

Sandia Gets High Marks for Fusion Research

Last December, it appeared that Sandia's fusion research program might be in jeopardy. That was when the National Academy of Sciences (NAS) issued an interim report in its extensive review of the national Inertial Confinement Fusion program to determine if milestones were being accomplished in order for funding to continue.

However, last month, the NAS submitted a report to Congress concluding that not only has Sandia made significant progress toward one day harnessing fusion as a potential energy source, but

'Tremendous Accomplishment'

"I'm extremely proud of all the people involved in our Inertial Confinement Fusion Program," says Research VP Venky Narayanamurti (1000). "Over the last several months, the members of the PBFA II team have worked with an extraordinary sense of urgency, teamwork, and cooperation to meet the milestones that the National Academy of Sciences said we needed to meet to justify continuation of our ICF Program. It's a tremendous accomplishment."

also recommending that the same level of funding be provided as in the past.

Additionally, the NAS review committee held out a carrot, so to speak, by suggesting that if sufficient progress is achieved in the next two years, when the program is scheduled to be reexamined, the committee may recommend additional funding to upgrade Sandia's Particle Beam Fusion Accelerator (PBFA) II facility, where the research is being conducted.

Sandia's Inertial Confinement Fusion (ICF) program is one of several fusion research projects

Thirteen Awards in Past Five Years

Sandia Projects Get R&D 100 Awards

Software that clarifies synthetic aperture radar (SAR) images and a lab instrument that provides a less expensive and more convenient source of intense, extreme ultraviolet radiation are Sandia's two winners in the 1990 R&D 100 Contest.

Sponsored by *Research & Development* magazine, the awards cover any product, material, process, software, program, or system of scientific or technical origin or design.

Charles Jakowatz (9117), Paul Eichel (9117), and Dennis Ghiglia (1421) developed the software to provide automatic focusing of images for synthetic aperture radar, an imaging technology with applications in reconnaissance and remote sensing.

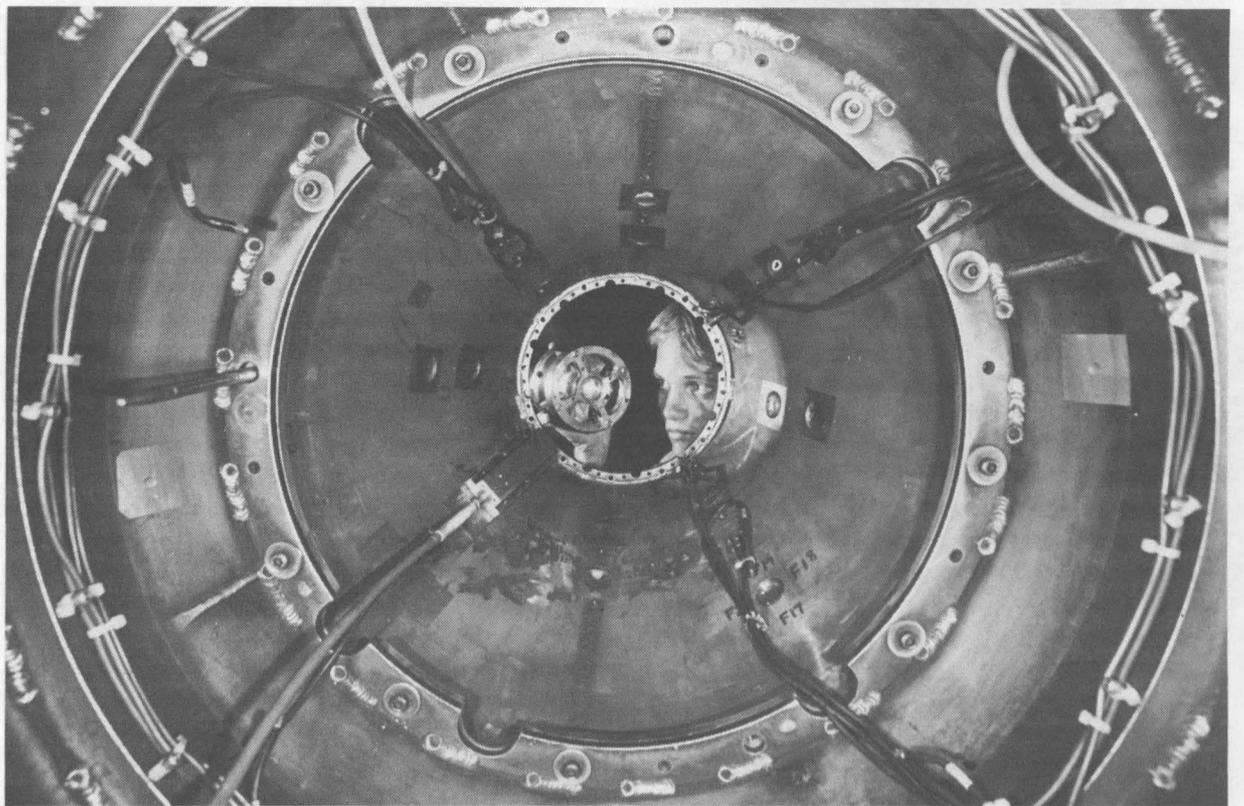
The other winning entry was a joint project by Sandia and Lawrence Berkeley Laboratory's Center for X-Ray Optics. Sandia members of the development team were Glenn Kubiak (8342), Tim Tooman (8172), Kurt Berger (8342), and Todd Felver (8343). Principal Lawrence Berkeley participants were James Underwood and Michael Hettrick.

This is the fifth year in a row that Sandia has had at least one R&D 100 winner in the international competition that honors the "100 most significant new technical products" of the previous year. During this five-year period, Sandia has won 13 of the awards, and has won 15 extending back to 1976 (see list on page five).

Dan Arvizu, Manager of Sandia's Technology Transfer and Industrial Relations Dept. 410, accepted the two 1990 awards for the Labs at a Sept. 26 ceremony at the Museum of Science and Industry in Chicago.

"We're pleased to have the commercial poten-

(Continued on Page Five)



PEERING AT part of the diode, which is powered by the conical portion of the accelerator shown in the foreground, is Pat Lake (contractor). The accelerator is used to generate and focus an intense ion beam on PBFA II. (Photo by Randy Montoya, 3162)

being conducted at various laboratories, including Los Alamos and Lawrence Livermore.

Four Milestones Met

Four out of five key milestones have been reached since last December using Sandia's high-

purity lithium beam, notes Don Cook, manager of Fusion Research Dept. 1260. These include producing a beam of 10 million volts (one test reached 11 million volts), generating a diode current of almost 3 million amperes, achieving as

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LAB NEWS

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ECP '90 — Make a Difference

Alta Mira Helps Sandia Family

Sandia's 1990 Employee Contribution Plan Campaign to raise money for United Way kicks off Monday, Oct. 8, and continues through Oct. 12. Following is a story about a Sandia family that benefits from our contributions.

Two grandfathers, John Lloyd (5111) and Earle Chapman (ret.), appreciate United Way's support of Alta Mira Specialized Family Services. Their grandson, Judd Lloyd, at-

tends Alta Mira's special school for infants and toddlers. Alta Mira provides early childhood services, respite care, and family support services for developmentally disabled persons. Judd is 2-1/2 years old and has cerebral palsy. To help him cope with that handicap, he receives speech therapy and occupational therapy at the special school.

(Continued on Page Four)



IT'S A FAMILY AFFAIR. Grandfathers Earle Chapman (ret.) and John Lloyd (5111) comfort grandson Judd Lloyd during a visit to Alta Mira Specialized Family Services. Judd receives speech and physical therapy provided by Alta Mira, a United Way agency. (Photo by Mark Poulsen, 3162)

This & That

Good News from Washington — Perhaps a rare commodity these days, but it's exactly what Sandia got when the National Academy of Sciences released its Inertial Confinement Fusion (ICF) program report to Congress on Sept. 19 (see story on page 1). The report commends Sandia's staff for meeting four out of five milestones that the NAS set last year and recommends that funding for the Labs' ICF work continue at a substantial level.

Research VP Venky Narayanamurti (1000) uses the words "heroic effort" to describe what it took from the Sandia ICF team to meet the milestones. "And, he says, "I'm talking about every Sandian and contractor involved in our ICF work. I've never seen any group work harder or smarter."

* * *

And Other News from Washington — As Controller Paul Stanford (100) pointed out earlier this week, all of us need to tighten our Sandia belts another notch or two while the battle of the budget continues. Regardless of how that finally comes out, it looks like we'll have plenty of work to do, but with fewer resources. Working harder and smarter is something that promises to become the order of the times.

* * *

Proud Tradition Continues — There's a tradition at the Labs that's a true source of quiet pride: our community concern. We express it in many ways, but perhaps best in generous giving during our annual community fund-raising campaigns — the Employee Contribution Plan (ECP) for Albuquerque-based Sandians and the Livermore Employees Assistance Plan. The ECP campaign will be conducted next week and the LEAP campaign Oct. 16-19.

* * *

A Pound of Microgears, Please! — A fact about the experimental microgears (featured in the Sept. 21 issue) made in Sandia's Microelectronics Development Lab caught my eye: A microgear weighs about two one-hundredths of a microgram. If my calculations are correct (remember, I'm a journalist), that means that one pound of microgears would contain more than 22 billion of them.

* * *

Advice and Mushrooms — I've been known to crack wise about all the free advice that I get in this job. As I sort through it, I try to keep in mind some advice *about* advice that I read a while back: Accepting the wrong kind can be like accepting the wrong kind of mushrooms. Either can be fatal.

* * *

Good Advice — While I'm on the subject of advice, I thought I'd pass along this bit as a public service, even though it has nothing to do with work. A buddy of mine is on a several-month assignment in another city, and his company is providing him with an apartment. With little cooking experience, he says he's learned something the difficult way: Don't fry bacon in the nude.

•LP

Take Note

Cecil Land (1164) has been selected to receive the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society's Achievement Award for 1990. The award, which includes a check for \$1000, will be presented at the Ultrasonic Symposium in Honolulu on Dec. 5.

* * *

James "Jake" Jacobs (5200) has been appointed Vice-Chairman of the Army Science Board (ASB). The ASB is the Department of the Army Senior Scientific Advisory Group for the Secretary of the Army and Chief of Staff on R&D activities and programs, systems acquisitions policies and procedures, and other matters that are affected by science and engineering. The board includes members from industry, universities, and research agencies; private consultants; and former government officials. Jake has been a member of the ASB for two and a half years and most recently chaired an eight-month ASB study on the "Use of Army System and Technologies in the National War on Drugs."

* * *

Potential effects of defense spending cuts on Sandia and Los Alamos national laboratories will be discussed on KNME-TV Channel 5 next Friday, Oct. 12, at 7.30 p.m. Gerry Yonas, Director of Laboratory Development 400, and a LANL representative will be the guests on this season's premiere of KNME's public affairs series, "At Week's End," hosted by Roger Morris.

* * *

Albuquerque's Valley High School is seeking mentors for the Valley Academy Mentors Program. A group of Sandians organized and participated in this program last year. More mentors are needed this school year. If you are interested in becoming a mentor, call Jo Ryan (6340) on 4-8037.

* * *

All Faiths Receiving Home (a United Way agency) will hold its annual Apple & Arts Festival Friday, Oct. 19, from 9 a.m. to 3 p.m. at the First Presbyterian Church (215 Locust NE). Admission is free, but there is a charge for tickets (\$3.50) to the 11 a.m. luncheon. The festival features 36 artisans, a silent auction, bazaar, bake sale, and Dixon apples sale. A London Theater Week for two will be raffled; tickets are \$10 each or three for \$25.

Top Guns

Sandia Security Officers Take Honors in Competition

A security team from Sandia won several awards recently at the 18th Annual Small Arms and Security Inspector of the Year Competition, an event that drew 150 competitors from 36 DOE

facilities across the country.

The Sandia Pistol Team placed fourth overall in the event. Team members include Bob Kelly (3430), Anthony Aragon, Ralph Garcia, Jeff Johnson, Gary Malin, Shane Murray, Ruben Padilla, Tommy Serna, Capt. David Stout, and Ernest Torres (all 3435). Competitors were rated for their responses to different combat tactical scenarios.

Individual team members also received several honors. Anthony placed fourth overall in the Security Inspector of the Year competition and was awarded a gold medal in the decision-making phase.

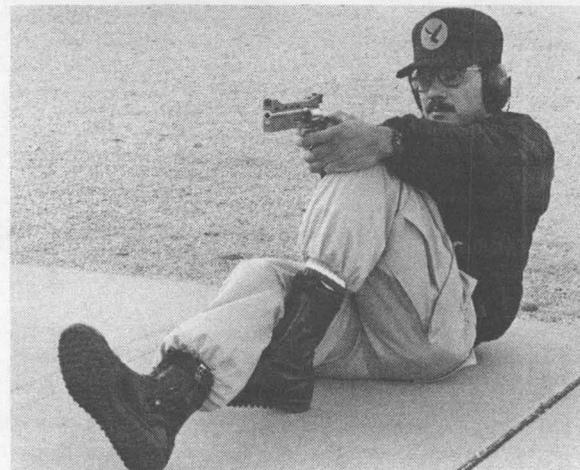
Shane placed seventh overall in the Top Gun competition, which honors the best overall performance by a single competitor, fifth in the Combat Weapons Aggregate, and sixth in the Combat Rifle competition.

Tommy placed third in the DOE Handgun competition and eighth in the Combat Aggregate Handgun competition. He and Gary placed fourth in the Team Match contest, and Gary placed sixth in the DOE Handgun competition.

David placed seventh in the Combat Aggregate Handgun competition.

The consolation prize, facetiously known as the "It Must Have Been Bad Ammo" award, went to Bob.

Sandia's Pistol Team is coached by Capt. Harold Garcia (3435). Sam Ortega is supervisor of Div. 3435. The team will next compete in the Las Vegas Desert Regional Police Tournament in Nevada Oct. 10-13.



TAKING AIM — Sandia's Pistol Team won several awards recently in an annual DOE competition. Shane Murray (top photo) and Anthony Aragon (both 3435), who both placed highly at the competition, are seen here sharpening their skills for a match later this month in Las Vegas, Nev.

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ALBUQUERQUE, NEW MEXICO 87185-5800
LIVERMORE, CALIFORNIA 94550
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Sandia National Laboratories, a prime contractor to the US Department of Energy, is operated by Sandia Corporation, a subsidiary of American Telephone and Telegraph Co.

LARRY PERRINE, Editor (505/844-1053)
CHARLES SHIRLEY, Writer (845-7799)
LINDA DORAN, Writer (846-6888)
JOHN GERMAN, Writer (844-7842)
RANDY MONTOYA, Photographer (844-5605)
MARK POULSEN, Photographer and
Production Coordinator (844-5605)
JANET WALEROW, Editorial Assistant (844-7841)
TABITHA JEANTETTE, Assistant (844-7841)
BARRY SCHRADER, Livermore Reporter
(415/294-2447; FTS 234-2447)

International Conference Covers NATO's Past, Present, Future

At an international conference on the history of NATO nuclear policy, keynote speaker Paul Nitze's best advice to analysts and war-gamers was to eliminate "bureaucratic biases" by examining facts objectively and following common sense. His advice was based on almost 50 years of experience in nuclear policy, during which he was a key advisor to six US presidents.

The three-day NATO nuclear policy conference, held at Sandia, Livermore last month, was jointly sponsored by the DoD Defense Nuclear Agency, DOE Office of Arms Control, DOE Office of Intelligence, and the DOE Office of Weapons Research, Development & Testing.

Formally entitled "The History of NATO Theater Nuclear Forces Policy: The Role of Studies, Analysis and Exercises," the conference included

"It is rather like dealing with a defective vending machine. You put in your quarter and nothing happens."

panel discussions and papers designed to help participants better understand how Theater Nuclear Forces (TNF) decisions have been made historically.

Four Decades of Nuclear Policy

Ambassador Nitze, now a diplomat-in-residence at the Paul Nitze School of Advanced International Studies at Johns Hopkins University, was head of the US Delegation to the Intermediate-Range Nuclear Forces (INF) treaty negotiations with the Soviet Union in Geneva in 1981.

His discussion focused on the major political



KEYNOTE SPEAKER Paul Nitze addressed the NATO conference participants on opening day at Sandia, Livermore on Sept. 12. Nitze has been an advisor to six US Presidents since the 1940s and was instrumental in INF treaty negotiations in Geneva in 1981.

events and international conflicts involving the US during the past four decades, including the early days of NATO and his work on disarmament treaties. In particular, he covered the military and political implications of nuclear arsenals and how they changed the direction of US and Allied policies, especially in the European Theater.

About the INF treaty negotiations he said, "the Soviet deployment of the SS-20 missiles in Europe caused a real evolution of Theater Nuclear Forces policy in NATO. It led to the two-track US decision to deploy the Pershing II and Ground-

Launched Cruise Missiles in Western Europe and at the same time opened negotiations with the Soviets to try to settle the TNF problem.

"The key to the whole issue was maintaining a doctrine that we would not use nuclear weapons unless the host [Allied] country was prepared to

"You have to get used to having no real dialog . . . you need something more [when negotiating] with the Soviets."

use them. There was no possibility of that, so we could be bold in [negotiations] and be perfectly sure there was an 'out' through the consent requirement of our NATO allies . . . This became the basis of our TNF strategy — we could scare the Russians to death and be sure we wouldn't ever be called upon to exercise that option."

As an aside, Ambassador Nitze recalled an evening at the residence of the British ambassador to Moscow. The British ambassador was asked what it was like to negotiate with the Russians, to which he replied: "It is rather like dealing with a defective vending machine. You put in your quarter and nothing happens — maybe there is some point in shaking the machine; maybe you'll get your quarter back. But there is no point in talking to it."

Nitze explained that when the Soviets were not in a mood to talk, there just wasn't any point in trying to negotiate: "You had to get at the Soviets through their philosophy of the correlation of
(Continued on Page Nine)

Caring-with-Cans Campaign

Livermore Employees LEAP Into Action

This year's Livermore Employees Assistance Plan (LEAP) campaign gears up with its traditional lunch on Tuesday, Oct. 16. Local human-service agencies will set up tables around the arbor area, and free hot dogs and soft drinks will be served.

The pledge campaign's goal is to raise \$155,000, a \$3,000 increase over last year's total.



SPELLING OUT "LEAP" with recyclable aluminum cans, LEAP committee members highlight the theme "Recycle the Human Spirit." The theme will be emphasized by employees collecting cans and selling them to benefit needy children. Standing are (from left) Brenda McFarland (8161), Ray Rychnovsky (8432), and Bev Kelley (8526). Seated are Ken St. Hilaire (8284) and Chairman Thomas Harrison (8451).

This year's theme, "Recycling the Human Spirit," has a dual meaning — highlighted by some fun activities using aluminum cans collected by employees. The recycling proceeds will be used to buy toys for needy children at Christmastime.

Three competitions among directorates highlight the kickoff event: First, supervisors and department managers will participate in a race using cans in new and challenging ways; second, directorates will compete to see how many aluminum cans they can collect in a week's time; and third, each directorate will organize a team and compete in a sculpture contest using up to 500 empty cans. The most creative work of art wins. Details on these events will be distributed soon in a LEAP bulletin.

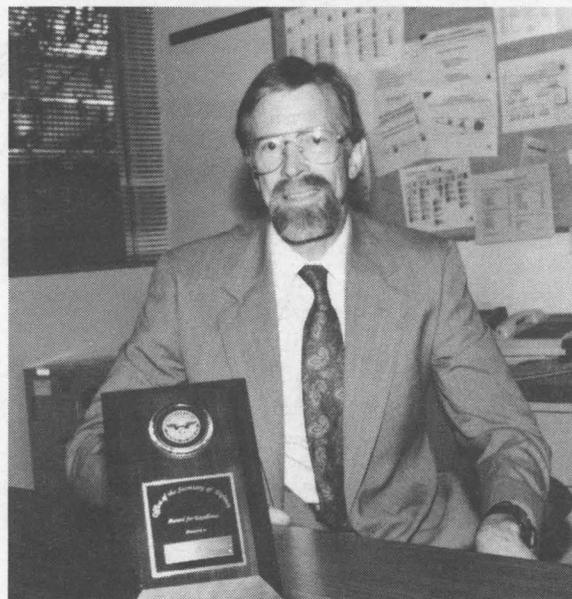
In addition, the annual LEAP run/walk, using cans in a special relay event, will take place before lunch. Dan Dawson (8243) and Barry Bolden (8161) organized the event.

Pledge cards will be filled out in directorate meetings during the following two days. This year pledge cards feature a wider range of donation levels, including Participant, Fair Share, and Gold Share levels.

Chaired by Thomas Harrison (8451), the LEAP committee for 1990 includes Deputy Chair Russ Miller (8155), Brenda McFarland (8161), Bill Mason (8233), Don Cowgill (8343), Ray Rychnovsky (8432), Bev Kelley (8526), and Ken St. Hilaire (8284). Staff support is being provided by Lana West (8451), Cindy English (8522), Mel West (8523), and Jack Bishop (8535).

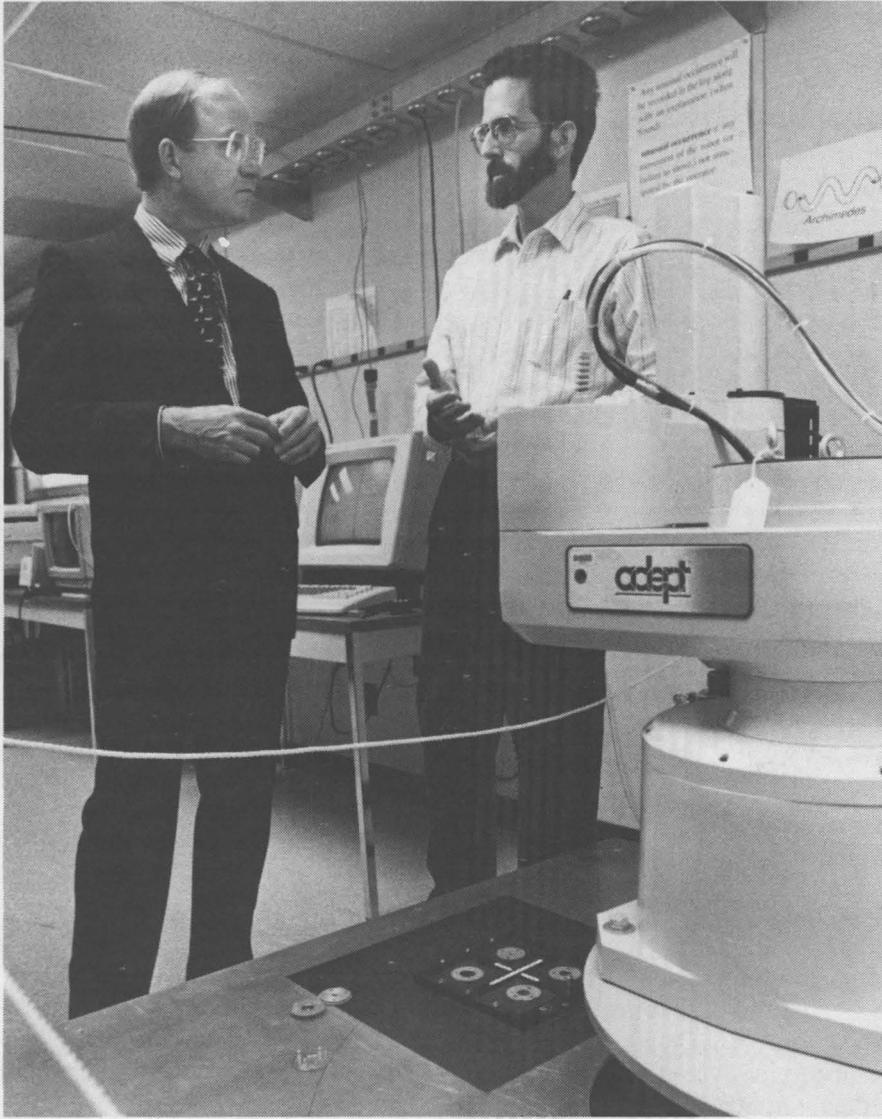


SANDIA
LIVERMORE NEWS



AWARD WINNER Jack Swearingen (8130) recently received the Office of the Secretary of Defense (OSD) "Award for Excellence," which recognizes non-government employees for contributing to the mission of the OSD. For more than two years, Jack has been assigned to OSD from Sandia as Scientific Advisor for Arms Control. The award was presented to him for his technical solutions to on-site inspection issues and for his contributions to treaty negotiations between the US and Soviet Union. He was a US advisor during the 13th round of Strategic Arms Reduction Talks (START), and his work specifically led to a US proposal, later accepted by the Soviets, that established the use of unique-identifiers (called "tags") placed on treaty-limited items for verifying treaty compliance.

AT&T VICE CHAIRMAN Randall Tobias (left) visited Sandia and spoke at the US Hispanic Chamber of Commerce national convention in Albuquerque on Sept. 28. He is seen here talking with David Strip (1412) about the Archimedes computer program that David developed to enable a robot to program itself to assemble mechanical components (LAB NEWS, Jan. 12). Tobias also toured the Particle Beam Fusion Accelerator II and the Microelectronics Development Lab and learned about Sandia's environmental and manufacturing R&D programs. He is responsible for AT&T's worldwide business units that provide long-distance and other network services, telephones and other communications products and systems, and computer systems.



(Continued from Page One)

Fusion Research Gets High Marks

much as 100 percent purity of the lithium beam, and achieving more than 70 percent efficiency in converting electrical power into ion power.

"The progress has taken an extreme amount of effort from a large group of people, including 85 Sandians and 50 contractors, who worked long days and long weeks with little vacation," says Don.

In the fifth area, that of reducing the divergence of the lithium ion beam so that it is more focused, Sandia has achieved significant improvement, though not as much as hoped. However, Sandia researchers have developed a theory to explain the spreading of the beam that agrees with present and past experiments. This is of particular interest to committee members, notes Don, because it indicates an understanding of the underlying physics of the beam divergence. Sandia has developed a powerful computational code backed by equations to support the theory.

"A key test of a theory is how well it agrees with experiments that have already been done," notes Don.

The theory indicates that it is possible to achieve high enough energies in the lithium ion beam to eventually cause thermonuclear fuel to ignite, which is the scientific objective of the program.

Target Experiments in '91

By next year, researchers hope to begin target experiments with a lithium beam, in which the beam will heat and compress the target. Eventually, the targets will contain a nuclear fuel sample of deuterium and tritium. Ultimately, given high enough temperature and density, the nuclear fuel will spontaneously ignite. Experiments that study the interaction of hydrogen beams with targets have already begun.

The ultimate goal of the fusion program is to be able to harness nuclear fusion similar to the way gasoline combustion is harnessed within an

engine. The work also has diagnostic applications for learning more about the physics of underground nuclear testing and thermonuclear weapons. Scientists at PBFA II hope to eventually produce an ion beam of about 1 million joules, five times the current level. An upgrade to PBFA II to increase the energy further will be needed to attempt thermonuclear ignition.

The efficiency of ion accelerators gives Sandia the potential to eventually be able to produce power at lower cost than competing ICF technologies, says Doug Bloomquist, Supervisor of Div. 1266.

The NAS report was submitted to Congress Sept. 19. The report recommends that highest priority be given to reducing the divergence of the ion beam, increasing the power intensity of the beam, and beginning actual target experiments.

Effective this month, Don is the new program manager in charge of ICF. He replaces Pace Vandevender, Director of Pulsed Power Sciences 1200, who has managed the program so far.

"I'm very proud of what the people in the Inertial Confinement Fusion program have accomplished, and I'm very mindful of the challenge that lies ahead to provide full-time leadership of the program in preparation for the FY'92 review," says Pace. "As an ICF team member, I look forward to Don's leadership." ●LD

(Continued from Page One)

Alta Mira Helps

"Who do you talk to?" was the question grandfather John asked when the family learned Judd had cerebral palsy. Alta Mira was able to answer that question and many others. Services offered by Alta Mira include educational and support sessions for family members. "The whole family is treated in this way," says mother Joni Lloyd. Judd's seven-year-old sister Jennifer attends a siblings' group meeting twice a month. There are also fathers' groups and mothers' groups.

"I've seen a real difference in Judd because of Alta Mira's help," says grandfather Earle. "It's unfortunate that Judd has to live with this disease, but we feel very fortunate that people care enough to support agencies like Alta Mira."

Ten Minutes Pay Per Month

This year Sandians are being asked to contribute just one-tenth of one percent more than they have in the past. That equals only 10 minutes pay per month.

Here are some examples of what one employee's contribution for a full year could provide through United Way agencies:

- \$1 a week provides 32 sessions for an arthritis patient in a therapeutic pool program.
- \$1 a week provides day shelter to 22 homeless persons for one day.
- \$2 a week provides 11 people with information, referral, education, prevention, and outreach services about alcoholism and drug abuse.
- \$5 a week gives a frail elderly person 43 hours of adult day care.
- \$10 a week provides 56 hours of home assistance to a frail or disabled homebound person.
- \$10 a week provides one troubled adolescent with residential treatment services for one month.
- \$8 a week provides parent training and support through Parents Anonymous and/or Parent Aide programs for one year.

Two New Agencies Added

Two new agencies have joined United Way's family of agencies: La Mesa Community Day Care, which provides child care for preschoolers in the La Mesa neighborhood (east of NM State Fairgrounds), and Southwest Communications Resources, which provides in-home parenting education to potentially abusive families in Sandoval County.

For information about ECP, United Way agencies, and how you can contribute, attend your directorate meeting next week. If you need a social service, but don't know whom to call, contact United Way's Info Line on 247-3671 (8 a.m.-5 p.m., Mon.-Fri.). Information can be obtained about more than 400 social service providers in the greater Albuquerque area. ●JW

NAS Commends Fusion Program

In its report to Congress, the National Academy of Sciences praised Sandia's fusion research program.

"It is the committee's assessment that the SNL staff is of very high quality and is a world leader in the areas of advanced pulsed power engineering and technology development. The laboratory is commended for establishing a high-caliber scientific team that integrates experiment, theory, and engineering design in the PBFA II program," the report states.

Sandia met or exceeded four out of five milestones set by the NAS last year:

- Producing a beam of at least 10 million volts.

- Generating a diode current of 3 million amperes.
- Achieving at least 75 percent purity in the lithium ion beam.
- Achieving an ion production efficiency of 80 percent.

The only milestone not achieved was the 14-mrad divergence for the lithium beam, a measure of the spread of light from the beam. However, the committee added that Sandia "did develop an impressive array of diagnostics and analytical and numerical models that identify the likely collective instability mechanism and possible ways to reduce the beam divergence."

(Continued from Page One)

R&D 100 Awards

tial of Sandia-developed technologies recognized," says Dan, "especially now that technology transfer is one of our missions. Awards like these encourage staff to consider commercial applications for the technologies they develop, and they also provide additional opportunities to attract industrial partners who can take our technologies to the marketplace."

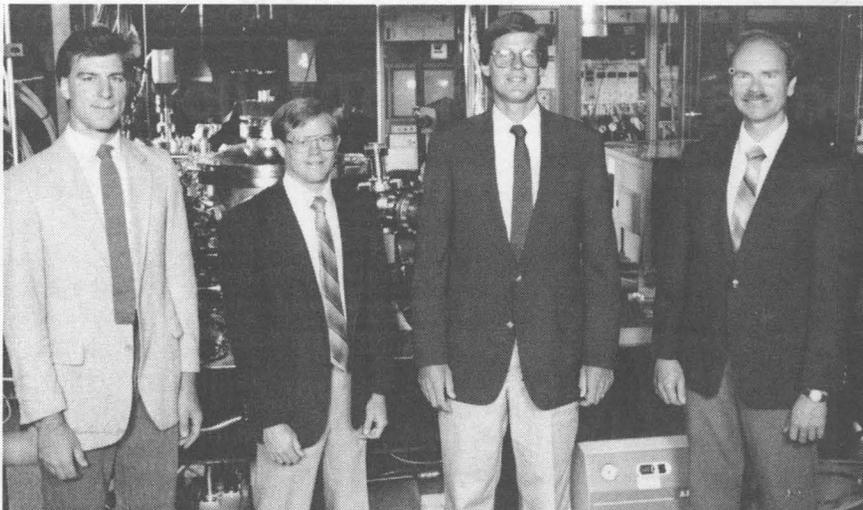
SAR Image-Focusing Software

To produce an image similar in many ways to an aerial photograph, SAR transmits and receives coherent broadband radio frequency signals that are stored, combined, and processed by computer to synthesize a large aperture, which is then focused to produce a high-resolution terrain image. It can produce images in daylight and dark and in all types of weather conditions.

The Sandia-developed software provides phase correction to automatically focus SAR imagery. Without this new method, images obtained from SAR can be severely blurred.

The SAR phase gradient autofocus software is currently being used by the US government for radar reconnaissance. The quality of SAR images can be drastically reduced by phase distortions caused by errors in an aircraft's position or electromagnetic propagation effects of turbulence in the troposphere. Using repeated blur patterns in the image data, the phase gradient autofocus program determines the aircraft position errors that cause the blurring. Once these errors are known, the image is re-formed without blurs.

In their R&D 100 entry, the Sandia researchers



SANDIA teamed with Lawrence Berkeley Lab to develop a laboratory instrument that won a 1990 R&D 100 award. The instrument provides a less expensive and more convenient source of intense, extreme ultraviolet radiation. Sandians on the team include (from left) Kurt Berger (8342), Todd Felver (8343), Glenn Kubiak (8342), and Tim Tooman (8172).

described the phase gradient autofocus algorithm as "the first significant advance in robust automatic focusing since the advent of SAR." Previous methods of obtaining well-focused SAR images required a combination of manual intervention, a model of the phase error, and special scene content, none of which are required with the phase gradient autofocus method.

Intense UV Radiation Source

The R&D 100 award for this work was given to Sandia and Lawrence Berkeley Lab for developing a laboratory instrument for producing a high-fluency, monochromatized, tunable beam of extreme ultraviolet (XUV) radiation — an important tool in the fields of material science, spectroscopy, lithography, microscopy, and medical imaging.

Until now, users of this radiation have been able to perform their experiments only at large, federally funded synchrotrons — machines that accelerate charged particles to very high energies and produce very intense radiation. Beam time is limited and constraints are often severe for users of these facilities. The Sandia/Lawrence Berkeley-developed instrument is the first of its kind that is small and simple enough to be affordable to a wide spectrum of users, thus allowing them to perform materials processing and experiments in their own facilities.

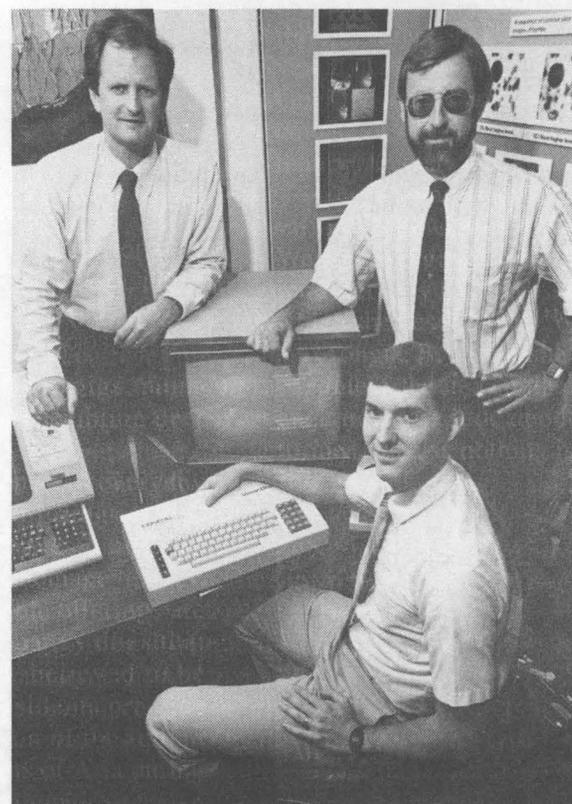
The XUV source instrument is based on the principle that targets heated to temperatures in excess of 20 electron-volts form plasmas that emit copious ultraviolet, extreme ultraviolet, and soft x-ray radiation.

The Sandia researchers focused a commercially available 150-watt, pulsed KrF (krypton fluoride) excimer laser to produce a bright, XUV plasma on a rotating, gold-plated target cylinder in a high-vacuum chamber. A portion of the radiation emitted by

this 300-micron-diameter plasma was collected, monochromatized, and focused with a high throughput x-ray monochromator optimized for this application by the Lawrence Berkeley group.

The laser plasma source is much more intense than discharge lamps or electron impact-excited soft x-ray sources. It is also continuously tunable, whereas the impact-excited line sources are not.

•AEtheridge(3161)



THIS SANDIA TEAM won a 1990 R&D 100 award for developing software that clarifies synthetic aperture radar images. They are Paul Eichel (9117, seated), Charles Jakowatz (9117, standing left) and Dennis Ghiglia (1421).

1976-1989

Past R&D 100 Winners

With the two 1990 awards, Sandia has now received 15 R&D 100 awards. The 13 previous winners:

1976 — Hot-air solder leveler, T. A. Allen and Bob Sylvester (both ret.).

1984 — TA-23 glass, Bob Eagan (1800) and Rod Quinn.

1986 — High-speed multi-channel data recorder, Jim Chang; PBFA-II, Org. 1200 team (led by Pace VanDevender [1200]), Naval Research Lab, and Cornell University; Polysilane self-developing photoresists, John Ziegler, Wayne Johnson (1126), and Larry Harrah (ret.); SANDAC IV (Sandia Airborne Computer), Charlie Blaine (ret.), Paul Pierce (2335), and Charles Borgman (9132); Carbon-resistance particle analyzer, Bill Wampler (1112); X-ray microanalyzer, Monte Nichols (8311), Dale Boehme (8313), and Richard Ryon (LLNL).

1987 — External Microbeam Analysis (X-MIBA) system, Barney Doyle and Norman Wing (both 1111); Rapid Reduction of Nitrogen Oxides (RAPRENOx) process, Bob Perry.

1988 — Three-dimensional chemical x-ray microscope, Monte Nichols (8311) and researchers at Lawrence Livermore National Lab and the University of Dortmund (West Germany).

1989 — New mathematical methods and algorithms for parallel computing, Bob Benner (1424), John Gustafson, and Gary Montry; SUPERNET/Linda software for distributed parallel processing, Div. 8233 team led by Bob Whiteside (now 8210), Yale University, and Scientific Computing Associates.

Recent Retirees



Willie Servis (3144) 26



David Barham (5174) 31



Jerald Long (9311) 34



Reba Garrison (5122) 33

Earnings Factors July 1990

Savings Plan for Salaried Employees (SPSE)	Earnings Factors
AT&T Shares	.9615
Government Obligations	1.0134
Equity Portfolio	.9944
Guaranteed Interest Fund	1.0073
South Africa Restricted Fund	.9892
Savings and Security Plan — Non-Salaried Employees (SSP)	
AT&T Shares	.9610
Guaranteed Interest Fund	1.0072
South Africa Restricted Fund	.9899
Equity Portfolio	.9950



Stamping Out Drugs

Drug Testing Affirms Sandia's Stand on a Drug-Free Workplace

Corporate America does it. Federal agencies do it. And now, Sandia does it. It is pre-employment drug screening, and it starts this month.

Effective Oct. 15, all prospective Labs employees will be required to pass a pre-employment drug test. This corporate-level policy change is supported by Sandia's Personnel, Security, Legal, and Medical organizations.

The message, says Dr. Larry Clevenger, Director of Sandia Medical 3300, is that Sandia is serious about providing a safe and drug-free workplace

Effective Oct. 15, all prospective Labs employees will be required to pass a pre-employment drug test.

for all employees: "We want to inform new folks of Sandia's commitment to this issue and make sure they understand Sandia's intolerance of drug abuse," he says.

Under the new policy, candidates will be notified in their offer letters that screening is a condition of employment, and candidates who test positive will not be considered for employment at the Labs.

Making a Firm Statement

Drug screening will not be new to the Labs. Sandia currently requires regular drug testing for protective force personnel and employees in the Substance Abuse Rehabilitation Program. In addition, employees who are suspected of abusing drugs or alcohol may be tested if reasonable suspicion exists or as part of a post-accident investigation.

"Sandia is a large group of people, and there's simply going to be a few people with drug dependencies in any organization this large," Larry says. "Drug screening programs help

minimize drug use by Labs personnel."

Jim Martin, Director of Security and Facility Support Services 3400, says protective force personnel, through the director level, are selected randomly each week and asked to report to Medical within two hours for drug screening. And he adds that drug screening isn't the only measure taken against drug use on Labs premises.

"We are serious about keeping drugs off our premises," he says. "The programs we have developed, including drug screening programs, are designed to do that. And we believe they work."

Each week, Security uses drug-sniffing dogs to search a geographic area within Labs property, including private-vehicle parking lots. In addition, periodic searches of incoming and outgoing cars at Kirtland gates have turned up a couple of offenders (not Sandians), Jim says.

Important Benefits

A major reason for requiring drug tests of job candidates is so employees can be confident that the workplace is safe, says Larry. After making presentations to various Sandia groups, he believes Sandians welcome the new policy. Studies of companies that conduct drug tests suggest that accidents are less likely to happen, and productivity is enhanced when programs are in place to deal with drug abuse.

"This is especially important in hazardous operations," says Larry. "Employees have the right to feel confident that their colleagues are not using drugs. It's analogous to the smoking policies we adopted a couple of years ago. Again, the health and safety of employees is the important issue here."

Drug testing can also be used to help drug abusers. "Chemical dependencies are treatable," says Larry. "With drug screening, we can identify an individual with a problem and provide treatment."

Controlling costs is also a reason for this change: "Treating drug dependencies is expensive," Larry says. "Sandia is self-insured, so treatment costs eat into the Labs' budget. If one drug-abuse case can be prevented, the entire cost of the screening program will be paid for."

Broader Future Requirements

Pre-employment screening at Sandia responds to increased regulatory requirements for maintaining drug-free conditions in government-sponsored programs. The Labs are already in compliance with the Drug-Free Workplace Act of

"Employees have the right to feel confident that their colleagues are not using drugs . . . the health and safety of employees is the important issue here."

1988, which requires that government contractors the size of Sandia take measures to deal with employee drug abuse. New requirements are expected soon, which will set the stage for broader testing of employees in DOE-sponsored programs, Larry says.

"The orders are now in draft form, but it appears they will affect on-roll employees, especially those in safety-sensitive or security-sensitive positions," he says. "Right now it looks like Sandia will be required to test certain groups Labs-wide through either mandatory annual testing or random testing."

Testing requirements for on-roll employees will take effect during 1991. The actual requirements have not yet been clarified by DOE, but drug screening could affect a minimum of 500 to 1,000 Sandians. ●JG

Barrier Buster Breakthroughs

Last spring, the Sandia Management Council established the Barrier Busters Quality Action Team to look at various processes at the Labs that might need improving — and to recommend and take action to eliminate or modify unnecessary and inefficient policies, procedures, and rules. Following are recent Barrier Buster breakthroughs.

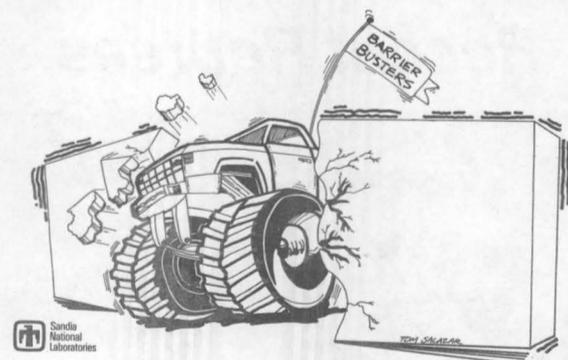
Dick Shaw (9213) worked with Bob Baca (3437) on a safety issue — contractors who ride motorcycles no longer have to hold up a vehicle identification card when entering Kirtland gates. They are now issued permanent stickers for motorcycles.

Visitors from Allied Signal/KC won't have to spend much time in the Badge Office. They can pick up pre-prepared badges when they get here. Also, proof of insurance and a vehicle registration certificate are no longer required by the Badge Office when KAFB vehicle decals are obtained. Barrier busters who worked with Phil Rivera (then 3431-1 supervisor) include Rochelle Lari (2000A), Estelle MacKenzie (5210), Betty Mowery (7541) and Dick Shaw.

Rochelle Lari worked with Dorothy Baird (3511) to provide prospective parents with information about available community child-care services. Previously, parents could not obtain this information until the child was born.

Safety glasses can now be obtained without Div. 3216 approval. Elaine Gorham (6344) worked on this one with Nestor Ortiz (3200).

Personnel Representatives will now notify supervisors when their employees' promotion papers are finalized. Rochelle Lari and Shanna



Cernosek (7000A) were the barrier busters who worked with Harriet Morgan (3533).

Deadline for bidding on job postings listed in the Weekly Bulletin has been extended from Friday to the Monday following appearance of the posting.

Phil Dreike (1264) worked with Dave Wallace (3745) to eliminate the need for a supervisor to sign the form requesting additions to the JIT stock list.

Tom Cannon (2850) worked with Jerry Esch (2621) to arrange for the Management Information Systems (MIS) Rotation Committee to meet three times a year instead of one, to improve communication with the MIS staff.

Suggestions for additional Barrier Buster ac-

tions can be sent to any team member: Paul Rosenkoetter (110), Phil Dreike (1264), Rochelle Lari (2000), Tom Cannon (2850), Janet Walerow (3162), Linda McEwen (3522), Larry Greher (4010), Estelle MacKenzie (5210), Elaine Gorham (6344), Shanna Cernosek (7000A), Bill Alzheimer (7400), Betty Mowery (7541), Don Wagner (8532), Paul Van Dyke (8285), and Dick Shaw (9213). Pamela Romero (3530) and Rosie Jennings-Williams (2851) are the team's data base managers. ●JW

Welcome

Albuquerque — Sharon Blauwkamp (22-2), Sharon Fisher (3428), Cynthia Hall (4010), Laura McMullin (22-2), Wanda Seay (22-2), Cynthia Tenorio (3141); *Other New Mexico* — Connie Adams (3141), Brian Thomson (3212), Thomas Willems (7812).

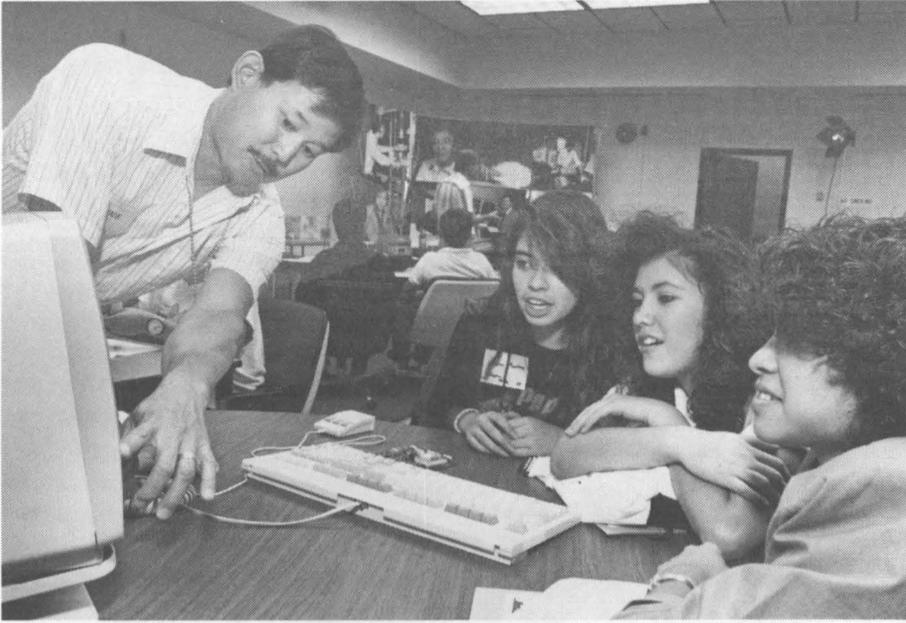
Elsewhere: California — Zahid Mahmud (7841), Stuart Smith (7841); *Florida* — Arnold Howard (7415); *Indiana* — Scott Gray (7543).

Congratulations

To Lilia (1512) and Tiofilo Martinez, a son, Benjamin Eric, Sept. 5.

To Kathleen (3153) and Isaac (113) Mitchell, a son, Benjamin, Sept. 7.

To Tracy and Darrel (1832) Frear, a daughter, Darcy Lynn, Sept. 15.



DEMONSTRATIONS AND TOURS highlighted the day for high school students attending the Sept. 20 Science and Engineering Awareness Day (SEAD), sponsored by Sandia's Hispanic Leadership and Outreach Committee. About 40 students and advisors from El Rito, Peñasco, Santa Rosa, Socorro, and Vaughn attended, says SEAD chairman Patricia Appel (7473). Different schools are invited each year to the annual event that's designed to heighten Hispanic student awareness of science and engineering and to interest students in pur-



suating technical careers. In the photo at left, Wayne Yoshimoto (7412) explains a computer-aided design system to (from left) Louise Martinez, Valerie Pacheco (both from Peñasco), and Rebecca Silva (Santa Rosa). In photo above, Andres Nieto (Santa Rosa, second from right) and three Sandians demonstrate the strength of a typical high-strength adhesive used at Sandia. The Sandians are (from left) Dave Zamora, Howard Arris (both 7472), and Robert Martinez (7234); yes, they are all wearing safety glasses.

Getting a Handle on Employee Concerns

Rewards/Recognition Team Progress Report

"Thanks to lots of employee input, we think we've got a good start on refining the Sandia reward and recognition system," says Danielle "Danny" Brown (3590).

Project Manager Danny and 18 more Sandians on the Rewards and Recognition team are studying the performance review system and other employee reward/recognition processes used at Sandia as well as evaluating those used at 14 large research and development organizations (private and government) throughout the nation (LAB NEWS, June 29).

In its first three months, the team has analyzed 278 questionnaires completed this summer by a representative cross-section of employees and held 11 focus-group meetings with other Sandians.

Frank Input from Sandians

"Sandians have been open and frank with our team, and as a result we're getting a good handle on employee concerns in this area," says Danny. "However, we want folks to continue to provide input and feedback to us as the project progresses, and we strongly encourage that. So we'll be reporting periodically through the LAB NEWS on our findings and plans, and I encourage employees to respond."

"Sandians want clear goals established against which their performance can be measured."

Chartered by the Sandia Management Council, the project is working to develop tools for Sandia supervisors to better recognize and reward individual and team performance. Long-term, the team hopes to recommend a comprehensive reward and recognition process that will be more motivational and that will enhance individual and group performance.

Current System Not Motivational

"It became obvious soon after we started getting questionnaires back from employees that many folks feel they don't have clear performance goals, and that includes both individual and group goals," says Danny. "If clear goals are missing, then it's difficult for supervisors to give meaningful performance reviews and feedback to employees."

A preliminary Rewards and Recognition Project report states: "Most employees, includ-

ing management classifications, do not understand the basis on which their individual performance is judged or their individual compensation determined. If one assumes that clear understanding is a prerequisite for an effective system, it is not surprising that two-thirds of questionnaire respondents did not find the current system motivational."

"Our team sees this as a significant employee concern," Danny says, "and we're emphasizing this to management — that Sandians want clear goals established against which their performance can be measured. In fact, we are looking into a system in which performance goals would be established for all staff and management employees based on business objectives. Attainment of the goals would be a major consideration in performance appraisal and base salary increases, as well as non-base compensation."

Compensation to Reflect ES&H Work

Sandia management has already approved a project team idea to base individual compensation partly on employees' ES&H performance.

Danny explains, "Because proper ES&H practices are so critical to our future, the team recommended that supervisors judge every employee's ES&H performance and take that into account when determining base compensation and whether each employee will receive an individual performance award [IPA] and, if so, the size of the award."

"Supervisors will be expected to make that determination on a well-defined and documented set of ES&H goals for each employee," she continues. "Supervisors and managers will assist each employee in establishing personal objectives — for example, taking a leadership role within a project to ensure that all ES&H requirements are met."

Upcoming LAB NEWS articles will discuss other findings and recommendations of the Rewards and Recognition project team, including those dealing with non-monetary rewards. In the meantime, Sandians who want additional information about any aspect of the project or who would like to contribute ideas are encouraged to contact Danny on 845-8238; telefax 846-1521. ●LP



EDUCATION OUTREACH IN ACTION — Forty Sandians involved in the Labs' Science Advisors program met with about 180 teachers and school officials on Sept. 27-28 to discuss program specifics. The teachers and officials — representing schools operated by the Bureau of Indian Affairs (BIA) and rural New Mexico schools — discussed with Sandians how they can have a maximum positive impact on science education in these schools. Seen here in informal discussions before the meeting are (from left) Jesus Martinez (35), Sandia's project manager of BIA and rural science advisor program; Debi Sanchez, a first-grade teacher at San Felipe School; Galen Martinez, a math and science teacher at Sky City Community School; and John Otts (35), Sandia's program manager for K-12 education outreach.

Unusual Vacation**Sandia Cyclist Tours Tropical Indonesian Isle**

Riding a bicycle over 300 miles of mountains and valleys in the sweltering heat of a tropical island may not sound like everyone's idea of fun, but for Judy Odinek (1153), it's a great way to stay in shape and to swap the beaten tourist track for more remote areas to see how people really live.

The Sandia technician and her husband, R.T., spent eight days this summer cycling on the Indonesian island of Bali. Total elevation gain during the trip, from the island's sandy beaches to the slopes of its inland volcanoes, was 5,000 feet. Along the way, they braved sudden tropical storms and humidity so strong that their clothes were soaked by the time they got dressed in the morning.

But during their adventure, they got to experience an unusual and fascinating culture, where natives in remote areas flock to greet Westerners, who are an unfamiliar sight to them, and to touch them, ask their names, and cheer them on their way.

"We felt genuinely welcome in their country, especially in rural areas away from the tourist meccas," says Judy. "We pedaled through the countryside to a constant stream of broken-English greetings, such as 'Hello' and 'Where you go?' Upon learning we were from America, youngsters would relate their knowledge of America to us, which usually included Batman, Michael Jackson, Mickey Mouse, and Donald Duck."

Terraced, emerald-green rice paddies dominate the landscape, and winding roads guide cyclists through verdant canyons and rain forests, traffic-clogged cities and glistening beaches.

"We pedaled through the countryside to a constant stream of broken-English greetings."

The island's 2.7 million residents are visible everywhere, says Judy, even in rural areas, where motorized vehicles are rarely seen. Women carry baskets on their heads filled with laundry, fruit, and rice. Natives herd ducks into the rice paddies to feed by eating the weeds — a white flag dangled from a bamboo cane shows



A DANCER performs the *baris*, a traditional war dance that glorifies the manhood of the triumphant Balinese warrior. The dancer's face must be able to render the passions of a quick-tempered warrior, from fierceness and disdain to compassion and regret. (Photo by Dennis Coello)



JUDY ODINEK (1153) spent summer vacation on a bicycle tour of the Indonesian island of Bali, just a little more lush than the New Mexico wilds, where she is seen here toning up her leg muscles.

them the way. Chickens, domestic pigs, monkeys, mongrels, and even cows resembling deer inhabit the countryside.

Religion is such an integral part of everyday life that people routinely place offerings of rice paste, flowers, woven palm leaves, and fruit along the side of the road to pay homage to good spirits and placate evil ones. Edible offerings are immediately consumed by the mangy dogs that roam the island and are widely believed to be possessed by demons. Bali's residents practice Agama Hinduism, a local version of the Indian faith that expanded into other parts of Asia during the latter part of the first millennium.

Exotic Meals and Entertainment

Judy and her husband chose Bali on the basis of a vacation brochure in a sporting goods store. Plus Judy has always liked the tropics. "Everybody says, 'Why Bali?' It just sounded like a unique place to visit," she says.

Although the cycling adventure was actually a guided tour arranged by a California company, supervision was minimal, and the 23 participants, who ranged in age from 20 to more than 60, were free to visit whatever areas they wanted.

Accompanied by two trip leaders and three Indonesian drivers who gave a lift to weary riders, refilled water bottles, and handed out snacks, cyclists could travel at whatever pace they wanted, says Judy. Participants were given maps and detailed instructions to show them the way to the group's accommodations each night, where they were greeted with exotic meals and evening dance performances by natives in colorful costumes accompanied by traditional gamelan orchestras.

Of course, the residents of resort cities tend to approach foreigners a little differently than country folks. "One place which we labeled as a tourist trap was Goa Lawah, the Bat Cave," says Judy. "It is a temple whose walls are covered with thousands of bats. We were greeted by hoards of children who spoke excellent English and quickly hung a 'free' necklace around our necks for good luck. The catch was we were supposed to buy postcards from them at greatly in-

flated prices. Other hawkers swarmed the temple entrance trying to sell their wares. It reminded me of a Mexican border town."

One of the most tranquil nights of the journey was spent on the edge of a lake that filled a volcanic crater.

Physically Demanding at Times

The trip was grueling at times. The longest distance they traveled in one day was 61 miles. "That was the only time we got a little short-tempered with each other," says Judy. "The potholes appeared larger and the sun seemed even hotter." But she and her husband were prepared for the physical rigors of the trip after three years of cycling in the Jemez Mountains and on the streets of Rio Rancho.

Still, a lifetime in arid New Mexico didn't prepare her for the climate in Bali: "I was totally soaked by 7 a.m. from the heat and humidity."

For Judy, the bicycle tour was her first visit to an Asian country. She would like to go back, though now that she has some experience, she would prefer to travel independently, arranging for her own meals and lodging and saving a fair amount of money in the process (the trip cost more than \$100 a day, not counting plane fare).

Judy found that the least likable aspects of visiting Bali were the 19-hour plane ride from the West coast, gastroenteritis caused by the spicy foods, prickly heat rash, and congested city traffic, which she describes as "organized chaos."

Tongue in cheek, she has this advice for anyone interested in a similar adventure: Useless luggage items include deodorant and rain gear, the former because nothing is effective in the humid-



BALINESE CHILDREN frolic in a water palace, decorated with unusual statuary, that was built around 1947 in Tirta Gangga by a rajah, or prince. (Photo by Dennis Coello)

ity, and the latter because one doesn't have time to put it on before the downpour hits.

Yet such inconveniences were minor compared to the best part of the trip, which was the warmth and graciousness of the residents.

"As I was walking the beach alone one afternoon, I was invited by a young fisherman to join him under a thatched shelter for a refreshing drink of green coconut milk," she says. "He, with his limited knowledge of English, and I, with my zero knowledge of Bahasa Indonesia, sat in the shade carrying on a conversation, scratching our ages and our answers to each other's questions in the sand." ●LD

Managing Change

Signature Levels Reduced for Expenditures and Personnel Actions

The "credit limit" for many Sandians just went up.

Sandia's Management Council (SMC) has approved new signature authority levels (see tables) for expenditures and personnel actions. The change took place Oct. 1.

"The aim and the effect here is to co-locate accountability and authority in the person actually doing the work," says Dan Hartley, VP for Corporate Change Management Org. 5. "Moving signature levels down is widely visible evidence of one change prompted by our Strategic Plan. Specifically, the Plan calls on managers 'to give up close control and permit others to assume a share of individual responsibility, power, and risk for Sandia's future.'"

"The impetus for the change? We listened to our customers all across Sandia," says Shirley Wallace, Supervisor of Corporate Policies Div. 113. "They kept asking us why our SLIs [Sandia Laboratories Instructions] typically demand that signature authority for an action be a couple of levels above the decision-making and accountability level."

"The level of complaints has escalated the last couple of years," says Nanette Briscoe (113), who headed the change on the staff level. "The change finally happened because top management is eager to foster an enlightened, empowered work force."

"As the SMC has made clear, empowerment is not anarchy," adds Shirley. "In many

cases, this SLI change simply puts the signature authority in the hands of the person who's always been responsible for the decision involved. Now, we hope, that person won't have to, first, make the decision, and, second, take the time to write a memo justifying the decision to the person above who has the signature authority.

"The new levels are an umbrella, a cap, a maximum—signature authority can't exceed these levels," says Shirley. "The other part of accountability is, of course, not to exceed your budget, whatever your signature authority. Within these limits, however, we're giving our people, in the words of the Strategic Plan, 'the freedom to have an impact.'"

•BHawkinson(5)

Personnel Activities Proposals*

Appointment Level	Old Approval Level	New Approval Level
Graded	Dept. Mgr.	No change
Staff, non-exempt	VP	Dept. Mgr.
Staff, exempt	EVP/Pres.	Director
Section, experienced staff	EVP/Pres.	VP
Division/Department	EVP/Pres.	No change
Director & above	SNL Board of Directors	No change

*Signature levels necessary to reappoint or hire an employee are decreased for appointments to graded, staff, and section positions.

Standard Acquisition Approvals*

Level	Old Limit	New Limit
MLS/MTS	\$1K	\$5K
Section	\$2K	\$20K
Division	\$15K	\$50K
Department	\$50K	\$250K
Vice President	\$2M	No change
Executive VP	\$10M	No change
President	Unlimited	No change

* Approval amounts for capital expense acquisitions are increased to equal standard expense levels for division and above.

(Continued from Page Three)

NATO Conference

forces rather than through argument. And that has continued to be the case—up to Gorbachev. You have to get used to having no real dialog . . . you need something more [when negotiating] with the Soviets."

Nitze cautioned conference participants to eliminate "bureaucratic biases" and look at the facts as objectively and honestly as possible in conducting war games and analytical studies. He stressed "honesty in the work you do, try to eliminate the biases, and use common sense . . . checking the results against what you inherently know about these things. I don't believe you can count on any other approach than flexibility, honesty, and persistency."

Sandia's conference host, Rob Rinne (8100A), was pleased with the responses he heard from participants: "Many attendees had been to earlier conferences about the future of nuclear policy, and I think they expected an interesting look at NATO's past at this conference. But they found better insights about the future here. I think our panel sessions had a lot to do with that." •BLS



EXPERT PANELISTS on the first day of the NATO conference included (from left): Harvard Professor Robert Bowie; John Morse, former head of Nuclear Planning Division at SHAPE; Brig. Gen. Robert Richardson III (Ret.); and former LLNL Director Herbert York. Panelists provided a look at the future of US nuclear policy.

Prestigious Panelists Highlight NATO Conference

The first day's panel included Herbert York, former LLNL director and now professor at the Institute on Global Conflict and Cooperation at the University of California, San Diego (UCSD); Robert Bowie, Dillon Professor Emeritus at Harvard; John Morse, former head of the Nuclear Planning Division of the Supreme Headquarters Allied Powers Europe (SHAPE); and Brig. Gen. Robert Richardson III (Ret.), deputy director of High Frontier and member of the first NATO Standing Group.

The second day's panels included West German Air Force Gen. Johannes Steinhoff (Ret.), former chairman of the NATO Military Committee and one-time Chief of Staff of Allied Forces Central Europe; former Ambassador Seymour Weiss, one-time assistant Secretary of State and ambassador to the Bahamas in the mid-1970s; Sir Frank Cooper, former Undersecretary of State for the UK Ministry of Defense; Don Cotter, former Sandian and assistant to the Secretary of Defense for Atomic Energy in the 1970s; Walter

Slocombe, former Deputy Undersecretary of Defense for Policy Planning; and Leon Sloss, former assistant (and acting) director of the Arms Control and Disarmament Agency and now president of his own consulting firm.

Members of the third day's panels included Lynn Davis, fellow of the Johns Hopkins Foreign Policy Institute and former DoD Deputy Assistant Secretary for Policy Planning; US Air Force Gen. William Smith, one-time Chief of Staff at SHAPE and currently president of the Institute for Defense Analyses; James Thompson, president and CEO of RAND Corporation; and Richard Wagner, vice president of Kaman Corporation and Assistant to the Secretary of Defense for Atomic Energy in the 1980s.

A series of papers on select topics helped focus the panel discussions. Among the presenters were former Sandian Ted Gold, now vice president at Hicks and Associates, who described the Pentomic Division of the 1950s, and Garry Brown (9011), who outlined the results of the NATO Follow-on-Use studies.

Employee Death



Richard Braasch of Advanced Projects Div. II 9122 died Sept. 11 after a long illness.

He was 52 years old.

Dick was a division supervisor and had been at Sandia since 1961.

Survivors include his wife, two daughters, and two sons.

Sympathy

To Dixie Harvey (1812) on the death of her daughter in Baker, Calif., Aug. 19.

To Sharon Mahkee (22-2) on the death of her sister-in-law in Zuni, Sept. 9.

To Vicky Montoya (3223) on the death of her sister in Albuquerque, Sept. 15.

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MILEPOSTS

LAB NEWS

October 1990



Ramon Lucero
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Eugene Emerson
3223 35



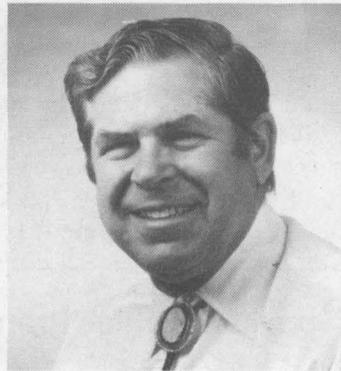
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Bernice Vigil
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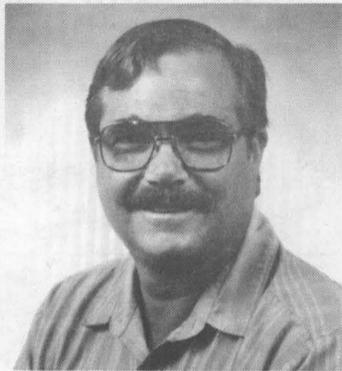
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Gerald Rohwein
1248 30



Charles Salazar
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Jeffrey Tingley
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Mary Gilliland
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Ken Paul
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Jeff Quintenz
1265 15



Donna Archuleta
3154 25



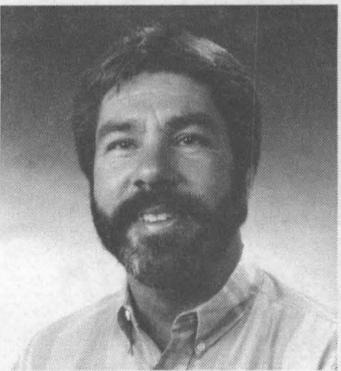
Sam Griego
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Sarah Lawrence
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Lawrence Weirick
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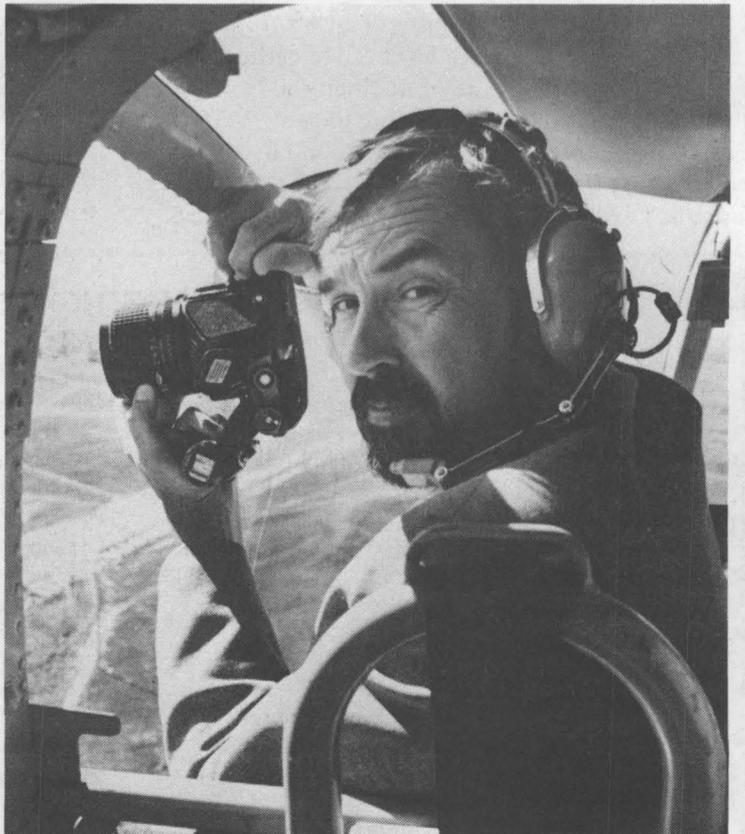
John Lavasek
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Owen Berg
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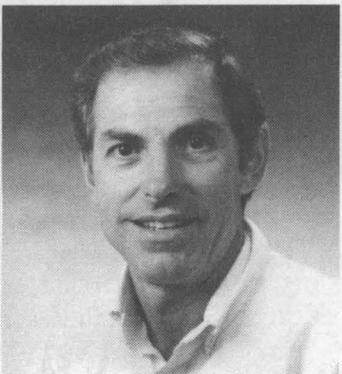
Gene Arnt
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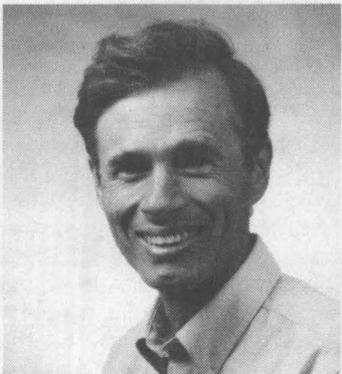
Russell Smith
3154 20



John Taylor
9241 15



Thomas Plummer
7842 25



Philip Thacher
7341 25

Fun & Games

Fun Run — The Fourth Annual Fun Run sponsored by the Chaparral Girl Scouts will be held Saturday, Oct. 20. The five-kilometer race and the five-kilometer race-walk start at 8:45 a.m.; the one-mile run/walk starts at 9:45 a.m. All three races start and end at the Chaparral Girl Scout Service Center (500 Tijeras NW). Courses are on flat city streets. Forms are available at Gil's Runner-shoe World, Albuquerque Public Library, and the Chaparral Girl Scout Service Center. For information, contact Karen Head on 243-9581.

Golf — The Second Annual Ed Salazar Memorial Golf Tournament will be held Friday, Oct. 12, at noon at the Tijeras Arroyo Golf Course. (Ed Salazar was a Sandia retiree who died a year and a half ago.) Proceeds from the tourna-

ment will be given in Ed's memory to a needy Albuquerque-area cancer patient. Sandians who arranged the tournament include Robert Martinez (7234), Jim Salas (2512), Eli Perea (2543), Dan Drummond (9111), Floyd Salas (9322), Gary Rivord (2818), and Gil Valencia (7341). For information, call Robert Martinez on 883-7308 or Floyd Salas on 883-6638.

More Golf — The Sandia Women's Golf Association played a Nine-Hole Championship Tournament on Sept. 15 at Puerto del Sol Golf Course and on Sept. 16 at UNM North Golf Course. Prizes were awarded to the following winners: Flight A — Delores Worley, first low gross; Ginny Moore (2100), second low gross; Marlene Shields (7542), first low net; Minnie Shurick, second low

net and long drive; and Karen Varga, closest to the pin; Flight B — Betty Worley, first low gross; Peggy Burrell (6000), second low gross and long drive; Teri Carpenter (3731), first low net; and Carmen Allen (2611), second low net and closest to the pin; Flight C — Maria Feliz (3726), first low gross; Shirley Lopez (3745), second low gross; Lupe Massoth (2632), first low net; Nina Coe (3718), second low net; Kathy Kemm (DOE/OCAD), long drive; and Suzette Beck (4021), long drive. Chip-in prizes were presented to Maria Feliz, Betty Worley, and Ginny Moore. Debra Reichman won the lowest-putts prize.

This tournament concludes SWGA play for the 1990 season. The annual awards banquet was held Sept. 26.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to Div. 3162.

Ad Rules

1. Limit 20 words, including last name and home phone.
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.

MISCELLANEOUS

- OLYMPUS XA CAMERA, 35mm, w/A-11 flash, ultracompact, lightweight, auto exposure, rangefinder, w/backlight compensation, self-timer, \$95. Schkade, 292-5126.
- ZENITH LAPTOP COMPUTER, 80C88 processor, 1-MB RAM, serial port, parallel printer port, battery pack, internal modem, warranty, \$1100. Caffey, 296-1942.
- CB ANTENNA, 15-ft., w/8-ft. ground plane, \$15. Reese, 828-0113.
- BRITTANY PUPPIES, AKC-registered, gun-dog breed lines. Darnold, 892-2234.
- EARLY AMERICAN ROCKING CHAIR, w/pad, \$40; dulcimer, w/2 books, instructional tape, \$50; antique Victrola, \$100. Coalson, 298-0061.
- CAR RAMPS, \$10; coffee table, 48" x 18", \$25; cooler ceiling vent, \$15; turbine vent, w/base, \$10; car grease gun. Erni, 294-5667.
- RAVEN AUTOMATIC PISTOL, .25-cal., Model MP-25, w/spare clip, 2 boxes ammo, nylon holster, \$50. Smiel, 865-9081.
- TIRES: 185/70R14, 4 for \$50; Oasis water-cooler stand, \$35. Barnette, 292-5186.
- BASS GUITAR AMPLIFIER, Kustom 200W, \$100; teakwood (Scandinavian Interiors) TV/VCR table, \$45; maternity clothes, fall/winter, size 6. Gangel, 822-1864.
- BUNDY II FLUTE, w/case, \$175. Mauldin, 293-3763.
- GALVANIZED TANK, 42-gal., \$85. Casares, 877-0369.
- ROLAND DIGITAL RECORDER, new, for Juno-60 or Jupiter-8 Roland keyboard, \$50; dual-gas wall heater, w/thermostat, \$75. Gonzales, 344-4933.
- SEARS UPRIGHT FREEZER, 17-cu.-ft., white; Wards 25-in. color TV console, digital channel selection. Bray, 292-2410.

- SKI BOOTS, Nordica, woman's size 7-8, \$30; ice skates, man's size 10, \$30. Moss, 298-2643.
- CHILDCRAFT CRIBS, solid honey-oak, canopy, matching dresser, cost \$350/ea., sell for \$250 OBO; crib accessories. Serrano, 298-2807.
- SWIVEL ROCKER, tweed, \$30; white bath sink, w/fixtures, \$35. Spires, 275-3655.
- DINETTE TABLE, 48" octagonal, Formica w/white base, \$45; chairs, pair, upholstered, armless, earth tones, oak trim, \$70/both. Caskey, 298-6428.
- QUEEN-SIZE WATERBED, soft-sided, w/6-drawer underdresser, \$200; roll-top desk, \$100; DP 1500 weight machine, \$150. Baird, 891-5497.
- LOVE SEAT, beige/gold stripes, separate cushions & bolsters, \$100. Rainhart, 821-3690.
- FOOTBALL CLEATS, size 8, black w/white trim, cost \$44, sell for \$30 OBO. Vittito, 299-9298.
- FLUTE, Artley B-flat, w/case, \$125. Stomp, 298-3824, leave message.
- REFRIGERATOR, Frigidaire 20-cu.-ft. side-by-side, harvest gold, \$200. Adams, 821-9079.
- TRAVEL TRAILER, Avion, 31-ft., aluminum, new heater/battery/faucets/water lines, \$5500. Dye, 293-8100 days, 828-2217 evenings, ask for Cynthia.
- SAILBOARD, Hi-Tech, 9-ft., \$325 OBO; Sims half pipe, \$150; Kemper Aggressor, \$170. Healer, 298-6967.
- SKIS, new: Rossignol Quantum 828 Series, 195cm; K2 Gyrator, 185cm; Dynastar Cornishe, 180cm. Carli, 298-9271.
- BANJO, 5-string, Hondo II, \$150 OBO; Escort radar detector, needs work, \$40; misc. radio-controlled items. Howard, 839-9203.
- UPRIGHT PIANO, Schaff, w/bench, will move, \$550. Schaub, 865-9581.
- WALL UNIT, 6-section, drawers & shelves, Scandinavian teak, 71" x 103", \$900; 7 wall sconces, brushed brass, bronzed gloves, \$15/ea. Hoffman, 296-3799.
- X-CARGO CAR-TOP CARRIER, \$30; Toyota radio, \$30; Lane table, \$100; smoked mirrors, \$50; chandeliers, \$30-\$100; bookcase, \$800. Bonzon, 828-1066.
- CONN ORGAN, birch finish, \$300 OBO. Spatz, 299-0410.
- AIRLINE TICKET, one-way, San Francisco to Chicago, Dec. 24, any reasonable offer. Vander Wal, 415-443-2519.
- SEARS REFRIGERATOR, frost-free, w/ice maker, cocoa brown, \$65 OBO. Padilla, 821-5906 evenings.
- FIREPLACE HEAT EXCHANGER, 2-spd. blower, \$50; Craftsman router & table, \$50. Bear, 881-7128.
- SOFTWARE, Wingz 1.1 graphical spreadsheet for the Macintosh, never used, still shrink-wrapped, \$350 retail, sell for \$75 OBO. Lober, 898-6761.
- BEDROOM SET, Birdseye maple, 1920's, dresser w/mirror, full-size headboard & footboard & rails, \$265. Ramel, 821-0475.
- BUNK BEDS, w/regular twin-size mattresses, \$200. Barnard, 256-7772.

- FOLDING BANQUET TABLE, 3' x 6', \$20; main water shutoff key, \$5. Schubeck, 821-3133.
- WURLITZER SPINET, upright, walnut, \$975; Sears Silvertone stereo console, record-changer, modern, walnut, \$50. Allan, 299-4163.
- GARAGE SALE: 3 homes, 9 a.m.-3 p.m., Oct. 6, 9604 Bolack NE (Ventura north to Freedom Way, 3 blocks east), baby & household items. Filter, 823-1232.
- SHIH TZU PUPPIES, AKC-registered, champion bloodlines, m/f, 8 weeks old, have had physicals & first shots, multicolors, \$325. Denman, 298-6360.
- DOGHOUSE, for med. to large dog, needs repair, you haul, free. Mozley, 884-3453.
- HOT TUB, Marlin, \$800 OBO. Bencoe, 294-3768.
- REFRIGERATOR/FREEZER, Frigidaire, \$300; Whirlpool washer & gas dryer, \$50/ea.; love seat, \$75. Dodd, 293-3404.
- DIAPERAPS, 1 med., 6 X-large, \$25; Kanga-Rocka-Roo, \$7; full-size Chevy. truck louvers, \$5. Parson, 291-8394.
- ANTIQUA PIANO-ROLL MUSIC CABINET, 1920-aged, oak, holds 50-60 rolls, w/20 music rolls. Nordeen, 296-7898.
- SPA HOT TUB, Hot Springs, seats 4, Rovel plastic surface, fully insulated, still under warranty, \$1900. Henderson, 292-8574.
- TWIN-SIZE BED, box spring on legs, w/firm mattress, \$25; living-room chair, white vinyl, \$25. Stang, 256-7793.
- WHITE-IRON DAYBED FRAME, w/trundle bed assembly & foam mattress, \$100. Ratzel, 298-7167 after 6 p.m.
- OFFICE DESK, \$40. Salgado, 291-9460, leave message.
- REMINGTON, .308-cal., Model 788, 3 magazines, bolt-action, w/quick-release sling, \$200. Bryant, 281-2160.
- NOSE BRA for Bronco II/Ranger, \$20; solid-wood door, 1-3/4" x 36", w/hardware, \$20; range exhaust hood, \$20; dishwasher, \$40. Burke, 294-7548.

TRANSPORTATION

- '86-1/2 TOYOTA SUPRA, AT, AC, 38K miles, new tires, silver w/maroon interior, \$11,200. Causey, 275-6557.
- '79 CORVETTE L82, red/red, loaded, \$8200; '85 Mazda RX7 GSL SE, loaded, 57K miles, one owner, \$6800. Gluvna, 884-5251.
- '78 DODGE 4x4 PICKUP, 73K miles, PS, PB, AT, AM/FM stereo, CB, more, \$3500. Kallenbach, 293-6916.
- '83 YAMAHA YZ250, liquid-cooled, \$700 OBO. Howard, 839-9203, leave message.
- INVADER SKI BOAT, 16.5-ft., modified-V hull, walk-through bow, w/Johnson 150-hp engine, extras, \$5500. Schaub, 865-9581.
- '82 CHEV. PICKUP, 3/4-ton, 6.2L diesel, manual transmission, PS, PB, AC, AM/FM cassette, bed liner, \$2900. Schafer, 296-0017.
- '89 PONTIAC GRAND PRIX SE, white, V-6, 5-spd., loaded, power sunroof, anti-lock brakes, 18K miles, \$13,950. Yagow, 899-0854.
- '75 HONDA GOLDWING MOTORCYCLE, fully equipped, tour package, \$1500; camper, \$300. Sanchez, 873-4281.
- '87 HONEY MOTORHOME, 34-ft., twin beds, split bath, extras, Chev. 454 chassis, 32K miles. Spatz, 299-0410.
- '82 HONDA 900CB, kept in garage, \$1300. Aguilar, 865-1465.
- '76 FORD MUSTANG II GHIA, 302 V-8, blue w/vinyl top. Banks, 268-7723.
- '82 SUZUKI GS750E; moped bike. Bray, 292-2410.
- '69 DATSUN 510, 2-dr., 4-spd., \$850. Hagengruber, 299-8361.
- '84 CHEV. BLAZER S-10, 4x4, 6-cyl., 5-spd., PS, PB, AC, cruise, \$5900. Dodd, 293-3404.
- '78 TOYOTA CAMRY WAGON, 5-spd., AC, cruise, AM/FM cassette, 32K miles, \$8850. Ghanbari, 883-3819.
- '87 CHEV. CELEBRITY, 39K miles, PS, PB, AC, AM/FM, 6-yr./60,000-mile warranty available, \$5450 book, sell for \$5000. Rexroth, 293-6025.
- '81 TOYOTA SR5, 4x4, AC, PS, 5-spd., 35-in. tires, 4-in. suspension, 25K miles w/rebuilt motor, \$3000 OBO. Cooper, 881-1329.
- '77 MERCURY MONARCH, Ghia model, 302 V-8, gray, 4-dr., fully equipped, compression 110. Nordeen, 296-7898.
- '84 NISSAN PICKUP, 4-cyl., 146 CID, 5-spd., AM/FM cassette, camper shell w/benches and custom bed/floor, 28K miles, \$5000. Stang, 256-7793.
- '28 MODEL-A COUPE, w/rumble seat, fully restored, 1K miles; '55 Dodge, appraised at \$3100; see both at 936 Gatewood Rd. SW. Bruce, 897-7416.
- '79 CUTLASS SALON, 4-dr., \$1950. Norwood, 266-2717.

REAL ESTATE

- 3-BDR. HOME, 1-3/4 baths, 2-car finished garage, new built-in microwave & dishwasher, near Tramway & Lomas, \$88,000. Burke, 294-7548.

- 3-BDR. MOUNTAIN HOME, in Cedar Crest, 1100 sq. ft., hardwood floors, new appliances, 1 acre, \$74,000. Watson, 281-2691.
- 3-BDR. MOBILE HOME, '88 High Chaparral Rosecreek, 16' x 68', 1068 sq. ft., 2 baths, bids accepted through Oct. 15, we reserve the right to refuse all bids, subject to prior sale. Sandia Laboratory FCU, 293-0500.
- 3-BDR. MODULAR HOME, South Valley, 2 baths, 1300+ sq. ft., 1-1/3 acre, assumable, \$12,000 down, \$476/mo. payments. Garcia, 873-4337.
- 3-BDR. TOWNHOME, 2 baths, 1410 sq. ft., 11009 Malaguena Ln. NE, mountain views. Lang, 292-3421.
- 4-BDR. HOME, 2-1/2 baths, in Tablazon near Tijeras, contemporary w/southwestern accents, deck. Young, 281-2173.
- 2-BDR. AMERICAN MOBILE HOME, 1966, 1 bath, washer/dryer, AC, upgrades, appraised at \$9500, sell for \$9000. Ortega, 294-8169.
- 3-BDR. MOBILE HOME, in Four Hills park, 24' x 64', 2 baths, sunporch, view. Tessler, 296-7587.
- 3-BDR. MOBILE HOME, '83 Fleetwood Vogue, 2 baths, washer/dryer, ceiling fan. Reed, 821-6315.
- 1.5-ACRE HOMESITE, in Forbes Park, 1/4-mile from national forest boundary, near Fort Garland, Colo., \$8500. Tischhauser, 293-9768.
- 4-BDR. HOME, 2-1/2 baths, living, dining, family, sun, utility rooms, covered patio, Juan Tabo/Indian School area, \$116,000. Perrine, 293-1429.

WANTED

- WORD PROCESSOR OR PC, w/printer and word-processing software, inexpensive, reliable, for high-school student. van Berkel, 897-2541.
- NORDICTRACK, model Pro or Achiever. Chirigos, 298-3837.
- ENCYCLOPEDIA, 1985 or newer, prefer Britannica or World Book, less than \$500. Sutherland, 345-1183.
- MATERNITY CLOTHES, size 12/14, in good condition. Koepp, 294-7136.
- LARGE DOGHOUSE, to fit Doberman & medium-size mutt, would consider new construction if the price is right. Schmidt, 821-2917.

LOST & FOUND

- FOUND: narrow gold bracelet on Bldg. 878 dock. Douglas, 281-9843.
- LOST: male collie, Eubank/Spain area, missing since Sept. 24. Hatfield, 291-8515, leave message.

SHARE-A-RIDE

- NEED RIDE from 75th & Central to near Bldg. 887 and return, hours 8 a.m. to 4:30 p.m. Terry, 836-0238, leave message.



Coronado Club Activities**Family Night Out at the C-Club's Family Feast**

NOW YOU SEE IT, NOW YOU DON'T tonight, Oct. 5, when Pixie T. Clown and friends perform magic tricks for kids of all ages. Starting at 6 p.m. you can practice some disappearing tricks of your own at the all-you-can-eat buffet (\$4.50/adults and \$2.50/children under 12 years old), which offers such favorites as fried chicken, hamburgers, corn dogs, spaghetti, and a salad bar. Magic begins at 7, and tables will be disappearing fast, so reserve yours now (265-6791).

WHAT DO YOU GET WHEN YOU MIX BREAKFAST AND LUNCH? Brunch, of course, returning this Sunday, Oct. 7, with an extra-special meal deal for kids. Try bacon, french toast, pancakes, ham, potatoes, streusel, and more. Kids eat for \$1.50 and adults for \$5.95 (kids 3 and under eat free). Call ahead for reservations, please.

THE CORONADO SKI CLUB will hold its next meeting Oct. 16. Following a 7 p.m. social, a

Sandia Peak/Santa Fe ski area representative will speak at 7:30. The club holds regular meetings on the third Tuesday of every month.

WATCH YOUR TOES, TWO-STEPPERS, because Mike Coughenour, dance instructor deluxe, will be at the Club Oct. 12 to teach you a few c/w dance steps. But that's just for starters — the Isleta Poor Boys will be on stage to play your favorite c/w tunes, and, if you wear your best balloon pin, the bartenders will give you a free drink. The menu includes prime rib or poached halibut (two-for-one price \$14.95), steak Neptune (\$8.95), and pan-fried catfish (\$7.50). Dinner starts at 6 p.m., dance lessons start at 7, and music starts at 8. Make reservations early.

PASS THE WORD! Friday night, Oct. 19, is Oktoberfest at the Club. You might want to get ahead by making reservations early. Genuine Bavarian music, food, drink, and folk dancing will highlight the evening.

Take Note

In an attempt to create better parks, recreation, trails, and open space systems, Albuquerque City Government has combined efforts to prepare three individual master plans. A series of public meetings is being held to discuss the master plans for trails, Parks and Recreation open space, and adult and youth recreation programs, as well as future funding for projects and programs. Separate meetings are being conducted during October and early November for different city regions; all begin at 6:30 p.m. For information, call Linda Misanko on 768-3566.

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A Halloween costume sale to benefit All Faiths Receiving Home will be held Oct. 13 from 9 a.m. to 6 p.m. in the Rio Grande Arts & Crafts Festival tent at the southwest corner of Paseo del Norte and I-25. Many of the costumes were donated by the Albuquerque Civic Light Opera. Costume donations are still being accepted and may be dropped off at Benefits Dept. 3545 in Bldg. 832E.

**Events Calendar**

Events Calendar items are gathered from various sources. Readers should confirm times and dates of interest whenever possible.

Oct. 5 — Los Kjarkus, South American musical group playing Andean music from Bolivia; 8 p.m., South Broadway Cultural Center, 848-1320.

Oct. 5-6 — "Tales of the Lost Formicans" by Constance Congdon, presented by the UNM Department of Theatre and Dance, a pod of alien life forms invite you to the theatre for a lecture demonstration on the demise of suburban Americana; 8 p.m., Rodey Theatre, 277-4402.

Oct. 5-7 — Annual Grecian Festival: Greek food, dancing, arts & crafts; 11 a.m.-10 p.m. Fri.-Sat., 11 a.m.-8 p.m. Sun.; St. George Greek Orthodox Church (308 High St. SE), free, 247-9411.

Oct. 5-7 & 12-14 — Rio Grande Arts and Crafts Festival: juried arts and crafts fair under the "big top," 150 booths, live entertainment, food, art for kids, demonstrations; 11 a.m.-6 p.m. Fri., 9 a.m.-6 p.m. Sat., 9 a.m.-5 p.m. Sun.; tent at I-25 and Paseo del Norte, 292-7457.

Oct. 5-14 — "You're A Good Man, Charlie Brown," featuring favorite "Peanuts" characters, presented by the Albuquerque Civic Light Opera, 1 p.m., 3:30, 7:30; ACLOA warehouse (Sidney Rosenblum Center for Musical Theatre, 4201 Ellison NE), 345-6577.

Oct. 5-15 — "An Evening of Coarse Theatre" by Michael Greene, an opera without music, upside-down scenery, Shakespeare without Shakespeare, presented by Theatre-in-the-Making; 8 p.m. Fri.-Sat., Center-Stage, 260-0331.

Oct. 5-20 — "I'm Not Rappaport" by Herb Gardner, two octogenarians refuse to be put out to pasture; 8 p.m. Thurs.-Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.

Oct. 5-28 — "Wanted" by Grubb Graebner, story of Toni Lee Randell, a woman striking out at teachers, parents, and friends with violent demands for affection (adult language and situations); 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre, 247-8600.

Oct. 6 — Second Annual October Jazzfest: continuous entertainment on two stages, featuring Cadillac Bob and Rhinestones, Alma, IBEX, and Linda Cotton and Streetlife; 2-7 p.m., free, Fashion Square courtyard, 265-6931.

Oct. 6 — Sister Source Coffee House: musical acts, poetry reading, skits; 8 to 11 p.m., South Broadway Cultural Center, 848-1320.

Oct. 6 — Fiesta! Fiesta! Kickoff concert celebration of the Albuquerque International Balloon Fiesta, featuring Little Joe Y Familia, Paul Rodriguez, Johnny Canales, and a special surprise guest, sponsored by Hispanic USA and KLUZ-TV; 2:30-4:30 p.m., Albuquerque Sports Stadium, 884-3344.

Oct. 6-7 — Harvest Festival at El Rancho de Las Golondrinas: costumed villagers demonstrate colonial

ranch life, entertainment & food; 9 a.m.-4 p.m., I-25 north to La Cienega exit, #271, 471-2261.

Oct. 6-14 — Albuquerque International Balloon Fiesta: more than 600 balloons, sunrise mass ascensions Sat. & Sun. both weekends, special shapes rodeo, key grab contests, more; 7 a.m., Balloon Fiesta Park (I-25 & Alameda), 821-1000.

Oct. 7 — Indian Pueblo Cultural Center in Celebration of Balloon Fiesta: arts & crafts, Indian dancers, food, entertainment; 10 a.m.-3 p.m., Indian Pueblo Cultural Center, free, 843-7270.

Oct. 9 — Jemez Pueblo Arts & Crafts Fair: arts, crafts, Indian bread, traditional Indian dances; 2-9 p.m., Albuquerque Hilton Grand Ballroom, 834-7359.

Oct. 11 — Traditional Indian Dances: special activities in honor of Native American veterans; call for time, Indian Pueblo Cultural Center, 843-7270.

Oct. 12-13 — Classical Concert II, the New Mexico Symphony Orchestra, featuring "Preámbulo (1989)" by Roberto Sierra, "Concerto for Two Trumpets" by Vivaldi, "Trumpet Concerto in E-flat Major" by Haydn, and "Symphony No. 6 in B Minor, Op. 74 'Pathétique'" by Tchaikovsky; 8:15 p.m., Popejoy Hall, 842-8565.

Oct. 13 — Eleventh Annual Pageant of Bands,

high-school band competition, featuring music, pageantry, precision, and color; 9 a.m., Wilson Stadium (Lomas & Chelwood), 293-4037.

Oct. 13 — Second Annual Music Festival: continuous live music, featuring Linda Cotton, the Woodpeckers, Unclean Hands, and others, face painting, jugglers, food booths, benefit for Health Care for the Homeless; 3-8 p.m., Youth Exhibit Hall, NM State Fairgrounds, 821-4583.

Oct. 14 — Fine Arts Series: "Chanticleer," male chorus, a cappella vocal ensemble; 4 p.m., First United Methodist Church (4th & Lead SW), 243-5646.

Oct. 14 — KAFB Open House: includes Thunderbirds, drill teams, military bands, C-5 and B-52 bombers, and 30 additional aircraft; 9 a.m.-4 p.m., KAFB (take Carlisle, Truman, and Ridgecrest gates off Gibson), free, 844-5991.

Oct. 16 — Chamber Orchestra of Albuquerque, conducted by David Oberg, guest soloist Krzysztof Zimowski, featuring Wieniawski's "Violin Concerto No. 2 in D Minor, Opus 22," Lars-Erik Larsson's "Pastoral Suite, Opus 19," and Joseph Haydn's "Symphony No. 97 in C Major"; 8:15 p.m., St. John's United Methodist Church (2626 Arizona NE), 881-0844.



SANDIA SECRETARIES chatted with Labs President Al Narath at "Meet the President Day" last month. Al spoke about the role of secretaries within a changing Labs environment. Secretaries will have an opportunity to discuss this subject and many more at this year's secretarial seminar on Oct. 23 through 25. The theme for this year's seminar is "Managing Multiple Priorities." Sandy Brady, professional speaker, seminar leader, and humorist, will be the keynote speaker.