

# New 'dual lab' brings manufacturing info together

**Enterprise Integration Facility is in both New Mexico, California**

By Ken Frazier

*Lab News Managing Editor*

Befitting the role it is to play, Sandia's new Enterprise Integration Facility (EIF) was dedicated last week not with a ribbon cutting but a ribbon joining.

Its whole purpose is to bring things together — information, hardware, software, developers, users, technologies — to make the design, development, and manufacture of essential components quicker, more efficient, and more economical.

The facility is a room — or rather two rooms, one at Sandia/New Mexico and one at

Sandia/California — permanently set up and electronically linked that will be used to promote and demonstrate how advanced manufacturing projects at Sandia are integrating to support the product-realization process.

The New Mexico site is in Room 2120 of the Microelectronics Development Laboratory (Bldg. 858). The California site is in Room 1106 of Building 941. They're filled with computer terminals used to demonstrate specific projects and wall displays showing the often complex ways the projects and concepts relate to each other in the flow from idea to product fruition.

Using video conferencing, project managers and officials at both sites took part in the ceremonies and open house Sept. 20 marking the opening of the EIF.

"This facility is the culmination of a lot of  
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*"The facility will provide a way for all our advanced manufacturing technologies to interact with each other."*



ENTERPRISING — Jon Barnette (2905, left), program manager for Sandia's new Enterprise Integration Facility (EIF), and Chris Montoya (2784), co-manager of the facility, demonstrate use of Interactive Collaborative Environments (ICE), one of the technologies highlighted in the EIF. With ICE, engineers in different locations can conduct design sessions on screen, sharing applications and video.

## Sandia National Laboratories **Sandia LabNews** Vol. 46, No. 20 September 30, 1994

### Carlsbad facility adds permanence to Labs' presence

**New Carlsbad Operations Center expands Sandia's role in southeastern New Mexico**

By John German

*Lab News Staff*

Today, less than a year after Sandia pledged to increase its stature in Carlsbad, residents of that southeastern New Mexico city can stand in the shade of a more tangible Labs presence in their community: a new 7,500-square-foot facility at 115 N. Main St.

The building, officially opened for business with a ribbon-cutting ceremony Sept. 13, will serve as new headquarters for Sandia's Carlsbad Operations Center 6700. More important, says 6700 Director Paul Brewer, the building shows Carlsbad residents that the Labs intends to be a more "concrete" part of their community for years to come.

During a visit to Carlsbad last October, Executive VP Jim Tegnalia promised community leaders that Labs dealings with Carlsbad would no longer be confined to arrivals and departures at the municipal airport, or to limited technical work performed primarily by scientists based in Albuquerque. He pledged

that the Labs would begin to play a greater role in Carlsbad's economic development.

"We have to have the facilities and tools to be able to make sure that we do our job well," said Jim during the ceremony. "More important, we have to show our community that we're in fact part of the community, that we're not here

temporarily but we're here for the long run.

"It's part of Martin Marietta's commitment to being a good neighbor," he says.

The center will continue to support Sandia's historic role in Carlsbad — providing technical data to DOE in support of the Waste  
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### Right or wrong? — Sometimes the answer's not so simple

**Ethics director trying to reduce the amount of 'gray' area**

By Howard Kercheval

*Lab News Staff*

With a month of settling in, wandering around, and getting acquainted with his new surroundings behind him, Ethics Director Jack Dickey (12700) is opening his campaign for greater ethical awareness among Sandians with a game — a fun, but serious, game.

"Gray Matters is a game that was created by Martin Marietta to be used in ethics seminars to better clarify the line between right and wrong," says Jack. "In the game, there are 110 mini-cases with no completely right or wrong answers, only answers in shades of gray. In most cases, it's not clear what the right — or nearest right — solution should be.  
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# This & That

Altered work week concept approved - Rumors have been around for weeks that Sandia may adopt an altered work schedule, allowing many employees to work nine days to accumulate 80 hours and then taking off alternate Fridays. We now have word that the Sandia Quality Leadership Council (SQLC) has approved this so-called 9/80 idea *in concept*, and our Human Resources group is studying it from all angles to determine if it's truly feasible, and, if so, how to implement it. There are lots of considerations - including any problems it might create, cost impact, and effects on customers, bus schedules, vacation, holidays, and other benefits. Also, any altered work schedule for represented employees would have to be bargained with their bargaining units.

Because the SQLC has approved the idea in concept only, there is no target date for implementing it. Our Human Resources folks ask one big favor: Please don't call them for details. There simply aren't any yet, and they promise to provide you with additional information through the *Lab News* and in other ways as it becomes available. Stay tuned.

\* \* \*

Attention, slip-stickers - Slide rules are tools of the past, replaced many moons ago by hand-held computers. But the University of New Mexico College of Engineering is trying to keep the art alive by sponsoring a slide rule competition as a part of its annual "E-Racing" Day of fun and games, with a few serious events, too. The festivities take place next Wednesday, Oct. 5, at UNM, and the slide rule competition will be 10:30-11 a.m. If you're interested in testing your skills against the students and faculty, call Gail Ward at UNM on 277-4354.

\* \* \*

Who's Charlotte? - I told in this column on Sept. 2 how I managed to embarrass myself using my new ISDN phone that *in most cases* correctly displays internal callers' names before you pick up the receiver. That prompted several readers to relate similar experiences.

To protect this poor fellow from further embarrassment, I won't give his name, but let's call him Brian. Here's his story: He used the ISDN electronic directory to find the number of a fellow Sandian who isn't a fellow. Her name is Charlotte. Brian called her and left a message but forgot to deactivate the electronic directory after the call, so it continued to display Charlotte's name. When his phone rang the next time, Brian glanced at the display and assumed she was returning his call. He uttered an evidently too friendly sounding "Hi there, Charlotte." Oops. It wasn't Charlotte, but Brian's wife, who naturally wanted to know who this Charlotte person is. At last report, Brian has no major visible bruises, but he's being a little more cautious when answering his fancy phone.

\* \* \*

New name for the nineties - Because my lovely bride is a member, I know that several members of the Sandia Women's Golf Association are, let's say, "making the turn onto the back nine of life," and one of them says today's women in that stage of life no longer use the term "hot flashes." Nope, modern women have "power surges."

- Larry Perrine

## Sandia LabNews

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MARTIN MARIETTA

## Dialogue sessions to feature Narath talk about Galvin review

### Employees encouraged to attend

All Sandians are invited to attend Labs President Al Narath's upcoming quarterly employee dialogue sessions. He will speak about the status of the review by the Galvin task force studying alternative futures for the national labs and take questions on any topics of interest.

In New Mexico, there will be one session on Tuesday, Oct. 4, at 1:30 p.m. in the BDM Building auditorium for employees located there.

Two sessions will be held Wednesday, Oct. 5, in the Technology Transfer Center (Bldg. 858) for all other Sandia/New Mexico employees. Employees with last names beginning A-M should attend the 1:30 p.m. session; those with last names N-Z, the 3 p.m. session.

In California, two sessions will be held Friday, Oct. 21, in the Sandia/California auditorium (Bldg. 904). Employees with last names beginning A-M should attend the session beginning at 8:30 a.m., N-Z, the session at 10 a.m.

## Computer misuse brings severe penalties

### Four employees are disciplined

Sandians are increasingly using the Internet as a convenient tool for communicating with colleagues throughout industry and at universities. Vast amounts of useful information are available on this network. However, Sandia officials warn, some information is not appropriate for access or storage on Sandia computers.

Since late July, there have been four incidents at Sandia of computer misuse involving sexually explicit materials obtained through the Internet, reports Pat Smith, Director of Human Resources & Business Operations Center 8500. The four people involved in these cases accessed inappropriate files and downloaded them onto their Sandia-owned computers. The disciplinary actions that resulted from these violations of Sandia's Code of Conduct included removal from the site, 30-day suspension without pay, and resignation in lieu of termination, Pat says.

### Some inappropriate files

Sometimes inappropriate files may be acquired inadvertently with work-related information, including legitimate software. For example, Doug Brown, Manager of Computer Security Dept. 13921, says it has recently been discovered that some distributions of GNU emacs, a powerful text editor, contain inappropriate files. He says if you receive an inappropriate file, remove it from the computer system and report the incident to Computer Security so that other users may be notified.

Bulletin board and e-mail messages may also be received with attachments containing inappropriate or offensive material. Again, the advice is to remove such material from your system and let the sender know that it is not appropriate. If such messages continue, says Brown, notify your management or the Computer Security Department.

In addition to routine audits, computer networks are actively monitored at Sandia to detect misuse. Pat points out that Sandia's Code of Conduct clearly states that all Sandia computer systems are for official use only, and willfully using them for unauthorized purposes, such as games, pornographic images, or personal business, is unacceptable. In addition to disciplinary measures that may be taken by Sandia, failure to comply with security requirements can also lead to criminal and civil liability.

If you have questions about the proper use of computers, you should contact Gary Blair (8910) on 294-3819 at Sandia/California or Doug Brown (13921) on 845-8699 or Craig Jones (13903) on 845-8372 at Sandia/New Mexico.

## Sandia Day section in Oct. 14 Lab News

The *Lab News* will publish a four-page pull-out section in the Oct. 14 issue that will include maps, lists of events, and other information about Sandia Day activities at the New Mexico site Oct. 22.

Sandia Day activities also are planned at the California site for the same day, and a separate listing of events will be published and distributed there.

Other information - including times and places to register guests for visits into areas normally restricted to cleared employees and contractors - will be available through the *Lab News*, *Weekly Bulletin*, Radio Sandia, and other Sandia communication channels as it becomes available.



# Annual charity campaign kicks off in California

## Employees begin 25th year of LEAP giving Oct. 3

By Barry Schrader

Lab News Staff

The new fiscal year will begin with the kickoff of the Livermore Employees Assistance Plan (LEAP) campaign Oct. 3 at Sandia/California. The annual LEAP effort has been a tradition of charitable giving since 1969 at the California site, with an accumulation of more than \$2.2 million in donations from employees over its 25-year span.

LEAP chair Rene Bierbaum (8116) hopes that people carefully consider supporting the campaign. "The LEAP team is very excited about the agencies we visited and chose to support this time. We were impressed with their dedication and creativity in serving the communities where Sandians live. It's been an excellent opportunity for Sandia/community interaction." Thirty-four agencies in the Greater Bay Area plus three United Way chapters, the Tri-Valley Community Fund, and the Combined Health Appeal are included in the package this year. A new agency has been added for the 1994 campaign, the All Season's Riding Academy for the Handicapped, which provides equestrian lessons to physically disabled youth and adults.

### More options for giving this year

"We encourage people to examine the available options and consider giving to all or to any specific agencies they wish to support," Rene says. "The new pledge form provides plenty of opportunities for selecting your own favorites." Employees will begin receiving their information packets next week from department representatives who will contact everyone in their organizations. The drive will conclude Oct. 14.

For the first time the committee has categorized the types of agencies being supported. Prior to the allocation of undesignated funds, the group developed an up-front target percentage for the various categories. Homeless and needy groups will receive 35 percent of the undesignated donations, disabled services 19 percent, family counseling services 16 percent, youth education 15 percent, troubled youth programs 11 percent, elderly agencies 3 percent, and other 1 percent.

### Sources of information available

The committee also decided to provide more support for the smaller agencies by not allocating undesignated funds to agencies whose budgets exceed \$1 million. Larger agencies are still on the pledge card for employees to choose to designate as an option, however.

Cochair Jane Ann Lamph (12120) explains: "One of our goals is to develop a process that can be used year after year for conducting the campaign. As part of this we have developed a special LEAP binder that will be updated each year. The binder, available in every department onsite, contains information about each agency and describes the undesignated funds allocation. It also includes filled-in example pledge cards and other general information about the LEAP campaign."

A special LEAP bulletin board has also been established on cc:Mail where the most frequently asked questions about the campaign are answered and general information provided. There is also a LEAP telephone hotline (4-SHAR) to call to obtain information.

Working on LEAP this year with Rene and Jane Ann are Karen Anderson (5300), who chairs the agency evaluation subcommittee; Joan Bersie (8800), who heads the community

involvement subcommittee; Cynthia Richards (8535), who is leading the communication/education subcommittee; and finance cochairs Bonnie Grant and Linda Helmick (both 8523). Others are Cheryl Stevenson (5354), John Hinton (8112), Arlene Franke (8502), Rob Allen (8114), Nina Martin (8116), Tim Sa (8274), Evelyn Bryson (8302), Jake McMichael (8305), Carla Fugazzi (8305), Davina Kim (8412), Dave Stimmel (8413), Cec Phillips (8500), Mary O'Shea (8523), Linda Troen (8641), Donna Davis (8641), Karen Lee (8713), John Totten (8746), Rita Hoak (8951-1), Norm Wagner (8209), and Christine Yang (8952).



VISITING LEAP AGENCY—As part of the evaluation process the LEAP committee visited some of the agencies being considered for funding. From left, Faith Yeager, a house parent at Buenas Vidas Youth Ranch at its new location on Tesla Road, introduces the ranch dog to LEAP chair Rene Bierbaum (8116), cochair Jane Ann Lamph (12120), and evaluation subcommittee chair Karen Anderson (5300). (Photo by Karen Lee, 8716)

**Sandia California News**

## Here are the LEAP agencies for 1994

The following agencies have been chosen by the LEAP committee for support this year. Information on each organization is available on telephone 294-SHAR.

### Homeless and Needy

Children's Emergency Council of Dublin, Family Crisis Center, Love Thy Neighbor, and St. Mary's Interfaith Dining Room

### Disabled Services

Agency for Infant Development, All Seasons Riding Academy for the Handicapped, Canine Companions for Independence, Guide Dogs for the Blind, Kaleidoscope Center, Northern California Society to Prevent Blindness, Twin Valley Learning Center, Valley Support Services

### Family Counseling

Anthropos, Arbor House, Hope Hospice, Parental Stress Service, Spectrum Community Services, and Widows'/Widowers' Network

### Youth Education

American Indian Center; Boy Scouts of America, Mt. Diablo Council; Boy Scouts of America, San Francisco Bay Area Council; LAGATS (Livermore Association for Guiding and Teaching Students); LARPD Extended Student Services; Nursery School Scholarship Fund; Pepper Tree School; School Age Mothers; Student Education Loan Fund

### Troubled Youth

Buenas Vidas Youth Ranch, Horizons Youth and Family Services, M-2 Sponsors, Inc., and Victim Offender Reconciliation Program

### Elderly

East Bay Consortium for Elder Abuse Prevention and Friendship Center (Adult Day Care Program)

### Other

Valley Humane Society

## Supervisory appointment

DEBRA NISSEN to Manager of Environmental Protection Dept. 8642.

She joined Sandia/California in August 1990 in the Environmental, Safety and Health Department to develop the ES&H Quality Assurance Program. Next she served as quality assurance coordinator for Center 8600.



DEBRA NISSEN

She has served as project manager to publish the Tiger Team Action Plan in 1991, as interface with Sandia/New Mexico for corporate ES&H program management issues, and was

also asbestos abatement coordinator for the site.

Debra received a "Spotlight on Quality Award" in 1992, a President's Quality Award in 1993, a corporate ES&H award in 1993, and an Employee Recognition Award in 1994.

Before joining Sandia she worked for the Commonwealth of Massachusetts Department of Environmental Protection as a water quality consultant and environmental planner.

Debra earned her BA degree in Asian studies/international politics from Penn State and a master's in environmental planning at MIT.





## Dual lab opens

(Continued from page 1)

work by a lot of people," says Jon Barnette, Manager of Integrated Production and Process Development Dept. 2905 and Program Manager for the EIF. "The facility will provide a way for all our advanced manufacturing technologies to interact with each other."

Eight Sandia information-driven technology projects currently under way as part of the

product-realization process are demonstrated in the EIF (see "Eight technologies for advanced manufacturing"). They all come into play at somewhat different, overlapping times in the four phases of the process: definition, development, product delivery, and support.

### Permanent place for demonstrations

"The EIF will be a permanent facility for giving demonstrations about advanced manufacturing technologies," says Jon. He says it will also be a place where advanced manufacturing technologies can be integrated together to

smooth the path toward a final product. A third role is to train users and potential users of the technologies, such as representatives from manufacturers.

There are already plans for expansion. A similar room is expected to be set up in Building 878 to make the demonstrations even more accessible to users from industry.

Jon says the facility was the idea of a number of project leaders at Sandia who saw the need for such a place and brought it up with Heinz Schmitt, Vice President for Component Development and Engineering Support 2000. "Heinz thought it was a good idea," Jon says.

That's right, says Heinz. "There really was a great deal of enthusiasm for the idea. I shared in that enthusiasm. It was exactly the right thing to do. It's exactly what we needed to demonstrate to DOE and to industry the technology integration that's crucial to achieving manufacturing agility." He says Harry Saxton, Director of DP Sector Manufacturing Engineering & Support Center 5400, also was a strong supporter. Harry had been called to Washington and was unable to participate in the dedication events.

### Connecting the building blocks

"The crucial thing is to develop the technologies using our research foundations to provide the building blocks needed for an agile product-realization process," says Heinz. "The integration is what's important to connect all the separate building blocks. This lab is crucial to demonstrate this integration."

He says it's also important in demonstrating the "seamless operation between our two sites" in New Mexico and California.

Also, says Heinz, "it's a very nice marriage of the Defense Programs sector and our Advanced Manufacturing thrust." He says it will help provide a solution to the national need for more-agile manufacturing.

Sandians in California have an equal role to play. "We're excited about the launching of this facility," says Ron Stoltz, Manager of Corporate Manufacturing Infrastructure Dept. 8008. "It's not just a collection of facilities and hardware and software but a network of people. It serves as a testbed for training and integration of technologies to make sure that they are robust before deploying them."

## Eight technologies for advanced manufacturing

These eight Sandia projects or technologies involved in information-driven advanced manufacturing are demonstrated in Sandia's new Enterprise Integration Facility. They come into play in different phases of the product-realization process. They are in various stages of maturity and in various stages of integration with each other.

Project	What it's trying to do
TIE-IN (Technology Information Environment for Industry)	Remote electronic access service to provide US industry with solutions to specific problems; intelligent user interfaces. TIE-IN is a gateway to Sandia technologies for industry. Contact: Jim Ang (1404)
A-PRIMED (Agility Primed)	Conducting a series of test cases for agile manufacturing; focusing on agile design and manufacture of precision electromechanical products. Contacts: Rodema Ashby (2862), David Strip (2121)
ECCI (Electronic Commerce of Component Information)	Provides for electronic buying and selling of commercially available electronic components via Internet. Contact: Fran Current (2884)
ICE (Interactive Collaborative Environments)	Allows for virtual co-location of geographically dispersed team members by sharing X-windows applications, enabling concurrent engineering. Contact: Keith Bauer (2862)
IDEA (Integrated Development Environment and Assistance)	Provides easy and guided access to electronically accessible knowledge, information, and tools; provides an "assistant" who will actually guide you. Contact: Laney Kidd (2337)
Smart Processes (Examples: Smartweld and Fastcast)	Intelligent, computer-based concurrent engineering system for materials design and manufacture. Contact: Kim Mahin (1807)
Model-Based Design	Design using virtual prototypes; enables greater flexibility, minimizes pre-production hardware. Contact: Randall Smith (2335)
GTPP (Gas Transfer Pilot Project)	Developing a product-realization process for non-nuclear mechanical components using 21st century practices and processes. Contact: Ron Stoltz (8008)

## Ethics game

(Continued from page 1)

"The game's objective is to make players — in this case, employees — aware of various ethical challenges that can arise in our day-to-day responsibilities, and hopefully stimulate our imaginations regarding ethical consequences," he adds.

The need for such examination of ethics perceptions, says Jack, is not because Sandians are functioning without appropriate guidelines. He cites the Labs' Code of Conduct and the Corporate and Personal Integrity Program (CPIP) as examples of good efforts in place and functioning.

### Ethical 'gray area' growing

He says he has found, not only at Sandia, but in most groups with which he has been associated, people having difficulty distinguishing clearly what is right and what is wrong. People generally see things in shades of gray, he says, and a disturbing trend is that the gray area in ethical conduct is growing while the black and white areas of right and wrong are shrinking.

"What I've heard from Sandians is that although our ethics program and corporate val-

ues are established, many think we haven't fully embraced them or thoughtfully used them as tools in resolving professional and personal challenges," he says.

His assessment after a month is that there is a perception among employees that we all need to be a bit more aware of our corporate value system, and to be incorruptible in our personal standards of honesty, respect for the individual, and integrity.

Jack says he's calling his campaign for greater ethical awareness "Beyond Compliance," as a simple admonition for us to strive for higher personal standards than threshold compliance with the CPIP, Code of Conduct, or the law.

Beginning with this issue, a mini-case will be published in each *Lab News*, along with feedback on how we in the Labs answered the previous issue's case and how our answers compare with the answer that is given in *Gray Matters*.

The first mini-case is published at right. To register an answer and/or leave a comment, call the Ethics Answer Line on 844-3225 and follow the instructions.

*"The game's objective is to make players aware of various ethical challenges."*

## Gray Matters

In each *Lab News* issue, Ethics Center 12700 provides a mini-case from the game *Gray Matters* that poses an ethics question, along with feedback on how we in the Labs answered the previous issue's case and how our answers compare with the answer that is given in *Gray Matters*.

To register your answer and/or leave a comment, call the Ethics Answer Line on 844-3225 and follow the instructions.

### Test your ethics

You have been directed by your supervisor not to show lost time (time not chargeable to a specific project) on your timecard. What do you do?

1. Say to yourself, "I'm a loyal employee. I do what I'm told."
2. Rationalize the situation: "That's a good idea. Our department will have a better record."
3. Discuss the directive with your supervisor, calling his or her attention to company policy.
4. File an allegation of unethical conduct with the Ethics Center.



## Carlsbad office

(Continued from page 1)

Isolation Pilot Plant (WIPP), the proposed underground repository for the nation's transuranic (TRU) waste. Sandia has been involved with WIPP since the mid 1970s. (See "WIPP work evolves.")

### Some new work, too

The facility will also serve as Sandia's new headquarters to DOE's National Transuranic Waste Program (NTP), which has been relocated from Washington, D.C., to Carlsbad. NTP is responsible for the nation's TRU waste, which consists primarily of waste contaminated with radioactivity during nuclear weapons production.

A portion of the building's office space will also be dedicated to the Southeastern New Mexico Education Resource Center (SNMERC) — an education outreach program that is already working with a consortium of school districts in Eddy, Lee, and Chaves counties to improve science and math education in southeastern New Mexico.

SNMERC, modeled after Sandia/New Mexico's Education Outreach Resource Center (*Lab News*, Aug. 19), will provide kits to teachers containing all the materials necessary to

*"Without Sandia's presence, a lot of these things wouldn't be possible."*



WIPP, WASTE, AND WORKSHOPS — A new Sandia building located at 115 N. Main St. in Carlsbad is serving as headquarters for Sandia's work in southeastern New Mexico. In addition to supporting work at the Waste Isolation Pilot Plant (WIPP), the building will be home to the National Transuranic Waste Program and the Southeastern New Mexico Education Resource Center, an education outreach program modeled after parts of Sandia/New Mexico's Education Outreach Program.

conduct hands-on science and math demonstrations in elementary school classrooms. Other educational programs it will support include an annual environmental technology competition for high school students (sponsored by the Carlsbad branch of New Mexico State University), a technology symposium for middle school students, and computer workshops for teachers.

"Without Sandia's presence, a lot of these things wouldn't be possible," said Carlsbad Mayor Gary Perkowski during the ceremony.

### New business

Economic development is also among the Labs' primary objectives in Carlsbad these days. Sandia is assisting the Carlsbad Department of

## WIPP work evolves

Paul Brewer, Director of Carlsbad Operations Center 6700, says Sandia's work continues to evolve "down south," where Sandia's role has historically been to provide technical data to DOE regarding the Waste Isolation Pilot Plant (WIPP).

Recently Labs researchers at the WIPP site have been focusing on bringing the underground repository into compliance with environmental regulations, rather than on new experimental work.

"We are in the process of reducing the level of experimentation at WIPP," he says. "Simultaneously, however, we have been increasing our activities in certifying old experimental data, quality assurance, and project control." The first TRU waste shipments are scheduled for 1998.



PAUL BREWER, Director of Carlsbad Operations Center 6700, addresses people attending a Sept. 13 ribbon-cutting ceremony for the new facility. Dignitaries attending the event included George Dials, Manager of DOE's Carlsbad Area Office; Executive VP Jim Tegnalia; Energy and Environment VP Dan Hartley; Dori Ellis, Director of Nuclear Waste Management Center 6300; Carlsbad Mayor Gary Perkowski; Jody Knox, President of the Carlsbad Chamber of Commerce; and Bob Forrest, George Shoup, and Mark Donham of the Carlsbad Department of Development. About 100 people attended the event.

## ! Take Note

Retiring and not seen in *Lab News* photos: Eugene Church (12332), 37 years; Betty Voss (5921), 20 years; Lilith "Sam" Baker (6700), 33 years; Billy Caskey (9616), 38 years; Henry Street (2223), 30 years; and Maurice Dillon (1212), 19 years.

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The Q-Lambda discussion group will meet Wednesday, Oct. 5, in Albuquerque. For more information about meeting location and time, call Kent on 265-8388 or Richard on 281-1631.

Some employees at Sandia/California are also forming a Q-Lambda discussion group there. For more information, call Don on 510-278-6897 or Darla on 510-582-2918.

## ★ Congratulations

To Anita (1800) and Mike Caress, a son, Kevin Michael, Aug. 14.

To Sabina (5822) and Doug (2338) Jordan, a daughter, Clarissa Erteza, Sept. 1.

To Sylvia Hammond (13418) and Jim Westmoreland (6111), married in Silverton, Colo., Sept. 6.

To Lan and Tan (5838) Tai, a son, Stephen Duy An, Sept. 6.

To Terri Day and Bill Stewart (5833), married in Albuquerque, Sept. 3.

To Terry Jordan (1551) and Bill Culler, married in Albuquerque, Sept. 3.

Development in efforts to create new jobs in the community and southeastern New Mexico. The new facility has brought at least 10 new Sandia jobs to Carlsbad in addition to the 16 Sandians and about 20 contractors already stationed there. Total Sandia payroll is \$1.2 million per year.

The Labs is also encouraging new business in the region. In May the Labs supported Quality New Mexico, a major conference held in Carlsbad. Martin Marietta recently gave \$5,000 to the Carlsbad Mayor's office for quality education.

"We're very much interested in economic development in the community, and we're committed to being able to help that process," says Jim.

Dori Ellis, Director of Nuclear Waste Management Center 6300, says Sandia's renewed presence in Carlsbad reflects the importance of DOE programs there.

"We couldn't have a more supportive community than this community has been for those programs," says Paul. "I think Carlsbad is deserving of the level of support we're now providing."



# Labs' research reactor may become sole US source for medically important radioisotopes

## DOE will fund ACRR modifications

DOE announced to Labs management this week it plans to make Sandia's Annular Core Research Reactor (ACRR) the sole US source for certain radioisotopes used by hospitals to detect and treat cancer and other diseases.

During a visit to Sandia Wednesday, Owen Lowe, Director of DOE's Isotope Production and Distribution Program, said DOE will provide the funding necessary for Sandia to plan the ACRR's conversion from research to production of molybdenum<sup>99</sup> — one of nuclear medicine's most widely used radioisotopes — pending completion of a NEPA (National Environmental Policy Act) compliance evaluation. (DOE will also provide funding to perform the NEPA assessment.)

In the US, about 40 percent of hospital patients undergo diagnosis or treatment with radioisotopes. At least 40,000 diagnostic and therapeutic medical procedures each day, and

nearly 100 million laboratory medical tests each year, involve the use of medical radioisotopes. (See "Radioactive isotopes for nuclear medicine.")

Molybdenum<sup>99</sup> (commonly referred to as "moly-99") has not been produced in the US since 1989, partly because of the regulatory environment and lack of facilities here. Currently the entire US supply comes from a reactor in Canada.

The reactor, owned by Nordion International, produces about 90 percent of the world's medically important radioisotopes. Unfortunately the 1950s-era Canadian reactor may be nearing the end of its productive life. No backup reactor is yet being built.

## Domestic supply critical

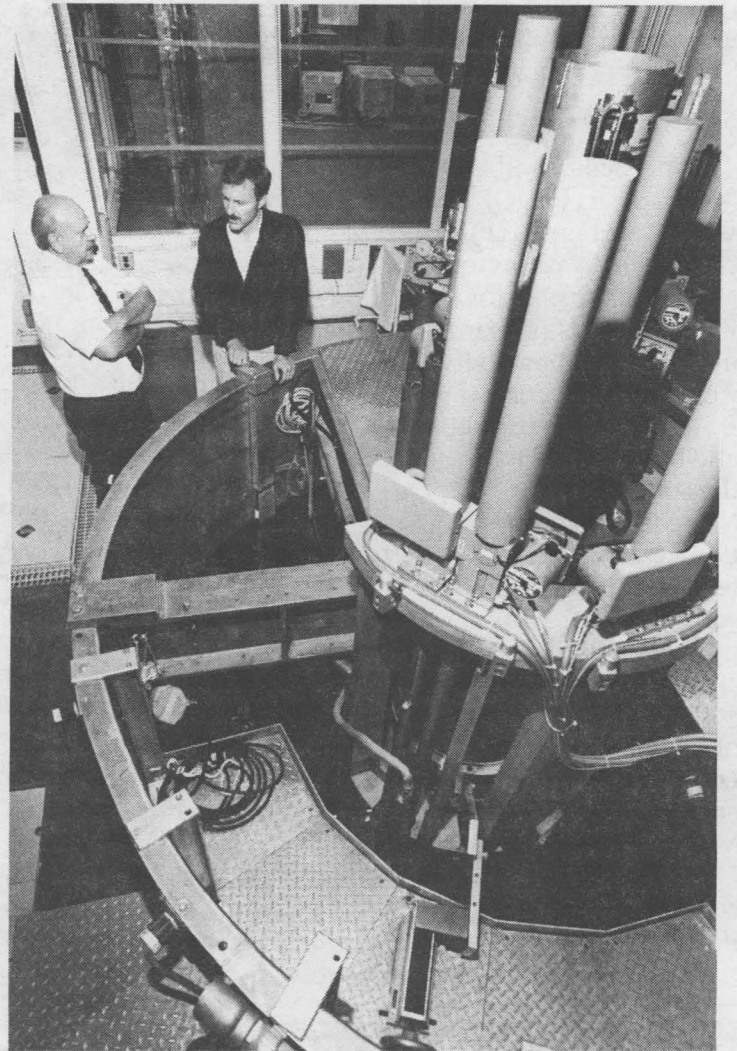
Because medical radioisotopes decay rapidly (moly-99 has a half-life of 67 hours), their supply must continually be replenished. US radiopharmaceutical companies contend that a two-week interruption in production would bring most US nuclear medicine to a standstill.

As a result, the US House Government Operations, Environment, Energy, and Natural Resources Subcommittee asked DOE to develop a reliable supply of moly-99 within the US.

Jim Rice (6500), Director for Reactor Engineering Technology, says DOE used three criteria to select the ACRR for moly-99 production: the reactor had to be operable, it had to produce radioisotopes at a relatively low cost, and it had to be capable of production six days a week. The ACRR is now the only government reactor in the country that meets all three criteria, he says. (See "The Annular Core Research Reactor.")

He also says Sandia's extensive experience in the design and operation of nuclear reactors uniquely qualifies the Labs to provide a domestic source of moly-99. "This experience — more than 30 years' worth — will enable us to efficiently convert and operate our facilities to best serve the medical industry," he says.

Dan Hartley, VP for Energy and Environment 6000, says, "This is a major step for Sandia — to become a critical supplier to the medical industry by true defense conversion — and



MEDICAL MISSION — Dick Coats (6500, left) and Dennis Nelson (6521) discuss modifications necessary to convert the ACRR from its research mission to full-scale production of molybdenum<sup>99</sup>, one of nuclear medicine's most widely used radioisotopes. (Photo by Mark Poulsen)

DOE is delighted that our reactor is available and that Congress has committed funding."

## New work for reactor, hot cells

As part of the radioisotope work, moly-99 will be produced in the ACRR by the fission of uranium in specially designed targets. Separation of moly-99 from other fission products will be performed in the nearby Sandia Hot Cell Facility, where radiated materials can be manipulated using remote handling equipment.

Other medical isotopes that may be produced by Sandia for commercial purposes include iodine<sup>125</sup>, iodine<sup>131</sup>, and xenon<sup>133</sup>. The ACRR would still be used for research purposes when the research does not interfere with radioisotope production.

The radioisotopes produced in the ACRR would be sold by DOE to private radiopharmaceutical companies at prices comparable to market prices. Initially, revenue from sales received by DOE will only partially offset the cost of production. Down the road, however, any profits gleaned from improved efficiency or market growth will go directly to the US Treasury. Production eventually could be transferred to private industry.

Jim says modification of the ACRR and Hot Cell Facility for production work will probably take about two years. After an initial study phase, which begins Oct. 1 and includes the NEPA assessment, the ACRR will be modified at a cost of about \$13 million. An estimated \$12 million would be required each year for operations. Production in test quantities is expected to begin in early FY97. The work should create an estimated 20 to 40 positions at the reactor complex, he says.

— John German and Julie Clausen (12630)

## Radioactive isotopes for nuclear medicine

Radioactive isotopes are unstable chemical elements that decay rapidly to relatively stable forms by emitting radiation. Their relatively short lifetimes make them useful for treating and diagnosing patients while minimizing their radiation doses.

The primary radioisotope that will be produced at Sandia is molybdenum<sup>99</sup>. Moly-99 is the precursor, or "parent," of technetium-99m, one of nuclear medicine's most widely used radioisotopes. Hospitals typically receive quantities of moly-99, which decays in a matter of days to become technetium (moly-99 has a half-life of 67 hours).

Because technetium emits a unique and easily detectable form of radiation, hospitals use specially designed dyes and other technetium-containing substances (injected or ingested into a patient's bloodstream or tissues) to provide images of internal organs or other areas of the body. Radioisotopes are also commonly used for detection and minimally invasive treatment of cancer and other diseases.

## The Annular Core Research Reactor

The Annular Core Research Reactor (ACRR) located in Area 5 was built in the 1970s for various types of weapons effects tests, typically to ensure that nuclear weapon components and assemblies could survive a burst of neutrons resulting from an atmospheric nuclear blast.

Every weapon design in the US nuclear stockpile has been certified by the ACRR, says Jim Rice (6500).

In more recent years the ACRR has been used to simulate severe accidents in commercial nuclear reactors and to test Space Nuclear Thermal Propulsion systems under development by the Defense Department. Nuclear Facilities and Diagnostics Dept. 6521 operates the reactor.

The ACRR's core is a ring of uranium<sup>235</sup>.

bearing fuel elements surrounding a central irradiation cavity and submersed in 30-feet of water. To produce moly-99, specially designed targets would be placed in the reactor core and bombarded with neutrons from the fission of uranium.

After several days, the targets would be moved, using remote handling equipment, from the reactor to Sandia's Hot Cell Facility, where the moly-99 product would be separated from other fission products and prepared for distribution to radiopharmaceutical companies.

By-products of the production work are expected to be minimal — less than 150 barrels of low-level radioactive waste each year, about 0.2 cubic meters of spent fuel each year, and some hazardous wastes.



# Harley parade in tech area leads 1994 ECP kickoff

Campaign theme is 'Keep the Light Shining'

By Janet Carpenter

Lab News Staff

You wouldn't ordinarily mistake Sandia Executive Vice President Jim Tegnalia for a young Marlon Brando, but maybe you will at lunchtime on Friday, Oct. 7, when he puts on a helmet and rides behind Jerry Esch (13401), 1994 Employee Contribution Plan (ECP) Executive Committee chairman, on a Harley "hog."



They'll be leading a "pack" of Harley-Davidson motorcycles through Tech Area 1.

Rumbling and rolling, and sometimes roaring, a little bit of American

legend, romance, and mystique will cruise down Wyoming from the Coronado Club to the Gate 1 entrance to Tech Area 1.

From Gate 1, these Sandia "wild ones" will ride east on H Avenue to 9th Street and then cruise down to Gate 10 where they will turn around and retrace their route until they stop for the kickoff gathering and park along the sidewalk next to the Technical Library (Bldg. 804).

Approximately 30 Harley-Davidson motorcycles will be featured in this parade to kick off the 1994 ECP campaign, to be held Oct. 10-14 in Albuquerque. This year's campaign goal is to raise \$1,400,000 in pledges to United Way of Central New Mexico.

## Taking fun seriously

Kickoff festivities begin at 11:30 a.m. on Oct. 7 at the library mall. United Way representatives will be available to answer questions and provide information at booths set up on the Technical Library mall between Bldgs. 802 and 804. Hamburgers will be for sale by Rex's Hamburgers.

The party is all in fun, but the campaign aim is serious — helping people in our community. This year, United Way of Central New Mexico marks 60 years of "lighting the way" for needy people. United Way agencies helped one out of every three people in the community — approximately 260,000 people in Bernalillo, Valencia, Tarrant, and Sandoval counties were helped last year. In 1935 nine organizations were served by the Albuquerque Community Chest. There are now 45 local United Way agencies. More than ever, say organizers, we need to "keep the light shining" for people in need of services.

## United Way is for everybody

Sandians can testify to the benefits that United Way services provide.

"Growing up in the Five Points area of the South Valley we had few opportunities to boost our self-esteem," says Redd Eakin (13640). "Activities at the YWCA helped. When I was a young mother, classes and programs at the YWCA helped me get out of the house and provided the day care I needed for my two small children. I eventually became a board member, which opened a lot of career doors for me."

"When my mother had to rejoin the work force, Christina Kent Day Care took care of my sister," says Juanita Sanchez (13640). "My sister's son was able to attend the YWCA's summer day camp at a time when he needed to develop social interaction skills. When my father was homeless, he was helped by the Salvation Army and St. Martin's Hospitality Center. Now my mother is becoming fragile and

very ill with diabetes. I plan to get assistance for her at Share Your Care and Cornucopia adult day care facilities. I'm one person who's glad United Way agencies were there for my family and are still there for me."

"United Way Day of Caring was a great opportunity to find out what services are available in our community," says Laura Gartling (3522). "I volunteered at Cornstalk Institute and was really impressed with the educational side of it. Such good can come from teaching children about growing things, and then taking those plants they grew and learned from and donating this food to local soup kitchens."

Another Sandia employee, who wishes her name withheld for reasons of privacy, says, "When something devastating happens in your family, it's hard to think about what you need to do and where to go for help. United Way helps by providing direction to the appropriate agencies. My grandson was born with a serious disability and may never be able to take care of himself. Alta Mira provides the services we need, including therapy for the baby, respite care for the family, and a counselor to help coordinate services with other agencies."

"We visited All Faiths Receiving Home on an agency tour arranged by United Way for ECP center representatives," says Berlinda Gonzales (6403). "I like the services All Faiths provides, not just to abused and neglected children, but also to other children in need. For example, we were told about a child brought to All Faiths at 2 a.m. by FBI agents after the child was found in Albuquerque with the parent who had kidnapped her. All Faiths took care of her until her mother could come to Albuquerque to pick her up. We also learned about five children who lived in a car for year with their homeless mother. All Faiths was able to provide shelter for the children while their mother found work and a home. It's nice to know United Way is there if we need it."

Employee Contribution Plan (ECP) campaign meetings, where you can meet and hear from representatives of various United Way agencies and receive information about contributing, will be held the week of Oct. 10-14. Information about the donor option plan will also be available at the meetings.

Sandians have a history of generous

giving. Last year, Sandians pledged \$1,476,010 to United Way agencies and other health and human service agencies through the Donor Option Plan. Pledges totaled \$1,561,779 in 1992, \$1,523,087 in 1991, \$1,497,202 in 1990, \$1,374,089 in 1989, and \$1,283,977 in 1988.

Your gifts mean a lot to people in need. If you need some type of social services help for yourself or someone you know and you don't know who to call, call ASK United Way on 247-3671, 8 a.m.-5 p.m., Monday-Friday. You can get referrals on where to go for quality child care, rent assistance, low-cost legal assistance, specialized counseling, and support services. ASK United Way also helps you find where to donate clothing, food, and other tangible items. In 1993, ASK United Way helped 6,000 people get in touch with 500 different health and human service agencies in Central New Mexico.

"When signing your pledge cards," says Jerry Esch, "please consider that by contributing through ECP, you are enabling United Way agencies to help troubled individuals, youth, and families in crisis; help people gain economic independence; help the frail elderly, homeless, and disaster victims; help strengthen families; and help provide health education and social development skills."

## United Way agencies

Adelante Development Center  
 Albuquerque Bar Association Volunteer Lawyers  
 Albuquerque Family & Child Guidance Center  
 Albuquerque Speech, Language, and Hearing Center  
 All Faiths Receiving Home  
 Alta Mira Specialized Family Services  
 American Cancer Society  
 American Diabetes Association  
 American Heart Association  
 American Red Cross — Mid Rio Grande Chapter  
 Arthritis Foundation, New Mexico Chapter  
 Association for Retarded Citizens of Albuquerque  
 Big Brothers/Big Sisters of Albuquerque  
 Boy Scouts of America — Great Southwest Council  
 Boys and Girls Clubs of Albuquerque  
 Camp Fire, Inc. — Tierra del Sol Council  
 Career Services for Persons with Disabilities  
 Catholic Social Services of Albuquerque  
 Chaparral Girl Scout Council  
 Christina Kent Day Nursery  
 Cornucopia Adult Day Care  
 Easter Seal Society of New Mexico  
 Family and Children's Services  
 Hogares  
 HomeCare Homemakers  
 Kirtland AFB Youth Activities Program  
 La Mesa Community Day Care and Pre-School  
 Martineztown House of Neighborly Service  
 National Council on Alcoholism and Drug Dependence  
 New Mexico Council on Crime and Delinquency  
 Peanut Butter and Jelly Preschool  
 Rehabilitation Center  
 St. Mark's in the Valley Day School  
 St. Martin's Hospitality Center  
 Salvation Army  
 Share Your Care Adult Day Care Center  
 Southwest Communication Resources  
 Transitional Living Services  
 UNM Mental Health Center: Albuquerque Rape Crisis Center  
 and Crisis Emergency Telephone Service  
 Villa Santa Maria  
 Women's Community Association  
 YMCA of Albuquerque  
 YWCA of Albuquerque  
 Youth Development



# New Sandia technique detects and images IC currents

## Now seeking partners to commercialize the technology

Researchers in Sandia's Electronic Components Center 2200 have developed the first practical, noninvasive method for detecting and imaging currents in working integrated circuits, and the Labs is searching for partners to license and market the technology.

The ability to detect current magnitude and direction (or phase) is a critical enabling technology for the next generation of analysis tools for integrated circuits. Commonly called chips, integrated circuits (ICs) continue to shrink in size while increasing in complexity. The ability to detect internal currents is crucial for design verification, analysis of analog circuits in which currents convey information, and analysis of certain failures.

### A big improvement

Other techniques for detecting internal IC currents, such as mechanical probing and sec-

ondary electron emission, are either damaging to the chip or of limited sensitivity. Sandia's new technology overcomes these shortfalls by using magnetic force microscopy (MFM), a scanning probe microscopy technique, to detect and image the magnetic fields produced by internal currents in operating circuits with a high degree of spatial resolution and magnetic field sensitivity.

Developers of the technique are Ann Campbell, Edward Cole, Bruce Dodd, and Manager Richard Anderson, all in Failure Analysis Dept. 2275.

Both current imaging and voltage imaging of internal conductors on operating ICs are feasible by combining this new current contrast imaging (CCI) technique with conventional, well-developed electron-beam voltage contrast methods, or with recently developed scanning probe microscopy-based voltage

contrast techniques.

The Sandia researchers acquired images of both direct and alternating current paths on test structures and ICs. They demonstrated that MFM-based CCI can be used to detect and image current magnitude and direction (or phase) in integrated circuit conductors with a current sensitivity of approximately 1 milliampere for direct current and approximately 1 microampere for alternating currents. The spatial resolution ranges from a few micrometers to submicrometer, depending upon the sensor used for the measurement. (A micrometer, also known as a micron, is one millionth of a meter.)

### An attractive mode

The team developed its technique for non-invasive imaging by operating a scanning probe microscope in what is known as the attractive or noncontact mode. A small permanent magnet is used as the probe tip of the microscope. The magnetic fields produced by currents in conductors on the integrated circuit exert forces on the magnetic tip that are detected by the scanning probe microscope.

Having demonstrated the feasibility of using magnetic force microscopy for imaging and measuring internal currents in integrated circuits, the researchers are now concentrating on developing large-area scanning capabilities so an entire chip can be imaged. They are also refining scanning probe microscopy technologies for voltage measurement and applying both current- and voltage-imaging techniques to diagnose chip failures.

Sandia has issued a call for industrial partners interested in licensing and commercializing this technology. Interested parties may contact Craig Sheward (contractor) in Sandia's Technology Transfer Center on 505/271-7829.

— Ace Etheridge (12630)

# DOE labs forge stronger links with US semiconductor industry

## Meeting addresses industry's urgent R&D needs

Closer links between the US semiconductor industry and the DOE national laboratories were forged at a recent meeting of executives of four DOE laboratories and the Semiconductor Industry Association (SIA). The meeting addressed how the national labs might help industry with its rapidly escalating research and development needs.

The directors of Sandia, Lawrence Livermore, and Los Alamos national laboratories and a senior representative of Lawrence Berkeley Laboratory met Sept. 1 in Santa Clara, Calif., with senior executives of the SIA, the Semiconductor Research Council (SRC), and SEMATECH to discuss the research and development needs of the semiconductor industry.

Andy Procassini, President of SIA, said an increase in semiconductor research and development efforts will be required to support US competitiveness in the worldwide chip industry, which now has \$77 billion in annual sales, of which the US share of about \$33 billion supports a domestic electronics industry of more than \$500 billion. The US chip industry is expected to grow to almost \$90 billion, and the US electronics industry to \$1 trillion by the year 2000.

"Industry's R&D needs are expected to more than double over the next six-year period, requiring a close working relationship among all participating parties," said Jim Glaze, Vice President of the SIA.

### A 'system of laboratories' approach

Said Sandia President and Lab Director Al Narath: "This meeting reinforced my conviction that the technical challenges facing the semiconductor industry are a good match to the capabilities of the national laboratories. This meeting was also an important step in demonstrating how the DOE laboratories can increase their impact by coordinating these activities through a 'system of laboratories' approach."

The meeting included extensive discussions among the participants regarding the research and development needs of the semiconductor industry and the capabilities of the DOE national labs. One significant outcome was a decision to jointly develop processes that will link the DOE system of laboratories more effectively with the needs of the semi-

conductor industry.

Other participants from the DOE national labs were Dave Attwood, Director for the Center for X-ray Optics at Lawrence Berkeley Laboratory; Sig Hecker, Director of Los Alamos; and Bruce Tarter, Acting Director of Lawrence Livermore.

Other participants from industry were SIA Vice President Warren Davis; Owen Williams, Director of Motorola's External R&D and Chairman of the SIA Roadmap Coordinating Group; Tom Seidel, Chief Technical Officer of SEMATECH; and Bob Burger, Vice President of Research at SRC.

— Barry Schrader



RUSSIAN MINISTER — Boris Saltykov (second from left), the Russian Minister of Science and Technology Policy, and Dillon McDaniel (right), Manager of High Energy Plasma Physics Dept. 1273, jointly examine a low-density foam target used in physics experiments on Sandia's Particle Beam Fusion Accelerator II. Behind Saltykov are (at far left) Vladimir Tychtchenko, Division Deputy Director of the Ministry of Science and Technology Policy in Moscow, and Vladimir Kuznetsov, Consul General, and Valeri Semin, Consul for Science and Education, both at Russia's US Consulate in San Francisco. The Russian science visitors were at Sandia Sept. 22, hosted by Bert Westwood, Vice President for Research and Exploratory Technology 1000, who briefed them on research initiatives at Sandia. They also received briefings on pulsed power technology, surface sciences, and computer-aided materials processing and met with Executive VP Jim Tegnalia. Clyde Layne, deputy program manager of Sandia's Cooperative Measures Program Office, was with them the whole day, split between Los Alamos National Laboratory and Sandia.



# National Quality Month is center stage at Sandia

## Sandia President's Quality Awards highlight observance

October is National Quality Month (NQM) and like other organizations all over the country that are working to improve the total quality of the way they function, Sandia has scheduled a number of events to recognize its importance.

Allison Kane of Quality Tools Dept. 12911, who is coordinating Sandia's observance of Quality Month, says there's something for everyone interested in quality.

"This will be the second year for Lunch-n-Learn sessions, where Sandians can bring their lunch, and learn a new view of quality from one of Sandia's vice presidents," she says. "This is an excellent opportunity to interact with members of the Sandia Quality Leadership Council and hear their views on quality."

Another facet, repeated from last year, will be the Sandia President's Quality Award (PQA) presentations Oct. 20 (*Lab News*, Sept. 2).

Allison says awards will be given to 26 Sandia teams that applied for the PQA and demonstrated the existence of a sound approach to achieving customer focus, process management, and results.

### Reagan endorsed first NQM

The first National Quality Month was observed in 1984, an American Society for Quality Control (ASQC) initiative endorsed by President Ronald Reagan.

A decade later, this year's NQM chairman, Alex Trotman, chairman of the board of Ford Motor Company, says, "Today, millions of American workers and consumers are enjoying the benefits of the quality renaissance that this 10th anniversary of the Quality Forum symbol-

izes. Our challenge for the year 2000 and beyond is to continue to improve on these efforts and to extend them into all sectors of the economy."

Business and other leaders from around the world will participate in Quality Forum X, highlight event for this year's NQM. It will be held Oct. 25 at Ford World Headquarters in Dearborn, Mich., and transmitted via satellite to an estimated 1,500 locations around the world (see schedule below for Sandia participation).

Sandia's NQM observances include (\* shown simultaneously in Bldg. 904 at Sandia/California; \*\* to be shown in November at Sandia/California):

Tuesday, Oct. 4 \* — *Reengineering: Sustaining the Competitive Edge*. Jim Yochim, Manager, Chevron Chemical Co., 10-11:30 a.m., Technology Transfer Center (Bldg. 825), Sandia/New Mexico, open to the public.

Monday, Oct. 17 — *Lunch-n-Learn: "Chalk Talk" on Teamwork*. Brown bag session with Human Resources VP Charlie Emery (3000),

11:30 a.m.-1 p.m., Coronado Club, Zia Room, Sandia/New Mexico, 70-person limit (call 271-7946 to reserve space).

Thursday, Oct. 20 \* — *Sandia President's Quality Awards Ceremony*, 2-4 p.m., Technology Transfer Center, Sandia/New Mexico, seating by invitation only, broadcast live on Radio Sandia, 1610 AM.

Friday, Oct. 21 — *Lunch-n-Learn: Metrics Making a Difference*. Brown bag session with Laboratory Services VP Lynn Jones (7000), 11:30 a.m.-1 p.m., Bldg. 822, Rms. A&B, Sandia/New Mexico, 70-person limit (call 271-7946 to reserve space).

Tuesday, Oct. 25 \*\* — *ASQC Quality Forum X*. 8:05-11 a.m. video downlink, Technology Transfer Center, Sandia/New Mexico, open to the public.

Friday, Nov. 11 (rescheduled from Friday, Oct. 14) — *Lunch-n-Learn: Understanding Customers and Their Requirements*. Brown bag session with Energy and Environment VP Dan Hartley (6000), 11:30 a.m.-1 p.m., Bldg. 912, Rm. 121, Sandia/California, 70-person limit (call 510-294-1293 to reserve space).

## Comet discoverer Gene Shoemaker to keynote hypervelocity symposium

Two of the three co-discoverers of Comet Shoemaker-Levy 9, whose historic crash into Jupiter in July was observed by scientists worldwide, are participating in "Comet Day," Monday, Oct. 17, at a scientific symposium in Santa Fe cosponsored by Sandia and Los Alamos national laboratories.

Eugene Shoemaker of the US Geological Survey, Flagstaff, Ariz., will give the Keynote Address, "The Crash of Periodic Comet Shoemaker-Levy 9 Comet on Jupiter," at the 1994 HyperVelocity Impact Symposium at the Sweeney Convention Center.

Carolyn Shoemaker, a veteran comet observer who co-discovered the comet with her astrogeologist husband Eugene and amateur astronomer David Levy, will also participate in the day's activities. It begins with an informal poster session at noon highlighting analyses of the impact event. The Shoemaker keynote address is at 4 p.m., and discussions will continue at a buffet reception at the Eldorado Hotel at 7 p.m.

### Special one-day fee

"This is quite a coup," says program co-chairman Lalit Chhabildas of Experimental Impact Physics Dept. 1433. He says Shoemaker was somewhat reluctant before the predicted impact in July to agree to participate for fear that it might be a fizzle. He needn't have worried. The impact exceeded scientists' most optimistic projections. The series of impacts and their effects were highly visible to scientific observation, and they have produced a bonanza of unprecedented scientific data about planet-comet collisions.

The full symposium extends from Oct. 16-19, with more than 100 papers scheduled, but the organizers arranged "Comet Day" with a special one-day registration fee of \$100 to encourage scientists and others to attend and meet the Shoemakers.

"This is a nice opportunity for people not just from the hypervelocity impact community but planetary astronomers, geologists, and others



EUGENE AND CAROLYN SHOEMAKER

to listen to him and ask questions," says Lalit.

The HyperVelocity Impact Symposia (HVIS) promote an understanding of the basic physics of hypervelocity impact and related phenomena. Other sessions include space debris shields, fracture and fragmentation, materials phenomenology, penetration mechanics, analytical modeling, and experimental and numerical techniques. This is the fourth such symposium, but the first time it has been held in New Mexico. Other Sandians on the organizing committee are Jim Asay (5602), technical programs chairman, and Jim Ang (1404), commercial exhibits cochairman. Jim Asay will be presented the Distinguished Scientist Award, a recognition from his peers nationally and internationally for outstanding contributions to the field of hypervelocity impact.

Many other Sandians are participating in the symposium, including the team whose computer models had predicted that the collision might produce visible fireballs extending above the limb of Jupiter (*Lab News*, April 15, July 22, and Aug. 5). Those researchers are now getting praise for the accuracy of their forecasts.

## Employee recognition nominations accepted beginning Monday, through Nov. 4

All Sandians may nominate colleagues and managers for Employee Recognition Awards beginning Monday, Oct. 3. Nominations will be accepted through Friday, Nov. 4.

Employees selected for this recognition will be honored at an Employee Recognition Night dinner next June 3. This will be the second such annual event since Martin Marietta began managing the Labs last Oct. 1. Recognition nights are tradition at Martin Marietta facilities.

Employees can be nominated in any of four categories — technical achievement (including R&D accomplishments, publications, and inventions), management achievement, outreach achievement, and operations and support achievement. The outreach achievement category is new this year.

The nomination process is easy and can be completed quickly, according to Administrative Assistant Nina Chapman of Human Resources Division 3000. The primary requirement is that you list a nominee's accomplishments in 250 words or less.

Additional information, including nomination requirements, is available in all vice presidents' and directors' offices and from all personnel representatives; check with your secretary if you do not know the name of your representative. Completed nominations should be submitted to the administrative assistant of the nominee's division.



# Mileposts

September 1994



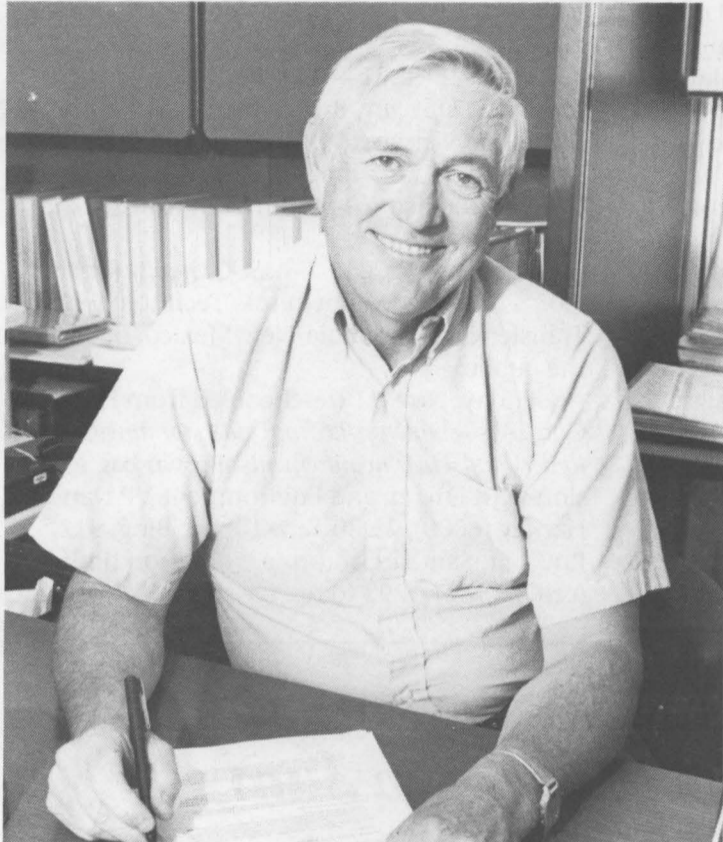
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1311



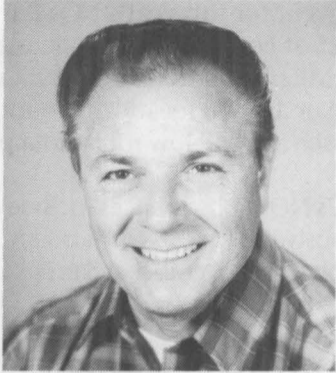
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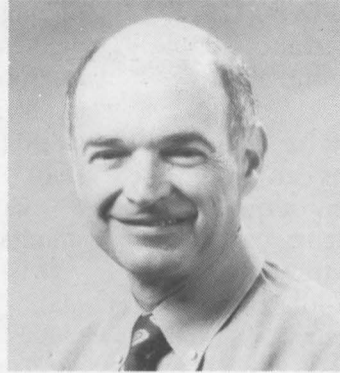
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Gary Beeler 30  
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Gene West 15  
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Frank Gerstle 25  
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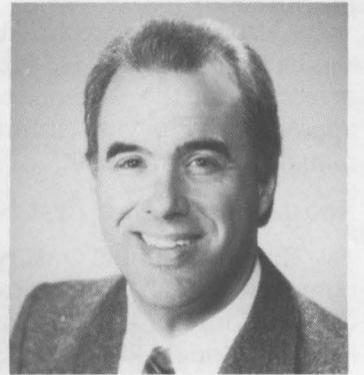
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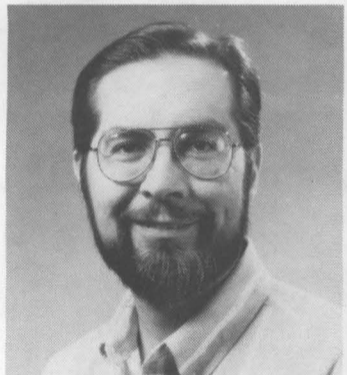
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Larry Miller 35  
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Dale Boehme 20  
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Tony Roybal 15  
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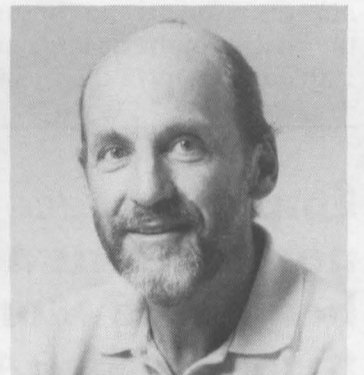
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Steven Rospopo 15  
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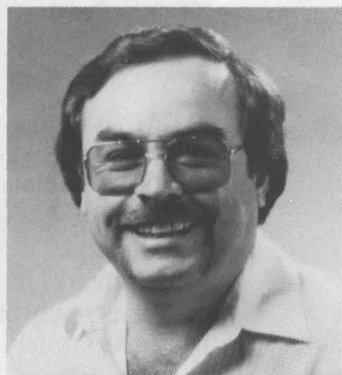
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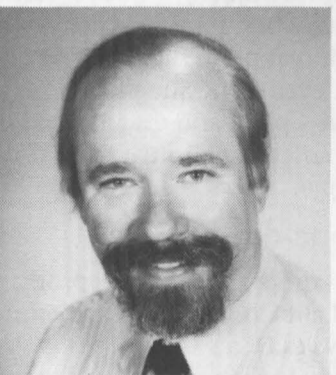
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Janet Brooks 20  
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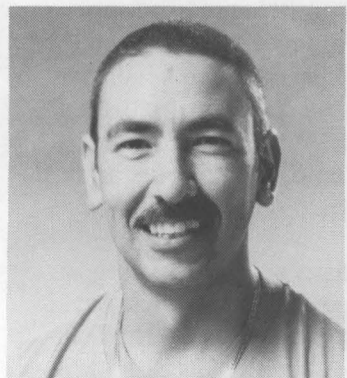
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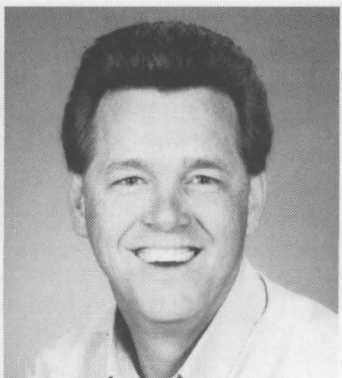
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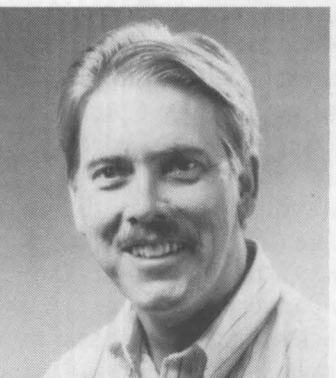
Joe Saya 30  
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Benjamin Moya 15  
2483



John Wheeler 20  
8601



Doug Salmi 15  
7576



# Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

## MISCELLANEOUS

BICYCLE u-lock, Nashbar "ATB"; hardened steel under thick black vinyl, double locking, 9-5/8" x 5-1/4", w/nylon bracket, never used, \$20. Schkade, 292-5126.

RECLINER, Lane, beige, excellent condition, \$100; patio furniture, four chairs, glass tabletop, w/umbrella, \$45. Campanozzi, 823-1610.

EGA COLOR MONITOR, w/adaptor, good monitor in excellent condition, \$100 OBO. Wood, 823-1965.

ESTATE SALE, camper top for Datsun, \$50; cartop clamshell carryall, \$35; wheelchair and/or walker, make offer. Lorenz, 281-9321.

GUITAR, Yamaha, six-string acoustic, like new, lightly used, \$100. Dennis, 299-3763.

GUITAR AMPLIFIER, Fender Super-reverb, four 10-in. speakers, black face, excellent condition, beautiful tone, \$845. Lenz, 884-4835.

DIAMOND WEDDING RINGS, appraised at \$1,200, \$800; 22-quart pressure canner, \$60; jars, \$3/dozen. Huff, 296-3349.

RIFLE, Remington 7400, 30-60, w/Bushnell Lite-Sight scope, 80 rounds ammo, 5 magazines, \$675. Spencer, 275-8468.

STROLLER, Aprica, one year old, excellent condition, \$75. Mohagheghi, 271-0724.

TRUCK BEDLINER, '87 Nissan, \$100; bedcover, \$50; rear sliding-glass window, \$25; tires, 195-65. Sanchez, 831-3082.

GALLOPING GOURMET Perfection Aire oven, baking pan, tongs, skewers, rack, lid rack, cookbook, instructions, excellent condition, \$75. Smith, 299-7151.

DARK WOOD DESK, 50" x 28" w/chair, \$75; blond butcher block table, 36-in. diameter, \$25. Moll, 836-5673.

CARPET, w/pad, green multitone, 10'2" x 12' (min.), \$15. Bundy, 821-1846.

TRUMPET, Olds Ambassador, includes carrycase, music holder, excellent condition, \$250. Smith, 344-5886.

ALTO SAXOPHONE, Armstrong, used a few months, new condition, paid \$860, sacrifice at \$450. Boyes, 296-0654.

CAMPER SHELL for standard bed, \$40; JRX2 remote-control car, charger, Alpina radio, carrycase, spare parts, \$100 OBO. Armstrong, 266-2334.

SNOWBOARDS, Rossignol, 155 & 165, w/bindings, \$250 ea.; Honda gas-powered electric generator, \$300; portable refrigerator, \$50. Avila, 275-9572.

DINING ROOM SET, French provincial, oval table w/two leaves, buffet, 8 caneback chairs; crystal chandelier, 6-tier, w/crown top, 323 pcs. Wempe, 823-1603.

PIANO, Yamaha studio upright, ebony, professionally maintained, below appraisal, \$3,950. Loehman, 265-3179.

BUNK BEDS, heavy pine wood, twin-size, one bunk-board mattress included, \$120. Andersen, 294-8624.

BUNK BEDS, extremely sturdy, full-length storage drawer, excellent condition, knotty pine, mattresses included, \$200. Woodfin, 281-2702.

WOMAN'S ROLLER SKATES, TRAC, red and white, size 7, good condition, \$15. Jojola, 242-8459.

YAMAHA COMPONENT SYSTEM, NS 2000, carbon & beryllium speakers, 350 RMS power amp, tape, tuner, CD, pre-amp, phono. Ginn, 883-0004.

SEWING MACHINE, Singer lockstitch, for children age 7+, never used, in original box, \$40, w/carry case. Wagner, 823-9323.

OUTBOARD MOTOR, '86 Sears 9.9-hp., w/5-gallon gas tank, \$550. Arndt, 271-1599.

PARROT, orange wing Amazon, and cage, \$650 OBO; flute, Bundy, good condition, music stand, \$75. Babcock, 881-3563 call or leave message at K.O.A. east.

FOUR CHEV. RIMS and hubcaps w/4 retreads, P235/75R15, 5-hole, \$150; queen sofa sleeper, \$150; GE dryer, \$50. Cox, 292-5997.

FURNACE, Lennox, 160,000-Btu input, electronic ignition, downdraft w/air conditioner, louvers, clean, \$279. Bassett, 898-1840.

TELESCOPE, Jason Explorer, 400X maximum magnification, 800 MM focal length, \$125; National Geographic, '69-'92, free. Bohannon, 344-9235.

COLOR MONITOR, 5-in., Dell Ultra-Scan, maximum resolution of 1024 x 768, .28 dot pitch, anti-glare screen, \$270. Marshall, 293-3207.

SKIMASTER EXERCISER, \$45; waterbed, no bladder, \$30; microwave oven, \$25. Hale, 298-1545.

BABY BEDS, Jenny Lynn, like new, good condition, mattress, box springs, \$60 ea.; piano, upright, good condition, \$350. McClellan, 869-2760.

FURNITURE, couch/loveseat, \$500; twin bed, \$100; dresser, \$100; coffee table, \$50; dining room table, chairs, \$300. Pickens, 856-7764.

DAYBED, Delux, cast iron, off-white and brass, new inner spring mattress, w/trundle bed, \$275. Mauldin, 293-3763.

ROLLERBLADES, Lightning style, size 8, w/kneepads, helmet, used once, \$140. Mercier, 294-2652.

CAMCORDER, Sharp 8mm LCD View-Cam unused, \$999 value, \$680 after \$100 manuf. rebate, 1-yr. warranty. Kirby, 268-8666.

REFRIGERATOR, white, Admiral, side-by-side, approx. 21 cu. ft., good condition. Vigil, 899-0046.

DINING ROOM CHAIRS, \$20, six for \$100; 21-in. Mercruiser prop, \$50; canning jars, several sizes, \$2.50/doz. Bradley, 293-9586.

GERMAN WALL UNIT (4-piece), microwave, mower, twin mattresses, end tables, chest, nite stand, best offer. Hoffman, 822-8244.

POLAROID, Model 545 film holder for 4 x 5 camera, excellent condition, \$110. Benson, 884-5059.

REFRIGERATOR, one-kid bunk bed, high-efficiency air cleaner, rear seat for '88 Voyager, small joiner. Clancy, 281-4469.

GARAGE SALE, Saturday, Oct. 1, 9 a.m.-4 p.m., 12514 Indian Trail NE, clothes, toys, greeting cards, miscellaneous. Graham, 293-7302.

GLASS-TOP TABLE, 4 chairs, excellent condition, \$70. Eldredge, 881-4528.

EXERCISE STEPPER, w/digital readout, like new, \$75; motorcycle trailer, w/lights, trailer hitch, ready to go, \$175. Aragon, 888-3473.

CRAFTSMAN TABLE SAW, w/o legs, like new, fence and blade included, \$150; oak bunk beds, frame and head/foot boards, \$50 ea. Wade, 857-9114.

FOUR STUDDED SNOWTIRES, 185/7R13, \$125; digital multimeter, 2-1/2-digit resolution, portable, AC-powered, \$35; Minolta 50mm AF lens, \$25. Stuart, 265-7315.

SHASTA TRAVEL TRAILER, 16' OAL, 13' IL, newly remodeled interior, exterior repainted, very clean, must see, \$2,250. Prekker, 892-4107.

CHANDELIER, w/black iron accents, \$35; matching hall and porch lights, \$10 ea. Spielman, 292-4953.

FOLD-AWAY CRIB, w/mattress, \$25; umbrella stroller, \$5; Sears water softener, \$100; RCA, 25-in. color television, \$150. Henfling, 869-4119.

POOL TABLE, Brunswick, needs felt, \$100; motorcycle racing boots, size 7, \$50; 3 motorcycle helmets, size small, \$20 each. Raney, 883-8615.

DINING TABLE, w/4 chairs, \$150; Sanyo 30-in. TV, \$150; TEAC cassette deck, \$70; Magnavox monitor, \$70. Shin, 899-2291.

CRIB/TODDLER BED, \$150; changing table, \$40; dinette set, \$150; 2-pc. sofa, \$100; beige sofa, \$150; entertainment center, \$250. Sanchez, 898-9598.

OAK ROLLTOP DESK, beautiful, brass hardware light, telephone jack, \$450; 42-in. round pedestal table, w/4 antique chairs. Hogan, 296-8846.

TRESTLE TABLE, trestle bench, two deacon's benches, solid pine; Sony sound camera, projector, make offer. Bradley, 836-6650.

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to Dept. 12660, MS 0413, or fax to 844-0645.**

### Ad Rules

1. Limit 20 words, including last name and home phone (the *Lab News* will edit longer ads).
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2-by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per category per issue.
8. No more than two insertions of same "for sale" or "wanted" item.
9. No "for rent" ads except for employees on temporary assignment.
10. No commercial ads.
11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.
13. "Work wanted" ads limited to student-aged children of employees.

BABY FURNITURE, Simmons, solid-maple set, includes crib, coil mattress, 6-drawer dresser, changing table, excellent condition, \$600. Ross, 299-3023.

METAL DESK, \$25 OBO; color console TV, good working condition, \$20. Drebing, 299-0083.

GARAGE SALE, including crib, high-chair, toys, household goods, rainbow vacuum, Fri.-Sat., 9 a.m.-4 p.m., 9500 Avenida De La Luna NE. Marrs, 821-5144.

REFRIGERATOR, frostless, top freezer, 18.5 cu. ft., beige. Floran, 237-2620.

WEIDER ALL-IN-ONE WORKOUT STATION, includes stair stepper, 200 lbs. in weights, like new, \$225. Gonzales, 292-4185.

SHUTTERS, 15 light-colored, wooden window shutters w/brass screws, good condition, w/locks, used indoors, \$25. Nenoff, 842-6750.

TIRES: Pirelli P4000, 195/65HR15, new May '94, 5,000 miles on \$400 set, make offer. Phipps, 299-8490.

EXERCISE BIKE, Healthmaster 800 ergometer cycle, flywheel resistance, like new, includes instruction manual, \$40. Prins, 867-9440.

TELEVISION, 25-in., woodgrain console w/swivel base, great picture, \$95; 40-in. round table, dark oak, w/leaf & chairs, \$295. Connor, 268-1682.

WOODBURNING STOVES, two, Sierra, long-burn capacity, \$500/ea. Garcia, 343-8207.

MAC PERFORMA 400 SYSTEM, 4MB RAM, 80MB HD, 14-in. color monitor, w/software, \$700; Stylewriter II printer, \$270; Performa w/printer, \$920. Griego, 899-2324.

DINING ROOM TABLE & CHAIRS, 7-piece, oak finish, 2 years old, excellent condition, \$175; GE built-in dishwasher, \$40. Langwell, 293-2728.

HOOSIER KITCHEN CABINET, antique oak, good condition, \$500; antique juror's chair, oak, good condition, \$75. Malone, 821-9051.

COMPUTER TABLES, two; one w/2 drawers & shelves; one w/1 drawer & an L; both are wood; \$160/both or \$85/ea. Hatch, 281-0543.

NAVAJO TABLE LAMPS, three, hand-painted Mary Saxson, w/shades, \$75/ea; ping-pong table, \$75. Reich, 281-3521.

APPLE LASERWRITER IINT, like new, \$700; Macintosh gray-scale 12-in. monitor, w/nuBus card, \$120; black stereo cabinets, \$50. Hietala, 867-9577.

LOBO BASKETBALL SEASON TICKETS, single or pair, Sect. 25, Row 41, seats 1 & 2, \$336/ea., includes parking. Calderone, 291-9484.

MULTI-FAMILY GARAGE SALE, Oct. 1-2, kids' bicycles, clothes, toys, bunkbeds, 321 General Stilwell NE, Copper/Wyoming area, starts at 8 a.m. Tyree, 275-3968.

SMALL TRAILER, with bins, \$125. Gutierrez, 877-2580 after 5 p.m.

PRECIOUS MOMENTS COLLECTIBLES: musical figurines, some retired, \$70/ea. Wenzelburger, 256-9370.

DRAFTING TABLE, w/parallel bar, \$200; alto saxophone, \$500. Wernicke, 237-9332.

BUILDING INSULATION, R11 fiberglass, 88 sq. ft., \$15/roll. Foster, 299-6240.

BIKE BUGGY, Cannondale hard shell, reverse facing, two passengers, \$130; metal tricycle, \$35, plastic tricycle, \$15. Cieslak, 856-1614.

SCHWINN AIRDYNE, good condition, \$500. Tucker, 281-8342.

## TRANSPORTATION

'80 MOTORCYCLE, Suzuki GS850L, 17K miles, runs great, \$950. Gallegos, 293-8885.

'68 LARSON BOAT, 22 ft., inboard, mono hull, needs work, \$1,500 OBO; '62 Chev., 2-1/2-ton, 20-ft., flatbed, needs work, \$1,000 OBO. Armstrong, 266-2334.

'80 FORD, 4X4, 250, outstanding condition, loaded, don't miss this one, \$5,200. Avila, 275-9572.

'81 TRAVEL TRAILER, 5th Wheel Alumilite, 23 ft., very good condition, see at base lot. Davidson, 293-9486.

'92 PLYMOUTH SUNDANCE, 2-dr., white, 5-sp., AC, AM/FM stereo cassette, airbag, 32K miles, \$6,200. Klambt, 291-1387.

GIRL'S BICYCLE, 10-sp. Huffy, 26-in., \$40. Hale, 298-1545.

'87 YAMAHA VIRAGO, w/fairing and saddle bags, low mileage, excellent condition, \$3,150. Derzon, 299-0523.

'90 VW JETTA, 40K miles, AM/FM, AC, PL, PW, sunroof, cruise, warranty, \$8,900 OBO. Rhodes, 884-8394.

BIKE, woman's 3-sp. Hoffman, 822-8244.

'61 AUSTIN-HEALY SPRITE, restored, perfect little red sports car, must sell, \$2,900. Eikelberg, 296-0899.

'91 TOYOTA CAMRY, FWD, All-Trac, 4-dr. sedan, white w/blue, AT, cruise, PS, PB, PW, PL, AC, AM/FM stereo tape, new tires, accessories, 52K miles. Weems, 281-5837.

'86 COLT VISTA, new, not rebuilt, short block, excellent condition, \$5,000. Clancy, 281-4469.

'84 FORD LTD, 4-dr., AC, AM/FM, AT, 63,500 miles, excellent mechanical condition, almost new tires, \$2,050 OBO. Barbera, 275-2562.

'86 TOYOTA TERCEL, station wagon, 2-WD, 93K miles, good condition, runs well, well maintained, one owner, \$2,550. Young, 275-9457.

'84 VW RABBIT, convertible, great condition, new top, low mileage, \$6,800 OBO. Gamblin, 821-8708.

'68 FIREBIRD SPRINT, convertible, original motor, totally rebuilt, perfect, assembly line condition, original wheels, new tires. Dawson, 263-0890 or 898-3313.

'86 GMC CUSTOM VAN, loaded, immaculate, 70K miles, hightop, extended, AT, dual-air, 3/4-ton, V8, 305, \$7,500. Aragon, 897-3878.

'81 DODGE ARIES SW, runs well, 2.6L, AC, new AT, brakes & muffler, 5 new tires, \$1,000. Vargo, 294-8226.

'83 FORD BRONCO, full-size, standard shift, 6-cyl., 98K miles, AC, cruise, hitch, one owner, reliable, excellent condition, \$5,200. Benson, 296-4282.

'72 VW SUPER BEETLE, sunroof, radio, less than 3K miles, new motor, all records, owner's manual, \$1,750. Hogan, 296-8846.

'87 Z-28, V8, power everything, alarm, locking T-tops, 85K miles, AT, leather seats, runs well, \$6,500 negotiable. Sparling, 281-7267.

'79 HONDA ACCORD, good condition, \$1,000 OBO. Drebing, 299-0083.

'87 MAZDA RX7, \$1,000 below book, AT, sunroof, loaded, excellent condition, \$4,100 OBO. Baca, 884-3772 or 293-8710.

'92 HONDA PRELUDE Si, silver, AC, sunroof, cruise, AM/FM cassette, CD player, anti-theft, immaculate condition, 24K miles, \$15,900. Snyder, 281-3822.

'90 FORD MUSTANG GT, convertible, 5-sp., 302, V8, 50K miles, anti-theft, all power, original owner, nice, \$11,500. Gonzales, 292-4185.

'89 ACURA LEGEND SEDAN, 5-sp., AC, cruise, tilt, sunroof, AM/FM cassette, ski rack, 88K miles, great condition, \$10,800. Kinney, 823-1246.

BOY'S BIKE, 20-in. Specialized 6-sp., cost \$200, asking \$110. Shirley, 883-3210.

MAN'S BICYCLE, 10-sp. Univega, \$60. Reich, 281-3521.

'92 TOYOTA CELICA CONVERTIBLE, 5-sp., 200-watt stereo cassette & CD, alarm, exclusive two-tone blue, great car, will sell below book. Ahr, 823-1553.

'72 CHEV. 3/4-TON PICKUP, w/11-1/2-ft. Open Road overhead camper. Maldonado, 892-3653.

BICYCLES: Raleigh Grand Prix, 21-in., Reynolds 531 DB Shimano 105 components, \$195; Peugeot 19-in., \$85; both excellent condition. Healer, 298-6967.

## REAL ESTATE

4-BDR. HOME, 2,074 sq. ft., quiet street, backyard westerly view, no obstructions, elementary school, walking path, Academy area, \$130,000. Sanderson, 821-4508.

1-BDR. CONDO, Purgatory ski resort, one mile south, luxury, fully furnished, buy individually or with partner/s, \$59,850. Painter, 292-1742.

4-BDR. HOME, 2-story, 3-car garage, 2-1/2 baths, automatic sprinklers, alarm system, 10 min. by bicycle to SNL, \$152,000. Davidson, 271-8530.

2-BDR. TOWNHOME, exclusive NE Heights location, near Tramway & Montgomery, 1-car garage, fireplace, upgrades, \$110,000. Perez, 291-0022.

## WANTED

GERMAN SPEAKERS, part of a conversation group on Oct. 6, RSVP by Sept. 30. Allen, 293-6624.

'65-'70 BUICK SKYLARK GS, or Olds 442. Prevender, 296-8586.

HOUSEMATE, prefer female, to share large house near Lomas & Tramway, washer/dryer, backyard, \$325/month plus 1/2 utilities. Cordova, 292-4477.

BOOMBOX, for garage, must play cassettes, prefer detachable speakers; also ukulele. Underhill, 294-5774.

LIFEROWER, computerized rowing machine; Singer portable sewing machine, both in good working order, ask for Carole. Barron, 275-8252.

HOUSESITTER, long-term position for Sandian on TDY by responsible SNL employee/UNM student, references available. Richter, 889-8098.

2-BDR. HOME, to rent or lease, prefer private yard, washer/dryer hook-up, in NE Heights area, no pets, excellent personal references. Deal, 275-8818.

DOGHOUSE, for large dog (120-lb.), reasonable, please leave message. Tyler, 296-8298.

BOY'S BICYCLE, for active 12-year-old, "mountain type" preferred, but will consider others, looking for price in \$30-50 range. Schkade, 292-5126.

3- OR 4-BDR. HOME, to lease or housesit. Williams, 897-1807.

## LOST & FOUND

LOST, \$30 on Friday, Sept. 9, somewhere between Bldg. 802 and Bldg. 823. Garcia, 845-9967.

GOLD WEDDING RING, lost mid-August at softball fields or south parking, exhausted searches other places, last hope. Hahn, 822-1341.



## Sandia News Briefs

### Jim Tegnalia to speak at Petroleum Club Oct. 4

Albuquerque Petroleum Club's Distinguished Speaker Series will feature a talk by Sandia Executive Vice President Jim Tegnalia on Tuesday evening, Oct. 4, at the Petroleum Club. Jim will offer his opinions about community directions and the impact and effect the Labs will play. He will also offer insights into the merger between Martin Marietta and Lockheed and how that will affect Sandia and the community. Jim came to Sandia in 1993 after serving as Vice President of Engineering and then Vice President of Business Development at Martin Marietta Corporation.

### Technology Ventures Corporation presents first equity capital symposium

Technology Ventures Corporation will present its first equity capital symposium Oct. 12-13 at the Hyatt Regency Hotel in Albuquerque. The symposium goal is to facilitate technology commercialization and to help technology-based companies raise equity capital by bringing together venture capitalists, private investors, entrepreneurs, members of the national laboratories, and business leaders. A reception will be held Oct. 12, 5:30-7 p.m., where attendees can meet the symposium speakers, senior officers of the national labs, and members of New Mexico's Congressional delegation. Sherman McCorkle, President of Technology Ventures Corporation, will present a symposium overview at 8:30 a.m. on Oct. 13. Paul Robinson, Vice President for Laboratory Development, Div. 4000, and Peter Lyons, Director of Industrial Partnership Office at Los Alamos National Laboratory, will talk about the national laboratories and technology transfer at 9 a.m. For symposium information, contact Technology Ventures Corporation on 246-2882.

Send potential Sandia News Briefs to Lab News, Dept. 12660, MS 0413, fax 844-0645.

## Go slow on phone voting, Sandian testifies to congressional panel

### Security big issue requiring much consideration

The only major technical issue for a voting-by-phone system in the United States is security — but that's a very big problem, Mary Green, security specialist for high-risk applications in Insider Technology Dept. 5845, told the US House of Representatives Subcommittee on Elections in testimony Sept. 22. (Dennis Miyoshi, Director of Nuclear Security Systems Center 5800, read the written testimony for Mary, who was unable to make the trip to Washington.)

As a result, Mary recommended that if the US does consider telephone voting, it do so only "very, very cautiously."

The voting-by-phone issue is being explored under HR 1990, introduced by Rep. Bill Richardson of New Mexico.

Mary noted that Sandia developed a simple phone-voting prototype for the State of New Mexico a couple of years ago to demonstrate a proof-of-concept. Four New Mexico high schools tried out the system, and afterward 95 percent of the more than 1,500 student users said they'd use such a system if available.

But one of the findings, she says, is that there are many ways to break into or sabotage such a system and only a few of these vulnerabilities have ready solutions. Voting methods today typically don't need to be concerned much with security, but introducing a central computer and communications over phone lines, Mary testified, "provides the possibility of changing the entire outcome of an election through a few keyboard strokes!"

She offered 10 objectives about security issues that she said must be addressed if the US ever does decide to pursue phone voting (No. 1: "assurance that each voter votes only once") and reemphasized: "Any computer system (or

facility) can be broken into, given unlimited time and unlimited resources."

"My biggest concern," she said, "would be that an unsecured system might be adopted in some local area and the positive response will be so overwhelming that everyone will want to have phone voting in their area and the use would become widespread. If a subsequent problem (such as fraud) occurred, then phone voting would be discredited for the next 30 years."

"My recommendation is that, if the US does decide to consider phone voting, they do so very, very cautiously."

## Coronado Club

Sept. 30 (tonight)— Friday night dinner-dance, 7-11 p.m. T-bone steak, \$11.95, grilled halibut, \$10.95, all-you-can-eat buffet (baked ham, baron of beef, roast turkey breast, poached fish, chef's surprise), \$6.95. Music by Westwind.

Oct. 6, 13, 20, 27 — Bingo nights. Card sales and buffet, 5:30 p.m., early birds' bingo, 6:45 p.m.

Oct. 7 — Octoberfest Friday night dinner-dance. All-you-can-eat buffet served 6-9 p.m. Knackwurst and bratwurst (German sausage), sauerbraten (German pot roast), schweineschlegel (roast ham, Black Forest style), German potato salad or sauerkraut, vegetables, \$8.95. Music, 7-11 p.m., by Die Polka Schlingels.

Oct. 9 — Balloon Fiesta Sunday brunch, 11 a.m.-2 p.m. \$6.95 for members, \$7.95 for guests, \$1 for children 4-12, free for children 3 and under. No tea dance. Reservations recommended. (The Sandia Employee Recreation Program and the Coronado Club are also cosponsoring a bus trip to the farewell mass ascension at the Kodak International Balloon Festival, followed by brunch at the Coronado Club. Only prepaid registration accepted. \$12 a person. Register at SERP office in Coronado Club lobby. Call 844-8486 for information.)

Oct. 14 — Friday night kids' bingo. Buffet, 5 p.m., with cartoons and movies. Bingo, 7 p.m. Free hot dog and soft drink for all kids playing bingo.



## Welcome

Albuquerque — Teri Letz (10220)  
Arizona — Carter Grotbeck (9225)  
Oregon — Deborah Coffey (6319)  
Texas — Justine Johannes (1553)



HISPANIC HERITAGE MONTH — Linda Garcia-Cubero (right) chats with Sandians Diane Nakos and Frank Gallegos outside the Technology Transfer Center (Bldg. 825) before delivering the keynote address of the Labs' Hispanic Heritage Month observance. During her talk, Garcia-Cubero, manager of Group Development, Mergers & Acquisitions, Information Systems at Martin Marietta Corp. in Bethesda, Md., recognized three Sandians — Nestor Ortiz (6400), José Rodriguez (1325), and Tamara Ulibarri (1811) — who will receive Hispanic Engineer National Achievement Awards at an October conference in Houston sponsored by *Hispanic Engineer* magazine. Diane, of Equal Employment Opportunity and Affirmative Action Dept. 3611, chairs Sandia's Hispanic Leadership and Outreach Committee, which sponsored Hispanic Heritage Month; Frank, director of Safeguards and Security Center 7400, serves on the committee.

## Retirement Open Houses

Sandia is holding open houses in honor of retirees Fred Vook (1100) in the Area 1 Cafeteria (Bldg. 861) on Thursday, Oct. 6, 2-4 p.m.; and Cliff Jacobs (9222) in the Area 1 Cafeteria (Bldg. 861) on Thursday, Oct. 13, 2-4 p.m. Refreshments will be served. Friends and acquaintances are invited.