Lee, networking at least half of the units could result in a savings to the Labs of about \$300,000 a year over the life of the contract. Lee says this savings could be generated by the shift of approximately 15 percent of the 26 million copies currently being made on laser copiers to the new digital copier/printers.

"This was a great start," Lee says. "We are all very pleased with Konica's performance and look forward to a very strong relationship for the remainder of the contract."

In appreciation and recognition of the leadership, teamwork, and customer service provided by Konica employees Andrew Taylor and Richard Drake during the difficult implementation phase, Sandia has given them special awards. Don Carson, Director of Public Relations and Communications Center 12600, presented them with Special Recognition Certificates. Also at the presentation were Heidi Garcia and Mary Kunzler from Konica; Mary Gallegos, Sandia's delegated representative from Printing and Publishing Dept. 12630; Doug Otts (10255), buyer; and Anthony Sanchez, Manager of Commercial Products & Services Dept. 10255.



KRISTY KANESHIRO (3113) takes a new Konica digital copier for a test drive. (Photo by Randy Montoya)

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

MISCELLANEOUS

SOFA BED, heavy-duty, gold color, great condition, \$300. Herrera, 833-5035.

FOUR-BUS MIXER, Mackie 24-channel, w/road case & stand, 6 mos. old, mint condition, \$1,100. Brooks, 228-4996.

GAS LAWNMOWER, 6.0-hp, Sears Craftsman, \$100; couch, excellent condition, \$40; trampoline, 8-ft., \$20; basketball goal, \$50. Chavez, 831-3193.

BRA, for a Porsche Carrera/Boxter. Shelton, 797-5008.

CARGO BOX, diamond-plate aluminum, for full-size pickup, \$125; men's 10-1/2 roller blades, like new, \$75. Mooney, 294-5161.

DINING TABLE, teak, w/6 chairs, seats 12, large buffet & side cabinet, \$450. Layne, 857-0989.

HOME GYM WEIGHT MACHINE, Marcy, complete workout, similar to Nautilus, w/manuals & video tapes for assembly & training, \$350 OBO. Yesner, 858-3463, ask for Steve.

KID'S PLAY HOUSE, Little Tykes Country Cottage, approx. 6-ft. square, \$40. Wessendorf, 292-2284.

BI-FOLD DOORS, louvered, several sizes, excellent condition, microwave oven, all left over from remodel, make offer. Klarer, 344-0612.

CARRIER 58GS150-3, updraft 150KBTU, hi-effic. gas furnace & 38RE AC condensing unit w/freon/28VQ48020 evap coil (4 ton, SEER 8), works fine, mid-80's technology. Menicucci, 842-6330.

SOFA, good condition, no odor, \$35 OBO. Giese, 332-8212, michel-legiese@mail.com for picture.

COMPUTER CARTRIDGES, for Canon BJC-600 series, 610, 620 printers, free. Wronosky, 296-7265.

'99 F350 TAILGATE, \$300; rear bumper, \$155, should fit any Ford F series pickup after '98, check to make sure. Ramsey, 265-0428.

CELL PHONES, 3 VoiceStream Nokia 5190's w/CIM card, hardly used, \$35 OBO. Sanchez, 764-1895.

ELECTRONIC KEYBOARD, Casio CK1000, w/carrying case & external transformer, like new, \$300. Dobias, 856-7841.

DISHWASHER, KitchenAid, drop-in electric range, both work, \$50 ea. OBO. Borgman, 299-6010.

IGUANA, 2-ft., w/large tank, heat lamp & UV light, experienced owners only, \$20. Milesosky, 266-5901.

SOUTHWEST AIRLINES TICKETS, roundtrip, must-ride passes, expire 3/31/03, \$300 ea. Lieberman, 299-7739.

ELECTRIC WHEELCHAIR, adult, never used, originally \$7,500, asking \$2,000 OBO. Sheridan, 286-8089.

CONCERT TICKETS, 2, general admission, Bonnie Raitt, June 8 at Paolo Soleri-Santa Fe, \$80 for both. Dodge, 899-2881.

'00 NISSAN ENGINE, V-6, AT, posi-traction, new, no miles, perfect for custom car. Stump, 864-2012.

ENGINE HOIST, heavy-duty, 4-caster adjustable, American Steel, import cylinder, almost new condition, \$250 OBO. Newton, 823-1124.

MOVING BOXES, 50 cardboard boxes of various sizes, including 8 dish packs, used once, \$50. de Boer, 255-1479.

STEREO TAPE RECORDER, Sony 7-in. reels, oldie but goodie, includes manual, tapes, & mikes, second unit for parts. \$75. Hueter, 299-7263.

MOVING BOXES, 80 professional boxes, including 10 wardrobes & packing material, used for one move, \$125. Champlin, 323-1968.

MOVING SALE: living, dining, bedroom furniture, including, sofa, easy chair set, end tables, dining table, hutch, large entertainment center & more. Chavez, 294-4184.

ENTERTAINMENT CENTER, large, oak, smoked-glass component enclosure, 27-in. TV opening, excellent quality, \$250. Wilcoxon, 296-8295.

LYMAN TURBO TUMBLER 1200, \$30; Weaver 3X scope, \$25; Lee LoadAll, \$18; Reverse Osmosis filter system, \$70. Dietz, 286-8244.

ELECTRIC VIOLIN, Yamaha "Silent" SV-100K, w/case, perfect condition, \$450. Cox, 299-5212.

GARAGE SALE: women's clothing, children's books, toys, bike, usable household items, June 1-2, Far NE Heights. Surbey, 823-2843.

ELECTRIC RANGE, flat top, w/self-cleaning oven, Frigidaire, 2 yrs. new, \$235. Mickelsen, 821-5036.

RIVER ROCK, gray, 1-in. to 2-in. diameter, 2-yds., free if you haul, expensive if I haul. Murphy, 292-8016.

DINING TABLE, w/4 upholstered chairs, 47" x 35", \$175; king-size waterbed, dresser, 2 nightstands. Graham, 890-2748.

UPRIGHT PIANO, antique mahogany, in good condition, \$400 OBO. Montoya, 345-0512.

QUARTER HORSE, 3-yr.-old filly, line back dun, w/tiger striped front legs, green broke but gentle & fast learner, \$1,200 OBO. Keyworth, 281-2362.

ESTATE ITEMS: matching wall units, w/cabinet & bookshelf, microwave, TV, 2 matching end tables, w/drawers, chair, much more. Chavez, 275-0490.

MOUNTAIN RENTALS, 2 furnished 1-wk. rentals, in Angel Fire, modern, includes half-price golf/activities, sleeps 6, \$500 ea. Lagasse, 298-0977.

SUNGLASSES, Oakleys, unisex, brand new, Ultra Lifestyle lenses, w/bag & special round textured case, \$99 OBO. Glenn, 345-7313.

REFRIGERATOR, Amana, 22 cu. ft., top-freezer, almond, good condition, \$275 OBO. Ashcraft, 281-5993.

AIRCRAFT RADIO, Futaba, 4-channel model, unused, \$65; Flightcom Blackhawk headset, \$90; weight bench & weights, \$75. Harris, 822-0236.

SLEEPER SOFA, w/matching recliner-rocker chair, end table & lamps, Bose 901 floor speakers, all excellent condition, best offer. Roach, 296-0432.

AIR COMPRESSOR, Sanborn, 2-hp, 110/220V, 7 CFM@40-psi, 20-gal. horizontal tank, w/filter & regulator, \$50. Rosborough, 865-8490.

ELECTRIC MOTORS, 6, from various household appliances, all in running condition, \$10-\$15 ea. OBO. Horton, 883-7504.

HO TRAIN LAYOUT, 4' x 8' table, operational but not landscaped, excellent starter for hobby, \$350 OBO. Womble, 299-9695.

CHAIR, for PC desk, arm rests, high quality. Moss, 298-2643.

HIDE-A-BED, queen-size, great condition, blue w/oak trim, \$150; upright 5-shelf bookcase, dark-wood finish, \$50. Gabel, 275-3436.

XERISCAPE w/century plants (agave), home-grown, up to 2-ft. in diameter, \$5 to \$45. Bando, 856-7330.

DIRT-BIKE HELMETS, 2, \$5 ea.; pack frames, 3, child, \$2; adults w/pack, \$10 & \$25. Lambert, 768-5955.

CONCERT TICKETS, Eagles, June 4, 6 tickets, \$87 ea. Martinez, 720-1119.

COUCH, loveseat, ottoman, plush pillow couches, moving, need to sell, 8 mos. old, \$800. Pacht, 385-2389.

WASHER & DRYER, stackable, front loading, \$525; 15-cu.-ft. refrigerator, \$200; microwave, \$40; queen-size futon frame, \$50; various furniture. Stein, 323-4975.

DRIVER, Ping titanium, 8.5 deg. loft, bi-matrix shaft, only 3 rounds played, \$300 new, asking, \$150. Rule, 884-8762.

CRIB, solid oak, w/mattress. Duckett, 836-5310.

DOBERMAN, 1-yr.-old male, neutered, brown/tan, very nice & puppy-like, has ears & tail. Helfrich, 255-9580.

PET CRATE/CARRIER, medium; Fisher Price sand/dump truck set, \$35 ea. Sanchez, 550-1001.

HIDE-A-BED, 76-in., 3 cushions, queen-size mattress, off-white color, \$100, delivery \$10. Allen, 884-4859.

BEARDED DRAGON, sub-adult male, sells for \$120-\$180, asking \$100; Marcy home gym, \$150 OBO. McCrory, 401-4412.

PAINTBALL GUN, SpyderTLPlus, 2 barrels, hopper, less than 1,000 rounds shot, CO2 tank, 6-stage expansion chamber, \$350. Zirzow, 281-9896.

STEEL DOOR, w/steel frame, new 36" x 80", \$50; metal-clad door, 36" x 79", \$20; lodge-style hanging fireplace, \$250. Talbert, 298-9036.

CREST-BACK CHAIRS, 4, antique, wooden, \$25 ea.; ladies writing desk, antique, \$100; outdoor motor, \$25. Bundy, 821-1846.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:

- E-MAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 0165 (Dept. 12640)
- DELIVER: Bldg. 811 Lobby
- INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.

Ad rules

1. Limit 18 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. Submit the ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. **One ad per issue.**
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active and retired Sandians and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. **We reserve the right not to publish an ad.**

TRANSPORTATION

'00 DODGE DAKOTA SLT, club-cab, 6-cyl., 2WD, AT, AC, PW, PL, cruise, cassette/CD, 3K miles, like new, original owner, \$16,000. Radigan, 821-0723.

'94 CHEVY SUBURBAN, 4x4, loaded, very clean, runs excellent, \$10,500 OBO. George, 220-2838.

'93 MAZDA MIATA, convertible, 5-spd., AC, stereo, bra, new tires, 87K miles, \$5,400. Lenberg, 238-0362.

'93 SATURN SL2, manual, AC, PW, PL, rigged to be towed (tow bar included), 92K miles, \$2,625. Halasz, 821-2814.

'98 HONDA CIVIC EX COUPE, silver, 5-spd., AC, moon roof, 90K miles, \$8,200. Briggs, 730-0105, ask for Tina.

'99 YUKON SLT, white ext., gray int., fully loaded, only 34K miles, \$22,900 OBO. Wilson, 833-1139.

'99 TOYOTA TACOMA, 4x4, SR5 xtra-cab, TRD, V6, 5-spd., white w/fiberglass shell, \$17,000. Lamb, 332-2219.

'94 CHEVROLET BERETTA, 2-dr. coupe, V6, AT, loaded, w/options, extra clean, 94K miles, \$3,800 OBO. Sturgeon, 281-9035.

'93 MITSUBISHI 3000GT, VR4, smoke, 84K miles, PM current, manuals, excellent condition, \$10,500. Zanner, 281-1789.

'96 FORD WINDSTAR GL, V6, power everything, very clean, excellent condition, 82K miles, \$6,900. Hanselmann, 254-1782.

'01 NISSAN XTERRA, 4x4, AT, AC, PW, PM, PL, cruise control, tilt, security system. West, 272-0142 or 922-1387.

'91 FORD TEMPO, 4-dr., 4-cyl., AT, body/paint excellent, interior like new, 53K miles, runs perfect, \$2,100 OBO. Wittwer, 298-0589.

'98 CHEVY SILVERADO C2500, 2-dr., ext. cab, long bed, 454, AT, white w/gray int., fender flares, toolbox, bed rail caps, tow package, \$13,500 OBO. Kazensky, 362-2624.

'87 JEEP CHEROKEE, 4x4, 6-cyl., 4.0L engine, tan interior & exterior, runs well, \$3,000 OBO. Cleland, 281-2228.

'99 CHEVY CAVALIER, 5-spd., AC, PS, anti-lock brakes, 20K miles, garaged, almost new, \$7,000 OBO. Campbell, 296-8304.

'78 SAAB 99 LAMDA, co-winner of '99 ugly car contest, still going strong, needs muffler, \$300. Shapnek, 281-5913.

'80 CHEVY STEPVAN, 30 series, 350 V8, AT, 24-ft., business or moving van, \$3,000 OBO. Maes, 291-1970.

'90 ACURA LEGEND COUPE LS, 5-spd., sunroof, leather, 150K miles, ABS needs reset, \$6,900 or take over payments. Mora, 291-1250.

'00 FORD RANGER, ext. cab, 4WD, V6, AT, off-road, XLT, 25K miles, bed liner, flareside, black, loaded, \$18,250. Martinez, 363-1130.

'89 MAZDA MX-6, red, PW, AC, AM/FM/CD, sunroof, cruise, alarm, clean, runs great, reliable, \$3,100. Valdez, 345-0727.

'90 ACURA INTEGRA GS, AT, ABS, sun roof, black/tan interior, clean, 120K miles, runs great, \$3,300. Bourdon, 898-3032.

'92 MAZDA MPV, very reliable, very loaded, very nice, with warranty, below book, \$4,900 OBO. Rea, 286-0286.

'97 SUBARU LEGACY L SEDAN, AT, AWD, ABS, AC, tinted windows, maroon, 61K miles, excellent condition. Carmignani, 839-4203.

'84 FORD PICKUP, V8, standard transmission, short bed, stepside, needs work, \$995. Windenhoefer, 298-2510.

'74 BMW 2002tii, rebuilt engine, transmission, injection, body restored, AC, complete records, rare classic, \$7,500 firm. Jacobs, 301-6440.

'00 TOYOTA 4RUNNER SR5, 4WD, AC, AM/FM/CD/cassette, cruise, hitch, rack, garaged, 15K miles, \$25,900. Hardy, 897-9032.

'01 LEXUS IS 300, charcoal, 17K miles, one owner, remainder of 70K warranty, \$29,000 OBO. Schmidt, 275-0955, ask for Shawn.

'94 OLDS BRAVADA, AWD, leather, well maintained, very good condition, red, 94K miles, \$7,700 NADA, asking \$6,200 OBO. Davis, 235-7770.

'00 GMC Z71, ext. cab, 4WD, white/gold bottom, camper shell & extras, 35K miles, very nice, must see, \$21,900. Hudson, 821-3968.

'91 FORD EXPLORER, Eddie Bauer, AT, AC, 4-dr., tan, moon roof, 91.5K miles, \$3,500. Bergstresser, 294-5894.

'91 HONDA EX, 2-dr., loaded, spoiler, moon roof, white, very clean, one owner, garaged, 81K miles, maintenance records available, \$6,000. Hoyal, 823-1421.

'59 WILLYS JEEP, turquoise & white, fair condition, not running, \$1,200; '65 VW Bug, all original, good condition, rebuilt engine, \$1,995, must sell both. Smith, 550-5501.

'95 OLDS ACHIEVA, 2-dr., quad-4, AT, loaded, under 48K miles, excellent condition, must see, \$5,600. Vance, 573-4114.

'79 FORD 302, heads good, \$50; small girl's bike, \$12; Sears garage door opener, \$15. Schwertkoske, 822-1914.

'98 FORD F150, Supercab, XLT, short bed, 4x4, 4.6L V-8, AT, AC, PW, 53K miles, \$16,900. Garrett, 856-6191.

'99 HONDA CRV, AWD, AT, PW, PL, white, CD/cassette, 36K miles, \$15,500. Jones, 332-6687.

'94 SATURN SC2, 5-spd., AM/FM, cruise, AC, white, tan interior, 4 cars, 1 goes, 59K highway miles, \$4,200. Eldridge, 869-8525.

'93 CADILLAC ELDORADO, all power, leather seating, theft deterrent, only 10.7K original miles, superb condition, \$10,000. Klavetter, 323-1141, 9 a.m.-5 p.m.

'96 DODGE CARAVAN ES, candy-apple red, power, leather captain's seats, sliding doors, luggage rack, \$8,000 OBO. Spencer, 275-2091.

'93 SAAB 9000 CDE, loaded, leather/wood, AT, AC, sunroof, CD/cassette, heated seats, 100K miles, runs well, \$5,900. Keegan, 323-8823.

'94 JEEP CHEROKEE SPORT, 4WD, auto locks, white, roof rack, full-size spare, great condition, \$5,000. Carriaga, 263-8240.

'01 FORD F150, Supercrew, 4x4, silver, 31K miles, \$24,500. Lippard, 203-4487 or 239-7275.

RECREATIONAL

'98 YAMAHA BLASTER ATV, 200cc engine, modifications for better performance, new tires, \$2,500 OBO. Murguia, 255-6128 or 453-6449.

'95 YZ250, good condition, never raced, custom exhaust, extra plastic, \$2,000 OBO. Diaz, 872-4147 or 980-9338.

RUBBER RAFT, seats 2, \$50; baby swing, \$10; baby walker, good condition, \$15. Chavez, 842-6374, after 6 p.m.

'02 HONDA CBR 600F4i, yellow/black, 250 miles, excellent condition, 3-yr. extended warranty, \$9,000. Maestas, 228-0636.

SAILBOAT, Jetwind, 13-ft. 10-in., 3-person, 500-lb. max capacity, w/car-top racks, accessories, \$975. Pike, 299-6153.

'80 KAWASAKI KZ550, Dunlop Elites, after-market shocks, 54K miles, good commuter bike, \$550. Olson, 296-8641.

'83 CHAPPARRAL 187XLC, 170-hp Mercruiser, depth finder, skis, life jackets, AM/FM/cassette, great shape, \$5,300. Hudson, 821-8988.

RECUMBENT BICYCLE, Hybrid race, top of the Halazak line, red, 2000, Ultegra equipment, \$1,200. Smith, 244-8346.

ALUMINUM BOAT, 10-ft., w/electric motor, \$350. Brannon, 296-6674.

V-HULL, 14-ft., 55-hp Chrysler, trailer, electric start, fish-finder, trolling motor, marine battery, \$1,200 OBO. Barthelmes, 286-1491.

'01 KAWASAKI NINJA 250, yellow, great starter bike, 550 miles, excellent condition, just serviced, \$2,700 OBO. Peek, 286-4258.

'93 F37MAX, King of the Road 5th wheel, fully loaded, 2-slide outs, \$25,000 OBO. Barnette, 540-1268.

REAL ESTATE

3-BDR. HOME, 2 baths, 3-car garage, great room, office/library, gorgeous back yard, w/12' x 24' redwood sunroom, FSBO, \$169,000. Spiegel, 836-2686, for directions.

5-BDR. BRICK HOME, 3 baths, walk to elementary, middle, & high schools, Louisiana/Candelaria, \$204,900. Devejian, 884-3801.

3-BDR. HOME, 2 baths, fireplace, skylight, new roof, paint, near Coors & St. Joseph, FSBO, \$99,500. Dickenman, 994-3451.

3-BDR. HOME, 2 baths, bonus room, pantry, fireplace, tool shed, jet tub, in foothills, near base, FSBO. Zaragoza, 292-4071 or 220-1323.

4/5-BDR. HOME, 4-car garage, beautiful kitchen, large game room, 3,950 sq. ft., N Albuquerque Acres. Davidson, 821-0579.

5-BDR. MOUNTAIN HOME, 3-car garage, office, 13-1/2 acres, FP, country chef's kitchen, 1,600 sq. ft. barn, w/living quarters, MBR suite w/garden tub, sell ASAP, \$399,900. Rowe, 286-5432.

3-BDR. HOME, 1-3/4 baths, 2-car garage, solar collector, double-corner lot, w/backyard pad, 10 min. to base, 1,750 sq. ft., \$139,900. Shaut, 286-1235.

20 ACRES, just south of Chilili, N.M., \$19,000 (\$495 down, \$190/mo.). Dytzel, 296-1900 or 881-4973.

WANTED

BABYSITTER, for 10 yr. old, prefer female, w/references. Lewis, 294-0766.

DOG-SITTER, in your home, want someone who'll love my doggie. Blickem, 323-6832.

GOOD HOME, for 5-lb. female Chihuahua, un-spayed, black, mix, 20 wks. old, personality, affectionate, paper/yard trained. Vigil-Lopez, 242-7001.

ALTO OR TENOR SAXOPHONE, student or intermediate, in good condition, on a budget. Evans, 463-6877.

STUDENT, conscientious, interested in summer work (landscaping, painting, etc.). Heffelfinger, 281-1733.

FURNISHED APARTMENT, to share w/female new hire, no smoking/pets, June 28 for 6 mos. Schwing, 607-222-2519, email dcschwing@hotmail.com.

GOOD HOME, convict cichlids, gray w/black stripes. Leisker, 293-3075.

WORK WANTED

BABYSITTING, responsible 14-yr.-old female, available weekdays, week-end, anytime after June 5. Baca, 797-1317.



Sandia, Lockheed Martin honor 10 local high school science teachers for their excellence

Eldorado High School's Lesha Harenberg named 'Science Teacher of the Year'

"A mind, once stretched by a new idea, never regains its original dimensions."

—Oliver Wendell Holmes

Ten science teachers from area high schools — who have stretched the minds of their students — were awarded "Excellence in Science Teaching" awards from Sandia and Lockheed Martin in a May 21 ceremony.

One of the ten, Lesha Harenberg of Eldorado High School, was named "Science Teacher of the Year."

The other awardees and their high schools were: Rick Cole, Los Lunas; Larry Daughenbaugh, Rio Grande; Karen Held, Highland; Adrienne Koehler, West Mesa; Ken Ley, Moriarty; Bruce Miller, La Cueva; Alice Roche, Sandia; Tori Stephens, Del Norte; and Teresa Walker, Rio Rancho.

These teachers were selected on the basis of their abilities to inspire student interest and

"These teachers have a positive influence on their schools. They are educators, mentors, surrogate parents, counselors — they play a variety of roles."

enthusiasm about science and to serve as role models and mentors to other science teachers, says Mike DeWitte, Deputy Director for Corporate Outreach (12650). "These teachers have a positive influence on their schools," he said, as he announced the awards at a dinner ceremony. "They are educators, mentors, surrogate parents, counselors — they play a variety of roles."

Winning teachers were joined by their family

members, school administration officials, and numerous local, state, and federal government representatives at the awards dinner, held at the Sheraton Uptown Hotel in Albuquerque.

"We think it's important to remind the public that there are excellent science teachers out there and there are really good things going on in our schools," said Bruce McClure (12650), who managed the Excellence awards project.

All regional public schools — from Bernalillo to Belen to Moriarty — were invited to participate in the program, which is coordinated by Sandia and funded by LMC.

Each teacher received \$100 for classroom or lab use, a certificate of recognition from Sen. Jeff Bingaman, and a dinner for two from one of nine sponsoring restaurants. The "Science Teacher of the Year" award includes \$500 for classroom or program use. Rep. Heather Wilson, R-N.M., also sent a letter of congratulations to the winners.

— Will Keener

Seven Lockheed Martin scholarships go to Sandians' kids

Children of six current Sandians and one Sandia retiree have been named Lockheed Martin Scholarship recipients this year.

The Sandia recipients are: Michael Anderson, son of Ron Anderson (1738); Elizabeth Arnold, daughter of John Arnold (ret.); Ruth Bacon, daughter of Larry Bacon (15333); Rachel Bixler, daughter of Nathan Bixler (6415); Julia Dexter, daughter of John Dexter (9332); Susanna Ricco, daughter of Mary Ann Sweeney (1670); and Jason Schmidt, son of Rod Schmidt (9233).

The program awards \$3,000 a year for up to four years of undergraduate study to National Merit Finalists who are the children of Lockheed Martin employees or company-affiliated organizations. Forty-seven graduating high school seniors received scholarships this year. The National Merit Scholarship Corporation makes the selections for LMC.

More information about the scholarship program is available at this website: http://www.lockheedmartin.com/about/community_relations/scholarships.html.

Feedback

Q: Many of us benefit from the Tuition Reimbursement program at Sandia and we are grateful. Recently, we learned that the University of Phoenix would now bill us personally for the tax on our tuition that is paid by Sandia. (Approximately \$55 per 3-credit course.) The reason is that "Sandia is tax-exempt but we the students are not." Can they legally do this since Sandia is the customer? Not all universities are doing this, only University of Phoenix. Will this be an allowable voucherable expense?

Also, some managers will pay for books and others will not. Why the inconsistency? If the course is "directly related" to the current job, wouldn't the books be a voucherable expense that could later be added to the department or company library?

A: Sandia received a letter from the University of Phoenix explaining the change in its billing Sandia for sales tax associated with tuition. We have since consulted with Sandia's Legal Organization for guidance. It is permissible for the University of Phoenix to charge sales tax on their tuition; therefore, effective with courses starting Jan. 1, 2002, Sandia will pay the sales tax as it appears on an invoice. The University of Phoenix has already been notified of this decision.

Sandia's Tuition Assistance Program does not reimburse for textbooks or related material.

— Don Blanton (3000)

Q: My office is in Bldg. 891. On several occasions recently, I have returned to 891 from another building after 5 p.m. but before 5:30 only to find the building locked. I must go to a phone, which is located by a turnstile for the most part, and call to get the code for entering the building. Why is the building locked so early? When will the building get equipped with a security system that allows us to swipe our badges for entry?

A: Manual locking of most buildings within Tech Area 1 is done by patrol officers as they make their random inspection rounds. In order to get all buildings locked by the end of a scheduled patrol with the limited number of patrol officers, it is sometimes necessary to start early. It is unfortunate that you have been locked out of Bldg. 891; however, there are plans to install badge readers to replace the Codetronix (284-LATE) systems. Security has funded replacement of these systems slowly over the last several years. Bldg. 891 will be done this fiscal year, as will Bldgs. 880 and 806. This will leave Bldgs. 893 and 807 on the old system. These two buildings may also be completed this fiscal year, if time and money allow. Since these installations have a lower priority than customer-funded remodeling projects, we can't commit to a firm date. Please bear with us as we change; it won't be too much longer for Bldg. 891.

— Al West (3100)

Slurry bombers fly low over Sandia



LAST WEEK, while most of their neighbors across the state were preparing for a long and carefree Memorial Day weekend, residents of the Northern New Mexico town of Truchas were obliged to leave their homes as the wind-whipped Borrego forest fire in the Santa Fe National Forest continued to spread. As firefighters on the ground fought the drought-augmented blaze, a fleet of slurry bombers pounded the inferno from the air, dumping tons of fire retardant and water on the fire line. The distinctive deep-throated thrum of the prop-driven slurry bombers turned many Sandians' heads skyward throughout the week as the steady stream of bombers based at Kirtland vectored off to the north with their heavy loads. *Lab News* photographer Randy Montoya captured the image above while taking photos for the second annual Forklift Safety Rodeo (see photos on page 7). The rodeo was held at Sandia's Shipping and Receiving parking lot, directly in line with the end of the airport runway. As contestants demonstrated their skills on the asphalt, slurry bomber pilots were demonstrating their mettle in the sky. By week's end, the firefighters — on the ground and in the air — had turned back the Borrego blaze sufficiently that Truchas residents were able to return to their homes. As other fires erupted in the drought-stricken state, slurry bombers continued to launch from Kirtland; until and unless hoped-for monsoon rains bring needed moisture to New Mexico's forests, the fight — and flights — will go on.