



ALPENGLLOW AND EARLY SNOW — The Sandia Mountains give off a spectacular sunset glow as clouds loom and early snow hints of winter soon to come. The Sandias, from which the Labs took its name, help define Albuquerque. This scene, captured recently by *Lab News* photographer Randy Montoya at the Elena Gallegos open space area on the northeast edge of Albuquerque, heads this special year-end holiday issue of the *Lab News*. See note on page 2.

Sandia gets a new GIF for the new year

More capable Gamma Irradiation Facility opens

By John German

Got a satellite, tank, or favorite weapon component you'd like to irradiate?

Early in January workers plan to move 270 pins made of cobalt-60 into a pool of water at the new Gamma Irradiation Facility (GIF) in Area 5, officially welcoming Bldg. 6586 into Sandia's family of experimental nuclear facilities. The pins will become the gamma source arrays used to subject test objects, such as weapons electronics, to radiation.

The new GIF combines the capabilities of three older radiation facilities — the old GIF in Bldg. 6588, the Low-Intensity Cobalt Array in Area 1, and the Low Dose Rate GIF in Area 3 — into one all-purpose gamma facility. It also adds some experimental capabilities never before available at Sandia.

The facility includes two 10 x 10-ft. test cells, one cavernous 18 x 30-ft. chamber that can accommodate large test objects such as weapon assemblies, military vehicles, or space equipment, and an 18-ft.-deep pool of water where underwater experiments can be conducted.

Lots of concrete

"We are pleased to bring the new Gamma Irradiation Facility on line to support the nuclear weapons complex and our work-for-others customers — principally DoD and the NRC," says Sandia Nuclear Facilities Manager Ted Schmidt (6430). "This facility incorporates multiple levels of safety and has significantly enhanced capabilities compared to the previous facility. It will satisfy Sandia's

(Continued on page 4)

Sandia Lab News

Vol. 52, No. 25

December 15, 2009



Happy holidays? How about 131 million reasons to celebrate?

Fourteen Sandians share mega-Powerball payoff



By Bill Murphy

The clichés bubble boisterously in the brain and flow extravagantly from the lips: "You're my new best friend" . . . "You look like a million bucks" . . . "Have you turned in your notice yet?" . . . "Who wants to be a millionaire?"

Clichés? Sure, and by midmorning of Nov. 30, the 14 Sandians had already heard them — and tons more in the same vein — dozens of times. But still they smiled. They laughed. And why shouldn't they? Each of them had learned just hours before that they had won the latest 20-state Powerball lottery and would share a \$131 million jackpot. (Well, actually, they'll split a measly \$70 million jackpot if they go for the cash-up-front payoff, the option the group was inclined to choose as of *Lab News* press time. That's \$5 million apiece before Uncle Sam and the State of New Mexico take their cuts, or somewhere in the neighborhood of \$3 million free and clear per person.)

(Continued on page 5)



Shoes for kids!

For more than 40 years, Sandians have contributed generously to the Shoes for Kids program. For the past 15 years, *Lab News* photographer Randy Montoya has been taking photos of the big day when disadvantaged kids get their new shoes. This year, in a first-person account, Randy talks about what his personal involvement in the annual holiday tradition has meant to him. See his story — and pictures — on page 8.

Atom islands move: Researchers identify new materials process **3**

Labs-developed synthetic aperture radar succeeds in real-world tests **6**



9 Sandian Jerry Gorman's paintings in demand in Santa Fe, Sedona

16 Sandia employees come through again; top \$2 million in giving

This & That

Next issue is Jan. 12 – This is it, our last 2000 issue. We publish next on Friday, Jan. 12, when we resume a regular biweekly schedule. The deadline for all news and ads is noon, Friday, Jan. 5.

* * *

Complete Lab News Web pages – Although we've long put selected stories on the Web, thanks to *Lab News* writer Bill Murphy, we now offer it all electronically. Our Dec. 1 issue is the first to go on the Web in full, in pdf pages. I can never remember what pdf stands for, but we'll say "pretty darn fast," because on the Sandia network the pages download and then open quickly using Acrobat Reader 4.0. Another dividend is that some photos on our Web pages are in full color. You can check it out at <http://www.sandia.gov/LabNews/LabNews.html> and bookmark it for future use.

Retirees and other readers outside Sandia can also access the Web pages, but a little patience may be helpful – especially if you use an older home computer or your modem is slow. If you don't already have Acrobat Reader, clicking on the issue link should automatically launch it. I was viewing pages on my home computer (350 MHz, 56K modem) in just over one minute after clicking on the Dec. 1 link. (That issue is only eight pages. Longer issues may take more time to download and display.)

A few strong words of caution: We can't promise to have each issue on the Web immediately. Our hard-working staff has many duties, and we'll get to this one as quickly as possible for each issue, but it may sometimes be several days after the paper-copy date. We are rowing this boat as fast as we can and sometimes have to fight powerful headwinds.

* * *

Core values test – We published Sandia's new set of four core values Nov. 17, and this is a test. Can you name them all? Hint: They DON'T include pride, envy, gluttony, lust, anger, greed, or sloth.

Our core values are very important, management says, so if you can't name all four, I suggest you write them in ink in the palm of one hand and not wash it until you memorize them all. Here goes: We Sandians value "integrity, excellence, service to the nation, and each other." All are fine values, but I must be totally honest about that last one because I recently had ethics training. I value some of you more than others, but please don't ask me for names. I can't afford to be *that* honest.

Finally, someone near and dear to me – I value her muchly – thinks I should mention that there is absolutely no truth to the rumor that we now have fewer core values than before because our workforce is aging and can't remember more than four. No truth whatsoever.

OK, without looking up, what are our four values? Start writing.

* * *

Me, a prevaricator? – I'm not sure I can ever trust Editor Ken Frazier to columnize for me in the future when I'm on vacation. He did that in the last issue and had the nerve to say in print that I have a "propensity for creative prevarication." If he doesn't stop saying such naughty things about me, he could easily become one of those Sandians I don't value quite as much as others (see previous core values item).

– Larry Perrine (845-8511, MS 0165, lgperri@sandia.gov)

Bioassays recommended for some Bldg. 807 occupants

Urinalyses address employee concerns about chronic exposures to thallium, other metals

By John German

Forty-four employees and contractors voluntarily participated in a Sandia-sponsored bioassay program last week following a recommendation that current first-floor occupants of Bldg. 807 be tested for the presence of certain metals in their urine.

The participants — first-floor occupants as well as some current and former occupants of the building's 2nd and 3rd floors — voluntarily submitted urine samples collected over a 24-hour period to Sandia's Medical Clinic on Dec. 8.

Seven other non-occupants participated as members of a control group. Samples from about 30 more people are expected this week, says Dr. Larry Clevenger (3300), Sandia's Medical Director.

The samples are being analyzed by a consulting toxicology lab in Salt Lake City for the presence of thallium, manganese, lead, mercury, and arsenic. Test results will be reported to participants during the next several days.

The Bldg. 807 Management Action Team, which is guiding Sandia's investigation into the health concerns of some 50 current and former occupants of the building (*Lab News*, May 28, 2000), recommended the urinalyses following reports by several employees that bioassays conducted by their private physicians indicated the presence of thallium in blood samples, says Larry. (See <http://www.sandia.gov/health/advisory/bioassay.htm> for details.)

Additional bioassays were being planned after results of a University of New Mexico epidemiology study came in, but reports about the current blood tests "suggested it is prudent to gain additional information at this time," says Larry. "The intent is to clarify the implications of these test results for individuals and for the overall investigation."

No consensus on thallium

The five metals were chosen because of their known toxic effects on the neurological system.

Results of bioassays for mercury, performed earlier this year for several Bldg. 807 occupants, were normal.

Because research about the health effects of low-level, chronic thallium exposure is limited, no clear consensus exists among toxicologists about whether such exposures cause neurological symptoms, says Larry, although one study suggests that health effects are possible.

An industrial hygiene evaluation conducted in November found no evidence that either current or past uses of thallium-containing solutions in Bldg. 807 chemistry labs have resulted in laboratory contamination or significant human exposures to the metal.

Meanwhile, the Bldg. 807 investigation continues. (See <http://www.sandia.gov/health/advisory/index.html> for details and sampling data.)

The University of New Mexico Health Sciences Center is conducting an epidemiological study to look at prevalence rates and distributions of symptoms experienced by individuals who have occupied Bldg. 807 since 1990 and by members of a control group. A questionnaire is being distributed to hundreds of people this week.

"If you receive one of these UNM questionnaires, please complete it," says Larry. "The survey results will help the investigation team better understand the health issues being experienced by concerned employees."

In addition, a company that specializes in industrial hygiene investigations is being selected to conduct an independent and rigorous building-health evaluation.

Watch for details of these studies and a full update on the Bldg. 807 investigation in a future issue.

"[I]t is prudent to gain additional information at this time."

Sandia LabNews

Sandia National Laboratories

<http://www.sandia.gov/LabNews>

Albuquerque, New Mexico 87185-0165
Livermore, California 94550-0969
Tonopah, Nevada • Nevada Test Site • Amarillo, Texas •
Carlsbad, New Mexico • Washington, D.C.

Sandia National Laboratories is a multiprogram laboratory operated by Sandia Corporation, a subsidiary of Lockheed Martin Corporation and a prime contractor to the US Department of Energy.

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Lab News fax505/844-0645
Classified ads505/284-3704

Published on alternate Fridays by Media Relations and Communications Dept. 12640, MS 0165



This special year-end issue

We hope you enjoy this special year-end holiday issue of the *Lab News*. It is packed with important Sandia news: The discovery of an unexpected new way large islands of atoms move, the opening of the new Gamma Irradiation Facility, funding for the MESA facility, successful missions of Sandia's Lynx synthetic aperture radar, royalties awards to Sandia inventors, a new program to increase skilled trades workers, Sandia's electricity-purchase-driven stimulation of wind energy, and a report on our renewable energy programs with Mexico.

This issue has a few things extra, however — starting with Bill Murphy's feature on the exciting news that had all Sandia and all New Mexico talking: 14 Labs security police officers winning the multistate \$131 million Powerball lottery. We also present Randy Montoya's photos of local kids getting new shoes as a result of employees' generous contributions to the Shoes for Kids program, a report on Sandians' \$2 million (again) contributions to community charitable organizations, and short features on Sandia's new vacuum-pack team cleaning crews and on Sandia artist Jerry Gorman. Several of these are presented in color, something we can do only occasionally, and we lead it all off on the front page with Randy's beautiful and moody photo of the dramatic mountains on the edge of Albuquerque from which Sandia takes its name.

Happy holidays from our entire staff! We will be back with our Jan. 12 issue reporting on Sandia Science Day. — Ken Frazier, Editor

Atom islands move: Sandia team discovers surprising materials process, publishes results in authoritative journal *Science*

Unexpected dynamics of bronze formation might be harnessed for nanodevices

By Nancy Garcia

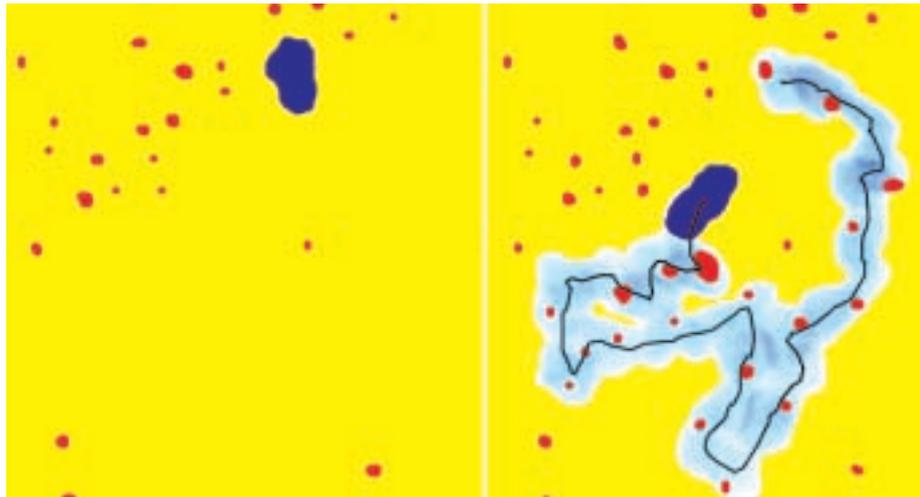
The invention of bronze — the first intentional alloy, a coppery brown metal still commonly used in industry and sculptures — brought ancient civilizations out of the Stone Age and essentially launched modern materials science.

Much lore and insight have accrued about metallurgy in the intervening millennia, causing intuitive pictures of how alloys are formed to mature. But the formation of alloys on surfaces has led to new and surprising concepts, as shown by the work of a Sandia team published in the Nov. 24 issue of the prestigious journal *Science*. Their discovery of an unexpected process for bronze formation holds promise for nanotechnology.

Observing tin vapor

Aided by a new microscope to observe tin vapor as it formed bronze crystals on copper, Andreas Schmid, Norm Bartelt, and Bob Hwang (all 8721) were startled to see the tin atoms clump and skitter like water spiders atop a rivulet. Not only did these clumps, hundreds of thousands of atoms across, leave bronze crystals in their wake, they also appeared to avoid alloyed areas — sometimes appearing to “paint themselves into a corner” by pausing rather than cross their track, or narrowing to squeeze through a region that already contained a little tin.

The process is directed by the “desire” of tin to lower the copper surface tension by forming bronze. This converts chemical energy to mechanical energy, perhaps more efficiently, the



BACK TO THE FUTURE — Civilization’s first alloy is yielding more insights into processes that could propel future inventions in nanotechnology. In these images, extracted from micrographs, a large, dark island of tin on a light copper surface is depicted alongside smaller crystals of bronze alloy. The image on the right was taken four minutes after the one on the left, and indicates the path taken by the tin island. The darker the path, the longer the tin remained over that region. Islands avoid crossing their own track. (The images, 600 nanometers across, were taken with low-energy electron microscopy, which permits observing the motion in real time. For a striking color version of this image, see box on page 9.)

Sandia CaliforniaNews

authors calculate, than an automotive engine. That propulsion might be harnessed to power nanomotors, or to direct construction of nanodevices such as catalysts.

“It’s not random,” Bob said. “If an area has clean copper, the islands will move toward that area.”

The Sandia research team has been investigating surface alloys for seven years because of their novel properties, promise for catalysis, and tai-

lored friction, among other qualities, Norm says. “Almost all useful metals are alloys because of their improved properties,” he pointed out, “and you can create some alloys on surfaces that you can’t create in bulk.”

The static images of bronze formation they obtained with a scanning tunneling microscope were perplexing, however. Tin clumps could not be reliably tracked from one minute to the next over the time needed to acquire the high-resolution images. “It’s like looking at a mountain range, turning your back for a second, then looking back and the mountain range isn’t there,” Norm says. A year ago, his group obtained a low-energy electron microscope that is adept at recording images of the surface 30 times per second.

Incredibly enlightening

“Applying this to metal alloys has been incredibly enlightening,” Norm says. “We had no idea how they formed, and it’s totally not what

we expected.”

Rather than a simple exchange of tin atoms for copper atoms, the process shows a more complex cooperative behavior. From the dilute tin vapor deposited on the surface, tin clumps coalesce. These clumps then sweep along, picking up copper atoms. When the density of copper in the tin islands becomes sufficiently large, ordered bronze islands are nucleated and left behind.

The movement is reminiscent of a phenomenon, first observed 300 years ago, that 19th century British scientist Lord Rayleigh used to calculate the surface tension of water: the skittering, twirling motion of bits of camphor dissolving. The camphor will seek out clean regions of water, leaving in its wake a thin film.

New understanding of the alloying process on solid surfaces represents a fundamental discovery that may guide the creation of nanostructures at surfaces, says Andreas. In the near term, along with researchers in Sandia/New Mexico, they are also investigating tin/lead solders through a Laboratory Directed Research and Development grant.

The team has posted a movie of the process (<http://www.sciencemag.org/cgi/content/full/290/5496/1561/DC1> or <http://www.eurekalert.org/releases/aaas-sni111500.html>). Team members also demonstrate the motion during scientific talks by scraping camphor particles into a clear dish of water placed on an overhead projector, displaying swirling flecks skating along like winter revelers at Rockefeller Center.

Further information:

Science: <http://www.sciencemag.org/cgi/content/full/290/5496/1561>

Science Perspectives: <http://www.sciencemag.org/cgi/content/full/290/5496/1520>

AAAS: <http://www.eurekalert.org/releases/aaas-sni111500.html>

London Financial Times: <http://globalarchive.ft.com/globalarchive/articles.html?id=001130001409>

Science News: <http://www.sciencenews.org/20001125/fob2.asp>

Chemical & Engineering News: <http://pubs.acs.org/cen/topstory/7848/7848notw1.html>

New York Times: <http://www.nytimes.com/2000/11/25/science/25NANO.html>

San Francisco Chronicle: <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2000/11/24/MN119413.DTL>

Tri-Valley Herald: <http://www.visitron.com/index3.html>

1,000 accident-free days at Sandia/California



SAFE TEAM — Logistics & Procurement Dept. 8523 reached a major milestone recently with 1,000 days without any injury accidents. Department Manager Jeff Manchester and Center 8500 Director Pat Smith hold a sign marking the event at a celebration with department employees in Bldg. 928’s warehouse. Jeff says the achievement is due to the entire department’s efforts to make safety and security a process, then thinking and talking about this process on a daily basis, so that now it has become second nature to employees. He points out that they have high-risk jobs that involve moving more material around the California site than any other group. “Now the staff brings suggestions to me on a regular basis and people feel comfortable in pointing out safety concerns to each other,” says Jeff. “They each take ownership of the processes and safety concerns. We simply think and act ISMS as the way we do business.”

New GIF opens

(Continued from page 1)

needs for decades.”

The new GIF is safer. Its test cells feature 6-ft.-thick concrete walls, four-pane leaded-glass windows, and serpentine entryways — which together virtually eliminate worker radiation exposures during experiments.

More than 2,600 cubic yards — about 430 truckloads — of concrete was used in constructing the chambers and pools, says Norm Schwerts, Manager of Hot Cells & Gamma Facilities Dept. 6432.

The cobalt source arrays move along underwater tracks beneath the test cells and are automatically raised into and lowered out of the chambers to deliver the desired dose of gamma radiation to test objects placed in the cells. (See “What’s GIF good for?” below right.)

A single test can last seconds to months



DANG BIG DOOR — Don Berry opens the “door” to GIF’s large test chamber. The door is a 480,000-lb block of solid concrete that rides on air bearings, allowing large test objects such as military vehicles, space equipment, and weapons assemblies to be placed in the chamber.

depending on the test designer’s gamma needs, says GIF facility supervisor Don Berry (6432). Gamma dose rates as low as tens of rads per hour to as high as 300,000 rads per hour can be delivered.

The 10-year design and construction process for the new GIF was completed in May, says Norm. Since then, Dept. 6432 staffers have been preparing for and responding to a series of operational readiness reviews.

The GIF passed a DOE review early this month allowing the radiation sources to be moved into GIF’s pools soon. The building’s official designation as a nuclear facility is expected before the winter shutdown.

The first radiation tests to verify the chambers’ shielding integrity and characterize their radiation environments are scheduled to begin in January.

Safety and thrift

Creating a high degree of safety and security while minimizing costs were two key considerations during GIF’s construction, adds Norm.

“We looked at all the accidents that could happen and designed against them,” he says. “We considered safety to workers and the public at every possible point.”

As a result, GIF will be certified by DOE as a Category 3 nuclear facility, meaning the threat to the general public is minimal even if the worst possible consequences of an accident or attack were realized.

“It’s unusually safe for a nuclear facility,” he says.

To bring construction costs down, Sandians Mitch McCrory (6431) and Milt Vernon (6422) visited decommissioned nuclear facilities at other DOE sites, salvaging the leaded-glass window panes used



GAMMA GOES HERE — GIF facility supervisor Don Berry (left) and Norm Schwerts, Manager of Hot Cells & Gamma Facilities Dept. 6432, review procedures used in GIF experiments inside the largest of GIF’s three test cells. (Photos by Randy Montoya)

in GIF’s test chambers from Pacific Northwest National Laboratory and hoarding manipulators from the Nevada Test Site, “just in case we ever need to do any hot cell work,” says Norm.

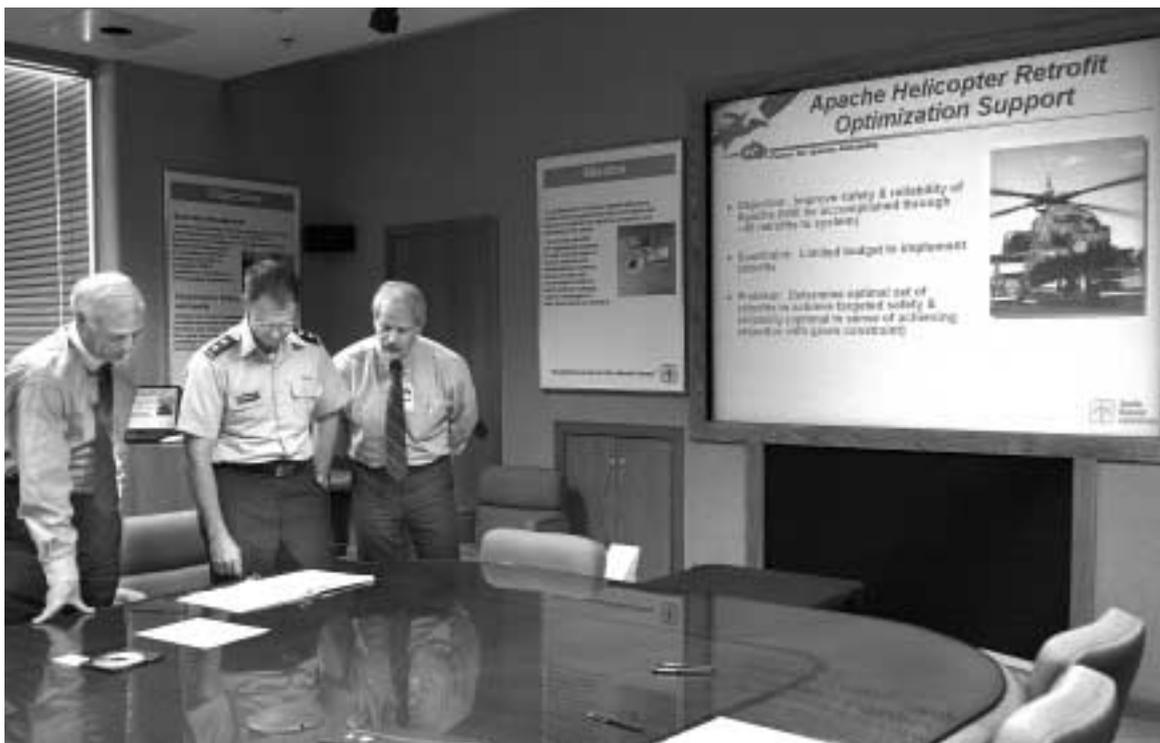
“We estimate we saved well over \$1 million in glass and manipulators,” he says.

The total cost of the GIF’s design and construction was approximately \$6 million. The facility’s final design was performed by the Facilities Systems Engineering departments and Mitch McCrory.



BLDG. 6586 in Area 5, which houses the new GIF.

Army general visits Labs, tours facilities



GENERAL MATTER — US Army Maj. Gen. Joseph Bergantz, center, is briefed on Sandia’s Apache helicopter retrofit support program by VP for DoD Programs Jim Tegnalia (15000), left, and Bob Cranwell, right, Manager of Systems Reliability Dept. 15312 and head of Sandia’s Apache program. Bergantz is the program executive officer for aviation at the Army’s Redstone Arsenal in Alabama. Sandia’s Apache support program is working with the Army to improve the safety and reliability of the Apache helicopter through 15 retrofits to systems. Bergantz visited Sandia Dec. 1 and had briefings on the Apache initiative, advanced tools for optimizing maintenance and readiness, lessons from the aging electronics surveillance program, and other Sandia technologies of interest. (Photo by Randy Montoya)

What’s GIF good for?

Subjecting nuclear weapons components and other electronic systems to different types of radiation is an essential element of Sandia’s experimental capabilities and the Labs’ support of DOE’s science-based stockpile stewardship mission.

When a nuclear weapon sits idle in the stockpile, its fissile materials give off a continual, low-level buzz of radiation, primarily gamma. Over time, this exposure can damage the weapon’s electronic components, eroding the overall reliability of the stockpile.

The hostile radiation environment a weapon experiences during flight in space also can damage electronics. And in a war situation, a nuclear weapon’s detonation produces a burst of radiation that could destroy the electronic components in weapons targeted nearby — an effect called “fratricide.”

The ability to simulate both low-dose-rate, high-dose-rate, and total-dose gamma radiation effects in a laboratory setting allows designers of weapons components to anticipate component failure or certify new weapons subsystems that can withstand these radiation effects.

It also allows computer analysts to create and validate computer models that simulate such radiation effects so that full-scale nuclear testing is not necessary.

Sandia’s current suite of experimental radiation facilities includes the GIF, Sandia Pulse Reactors, Annular Core Research Reactor, Hot Cell Facility, and the Hermes, Saturn, Sphinx, and Z accelerators.

DOE to provide \$20 million for Sandia's MESA project

MESA, Sandia's proposed \$400 million Microsystems and Engineering Sciences Applications complex, will receive a shot in the arm with \$20 million in new money to proceed with engineering design and infrastructure upgrades for the major project, says MESA Project Center Director Don Cook (1900).

Approval of the DOE funds, intended for this fiscal year, is expected to be announced today (Thursday, Dec. 14, the date this *Lab News* is distributed at Sandia/Albuquerque) at Sandia Science Day in the Steve Schiff Auditorium by Gen. John Gordon, head of the National Nuclear Security Administration (NNSA). NNSA is the new semiautonomous agency within DOE to which the two New Mexico DOE defense labs and Lawrence Livermore National Laboratory now report.

Engineering design of infrastructure upgrades, to begin in January, include improvements in systems that provide process chilled water, acid exhaust, de-ionized water, nitrogen, communications, power, steam, and other relevant facilities.

MESA is expected to make major advances in the ability of the US to devise and use microsystems for military and commercial systems.

A conceptual design for MESA was accepted and approved by DOE after review in November of this year. — *Neal Singer*



MESA MICROLAB — An architectural rendering of the entrance of one of MESA's several buildings, the MicroLab. The MicroLab will consist of three specialized building components — a three-story workspace building, a three-story laboratory building, and a one-story, high-bay design and education center.

Lottery winners

(Continued from page 1)

The 14 Sandians — they dubbed themselves "New Mexico's First" in recognition of the fact that they are the state's first big Powerball winners — are all Security Police Officers or Team Lieutenants in Protective Force Dept. 7140. The 14 are: Robert Adkins, Mary Batson, Cecil Blancett, Duane Carr, Ernest Curley, Nelse DeLoach, Almer Dial, Dwayne Haden, Mark Madrid, Jeff McCullough, Felix Silva, Charles Tabet, Vern Valdez, and Jim Young.

Duane Carr and Charles Tabet were named by their colleagues to serve as group spokesmen to deal with the inevitable media barrage. Duane recalled for reporters that the evening of Nov. 29 began with incredulity: When a fellow winner called Duane to tell him that one of their 140 \$1-tickets was the big winner (the group had chipped in 10 bucks apiece to buy the 140 tickets), Duane says his first reaction was "like, yeah, right."

When the stunned realization sank in that the group had, indeed, won, incredulity morphed into revelry.

Up all night

"We were up all night; none of us got any sleep," Duane recalled, adding that the champagne flowed as freely as their flights of fancy.

During a news conference at New Mexico Lottery headquarters, Charles Tabet fielded the inevitable question: "Have y'all decided what you're gonna do with the money?" by saying that during their first feverish flushes of fantasy, the winners spent it a thousand different ways, saved it all, and then spent it again.

After more sober contemplation — and consultations with attorney Cheryl McLean (invited by the team to represent their interests) — Charles said the 14 intend to be very deliberate and conservative in their decision-making process.

Duane's wife, Mary Ann Mitchell-Carr, knows how some of the money will be spent: "We're going to give back to the community, specifically to the Albuquerque Rescue Mission," which helps homeless men and women. Mary Ann has a spe-



O LUCKY MAN! — New Mexico's First spokesman Charles Tabet, right, talks to a KROE TV-13 news reporter about the 14 Sandians who shared a \$131 million Powerball payoff. In the center of the photo is fellow Powerball winner Duane Carr; to the right of Duane is Cheryl McLean, the group's attorney. (Photo by Randy Montoya)

"Most of these folks feel a dedication to the mission; they won't leave us short-handed. They'll stick around and help see us through any transition period where we might have to bring new officers up to speed."

cial affection for the mission; her mother Annie for years and years volunteered at the mission and provided "Annie's blankets of love" to folks down on their luck.

While the winners celebrated, thousands of their New Mexico neighbors enjoyed the success story vicariously. At water coolers around the Labs and around the city, at convenience stores, in checkout lines at the supermarket, it was the subject on everyone's minds.

Luckless Powerball ticket holders offered each other pearls of wisdom about how they'd spend the money. On radio talk shows, callers had plenty of advice. One expert suggested that the winners should do two things immediately:

get a good financial adviser and a reputable family counselor (apparently, all that money makes some families just miserable). A self-described financial planner showed up at the Labs' communication office and dropped off his business card. Nothing ventured, nothing gained, right?

Early the next morning, Dec. 1, the group appeared live from Albuquerque on ABC's "Good Morning, America," interviewed by Diane Sawyer.

Meanwhile, the New Mexico's First lawyer, Cheryl McLean, was handling her 15 minutes of fame with the media savvy of a Palm Beach attorney. A graduate of the UNM law school who runs her own one-person shop, McLean allowed as how this was the biggest thing that has happened to her so far in her legal career.

They'll be missed

While the Sandia 14 considered options they never thought they'd have to deal with, their boss says if they leave, they'll all be missed. Frank Alton, Manager of Protective Force Dept. 7140, says, "All of them are good people who have put in a lot of hours working security here at the Labs, working holidays, weekends, nights. They'll all be missed; with their experience, and their dedication, they'll be hard to replace."

Frank says so far he hasn't received "a pile of 14 resignation notices on my desk." Some will be gone before the holiday shutdown, some short-timers will stick around to qualify for well-earned retirement benefits. Most of the winners, though, are taking a wait-and-see attitude, Frank says. Those folks are already back on the job, doing their work protecting the Labs' resources. And Frank offers an insight into what the Sandia 14 are made of: "Most of these folks feel a dedication to the mission; they won't leave us short-handed. They'll stick around and help see us through any transition period where we might have to bring new officers up to speed."

At the news conference, a reporter asked Duane if ever "in your wildest dreams, did you think this would happen?" His answer? Yes, of course, in his wildest dreams he fantasized about this moment every time he bought a lottery ticket. Did he ever think it would happen, though? No.

And his advice for all would-be millionaires? "You just gotta believe."

Sandia-developed Lynx successfully used in data gathering and imaging exercises on military aircraft

By Chris Burroughs

Lynx™, a fine-resolution, real-time synthetic aperture radar (SAR) developed by researchers at Sandia for General Atomics of San Diego, has successfully operated on US Army C-12 and U-21 aircraft in several recent data-gathering and imaging exercises.

Since June the Lynx has conducted Army reconnaissance and surveillance missions on the C-12, both in the US and overseas. It operated on an Army U-21 aircraft under the direction of the Science Applications International Corporation. Also, data has been collected in several different exercises using the radar.

Brett Remund, Manager of Synthetic Aperture Radar I Dept. 2348 and program manager for General Atomics/Sandia programs, says he is pleased to see the Labs' technology being used so successfully.

"Our relationship with General Atomics has been a successful and satisfying experience as we've helped them take leading-edge technology developed at Sandia and implement it in manned and unmanned aircraft for use in national security and defense applications," Brett says. "It is clear — both from current users of General Atomic's demonstration systems and from potential customers — that the Lynx SAR system provides a powerful and unmatched solution to the fundamental problem of getting high-quality reconnaissance information to the war-fighter."

At Eglin Air Force Base, Florida, Lynx was put through its paces collecting four-inch spotlight imagery. In Alabama, the U-21 collected Lynx data



LYNX radar image of Washington, D.C.

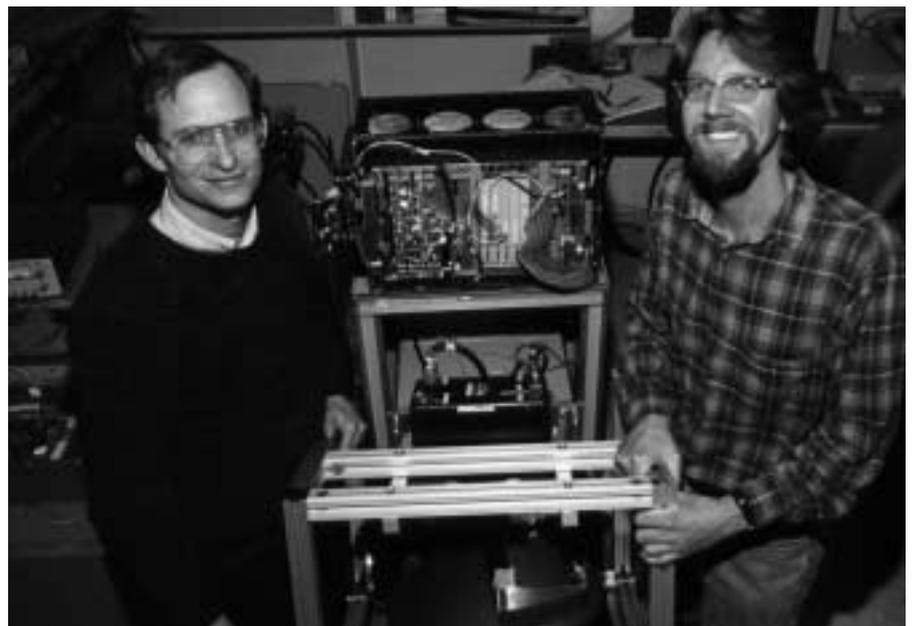
to assess the possibility of using the SAR to characterize drug-related plantings, such as poppies. Lynx operated successfully at Fort Polk, La. by providing high-resolution imagery taken through clouds during a joint Army/Air Force exercise. The Lynx system has also been used to collect high-quality ground moving-target data in support of Defense Advanced Research Projects Agency research.

General Atomics is currently under contract with the US Marine Corps to demonstrate the Lynx in the location and precision engagement of stationary targets. Earlier this year, Lynx was demonstrated for several months in a Predator unmanned aerial vehicle. This involved the collection of high-resolution image data for the Defense Evaluation and Research Agency of the United Kingdom.

Designed to be mounted on both manned and unmanned aircraft, the Lynx is a 115-pound sophisticated all-weather sensor capable of providing photographic-like images through clouds, in rain or fog, and in day or night conditions, all in real time. The Lynx produces images of extremely fine resolution, far surpassing current industry standards for synthetic aperture radar resolution. Depending on weather conditions and imaging resolution, the sensor can operate at a range of up to 90 kilometers.

Flying at an altitude of 25,000 feet, the Lynx SAR can produce one-foot-resolution imagery at standoff distances of up to 55 kilometers. At a resolution of four inches, the radar can make images of scenes that are 25 kilometers away (about 16 miles) even through clouds and light rain.

Sandia and General Atomics joined forces in 1996 to develop the Lynx. General Atomics



JEFF HOLLOWELL (2348), left, and Don Small (2341) stand next to the body of the Lynx, which has been successfully operated on US Army C-12 and U-21 aircraft in several recent data-gathering and imaging exercises. Sandia researchers developed the Lynx for General Atomics of San Diego. (Photo by Bill Doty)

funded Sandia, which already had a sophisticated SAR, to implement an enhanced design as a commercial product and deliver two prototype units together with licenses and manufacturing information to produce the unit. General Atomics is now manufacturing and marketing Lynx on its own, with Sandia continuing to provide R&D support for new concepts and applications.

Brett says Sandia works regularly with General Atomics on the Lynx through an ongoing contract. The Labs helps with radar installation, along with maintenance and new system development. Also, Sandia has provided significant guidance as General Atomics begins manufacturing the radar.

Some 10 to 15 people from Sandia currently work with General Atomics on the Lynx project. One of the current projects is to get the radar to work on faster aircraft, at velocities approaching mach 1.

"We have it flying on slower aircraft, both unmanned and manned," Brett says. "We want to now take it to the next level."

Recent Retirees



Harold Roberts
42 15322



Thurlow Caffey
37 6116



David Ryerson
35 2660



Robert White
35 1123



Robert Hatcher
34 10268



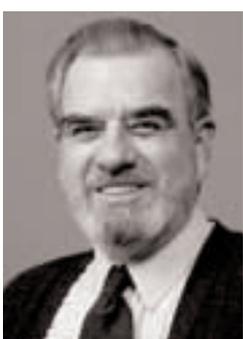
Neil Hartwigen
33 7000



Joseph Honest
31 10001



Miguel Robles
31 12700



Keith Taylor
30 2913



Ian Fritz
29 1742



Marilyn Minton
23 2955



Barbara Walling
10 15341

Inventors, authors, Sandia divisions share \$1.7 million in royalty awards for the year

271 individuals share \$409,000; divisions divvy-up \$1.3 million

By Howard Kercheval

Dinner, recognition of their achievements, and — perhaps best of all — cold, hard cash made the holiday season much cheerier for 271 inventors and authors who shared in \$409,000 handed out during Sandia's eighth annual Royalty Awards Celebration last week.

Awards ceremonies were held in Albuquerque Dec. 5 and in Livermore Dec. 6.

At Sandia/California, the process manual for LIGA microfabrication earned royalties of \$400,000, thanks to 19 Sandians. LIGA is a newly commercialized procedure for the fabrication of extremely precise, deep, two-dimensional microstructures such as gears, heat exchangers, optical devices, and the like.

The \$409,000 represents an increase of 119 percent over last year's money. The top individual award was \$15,200, and there were dozens of awards ranging from \$500 to \$5,000, for an average of about \$1,500 per person.

In addition, nearly \$1.3 million went to nine divisions that will be responsible for future applications of the technologies honored. Divisions receiving money, and the amounts going to each of them were:

1000 —	\$581,910
2000 —	\$42,560
5000 —	\$12,799
6000 —	\$98,249
8000 —	\$418,895
9000 —	\$123,019

11000 —	\$1,662
14000 —	\$6,260
15000 —	\$13,300

The Royalty Awards Celebration is an annual event sponsored by Corporate Business Development and Partnerships Center 1300 recognizing inventors and authors who will receive royalties for technologies they developed that were subsequently licensed and brought royalty funds into Sandia.

Royalties received by Sandia for licensed intellectual property are distributed according to the Royalty Sharing Program (RSP) in this way:

- 20 percent of royalties received is distributed as RSP Inventor/Author Awards (RSP-I) to the intellectual property inventors and authors (employees and former employees only) for past creative work.

- 70 percent is distributed as RSP Division Awards (RSP-D) to the divisions responsible for the future application of the technology for the benefit of DOE missions.

- 10 percent is distributed as RSP Contributor/Classified Developer Awards (RSP-C) to employees and contract personnel (to be recognized and compensated via their employer) who provide technical, legal, licensing, and/or business support toward the development and deployment of Labs intellectual property; and developers of significant classified noncommercial technologies.

The Labs earned slightly more than \$2.3 million in FY00 licensing income, which includes

funds received from a license agreement for royalties, cost recovery, technical assistance, and third-party receipts or money paid to joint owners of licensed technology, such as universities. This year the royalty portion of the licensing income was \$2 million. The Royalty Awards Celebration distributes the royalty portion of the licensing income only.

Taking note of the royalty success, keynote speaker Larry Willard, board chairman and chief executive officer of Wells Fargo Bank New Mexico and West Texas Region, said, "Your past efforts have been very successful, but now is the time to increase the leveraging of lab technology developed for mission benefits by aggressively supporting regional technology-based companies and the diversification of the local economy."

He said investments in intellectual property "must be converted to long-term benefits," and pointed out that the Greater Albuquerque Chamber of Commerce, the Hispano Chamber of Commerce, the University of New Mexico, New Mexico State University, New Mexico Tech, the Legislature, the city and the county, Next Generation Economy, and Albuquerque Economic Development are working with Sandia to make that happen.

"In the final analysis, it is hard for us to have any degree of meaningful success without Sandia National Labs," Willard said. "Sandia's role is critical for the success of our economic development efforts. Sandia has the exciting cutting-edge technology from which new companies and new jobs are created."

Spiffy makeover in works for South Eubank



EUBANK MAKEOVER — The stretch of Eubank Boulevard from Central Avenue south to the Kirtland AFB gate (photo at top, looking north) will soon get a makeover that will widen it to six lanes and add curbs, gutters, bike paths, medians, turn lanes, sidewalks, and landscaping. The effect — represented in the drawing above — will be a much cleaner and easier approach to Kirtland, Sandia, the Willow Wood residential area, and the Sandia Science and Technology Park. The Albuquerque City Council unanimously approved a resolution Dec. 4 clearing the way for the changes. The project was supported by Albuquerque Economic Development, Albuquerque Hispano Chamber of Commerce, City of Albuquerque Mayor's Office, Economic Forum, Greater Albuquerque Chamber of Commerce, Kirtland Partnership Committee, Sandia, Sandia Science and Technology Park tenants (EMCORE, Team Specialty Products, Analytical Solutions, Training Solutions, MicroDexterity Systems, and Quetana), Technology Ventures Corporation, and Willow Wood Homeowners Association.

Roadrunner RV Club sets rally schedule for next year

The Roadrunner RV club consists of about 50 retired Sandia couples, and is a subgroup of the Coronado Club Thunderbird retirement group (consisting of about 300 retired Sandians). It originated in the early 1980s as a group of Sandians wanting to promote good fellowship among recreational vehicle owners and to have RV rallies within New Mexico and the neighboring states of Colorado, Arizona, Utah, and Texas.

The club has five officers, two chairpersons, a historian, by-laws, and a position guide. Our rallies start in February, end in October. They usually begin on the third Monday and end on Friday. One of the officers is a Wagonmaster who oversees all rallies and teams with the rally trailboss. The trailboss plans a specific rally and researches the rally location.

A typical rally will consist of: 1) travel to the rally site on Sunday or Monday, 2) coffee and donuts at 8:30 each morning, 3) happy hour at 4:30 each afternoon, 4) potluck at 6 p.m. on Wednesday, 5) visiting local places of interest proposed by the trailboss, and 6) for those who want, playing games each evening at 7.

Our planned 2001 rallies are:

Feb. 4, Puerto Penasco, Mexico, Playa Elegante RV Park; **March 18**, Laughlin, Nev., AVI Resort; **April 22**, Tor C, N.M., Cielo Vista RV Park; **May 20**, Las Vegas, N.M., Storrie Lake State Park; **June 10**, Dolores, Colo., Dolores River RV Park; **July 15**, Eagle Nest, N.M., Golden Eagle RV Park; **Aug. 19**, Jemez Mountains, N.M., Jemez Falls State Park; **Sept. 16**, South Fork, Colo., Fun Valley Resort; **Oct. 7**, Branson, Mo., Acorn Acres RV Park.

All retired Sandians interested in RV rallies are welcome to join us and can be a guest of a Roadrunner member. To become a Roadrunner RV club member you must be a member of the Coronado Club and also the Thunderbird retiree club.

For more detailed information call DuWayne Branscombe at 881-4589 or e-mail him at LoisDAB@AOL.com. —DuWayne Branscombe

Shoes for Kids represents Labs at its best



Children with wide eyes wait as patiently as they are able for their Christmas gifts from Santa, but each gift is far more precious than a Sony Playstation. New warm, well-fitting shoes are the order of the day. Sandians take the place of Santa Claus, and laughter, jumping, and holiday spirits are handed out in Reebok and Nike boxes.

"Those shoes are nice, but can you get some for my little sister first? I don't want them to run out before she gets hers," says one little boy about the age of 8 who's already filling big shoes looking out for his family. Sandians have celebrated the holidays for 43 years by giving shoes to children whose families have a difficult time providing them. Sandia hopes to provide 350 children with shoes this season.



Photos and story by Randy Montoya

Each little face has its own story. Some are well hidden and some pop out through missing teeth and freckles. "I need snow boots," says one small boy who is new to the city. "I gotta do lots of stuff and help my mom and it snows here in Albuquerque for Christmas, doesn't it?"

In 15 years at the *Lab News*, I have photographed hundreds of polite, eager children lacing up new shoes with such intense levels of excitement that I have always left this assignment with *my heart soaring*, too. It's just the left-over emotion that the kids want to give back in some way. It's evident on the faces of the Sandia volunteers who help hundreds of kids get properly fitted each year. I don't think anyone could watch these busloads of skipping and singing children leave the Mervyn's shoe depart-

ment and still grumble about the holidays.

Last year \$11,800 was raised by Sandians led by Pam Catanach (12650), and 375 smiling children were sent home from Mervyn's Department Store with new shoes.

This year a new set of emotions was stirred for me when an adult approached me with slight tears in his eyes. "Who are these kids?" he asked. As I began to tell him about Sandia's program he motioned me to stop. "When I was a little boy, I used to be one of them. I used to get a new pair of shoes from you guys for Christmas." He smiled and patted me on the back and then he left before we had to see each other's emotions. I am privileged in my job to photograph many of Sandia's finest technological accomplishments, but I left that day feeling that this might just be our finest hour.

Send contributions to SLFCU account #223180.
Call Pam Catanach at 284-5211 for information



Sandia artist Jerry Gorman moonlights as an ... artist



JERRY GORMAN with his four-panel, oil-on-canvas view of a Dixon, N.M., apple orchard. The painting was recently on display at Houshang's Gallery in Santa Fe.

(Photo by Randy Montoya)

How many photographers, poets, and painters have been inspired by a New Mexico sunset? Whatever that number, add Jerry Gorman to the list.

Twenty-eight years ago Jerry, then a bridge builder, was sitting on the porch of a Lords-

burg, N.M., hotel, having a beer with his work crew, watching one of those fiery orange and red sunsets.

"I said to myself, 'I should paint that,'" he says.

Trading in his hard hat

So he gave it all up — road construction, that is — and enrolled in the Art Department at New Mexico State University. He won several international painting competitions and had his work displayed in Paris and New York. He went to West Virginia University and Clemson University for graduate degrees in fine arts.

Today Jerry's paintings — signed "JA Gorman" — are selling at a healthy clip from galleries in Santa Fe, N.M., and Sedona, Ariz. He paints in two styles: contemporary Southwestern landscape and surrealism.

His day job since 1983, as a technical illustrator in Creative Arts Dept. 12620, has provided the financial stability he needs to build his art career, he says.

It doesn't seem a bit odd to Jerry spending the day creating concept drawings of weapons, then spending the evening painting a New Mexico apple orchard.

Feasting on art

"I look at my art like I'm sitting in the middle of one big banquet table, with my Sandia work on one end and my fine art on the other end," he says.

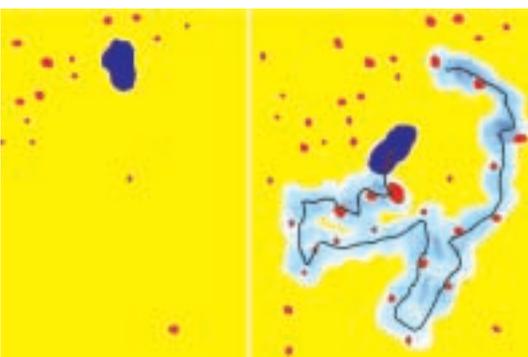
His landscapes feature lots of sky, which is "what you see when you look out on New Mexico," he says.

His surrealist paintings typically interpret a memory of his, perhaps recalling time spent on an Italian market street or a Mexican beach.

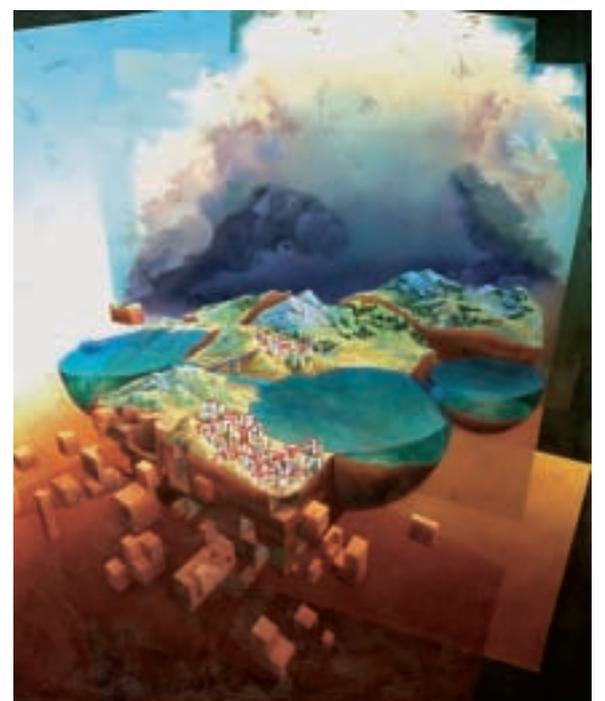
"Usually the canvas tells me what it wants to be, and I'm just the observer," he says.

Many of his works are tall, multi-panel pieces whose canvas edges are painted so that "someone could hang the painting around a

The color of science



Researchers at Sandia/California have gained new insights into the processes that occur at the atomic level in the formation of metal alloys. Nancy Garcia's page 3 story offers more details about their findings, but the *Lab News* wanted to reproduce in color a couple of key micrographs that graphically highlight their findings. In these images, extracted from micrographs, a dark blue island of tin on a light yellow copper surface is depicted alongside crystals of bronze alloy (shown in red). The image on the right was taken four minutes after the one on the left, and indicates the path taken by the tin island. The darker the path, the longer the tin remained over that region. Islands avoid crossing their own track. (The images, 600 nanometers across, were taken with low-energy electron microscopy, which permits observing the motion in real time.) The Sandia team published results of its work in the Nov. 24 issue of *Science*.



SURREALIST INTERPRETATION of Jerry's memories of his stay in Europe and travels in Mexico, a painting he titled "Italian #4."

corner," he says.

He paints four to six pieces a month, mostly during weekends. Sometimes the demand for his works outpaces his ability to paint them, other times it doesn't. Overall the demand is increasing, he says.

"I can't paint unless I'm inspired," he says. "I never try to force it."

Incidentally, Jerry isn't the first member of Sandia's technical arts group to find fame as an artist on the outside. Nationally renowned American West "cowboy" painter Gordon Snidow also worked as an artist at Sandia from 1960 to 1971.

— John German

Sandia stimulates statewide wind power development

Purchase of wind-generated electricity for WIPP is just the start of a wind industry in state

By Neal Singer

Sandia is purchasing "green" electricity generated by an already-in-place wind turbine near Clovis, N.M., to stimulate development of wind resources essentially untapped in New Mexico.

The ecologically desirable power source is expected to provide electricity for approximately six percent of the DOE's Waste Isolation Pilot Plant (WIPP) total electric services requirement.

Sandia scientists hope this purchase, along with others over a 10-year period, will stimulate the growth of a New Mexico wind power industry, says Henry Dodd, Manager of Wind Energy Technology Dept 6214.

For starters, Sandia's purchase triggers the installation of an additional commercially owned wind turbine in southeastern New Mexico. Eastern New Mexico electricity provider Xcel Energy's Southwestern Public Service Company, through its Windsource program, will deliver energy produced by both turbines.

In addition, says Sandia Executive VP Joan Woodard, "We intend to purchase one megawatt of wind-generated power in 2001, ramping up to 10 megawatts of renewable power within 10 years."

Because wind power sources will be competitively selected, "Sandia's purchase of this wind-generated power should promote wind development in New Mexico, provide economic and environmental benefits, and help meet DOE's goals as well as our nation's. We hope to encourage other government and private sector purchasers to join us in expanding the role of renewable energy."

Michael Loera, DOE/AL's contracting officer for its Utilities and Energy Management Team (UEMT), says, "It is fantastic that we collectively brought this renewable resource acquisition to fruition. Not only are we furthering the State of New Mexico's economic development initiatives but we have set forth a 'benchmark' whereby we can continue to measure, apply, and improve our contracting techniques to foster renewable resource acquisitions in New Mexico, Nevada, and Texas."

Wind blows everywhere sometimes

New Mexico is the 12th windiest state in the nation and, according to a DOE study, is capable of producing, with wind, more than 10 times the current state electricity consumption.

"The wind blows everywhere sometimes," says



THIS WIND TURBINE near Clovis, N.M., and another (site to be determined) are expected to provide electricity for approximately six percent of the DOE's Waste Isolation Pilot Plant (WIPP) total electric services requirement.

Sandia senior scientist Al Zelicoff (5353). "With multiple wind turbines in enough places, electricity can be sent from one location to another, including Albuquerque and buyers out-of-state."

"In Europe, wind generators are installed in relatively small groups on plots of public land and considered things of beauty," says Al. "People love them."

Ecologically, he says, "The need for cleaner technologies is unquestioned. Hundreds of tons of carbon dioxide are produced yearly for every house using conventionally generated electricity. In 20 years, there will be twice as much material from human activity going into the atmosphere — from the generation of electricity alone — unless we seek cleaner methods."

When developing countries with huge populations increase their use of electricity, emissions problems are expected to increase unless clean generating methods are available.

The Sandia action responds to a DOE mandate to use renewable resources to generate 7.5 percent of the electricity used at DOE sites by 2010. The funds needed to purchase clean electricity from the slightly more expensive green power source is being paid for by Sandia from cost savings derived through the Labs' energy conservation efforts, thus requiring no additional taxpayer dollars. Sandia purchases should significantly exceed the DOE mandate. In fiscal year 2000, Sandia provided DOE with \$45,000 in funds.

Currently, energy from fossil fuel can be produced for 3 cents/kwh; wind, 6 cents. But the researchers expect the cost of wind power to drop as technology improves. "We expect the market for wind power to be fully competitive in many regions of the United States before 2010," says Henry.

Wind power already in place

California already generates more than a gigawatt (a billion watts) of power from wind power. Texas expects to generate two gigawatts of renewable power, mostly wind, by 2008.

Recent improvements in wind generators involve using much bigger machines that reach higher into the atmosphere to access stronger winds. "You could park a 747 within the diameter of these newer wind turbines," says Henry. Also, better manufacturing processes are creating stronger blades.

Prescription Drug Program mail-order survey shows high satisfaction

The Benefits Department thanks everyone who participated in the telephone survey conducted in late August to early September 2000, regarding the mail-order service provided by Express Pharmacy Services (EPS).

EPS is the mail-order pharmacy, owned by Eckerd Health Services (EHS), that participants enrolled in the TOP Plan may use to get their maintenance prescription drugs. As a part of the contract with EHS, Sandia requires a random survey on an annual basis of participants who have used the mail-order service. EHS contracts with an independent firm, Alliance Research, to conduct the telephone survey on their behalf.

Of the 400 participants surveyed, 92.3 percent ranked their overall satisfaction with Express Pharmacy Services as satisfied, very satisfied, or

extremely satisfied. This satisfaction rating is higher than the typical 89 percent satisfaction rating within this industry, as reported by a survey conducted by the Pharmaceutical Care Management Association.

The questions asked and results of the survey are listed below. Results indicated below (in brackets) include responses of satisfied, very satisfied, or extremely satisfied to questions beginning "How would you rate EPS on...":

- ease of understanding instructions for using the mail service? [86.5%]
- time it takes to receive a prescription order? [90.0%]
- correct fulfillment of your order(s)? [89.5%]
- ease of understanding the instructions for using the prescriptions? [94.5%]

- ease of ordering your prescriptions through customer service? [84.0%]

- ease of understanding the customer receipts provided with your orders? [91.3%]

Finally, 85.0 percent of the surveyed participants felt that, overall they were satisfied, very satisfied, or extremely satisfied with their most recent contact with the EPS customer service department.

Your feedback continues to provide important information to the Sandia Benefits Department and will help Express Pharmacy Services identify where to focus its quality improvement efforts. Thank you again to those who took the time to participate in the survey.

— Karen Roybal (3341)

South-of-the-border renewable energy programs help farmers, ranchers in rural Mexico

Joint US-Mexico efforts to proliferate renewable energy systems

By John German

On Don José Canul's hardscrabble ranch in rural Quintana Roo, Mexico, a deep-rutted footpath harks back to the days, not long ago, when horses, oxen, and people carried water from the ranch well to Canul's cattle and gardens.

Today that back-breaking, daily toil is a memory, says Canul, thanks in part to Sandia's assistance and what he calls "*una tecnología muy moderna para una actividad muy antigua*" — "a very modern technology for such a very old activity."

An array of solar collectors captures energy from the bountiful southeast Mexican sun and powers a submersible pump that draws enough water from the well to sustain about 40 head of cattle. It is the first electricity to flow on Canul's ranch.

Installation of Canul's photovoltaic (PV) water-pumping station in 1997 was made possible by the Mexico Renewable Energy Program, established by Sandia in 1994. The program has resulted in the installation of more than 250 PV and wind-energy water-pumping systems in 14 Mexican states.

Now Sandia is helping expand efforts to bring the benefits of solar and wind power to more of rural Mexico through new joint programs with the Mexican government, renewable energy suppliers in the US and Mexico, universities, and other partners.

One such effort, the "Renewable Energy for Agriculture" program managed by FIRCO (an agricultural extension service under the Mexican Ministry of Agriculture), is expected to bring as many as 1,200 new PV systems and 55 wind sys-

tems to isolated areas of Mexico during the next five years.

The systems will be used primarily for water pumping, but some may be adapted for milk cooling and other uses that improve the economic, social, and health standards in agricultural areas of Mexico.

Benefits north & south of the border

More than 50 US and Mexican suppliers have been involved in past renewable energy projects involving Sandia, and the expanded efforts should help improve markets for technology suppliers north and south of the border, says Labs program manager Michael Ross (6218).

"These programs seek to improve the economies of some of the poorest areas of rural Mexico by increasing the profitability of small ranches while also promoting the use of renewable energy technology, reducing pollution from fuel-powered generators, and broadening the renewable energy market outside the US," he says. "It benefits everyone involved."

As part of the expanded programs, Labs renewable energy technology experts are helping write specifications for standardized renewable energy systems; helping install many of the systems; training local officials, users, and vendors to install, operate, and maintain the systems; and designing new applications for renewable energy systems.

Sandia consultants also lead "train-the-trainers" sessions during which Mexican program partners and vendors learn how to teach others to install and maintain the systems.

The ultimate goal, says Michael, is to make the use of renewable energy systems in Mexico widespread and self-sustaining.

"When Sandia is finished, there will be peo-



PV PUMPING— Sandian Michael Ross helps build a photovoltaic (PV) water-pumping station at a ranch near Cancun, Yucatan, Mexico.

ple scattered throughout Mexico who will have the capabilities to do this," he says.

Because renewable energy systems cost more to buy (but pay for themselves relatively quickly) than fuel-powered generators, Sandia also has helped set up financing arrangements whereby Mexican ranchers with little capital can get loans to invest in the new systems.

Energy and national security

The Renewable Energy for Agriculture program is funded by \$31 million in loans and grants to FIRCO from the World Bank, the Global Environmental Facility, the Mexican government, and the end users. It is part of Mexico's Alianza para el Campo program for improving agricultural productivity.

Support for Sandia's involvement comes from the US Department of Energy and the US Agency for International Development.

Sam Varnado, now Director of Infrastructure & Information Systems Center 6500, and FIRCO Director Manuel Contijoch Escontria signed a five-year collaborative agreement in Mexico City on Aug. 24 specifying how the two organizations are to work together as part of the expanded program.

"Energy availability is a key element of national security," says Margie Tatro, Director of Energy and Transportation Security Center 6200. "If people throughout the world have access to reliable, nonpolluting, affordable forms of energy, they are more likely to have prosperous existences. Sandia is well positioned to help others get access to renewable, fossil, and nuclear energy systems."

FIRCO held its first of 32 state workshops in Chilpancingo, Guerrero, Oct. 24-26, with assistance from Sandia. Since then, workshops have been held in seven other Mexican states, and Sandia has conducted one "train-the-trainers" workshop in Las Cruces, N.M.

Sandia's effort involves several Sandians plus various subcontractors in both the US and Mexico.

"When I'm in Mexico I see the effect this technology is having on the lives of people who probably haven't had electricity in their lifetimes," says Michael. "That's the type of reward I cannot get by just sitting in my office."



SIGNING an agreement in Mexico City on Aug. 24 specifying how the two organizations are to work together are Sam Varnado (left), now Director of Infrastructure & Information Systems Center 6500, and FIRCO Director Manuel Contijoch Escontria.

Feedback

Are there special parking places on Fridays?

Q: On Fridays, are there any other special parking spaces besides carpool spaces that can be used by the general population?

A: Only spaces marked as Carpool Only are authorized to be used for general parking on Fridays. Sandia's parking policy and descriptions of the types of designated parking, along with times when they are valid, are presented in the *Safeguards and Security Guide*, which can be referenced on the

Web at http://www-irn.sandia.gov/security/safeguards_man/home.html.

Vanpool parking, by the way, is not the same as carpool parking and these slots are not available for general parking on Fridays. The reason is the vanpools operate every day and should have parking available. The number of reserved vanpool parking slots is minimal.

— Ed Tooley (7850), Sites Planning Program

Recent Patents

Douglas Drumheller (6211): Acoustic Transducer.

William Alford and Arlee Smith (both 1118): Backconversion-Limited Optical Parametric Oscillators.

Michelle Griffith, Donald Greene (both

14184), and Gary Pressly (14402): Energetic Additive Manufacturing Process with Feed Wire.

Kim Reed (1643), Bobby Turman, Ronald Kaye (both 15335), and Larry Schneider (1643): X-Ray Tube with Magnetic Electron Steering.

Timothy Boyle (1843) and Mark Rodriguez (1822): Perovskite Phase Thin Films and Method of Making.

New training program to increase numbers of people working in skilled trades

Some 100 positions will need to be filled over the next few years due to attrition

By Chris Burroughs

Journeyman Eddie Ayon (14112) peers at a schematic of a piece of test equipment he is building for a Sandia engineer, making sure he has the wiring in the right place.

The task of building the equipment from scratch is complicated, but one Eddie knows he will complete competently.

Eddie was promoted to the ranks of journeyman in July — an honor that indicates he has all the skills required to perform his trade of electronics fabricator. He gained his skills through a new Sandia program designed to recruit and train people in the crucial trades areas of electronics fabrication, machining, and materials science.

Eddie and colleague Angelique Balli (14112) are the first to graduate from the program.

"This has been a good program for me and my family," Eddie says. "I've learned a valuable trade and have a great career at Sandia."

The program was established in 1996 as a way to replenish people working in skilled trades who are retiring or being promoted to other parts of the Labs. Up until the late 1980s Sandia trained skilled trades personnel through a formal apprenticeship program that consisted of a student working full-time at Sandia and receiving classroom instruction by Labs personnel. The apprentices worked side-by-side with experienced Sandians and went from apprentice to journeyman as their skill levels increased. This formal five-year apprentice program, specifically funded by DOE until 1989, could not be maintained through center support due to the high cost.

Since then attrition has reduced the number of experienced trades people. Over the next several years some 100 people will need to be hired to fill vacated positions.

"The attrition slowly became a real problem," says Phil Gallegos, Manager of Electronic Fabrication Dept. 14112. "Morale was slipping because experienced journeymen would look behind them and see no one there to pass on their skills. They thought the department was

"This has been a good program for me and my family. I've learned a valuable trade and have a great career at Sandia."



FIRST GRADUATES — Eddie Ayon, top photo, and Angelique Balli (both 14112), bottom photo, are the first graduates of the new Trades Training Program established in 1996 as a way to replenish people working in skilled trades who are retiring or being promoted to other parts of the Labs.

(Photos by Chris Burroughs)

going to be shut down."

He turned to his director, Jim Searcy (ret.), who said more people needed to be brought in and trained but at an affordable cost.

Working with the Metal Trades Council, to which all people in skilled trades belong, Phil, other managers who have many trades people in their departments, and critical staff from several areas throughout the Labs developed a program that involved Albuquerque Technical-Vocational Institute (T-VI) and Sandia's existing Student Intern Program.

The Metal Trades Council has been supportive of the program since the beginning and has played a critical role in making it a success,

Phil says.

Students are recruited from T-VI trade and technologies departments where they go to school for two years and obtain an associate degree in an applied science. Simultaneously, they work at Sandia 20 hours a week during the school year and 40 hours a week in the summer. Upon completion of their associate degree, they spend the next three years at Sandia as limited-term employees, building their skills until they reach the journeyman level. Once they become journeymen, they can be hired as regular full-time Sandia employees.

The first class, electronics fabrication, started in 1996. The second class, machining, began a year later. The third, materials science, started in 1998. Currently nine people participate in the electronics manufacturing program, 10 in machining, and two in materials science.

Phil says they will be seeking four new people in electronics fabrication, 10 in machining, and eight in materials next year.

Besides T-VI, Sandia has also started recruiting students for the program at the high school level. Scouts go to high school job fairs and encourage students to apply for the program and attend T-VI.

Paul Lemke (14100) says an important aspect of the program is the use of formal skill standards that describe tasks a fully qualified person can perform. Students are expected to perform increasingly complex key operations each year they are in the program. For example, by the end of the first year, electronic fabricators should know how to solder. The use of skill standards and the performance level associated with each provide a metric for evaluating students' progress and the program as a whole.

In developing the skill standards, the Sandia team used some existing standards established by the National Coalition for Advanced Manufacturing and the National Institute of Machinists. In areas where no standards existed, Lucy Justice (14112), Tom Souther (14186), Carol Forrest (3535), and other members of the team created new ones.

Sandians now sit on the board of Manufacturing Skills Standards Council, which is creating national skill standards for manufacturing personnel. Thus, says Paul, "Sandia is having a national impact."

Phil and Dominique Wilson-Foley (3535) of Sandia's student outreach program are also sharing appropriate standards with the Albuquerque Public Schools and T-VI to ensure that students entering the workforce are learning what industry needs.

The trades training program is designed to take five years to finish — the same amount of time as the old apprenticeship program. However, Phil notes, since the program is performance-based, a quick learner can complete the program in less time.

People throughout the Labs are beginning to take note of the effectiveness of the new program. It recently won a silver President's Quality Award and the Center 14100 Gold Recognition and Team Award.

Phil says the program has been so successful that efforts are now being made to expand it to other organizations.

"This program has caused motivation in my department to go up 200 percent," Phil says. "It's been one of the best things to happen for the skilled trades employees."

Open-enrollment changes final deadline is Dec. 31

A reminder from Benefits:

Remember that if you enrolled in either the Health Care or Day Care Reimbursement Spending Account, or both, during Open Enrollment, you can change or cancel the amount up until 11:59 p.m. on Dec. 31, 2000.

To do this, call the Open Enrollment Phone System at 844-3200 (if outside Albuquerque, call 1-800-417-2634, then 844-3200). You can also change your medical premium tax election or you can waive your medical coverage through 11:59 p.m. on Dec. 31.

Please remember that if you decide to waive your medical coverage, you will not be allowed to call back into the system and re-enroll for medical coverage. Also, if you waive your medical coverage through the phone system, you must also complete the Waiver of Medical Coverage Form that is included in your Open Enrollment booklet, and it must be received by the Benefits Customer Service Center by Dec. 31, 2000.

If you have questions, call the Benefits Customer Service Center at 845-BENE (2363).

New team cleaning approach leaves Labs facilities looking brand-spankin' new

By Bill Murphy

The Machine is comin' at you. And the Pirates. The Swarm. The Storm. The Wolfe Pack, the PETL Pushers, the Tornadoes. No, those aren't the names of the new XFL teams. They're Sandia/New Mexico's custodial cleaning teams and they're sweeping through the Labs' buildings faster, better, and cleaner than ever before.

The team-cleaning approach, called OS1, is described by its developer, Salt Lake City-based ManageMen, Inc., as the cleaning industry's first "operating system."

Until recently, Sandia's custodial paradigm was the "zone" system, in which one person had full responsibility for keeping a building or collection of buildings clean. In the OS1 system, cleaning tasks are identified by function: i.e., vacuuming, cleaning restrooms, emptying trashcans, dusting. Members of a team take turns performing various functions within the OS1 system.

Anyone in a building that is being served by the OS1 system — and that's about 70 percent of the square footage at the New Mexico site and growing — sees a difference right away. More cleaning is getting done. And it's getting done faster and more often.

That's good news from a customer point of view. The upside for Sandia's custodians is that most of them seem to prefer the OS1 approach, too.

Greg Vigil, Roy Flanders, and Tim Vanderberg are charter members of the Machine (all the teams name themselves, a spontaneous practice that started with one group and spread throughout all the teams). Roy, who's been with the Labs for more than 15 years, has cleaned

buildings under both systems — and he likes the OS1 approach better. The systematic approach, which defines processes for everything, right down to the type and amount of cleaning chemicals used, makes it easier to do a good job, Roy says. Roy recalls that the Labs tried a team approach years ago, adding that it didn't fly at that time because there really wasn't a system. "This [system] is much more formalized than the old way was," he says.

Jim Kadlec, Acting Manager of Custodial Matrixed Services Dept. 7845, an early and vocal



THE MACHINE — Custodians Tim Vanderberg (left), Greg Vigil, and Roy Flanders (all 7845) apply their team approach to the lobby of Bldg. 800. (Photos by Randy Montoya)

advocate of adopting the OS1 approach, calls that old team approach "gang cleaning." Functions weren't well-defined; it really wasn't comparable



ROY FLANDERS, acting team leader for "The Machine," one of the custodial teams sweeping through the Labs.

Machine got its name. "We were just clicking along one day," he says of himself and his teammates, "when one of us said, 'Whoa! We're like a machine.'"

The OS1 approach is more than just team-cleaning, says Jim. It's a way to manage workflow processes and to team as well. The approach, which is taught at ManageMen's renowned Janitor University in Salt Lake, places heavy emphasis on training, process audits, and continuous improvement.

"Our training is always evolving, based on what are teams learn and what our customers tell us," Jim says. "We are trying to ensure that the custodial commitments made by the Facilities Site Management to customers in the Internal Lease Agreements are met."

Customer feedback, Jim says, has been overwhelmingly positive — maybe even *too* positive. "We have heard comments that we're cleaning too much," he says. "We'll take that any day over 'not cleaning enough.' The fact is, though, our teams are still learning how much to do and how often to do it."

The decision to migrate to the OS1 cleaning system was made at management level, but the day-to-day reality of making it work falls to the guys and gals with the vacuums, the brushes, mops, and wipes. Their buy-in is critical.

The key to success, says Greg, "is having good relations with your team. When you have that, you succeed."

Says Roy: "When we run into problems [as a team] we kick it around. We support each other. We don't leave any of our soldiers behind."

SNAPSHOT: Sandia budget picture

Total Revenue and Full-Time Equivalent (FTE) Staffing FY00 Actuals and FY01 Projections (Dollars in 1,000s)

	FY 2000 Actual		FY 2001 Estimate	
	Revenue	FTEs	Revenue	FTEs
Nuclear Weapons	\$ 809,856	4,213	\$892,834	4,518
NonProlif/ Mat.Cntrl	\$ 263,976	1,316	\$301,804	1,332
Energy/Crit Infrastrctr	\$ 207,757	1,066	\$217,191	1,008
Emerging Threats	\$ 120,587	582	\$115,000	601
Sci & Tech.	\$ 60,779	240	\$ 45,000	234
TOTALS	\$ 1,462,955	7,417	\$ 1,571,829	7,693

NOTE: Indirect staffing allocated to the Strategic Business Units.

Of the 7,417 Sandian FTE's for FY00, 6,576 FTE's were at the Albuquerque site.



TIM VANDERBERG

Mileposts

California photos by Lynda Hadley
New Mexico photos by Iris Aboytes



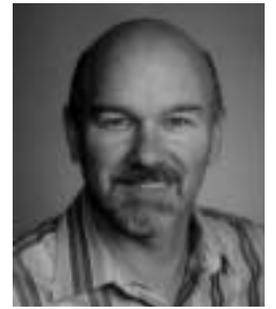
Edwin Kjeldgaard
35 6515



Manuel Vigil
35 2554



Steve Haney
30 8420



Arthur Hayes
30 2256



Jeffrey Philbin
30 6433



James Sweet
30 1745



Paul Attermeier
25 6521



Victor Baca
25 14404



Paul Brannan
25 5849



Charles Draper
25 2564



John Falls
25 5722



Lance Gordon
25 9310



Steven Johnston
25 14407



Jeff Moore
25 8523



Norman Schwentor
25 14401



Bert Tate
25 9329



William Wenrich
25 9624



Janet Ahrens
20 7133



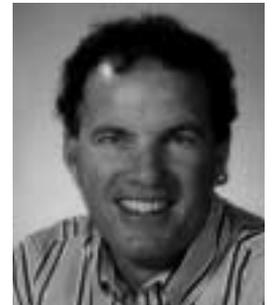
Kathleen Diegert
20 12335



Joann Herrera
20 9325



Brenda Langkopf
20 6133



Steve Orth
20 8516



William Pasco
20 14402



Stephen Rosenthal
20 1644



Suzanne Weissman
20 6000



Teresa Antolak
15 2211



Ralph Carr
15 2913



Charles Egbom
15 2664



Melanie Florez
15 7102



Raymond Heath
15 1734



Shawn Kerr
15 2114



Alice Kilgo
15 1822



Bruce Long
15 8517



Connie Nenninger
15 12650



Elmer Opichka
15 1737



Lydia Perez-Romo
15 7121



Doug Ruby
15 6218



Grace Thompson
15 6517



Janet Williams
15 7855



Patricia Zamora
15 2911

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

MISCELLANEOUS

CROSS-COUNTRY SKIS, size-9 boots, poles, never used, \$50. Brannon, 296-6674.

FIFTH-WHEEL HITCH, quality S, 12K removable, good condition, \$250 complete. Sanchez, 861-2346, after 6 p.m.

BREADMAKER, Welbilt, 1-lb. loaf, good condition, \$15. Coverdale, 268-3040.

BOY SCOUT LUMINARIAS \$5/doz., free metro delivery w/4 doz. or more; Troop 183 says thanks. McInteer, 256-1656.

ANTIQUA WALNUT BUFFET, 60" x 38" high, 2 large drawers, 2 doors, \$450. Martin, 298-7035.

BEAUTIFUL NEW DRESSES for the holidays: Karen Miller, size 10, jade, long; Caterina Collection, size 10, ivory, long; Marilyn Graham, size 12, black, short. Morales, 821-3352.

ANTIQUA CHINA CABINET, \$295; king-size wicker headboard, \$55; entertainment center, must sell, \$60 OBO. Salazar, 899-0483.

STAFFORDSHIRE TERRIER CROSS, 7-month old male, intelligent, personable, housetrained, all shots, to loving, active family. Johnson, 884-1728.

CAMPER SHELL, 5' x 7' fits Ranger-type pickup bed, excellent condition, dark gray, tinted windows, padlock, \$75. Butler, 856-6186.

"RUNNING FREE" NORITAKE DISHES, eight 5-piece place settings, 9 serving pieces, 1 dinner plate missing, \$75. Keeling, 275-8191.

OLYMPIC WEIGHTS, 39¢/lb.; dumbbells, 39¢/lb.; hoist bench, \$250; leg press to 900 lbs., \$600; power rack, \$250. Denney, 299-8595.

PARAKEETS, 1 male, 1 female, 2 years old, hand-trained, cage, playpen, toys included, \$50 OBO. Ruby, 821-0982.

LOBO BASKETBALL SEASON TICKET, single, row 33, section 24, will take remaining face value. Contreras, 344-2492.

SKI BINDINGS, Salomon 800, used once, \$60. Edenburn, 869-2911.

MAN'S NEW BOMBER JACKET, brown leather, w/hat, size tall/medium, \$135; maple wooden toilet seat (old), \$32. Anderson, 296-3352.

OAK DINING ROOM TABLE, 6 chairs, & hutch, \$350. Manning, 896-8921.

SEARS EAGER-1 LAWNMOWER, circa early 1980s, free to inquisitive engineering types. Nelson, 294-2785.

TELESCOPE, Simons, 67.5 power, 60mm, \$95. Eaves, 268-0461.

UPRIGHT PIANO, antique Emerson, \$700 OBO. Bronkema, 271-2389.

COMPUTER, P2-300 MHz, 8GB HD, 64K RAM, DVD-ROM, 17-in. monitor, 120MB drive, \$700. Thomas, 822-1923, after 5 pm

DOGHOUSES, igloo-style, extended entrance, insulated, extra-large, like new, 2 @ \$65 ea. Wilson, 821-6703.

UTILITY TRAILER, originally for snowmobiles, tilt bed, new tires; Coleman generator, 5KW, extended run, like new; \$450 ea. Warner, 281-7217.

QUEEN-SIZE BED, dresser, & chest of drawers, dark wood, \$400 OBO. Aragon, 255-8451.

WASHING MACHINE, working, \$50; 2 sets of twin mattresses, \$40 & \$60; upright freezer, \$85. Wiseley, 286-9473.

OIL-FREE AIR COMPRESSOR, 1-hp, 3-gal., DeVilbiss, 120-psi max., \$100 OBO; NordicTrack Pro, used very little, \$100 OBO. Hall, 298-8617.

WASHER & GAS DRYER, Whirlpool, almond color, very good condition, \$175 for the pair. Mayes, 821-0698.

SOUTHWEST AIRLINE TICKETS, anywhere SW flies, fully transferable, round-trip, \$290/ea. Sampson, 892-7258.

FOUR GOODYEAR Wrangler Mud Grip tires, 7.0-15LT, M+S, practically new, \$250 w/rims, \$150 w/o rims. Logsted, 281-3130.

TWO-ROOM CONDO FOR HAMSTER, nearly new, wheel, supplies, food, & cool toys, \$25; our hamster died. Davis, 344-2915.

LIFESTYLER TREADMILL, 4 programmed exercise options, 0-10 incline, manual, new belt, \$300. Sanchez, 898-9598.

SCHWINN AIRDYNE STATIONARY BIKE, digital display, minimal use, gelfoam seat cover, very good condition, \$250. Rockwell, 884-4206.

WATERBED, queen-size, oak frame, storage drawers, & bookshelf headboard, \$200. Low, 299-7395.

BARBIE VANITY/MIRROR & padded chair, child-size, white/pink accents, excellent condition, \$20. Rightley, 293-9780.

DIGITAL P133 COMPUTER, 1.2GB HD, 32MB RAM, CD-ROM, modem, speakers, monitor, Windows 98, \$275. Fuentes, 821-3324, ask for Jacob.

FRESH 25-IN. CHRISTMAS WREATHS, Los Lunas Boys Basketball fund-raiser, \$18.50. Ortiz, 869-3278.

ENTERTAINMENT CENTER, \$125; Schwinn Airdyne, \$120; queen mattress set, \$25; girl's bike, \$50; floor lamps, \$30 pr. Nutt, 856-8267.

SHEERLING COAT, brown, size 8-10; mink & leather 3/4-jacket, size 10-12; \$200 ea. Everett, 268-7818.

PUPPIES, 7 mos. new, Rottweiler/German-shepherd cross, 2 females, adorable, playful. Turner, 450-4412 (mobile).

PRIVATE-LAND ELK-HUNTING PERMIT, antlerless, Dec.19-31 or Jan. 19-31, \$150. Maestas, 888-0955.

WHEELCHAIR, standard-size, hospital-type, \$175; walker, \$40; crutches, pair, \$15; exercise bicycle, \$25; vaporizer, \$5. Martin, 296-6727.

55-ALIVE DRIVER-SAFETY CLASS, Coronado Club, Jan. 13 & 23, 5 p.m., SERP, 844-8486, or Jim Porter, 884-4577.

SOUTHWEST AIRLINES round-trip ticket, transferable, good anywhere SW flies until 9/19/01, \$300. Perrine, 293-1429.

CARPET, used, 141 sq. yds. for 1,600-sq-ft. home, \$75; two 36-in. ceiling fans, \$10 ea.; 48-in. ceiling fan, \$15, OBO. White, 294-5692.

AQUA FLOOR LAMP, 46-in. high, contains plastic fish, used 6 times, paid \$60, asking \$25. Locher, 323-0722.

WEIGHT BENCH, leg lift & inclining press back, includes some free weights & foot straps, \$100. Chavez, 275-0490.

CHRISTMAS TREE, deluxe fir, 6-ft., stand, lights, ornaments; old exercise bike; diet scales 16-oz. measurements. Beck, 294-4591.

WOOD, \$140, cord. Vigil, 873-2720.

BACKPACK, Jansport, framed, used once. Ewen, 836-3563.

HEATER, radiant-infrared propane, up to 25K Btu, new in box, \$100. Lenberg, 266-8988.

TELESCOPE, 8-in. Meade, Dobsonian, Telrad, & 6x30 finder scope, 2 eyepieces, excellent condition, 2-in. focuser, \$550. Barnette, 861-2450.

CABOVER CAMPER, 8-ft., for full-size pickup, great for hunting & fishing, jacks included, must sell, \$300 OBO. Welch, 292-2706.

TENNIS BRACELET, 14K, custom designed, 86 round diamonds, total of 4.15 cts., safety chain, brand new, \$1,150. Burstein, 821-6688.

SOUTHWESTERN SOFA, \$150; formal dining room set, \$500; wicker stand, \$50; king-size mattress set, \$100; full-size mattress, \$50. Harris, 821-3001.

NORDICTRACK SKI MACHINE, \$100; gym-quality padded flat bench, \$75; free weights, \$25; 3-pr. bar-bells, \$15, or all \$150. Peek, 286-4258.

BLACK LEATHER COUCH, 4-piece sectional, w/recliner & full bed, \$675; oak kitchen table, 4 padded chairs w/rollers, \$125; round bed w/padded frame & mattress, one-of-a-kind, \$125. Maxey, 880-0047.

NINTENDO 64, video game system, excellent condition, \$50; Nintendo 64 games, \$20 per game, like new. Anderson, 897-2772.

POOL TABLE, classic, full-size, heavy thick slate, w/leather pockets, green felt. \$200. Denney, 877-9788.

WASHER & DRYER, great condition, \$250. Jaramillo, 296-7516.

ANTIQUA WOOD STOVE, \$1,500; new OEM Jeep soft-top (white), \$500; Yamaha MX100, \$275; '78 Honda CT70, \$900. Habbit, 856-1117.

NIKON, 50mmf1.2AI, \$200; 200mmf4, \$125; 105mmf2.5AI, \$100; Vivitar, 28mmf1.9 for Nikon, \$100. Sides, 296-1744.

JACK RUSSELL TERRIER, 9 mos. old, all shots, trained, housebroken, accessories, good with kids. Campos, 275-7830.

LAMPS, shades, \$10 ea.; recliner, \$35; nightstand, \$10; videocassette player, \$30; Hitachi speakers, \$20. Kiro, 255-0890.

MATCHING SOFA & LOVESEAT, sofa is queen-size sleeper, brown, very good condition, \$200. Dwyer, 271-0741.

How to submit classified ads

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

- E-MAIL: Sandy Smallwood, (sksmall@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 Sandy at 284-3704. 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.

Next ad deadline is Jan. 5
The next issue of the *Lab News* will be Jan. 12, 2001. The ad deadline is noon, Friday, Jan. 5

DRUM SET, '66 Slingerland Professional, 5-piece w/hardware, \$900 OBO. Levan, 293-0079.

SONY PLAYSTATION, 2-game console, unopened, w/receipt, \$500 OBO, cash only. Harris, 480-2369.

LODGE-LOOK FURNITURE, solid pine: couch, chair, ottoman, coffee table, 2 end tables, see photos @ http://members.aol.com/lavishard/, \$500 negotiable. Wishard, 292-4802.

GARAGE SALE, 12/16/00, 2865 Tramway Circle NE, baby items, toys, clothes 0-8 yrs., furniture, kitchen items. Martinez, 856-6210.

WASHER, 3-yr.-old Whirlpool, 8-cycle, white, excellent condition, \$200; figure skates, girl's size 1, \$40. Clement, 293-1416.

TEXTBOOKS, College of Santa Fe: Business Law I & II, Marketing, Spanish 101, 102, make offer. Chavez, 265-7331.

SOLID OAK TABLE, 48-in. round, 1.5-in. thick, \$225; 6.5-ft. artificial Christmas tree, \$50; http://members.home.net/rick.kris/forsale.html. Kominek, 856-5424.

BABY GOODS, Childcraft crib + bedding, excellent condition, \$300; Graco portacrib, \$50; hiking backpack/carrier, \$100; small slide, \$15; rocking horse, \$10. Hendrickson, 275-3119.

ETHAN ALLEN COFFEE TABLE, 22" x 56", \$200; 2 end tables, 26 in. square, African mahogany, traditional, \$150 ea; 92 in. rose velvet couch, \$600; 88 in. turquoise/rose couch, \$400. Pappas, 881-3440.

AB DOLLY, deluxe, \$75; SUV club, \$30; truck club, \$20; 33.6K U.S.R. modem, \$25; all like new. Johnson, 296-3431.

FREE, old kitchen stove & old dishwasher, they still work. Reif, 262-2652.

WALL HEATERS, 37-ft.; 2 air conditioners; awning, like new; washer & dryer; built-in ironing generator. Ward, 884-9266.

35-YEAR COLLECTION, *Road & Track*, and *Car & Driver*, free to good home. Moss, 242-7843.

REESE EQUALIZER HITCH, never used, \$175 OBO. Patton, 898-3524.

SOFA, good shape, light tweed, \$150; treadmill, incline, speed electronic control, like new, \$100. Kajder, 298-9353.

BABY JOGGER II w/ large 20-in. wheels, sun/rain canopy, folds flat, excellent condition, \$200. Heffelfinger, 281-1733.

TRANSPORTATION

'92 OLDS 98 REGENCY ELITE, like new, 76K miles, CD, leather, digital gauges, computer ride, \$7,200. Magnuson, 821-5330.

'93 FORD TAURUS SHO, loaded, AM/FM cassette, AC, power everything, sunroof, 6-cyl., performance sedan, \$5,250 OBO. Morgan, 284-5896.

'96 SATURN SL2, 4-dr., low miles, PW, PD, remote entry, extended warranty, great shape. \$7,477. Estes, 890-8317, ask for Bandy.

'66 PLYMOUTH FURY III, 2-dr. convertible, 318, AT, AC, good condition, \$4,000. Woods, 281-0477 or 758-7686.

'95 MERCURY SABLE GS, 3.8L, V6, AC, loaded, excellent condition, cruise, AM/FM cassette, only 28K miles, \$8,000. Payne, 343-9081.

'85 LINCOLN MK-VII COUPE, Bill Blass Edition, fully loaded w/all amenities, 135K miles, excellent condition, \$3,000. Langwell, 293-2728.

'94 DODGE DAKOTA, extended cab, V6, AC, 5-sp., top, 1 owner, perfect condition, \$7,950. Henfling, 869-4119.

'87 FORD TEMPO, 4-dr. GL, good condition, great first vehicle for high school student, \$1,000 OBO. Garcia, 899-3064.

'89 PONTIAC BONNEVILLE, 4-dr., 6-cyl., AC, AM/FM radio, 49K miles, good condition, \$2,750 OBO. Fromm-Lewis, 291-8181.

'88 TOYOTA MR2, clean body, bent rod in engine, only serious mechanics need inquire, \$1,500 OBO. Breckenridge, 797-4901.

'93 MERCURY VILLAGER GS, AC, PW, PD, good condition, 1 owner, 136K miles, \$3,800. Jones, 899-1187.

'92 JEEP CHEROKEE LIMITED, 4x4, all power, leather, excellent condition, 107,500 miles, \$8,100 OBO. Feng, 275-6639.

'99 DODGE CARAVAN, light blue, 33K miles, new tires, excellent condition, \$16,000 OBO. Padilla, 821-1840.

'94 F150 FORD, standard bench seat, rear window; black leather jeanscut pants 31" x 32", priced to sell. McDonald, 237-2589.

'98 TOYOTA COROLLA LX, 4-dr., 41K miles, fully loaded, excellent condition, \$10,200. Emery, 856-6950.

'96 DODGE 1500 SLT LARAMIE, 4x4, extra cab, 360-ton package, fully loaded, blue, 92K miles, \$13,800. Tole, 294-6010.

'96 DODGE DAKOTA PICKUP; bids accepted through 12/22/00; right to refuse bids; sold as is. SLFCU, 237-7386, 7354, or 7384.

'97 FORD TAURUS, V6, AT, AC, all power, cruise, alloy, 57K miles, white, real clean, \$7,900. Errett, 286-1597.

'95 BURGANDY NISSAN PATHFINDER XE, V6, 4x4, 4-dr., PS, PB, PW, AC, AM/FM tape, PL, remote, new tires, 53K miles. Errett, 286-1597.

'90 GMC SUBURBAN, 4x4, 350 fuel-injection, AT, dual AC, tow pkg., 130K miles, excellent condition, \$5,250. Pickering, 281-3145.

'91 TOYOTA MR2 TURBO, red, black leather, fully loaded, low mileage, excellent condition, near-new tires, \$10,999. Sylwester, 844-8151.

'88 TOYOTA 4RUNNER, 4-cyl., 4WD, 155K miles, AC, 2 studded snows, excellent condition, \$5,500. Cooper, 281-0950.

'90 FORD ESCORT, 4-dr., 5-sp., HB, red, loaded, engine overhaul '99, great condition, maintenance records, great commuter car, \$1,900 OBO. Sherwin, 275-9134.

'82 GMC SUBURBAN, 4WD, 3/4-ton, 6.2-liter diesel, \$2,550. Rieger, 281-0757.

'93 CHEVROLET S-10 BLAZER, loaded, 4WD, 4-dr., Tahoe LT, 4.3 Vortec V6, AT, leather, \$7,500. Jaramillo, 864-9202.

'90 CHEVROLET CORSICA, 4-dr., V6, AT, AC, PS, PB, stereo, 63K, good condition, \$2,500. House, 293-6016.

'79 VOLVO 244 DL, yellow, 4-dr., sedan, 4-sp., good condition, very reliable, \$1,650. Baca, 350-1238 or 293-8997.

'94 TOYOTA PICKUP, 1/2-ton, 71K miles, stereo AM/FM tape, AC, grill guard, good condition, \$13,000. Revels, 344-3033.

'81 VW VANAGON, white, good condition, great for camping, recent reconditioning, \$4,500. Dudley, 268-6963.

RECREATIONAL

'89 PROWLER 5TH-WHEEL TRAVEL TRAILER, 21-ft., 2-way fridge, AC, heater, 4-burner stove/oven, full bath, upgraded queen Sealy mattress, sleeps 6, exc. condition, \$5,500 OBO. Rohl, 833-3697.

'93 HARLEY-DAVIDSON SPORTSTER, less than 5K miles, lots of extras, excellent condition, \$5,500; Hitachi 45-in. TV, needs work, \$100. Garcia, 344-3406.

'99 KAWASAKI KX60, like new, used less than 10 hrs., great Christmas gift, \$1,650 OBO. Brown, 869-0704.

'79 KAWASAKI KZ650, 8,400 miles, perfect condition, classic, \$1,500. Spence, 286-1998.

CANNONDALE V700 MOUNTAIN BIKE, front shock, & clipless pedals, equiv. 18-19" frame, \$1,100 new, asking \$400. Derzon, 299-0523.

REAL ESTATE

4-BDR. NE HEIGHTS HOME, 2,221+ sq. ft., large master suite, newly remodeled country kitchen, 2-car garage. Dytzel, 296-1900.

3-BDR. PRESLEY HOME, 1-3/4 bath, 2-car garage, 1,800 sq. ft., newer appliances, landscaping, patio, assumable VA, \$119,000. Anderson, 292-8432.

4-BDR. "FOUR HILLS BEAUTY," 2 baths, great room, Pergo, tile, gorgeous yard. Francis, 857-2213.

LAND/HOME PACKAGE: 3-bdr., 2-baths, w/garage, .65-acres, located in Tome/Adelino area, owner financing available. Rance, 861-3242, ask for Karen.

CUTE 2-BDR. MOBILE HOME, located at Four Hills Mobile Home Park, great condition, \$25,000. Lucero, 255-9649.

2-BDR. COTTAGE, 1 bath, in Eagle Nest Lake, 17 miles from Red River & 10 miles from Angel Fire, fully furnished w/lots of antiques, \$75,000; unfurnished \$69,000. Martin, 296-8154.

3-BDR. HOME, near Copper/Tramway, FP, W/D, new stucco, carpet, paint, 1-3/4 bath, shed, garage, \$105,000. Mignardot, 254-9092.

4 BDR. HOME, 2-1/2 baths, 2,800 sq. ft., brick ranch-style, new roof, new heater, & AC, Glenwood Hills neighborhood, market appraisal \$239,000, asking \$219,000 without realtor fees. Dwyer, 271-0741.

3-BDR. CUSTOM HOME, 2 baths, 2,270 sq. ft., LG, country kitchen, & more, unique, on golf course. Dahl, 864-4735.

WANTED

FILING CABINET. 2-3-or 4-drawer, lock preferable, not mandatory, delivery after new year desirable. Underhill, 294-5774.

FEMALE ROOMMATE, to share 3-bdr. house w/2 others, 5 min. from Sandia, \$275 + utilities. Gilliland, 294-3563/980-6294.

FULL DRUM SET for band student. Feng, 275-6639.

BOWFLEX EXERCISE MACHINE. Davidson, 821-0579.

RETIRED SANDIAN interested in doing handyman work. Hertz, 265-4729.

FLUTE OR FRENCH HORN (key of F) for junior-high student, good condition, reasonably priced, new or used. Pacheco, 292-0490.

SNOWBOARD, 125-cm or thereabouts. Ruby, 821-0982.

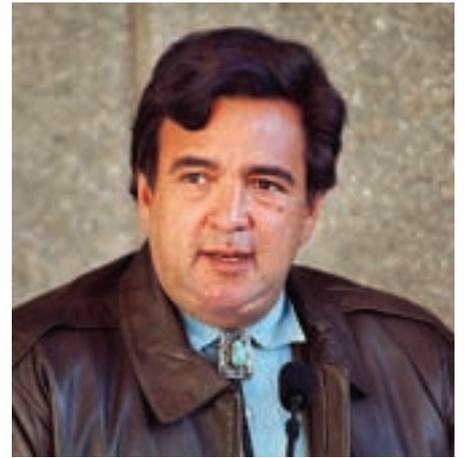
LOST & FOUND

CELLPHONE, found in parking lot west of Medical & Gate 4, call & describe to claim. DePoy, 844-0891.

GLASSES, found in 892/216, week of 12/4. Green, 845-8468.

FAMILY RING, lost in Bldg. 831; very important to student, please call if found. Lacy, 856-1093.

Sandia, DOE, Navajo Nation sign MOU to work together



MOU SIGNING — Sandia, DOE, and the Navajo Nation signed an agreement Dec. 4 in Albuquerque to build working relationships between the entities (*Lab News*, Nov. 17). In the photo to the left, Navajo Nation President Kelsey Begaye, Energy Secretary Bill Richardson, and Sandia Executive VP Joan Woodard sign the memorandum of understanding (MOU). To the right stands moderator Laurence Brown (14171), Sandia tribal liaison. Above, Bill Richardson addresses the audience prior to the signing. (Photos by Randy Montoya)

Sandians commit \$2M to their communities during the recent ECP/LEAP campaigns

By Janet Carpenter

Sandians kept their promise of raising “\$2M Again” during this year’s recent Employee Contribution Plan (ECP) and Livermore Employees Assistance Plan (LEAP) campaigns. ECP raises money for United Way of Central New Mexico; LEAP, for local California agencies including three United Way groups and Combined Health Agencies in the Bay Area.

Total contributions are at \$2,127,010, which includes \$108,000 raised for last spring’s Cerro Grande fire relief, LEAP contributions of \$214,404, and \$10,645 from remote sites.

Mike McClafferty (14404), 2000 ECP Chairman, came up with this year’s ECP slogan, \$2M Again. “I would like to thank every Sandian — current, temporary, and retired — for their gifts

of money, time, and talent, resulting in the second year we have exceeded \$2 million,” he says. “It is a pleasure to work for a company that understands and supports the needs of the less fortunate in the community we live in and support.

“I have enjoyed being the ‘chief beggar’ for the corporation,” he says, “and would like to thank the core team, with special thanks to Juanita Sanchez and her 80 to 100 representatives for a successful campaign.”

Participation is at 71.5 percent, with the average gift at \$363 — \$23 more per participant than last year; 1,737 give at the Leadership Giving level (\$500 or more).

Involvement in ECP/LEAP campaigns is top to bottom, crossing all organizations and employee categories. Lockheed Martin Corporation’s corporate gift is \$40,000. Temporary, non-regular employees contributed \$13,568 and retirees contributed \$22,105.

Although Advanced Concepts Group Div. 16000 achieved 100 percent participation, Legal Div. 11000 wins the traveling Rick Orzel Award — for divisions with the greatest increase in participation — with an increase of 30 percent over last year. The Union Leadership Award went to Office and Professional Employees International Union for its 9.6 percent increase in participants.

“I am constantly impressed at the generosity of the people who work here,” says ECP project coordinator Juanita Sanchez (12660). “We at Sandia really care about the people in our community, which expands beyond the New Mexico borders. I see the difference we make in the community, and that makes me proud to know that we touch the lives of so many, including some of us employed at Sandia who have benefited from the generosity of others. On behalf of the clients of those hard-working agencies, and on behalf of my family I thank you who have contributed either in time, skills, or money to make our world a little brighter.”

Next year’s campaign will be led by Paul Yourick, Manager of Integrated Safety and Security Dept. 7102, with the assistance of Fred Sexton, Manager of Reliability Physics Dept. 1762. “I look forward to leading next year’s campaign and working with all of the wonderful Sandians who devote their time to making the campaign successful,” says Paul. “The generosity of Sandians and retirees continues to impress me. Let’s do it again in 2001.”

Thank-you note from Lenny Martinez

Each year, I’m impressed with the creativity of the teams and the Division representatives for achieving our ECP/United Way goals. This year, Sandia asked you for support of the Los Alamos community as a result of the difficulties they faced after the Cerro Grande fire. You responded. This year’s goal was in jeopardy but we felt awkward about pressing because you had been so generous. We finally decided to include the gift but felt empty about claiming victory, until now. Not only did we help out in Los Alamos, but we also exceeded our goal of \$2M, not counting the Los Alamos donation. All total, many of us have much to be thankful for, but one of the things I am most thankful for is working with all of you, because a portion of our labors is translated into this generosity that is so helpful to our communities. Al Romig and I, as Campaign Co-Champions this year, wish to express our gratitude on behalf of our colleagues. Paul Yourick and his team will need your help again next year as he looks forward to higher participation rates, continued successful work with the represented folks and all our employees, and continued leverage of Sandia’s values and contributions into being great neighbors.

— Lenny Martinez, VP 14000

Coronado Club

Dec. 15 — Dining, 6-9 p.m.; Dancing with Midnight Magic, 7-11 p.m.

Dec. 21 — Adult bingo. Early bird, 6 p.m.; regular 6:15 p.m.

Dec. 22 — Dinner, 6-9 p.m.; dancing, 7-11 p.m. Music by Midnight Magic.

Dec. 31 — Celebrate the New Year at the Coronado Club. Cocktails, 6-7 p.m.; dinner, 7-9 p.m.; dancing, 9-1 a.m.; breakfast, 12-1 a.m. Entertainment by Java “5.” Price: member, \$22.50 per person; non-member/guest, \$25.

Dec. 23-30 — Coronado Club closed.

The Coronado Club will be available for catered events during the winter shutdown for parties of 50 or more only.

Sandia News Briefs

Fred Dickey elected Optical Society of America Fellow

Fred Dickey (2612) has been elected a Fellow of the Optical Society of America. He is being recognized for “seminal contributions to a variety of areas within optical sciences and engineering, including pattern recognition, radar, metrology, and beam shaping.” Fred is also a Fellow of the International Society for Optical Engineering (SPIE).

Send potential Sandia News Briefs to Janet Carpenter, jacarp@sandia.gov, Dept. 12640, MS 0165, fax 844-0645.

! Take Note

Sandia employees are invited to join the Friendship Force of New Mexico members in hosting the Friendship Force group from St. Petersburg, Russia, in April. Do you speak Russian (helpful but not necessary)? Would you enjoy having a guest or guests in your home? Are you available to show local points of interest? For more information and to volunteer, contact Homer Dale at 848-1883 or Peggy Birmingham at 293-4162.