

# Twenty-five joint projects seeking to revitalize flat-display, information-components industries

## Workshop at Sandia highlights NCAICM's current projects

Twenty-five projects in support of the US flat-panel display and advanced information components industry are now under way at the multilab, Sandia-based National Center for Advanced Information Components Manufacturing (NCAICM), a workshop at Sandia was told.

The recent workshop provided status reports on the projects. The technologies are considered vital to national security and an important stimulus to the US core industrial infrastructure.

Sandia, Los Alamos, and Lawrence Livermore national laboratories have eight university and 39 industrial partners in 16 states and the District of Columbia involved in NCAICM, a two-year \$60 million project funded by the Advanced Research Projects Agency (ARPA) of the Department of Defense. Among the participating companies are IBM, AT&T, Hewlett-Packard, Xerox, Zenith, and numerous small companies.

"The national laboratories are bringing key technologies that aren't available anywhere else," says David Slobodin, flat-panel displays program manager for ARPA. "Each of the projects is an example of how the technologies resident in the national laboratories can give US flat-panel display companies a competitive advantage."

His comments were made at the workshop, which drew about 100 representatives from many of the organization's members to exchange technical information and get an update on NCAICM's progress.

Lightweight, portable flat-panel displays of all sizes will be needed for military vehicles, ships, aircraft, and command centers of the future. Flat-panel display technology also will potentially be used for virtually all consumer electronics and computer applications that require a visual interface.

### Seeking points of advantage

"Development of a flat-panel display industry in the United States remains far behind world leader Japan," says Bob Pinnel, chief technical officer of the US Display Consortium in San Jose, Calif. "However, the US initiative is making strides and this partnership with the national labs will help strengthen the existing efforts to bolster the US industry."

"Identifying sources of technology within the national labs can give the US companies an advantage," Pinnel says. "The partnership that industry establishes with the national labs today through the NCAICM

(Continued on page 4)



THIN AND FLAT — Juan Romero of Thin Film and Brazing Team 2471-1 examines results of a large-area thin-film test at the National Center for Advanced Information Components Manufacturing, located at Sandia. Large-area thin-film deposition techniques are used in the manufacture of flat-panel displays. Three national labs, eight universities, and 39 companies are involved with the center.

(Photo by Louis Archuleta)

# Sandia National Laboratories **Sandia** LabNews

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## Galvin report praises labs, urges they focus on traditional missions

The Department of Energy's 10 national laboratories are an essential fundamental cornerstone for continuing leadership by the United States, but they should remain focused on their traditional mission areas of national security, energy, environmental science and technology, and fields of fundamental science that support these missions, according to the Galvin commission.

The long-awaited report of the so-called Galvin task force on the future of the DOE national laboratories said the labs, with "their extraordinarily sophisticated multidisciplinary teams using sophisticated instruments and tools" are "uniquely qualified" for exploring "the least exploited investigative paths" toward new knowledge.

The report also praised the three weapons labs and their employees for their key role in the successful outcome of the Cold War nuclear standoff with the Soviet Union. It said their people, facilities, and experience represent "an extraordinary national resource." And it said the public often "typecasts" the labs in simplistic ways, overlooking "their multitude of other continuing achievements" and "vast spectrum of accomplishments."

The report was issued Wednesday morning, Feb. 1, in Washington to the Secretary of Energy Advisory Board and DOE Secretary Hazel O'Leary, who commissioned the 10-month study.

The report says the task force found it

(Continued on page 2)

## Hiring restrictions announced at Sandia, but 'no freeze'

Some temporary restrictions on hiring at Sandia were announced in a Jan. 20 memo from Executive Vice President Jim Tegnalia and in a Jan. 25 *Sandia Bulletin* to all employees, but they don't amount to a hiring "freeze."

In his memo, Jim asked Sandia vice presidents to review and update revenue and staffing forecasts. He told vice presidents that while that review is in progress during the next three months, they should limit hiring to "information/software specialists, exceptional recent graduates, nonregular employees (temporaries, students, post docs, and limited term), and candidates required to meet affirmative action goals."

Jim also asked the VPs to provide him with proposed "strategic" hiring packages. "These packages should be for critical skills essential to achievement of your strategic goals."

The purpose of all this is to identify critical staffing requirements and develop staffing plans on redeployment and hiring for the next two years. The Galvin task force's recommendations and budget decisions by the Secretary of Energy, the President, and Congress all will have to be taken into consideration, Jim says. The main reason for the review, Jim said in his memo, is that "we are beginning to see the probable direction of our customers' requirements as a result of the fall elections." This, he said, has made it clear that Sandia's earlier revenue projections for Fiscal Years 1996 and 1997 need to be updated and translated into staffing projections.

"This is not a hiring freeze," says Charlie Emery, Vice President of Human Resources Center 3000. "It's a selective, focused, targeted

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Sandia/California facilities to present a more inviting face

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Divers have beneath-surface role at Sandia's Water Impact Facility

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# This & That

**Odoriferous acronym** - Here's one that even the president (me) of the Society to Outlaw Dumb Acronyms (SODA) has a hard time believing, but it's true. In a new DOE order is the acronym for the contracting activity competition advocate: CACA. I'm wondering what lucky person has the lovely title of "the CACA?" Adolph Bachicha (10213) brought this gem to our attention.

\* \* \*

**More later on Galvin report** - The Galvin Task Force issued its long-anticipated draft report on the future of the DOE national laboratories Wednesday morning, Feb. 1. Although that was past our deadline for this issue, we managed to include the basic story (see page one, continuing at right), and I'm betting the commercial newspapers and other interested media will have published and broadcast plenty about the report by the time you read this.

We're scheduled to talk next week to Labs President Al Narath about the report and its implications for Sandia, and we'll share his thoughts with you in our Feb. 17 issue.

\* \* \*

**Maybe "out on a limb" isn't so bad** - Martin Marietta CEO Norm Augustine is upholding his witty reputation. Recently, when asked for his perspective on the new Lockheed Martin Corp. possibly falling short of Wall Street's expectations, Augustine replied, "Wall Street expects us to perform well. . .we're out on a limb. But that's the only place to be. The people who are hanging onto the trunk don't have much of a future. The water is rising."

\* \* \*

**The day the dictionary died** - The *Lab News* got its money's worth from the humongous dictionary that sat in our office for many years, but I didn't realize how much so until the big book finally pooped out late last year. I was walking past the lectern-like dictionary stand (angled top) where the 2,662-page *Webster's Third New International Dictionary* sat, and the slight vibration from my steps was the final straw. The inside pages separated from the cover spine and tumbled onto the floor. Words went everywhere. I picked up the title page and noticed that this edition was published in 1963, 31 years ago. If that dictionary were a person, it would have been eligible for Sandia retirement; unfortunately, it hung around too long and died on the job.

Maybe our collective vocabulary will improve now that we have our new dictionary with a bunch of new words, but to be completely honest, we hadn't yet learned all the words in the old book.

\* \* \*

**Time to spare!** - As you get more and more miles on the old mind, you tend to do more and more goofy things. I'm not proud of it, but I'm living proof. As I was on my way to the movies several weekends ago with the Mrs. and good friends Peg (7809) and Jim (7200) Baremore, I pulled up my shirt cuff to check the time and discovered that I was wearing two watches on the same wrist. They found that quite amusing even though I explained that time is starting to pass so quickly that I now need two watches to keep track of it.

- Larry Perrine

## Sandia LabNews

### Sandia National Laboratories

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MARTIN MARIETTA

## Narath, O'Leary comment on the Galvin report

In addition to expressing pleasure over the Galvin report's general conclusions, Sandia President Al Narath briefly commented on the task force's call for the labs to restrict their interactions with private industry. "We believe the commission may be less optimistic than we are about the impact cooperative research between the national labs and industry can have on national competitiveness," Al said.

He said the report, like most such studies, is subject to a variety of interpretations, and he hoped to talk further with task force members and other people involved with the report before commenting more specifically. He also noted that the degree to which the task force's recommendations will be implemented cannot be predicted.

DOE Secretary Hazel O'Leary said the report offers challenges. "It is clear to me that the Department will be able to embrace and aggressively act on the overwhelming majority of the task force's recommendations . . . I welcome the task force's report and am heartened by their strong validation of the R&D functions of the Department and its national laboratories."

## Galvin report

(Continued from page 1)

ironic that the labs seem to be searching so hard for "new missions" when there remains "a compelling agenda of important work to be performed in their traditional mission areas."

The task force called upon the labs to provide a more disciplined focus on new research needs within the traditional set of mission areas. The primary national security mission of the DOE labs, it said, "is to provide for a safe, secure, and reliable nuclear stockpile in the absence of explosive testing of nuclear weapons." It said "continuing scientific, engineering, and managerial excellence" will be required to meet this "complex and demanding stewardship role," which by extension includes nonproliferation, counterproliferation, arms control verification, and intelligence support.

They also have similarly vital roles in energy, environment, and fundamental science, the report said.

The report said the national labs have essential roles and require strong federal financial support and sponsorship for a "goodly number of years." Yet the task force said it believes the "existing budget of the national laboratory system exceeds that required to perform its agenda. . . ." At the same time, it indicated that "large productivity gains with attendant major economies" could be achieved by a less top-down system of management oversight.

It referred to "multiple symptoms of institutional stress" at the national labs. It said these result from "excessive oversight" by DOE, "inordinate internal focus at every level" on compliance issues, and "excessive scrambling" to establish programs in new mission areas. It called for a whole new, private-sector-style, "corporatized" concept for operating the labs, although it indicated the three nuclear weapons labs might not be candidates for this "far-less-federal" governance structure.

In the economic arena, while there are examples of national labs technology being usefully transferred to private industry, the report cautioned the labs to focus such activities on technologies that lie within their mission domains. "The laboratories should not aspire to become research boutiques for industries."

### A shift from Lawrence Livermore

The task force made no recommendations about possible closure of any labs, but it urged regular "comparative validation" against other research entities and each other "to judge options for closure, consolidation, and even expansion."

The task force made few references to specific laboratories, but it did recommend that over the next five years Lawrence Livermore National Laboratory transfer its activities in nuclear materials development and production to Los Alamos National Laboratory. Lawrence Livermore would retain sufficient nuclear design capabilities to remain active in non-proliferation and verification support.

Sandia President Al Narath said he was pleased with the report's general conclusion that the labs are a fundamental cornerstone in US leadership and that they have a compelling agenda of important work in their traditional mission areas. "We are encouraged by the number of parallels between the report's recommendations and Sandia's strategic plan," Al said.

He also expressed pleasure the commission recognized the need for continuing fundamental research by the labs.

Copies of the report are available in the Sandia technical libraries. — Ken Frazier





# Labs presents more inviting face to public, visitors

**Changes to Sandia/California buildings, grounds reflect more open operations**

By Nancy Garcia

California Reporter

Sandia/California should soon present a more inviting image as the buildings and grounds are changed to reflect Sandia's changing way of doing business.

"During the Cold War we relied on the fences to keep the site intact as a secure area," explains Al West, Director of Environmental Safety and Health, Facilities, and Security Center 8600. "Now we're going to change our focus to property protection, and isolate buildings where classified information is handled routinely."

"Our goal is to provide a more open site," says Gary Shamber, Manager of Facilities Planning and Engineering Dept. 8611. Based on changes recommended by Sandia/California's Facilities Planning Committee, classified functions will be concentrated in a few buildings, primarily 910, 912, and 913.

"We need to accommodate our changing customer base," Gary says, "which means moving away from a compound typical of a weapons site. We want to make the buildings more attractive and the site more campus-like."

Along the way, there will be some dust and disruption.

## Altering lobby, entrance

Building 911, erected in 1957, will be renovated. The main lobby and entrance will be altered to greet and accommodate visitors more effectively. Since the building's existing heating and cooling system needs replacement, and Health Services will be moving out of 911 into a new medical building, Facilities Management is using the opportunity to renovate and reconfigure the interior. Initial alterations to the building are scheduled to start in December 1995, says project architect Nathan Good (8611).

For the year of renovation, the main entry will be moved to the east side of the site near the Combustion Research Facility. Meanwhile,

## Supervisory appointment

LINDA HOUSTON to Manager of Diversity and Development Dept. 8526, after serving as acting manager since September 1993.

She joined Sandia in February 1991 as an EEO/Affirmative Action coordinator and later



LINDA HOUSTON

became team leader for EEO/Affirmative Action and Diversity. She also handled Sandia's response to the Department of Labor audit and for a short term worked on the Sandia/California Operational Plan. She is also chair of the tri-level

management council for 1994-95.

Linda serves on the steering committee of the Silicon Valley Diversity Roundtable and was formerly Sandia's representative on the Mt. Diablo Vocational Rehabilitation Employers Advisory Committee.

Before joining Sandia she was a workers compensation claim representative with California Casualty Management Co. and worked in the medical and insurance fields.

Linda earned her bachelor's degree at UC Davis and MBA at Golden Gate University.

a new Health Services building — recommended by the DOE "Tiger Team" of environmental, safety, and health inspectors — is rising next to the newly repaved east parking lot.

Satellite badging facilities are to be constructed near two strategic future focus areas of the site, the Integrated Manufacturing Technologies Laboratory and the Combustion Research Facility. These two small buildings will provide remote badging capability and are part of the plan to allow easier access to the site through turnstiles that can be used by uncleared, unescorted visitors who have obtained red badges. Once onsite, red-badged visitors, uncleared employees, and contractors who maintain the grounds will not need to be escorted, thereby reducing escort costs.

## Better signs, too

Turnstiles will be installed near the Redwood Center mobile office complex and Building 914 once the west parking lot there is repaved. This will improve access to functions recently located in these facilities that require convenient visitor interaction. Education Outreach Dept. 8528 and Diversity and Development Dept. 8526 in the Redwood Center, and Technology Transfer Dept. 8101 in Building 914 are examples of organizations that will be more accessible to visitors as these modifications are made.

Entrance and access-control modifications are planned for Buildings 910, 912, and 913 to allow classified work to continue in these buildings even though the surrounding site will be uncleared. Other buildings are also targeted for modifications after these are completed.

A new master plan for signs has been developed to provide easier, less restrictive access for visitors. Directional signs will help visitors unfamiliar with the grounds to find their way around. Already, Facilities Planning Committee Chair Steve Carpenter (8611) has coordinated with local agencies to have signs posted outside the site, pointing the way. Sandia only recently had its name posted at nearby freeway exits, for instance. As soon as this summer, new building identification numbers will be posted around the site.

Later, the streets onsite will have their names posted. "Even our Sandia people don't know what our street names are," notes architect Al Ducharme, who has worked in Dept. 8611 for 25 years and manages the sign master plan. Some of these changes, Al points out, help emergency workers find their way around more quickly and easily.

The underlying theme to almost all modifi-



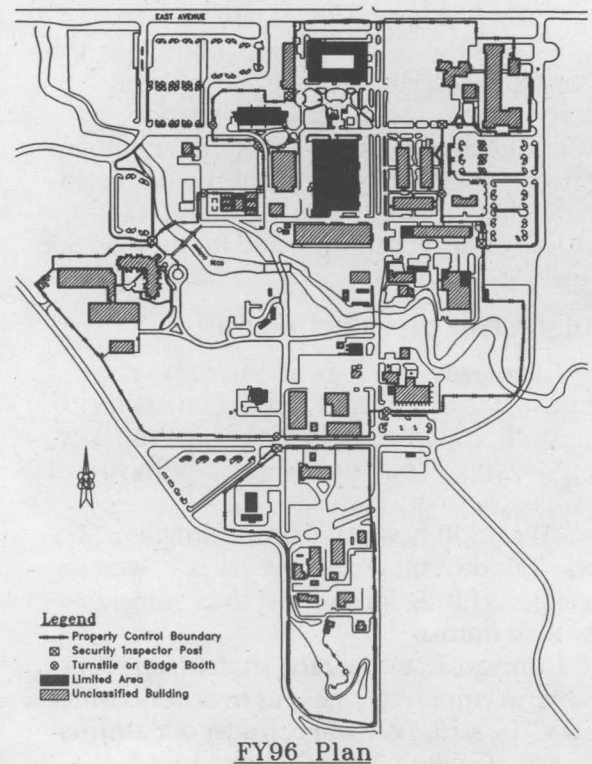
BEFORE RENOVATION, Building 914, above, looked much like Building 913, below, with its corrugated metal exterior.



## Sandia California News

cations being made to the site and its facilities is "flexibility."

Once individual buildings are equipped with modern, smarter access controls and security systems, and the site changes are completed, it should be easier to convert between classified or unclassified modes of operation with minimal disruption and site impact. Flexibility means lower costs and better utilization.



CLASSIFIED AREAS will decrease in the coming year, to the solid black areas shown in this site plan.



## Joint projects

(Continued from page 1)

program will help provide enduring, valuable linkages to intellectual properties within the national labs well into the future."

An example of an NCAICM project that is making great strides is glass panel alignment and sealing for flat-panel displays. The goal of the project is to develop a new alignment and sealing system that greatly improves sealing characteristics, design flexibility, and yield in the manufacture of reduced-pressure flat-panel displays. Improved alignment and sealing methods will be required for high resolution display manufacture across the entire spectrum of display sizes and will represent an important competitive advantage.

The project is a joint effort involving Sandia and a consortium of display companies headed by FED Corp. The schedule calls for system design and construction by March and system testing by August.

"Design of a prototype tool has been completed, and alignment optics and computer software are still being investigated," says Larry Kovacic of Sandia's Ceramic & Glass Processing Dept. 2476.

Other examples of projects under way include factory cost modeling, in which a cost-of-ownership model has been distributed to flat panel manufacturers and equipment vendors, and field emission characterization. In the latter project, field-emitter arrays and low-voltage phosphors are being analyzed in two new facilities, one at Sandia/New Mexico and one at Sandia/California.

The success of NCAICM projects was demonstrated this past year when of the three

funding awards the Pentagon made to US companies under the Technology Reinvestment Project for projects related to flat-panel displays, all went to companies involved with NCAICM programs or facilities. The awards went to a group led by Silicon Video Corp. of Cupertino, Calif., which is developing a 10-inch display using high-voltage field-emission technology that promises greater brightness and power efficiency than liquid-crystal displays; a group led by Planar Systems Inc. of Beaverton, Ore., a maker of electroluminescent flat-panel displays that will work on improving thin-film technology for head-mounted and other miniature dis-

plays; and Texas Instruments and Raytheon Co. for leading an effort technologically to leap ahead of Japanese manufacturers.

"All of these projects are clear examples of what we can do when we work together," says NCAICM Director Jim Jorgensen of Sandia. Jim is Manager of Sandia's Information Components Manufacturing Dept. 2903.

The Advanced Research Projects Agency focuses on dual-use projects — those that have both military and commercial applications — as the most cost-effective way to accomplish the agency's national security mission.

— Chris Miller, 12621

## Japan has big lead; can it be leapfrogged?

Japan currently produces more than 90 percent of the world's supply of flat-panel displays, compared with the United States' approximately 3 percent. Although the United States developed much of the technology in today's flat-panel displays, American companies are not major manufacturers. That's because US companies involved in the manufacture of products such as laptop computers are not vertically integrated companies — they do not manufacture all of their own components. And, the component suppliers have concerns over financial risk in such long-term investment, says Bob Pinnel, chief technical officer of the US Display Consortium.

Although the United States cannot catch up with Japan in the production of flat-panel displays in the foreseeable future, Pinnel says a measure of success will be

whether US companies can make the industry self-sustaining. "Adequate financial investment must ultimately come from the private sector," he says.

Pinnel says that many industry participants expect that the United States optimistically can achieve a 15 percent market share in flat-panel displays by the turn of the century. But the 15 percent share could be surpassed with the aid of "leapfrog technology," resulting partially from NCAICM collaborative projects and the technical expertise of the national labs, says Lance Glasser, Director of the Electronic Systems Technology Office at the Advanced Research Projects Agency.

"NCAICM is a model for turbulent times," Glasser says. "It focuses on technology that is critical to national security."

## Hiring restrictions

(Continued from page 1)

hiring plan, until we know our needs and our customers' plans."

He said the temporary restrictions are prudent. "It's proper to begin the process now and try to get out ahead of the curve. What we're trying to do is determine where we are now, and make sure we're hiring the right kinds of people we need for future success. It's prudent for us to use the information we have right now, and go with 'what if' financial scenarios.

"What's different," Charlie says, "is that we're going to try to match revenue projections, business requirements, and skills requirements. I'm not sure we've put all three in one big box before for the entire lab."

He says the exceptions mentioned are necessary to meet growing Laboratories needs. More software and information sciences specialists are needed in the Energy/Environment Sector (particularly for work on the Waste Isolation Pilot Project and Yucca Mountain nuclear waste repositories) and in the Work for Others Sector, he says.

### Still recruit on selective basis

Charlie says the Labs also needs to continue to bring promising new graduates on board. "It's essential to keep the pipeline flowing," he says. "You don't want that pipeline of new people to dry up.

"We'll still have a recruiting program," he says, "but on a more selective basis." Overall, he expects hiring for FY 1995 to be somewhat less than normal.

Nonregular, temporary, student, and limited-term employees "help us over our business peaks," he said. "We will consider our affirmative action goals in all hiring decisions."

In his memo, Jim said the large number of retirements in December (142) and during the

first quarter of the fiscal year "present an unusual opportunity to add critical skills based on our revised assessment of the future." That's another reason to undertake the study to better match revenue predictions, business needs, and skills required.

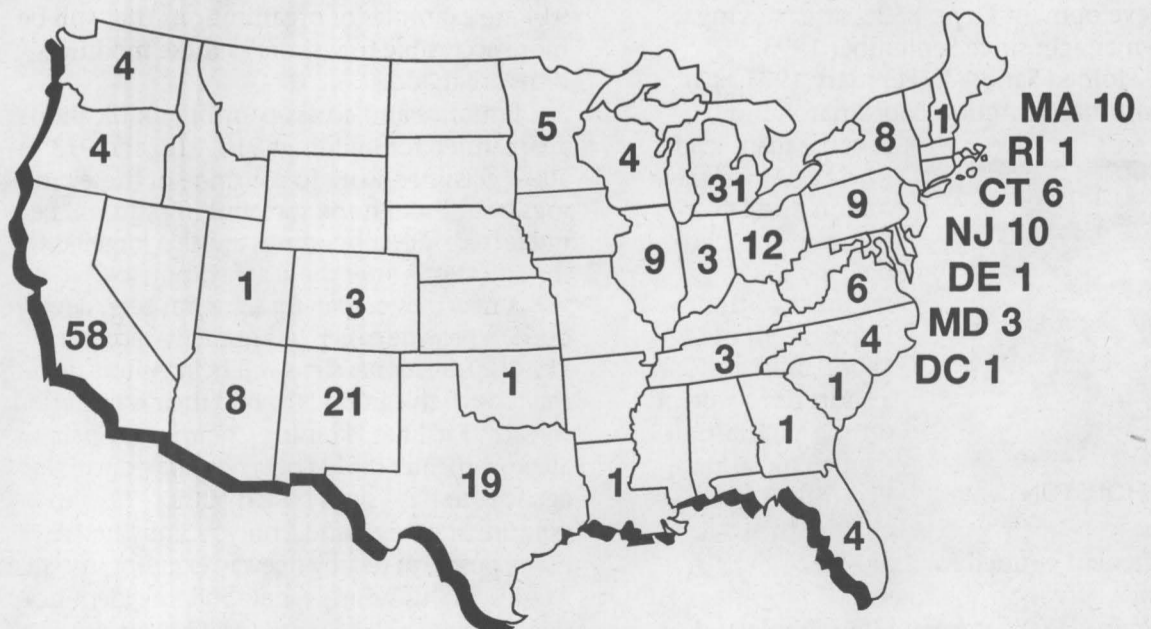
Charlie emphasizes that an active redeployment program of retraining some experienced Sandia employees with new skills needed in areas where there are manpower requirements is also under way and is part of this overall

review. "We're going to look at the gap between the skills we have and the skills needed, and encourage as much retraining as we can and to the extent it is practical."

What about occasional rumors of layoffs? "No layoffs are planned," says Charlie. "We believe that prudent management — coupled with the opportunities presented by the recent retirements — will prevent us from having to lay people off, should we experience a decrease in funding."

— Ken Frazier

## Sandia has established CRADAs in 31 states



**WE'RE NUMBER 1** — This graphic showing that Sandia has established cooperative research and development agreements (CRADAs) with partners in 31 states and the District of Columbia was shown at the Jan. 27 technology transfer town meeting for employees at Sandia/New Mexico, with a video link to Sandia/California. VP Paul Robinson (4000) and several technology transfer administrators gave Sandians a comprehensive status report about this area, emphasizing that Sandia leads the nation in the establishment of CRADAs and in several other measures of tech transfer success. From FY91 through FY94, the Labs approved a total of 217 CRADAs with a total value of \$652 million. The Feb. 17 *Lab News* will report more details from the town meeting.



# National conference on education quality is in Albuquerque April 2-4; Sandians are participating

New Mexico is the site of this year's Fourth Annual National Governor's Conference for Quality in Education, April 2-4, at the Albuquerque Convention Center. Sandia is involved in the planning, and Sandians are invited to attend.

The conference is presented by the Governor's Business Executives for Education, chaired by former Sandia Executive VP Lee Bray and coordinated by business community leaders. VP for Human Resources Charles Emery (3000) is a member.

The conference's purpose is to train teachers, administrators, legislators, and parents about the benefits of using total quality management to improve the quality of education.

It seeks to develop a national focus and is

designed for everyone interested in strategies and models for using continuous quality improvement in the schools. Training sessions are provided.

Featured speakers include quality experts Lloyd Dobyns (author of the book and PBS series *Quality...Or Else!*), Stephen Covey (*The Seven Habits of Highly Effective People*), Peter Scholtes (*The Team Handbook*), Ken Nelson (executive director, National Education Goals Panel), Daniel Oestreich (*Driving Fear Out of the Workplace*), and Curt Reimann (director of the Baldrige National Quality Award).

Sandia's Quality Improvement Center 12900 and Education Outreach Dept. 3020 are involved in the conference. Mary Nation

of Quality Tools Dept. 12911 is conference manager. Laurel Moore of Corporate Quality Excellence Dept. 12909, project leader for Sandia's effort to strengthen quality in the schools, has program and speaker responsibilities.

Laurel says Sandians are encouraged to attend. But they can also contribute to the conference's success another way — by volunteering to substitute for local school teachers those days so more teachers can attend the conference.

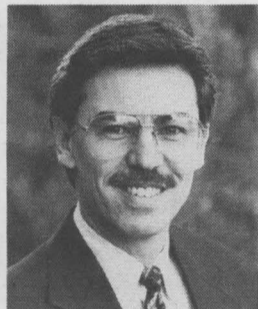
The conference registration fee is \$200 by March 15 or \$250 after that date.

For a brochure and registration form, or more information, contact Mary Nation on 271-7929 or Louise Chavez (12909) on 271-7908.

## Supervisory appointments

REGINALD TIBBETTS, JR. to Manager of Receiving/Distribution Services Dept. 7613.

Reggie joined Sandia in 1978 as a custodian. As an alternate in Sandia's Structural Apprenticeship Program, Reggie was able to become a structural apprentice eight weeks after coming on roll. In 1983, he graduated from the five-year apprenticeship program as a structural tradesman. Six months later, he was promoted to a planner/analyst position with the Facility Maintenance Modifications Department.



REGGIE TIBBETTS

His work at Sandia has been in facility maintenance, modifications, warehousing, team building, waste minimization, and pollution prevention. In 1989, he was promoted to Supervisor of the Woodshop, Painting, and Sheet Metal Section. Other groups he's supervised include the Structural Modifications Team and the Cranes, Hoists, and Rigging Team. Reggie led the Cranes & Hoists Suspect Fastener Replacement Project Team that worked over the 1993 holiday shutdown to replace suspect fasteners in Sandia cranes and hoists.

He is currently working on a business degree at the College of Santa Fe.

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NANETTE BRISCOE to Administrative Manager for Executive Staff Director 12100.

Nanette joined Sandia in 1988 as a policy analyst in the Administrative Policies and Procedures Department. In this position, she was responsible for analysis of approval levels, which resulted in lowering of approval levels in 1989, and was part of a team that developed



NANETTE BRISCOE

and implemented the Sandia Laboratories Policy Board in 1990. She's worked in the Management Information and Results Department as a financial analyst and the AMCO and Service Center Program Department as rates function team

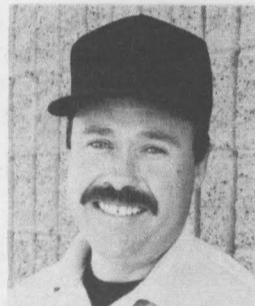
leader, implementing the new rate structure for FY93. Nanette was administrative assistant for the Planning and Staff Support Center, and was in that position with the Executive Staff Director's office when she was promoted.

She has a bachelor's of accounting degree from New Mexico State University. Before coming to Sandia, she was a Certified Public Accountant at KPMG Peat Marwick. She has also worked in retail management.

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GARRY BRYANT to Lieutenant, Special Response Team Supervisor, Protective Force Dept. 7435.

Garry joined Sandia's Security Department on a part-time basis in 1981, and became a full-time Sandia Security police officer in 1983. He has an electronic technician diploma from DeVry Institute of Technology in Dallas.



GARRY BRYANT

Before coming to Sandia, Garry was a Santa Fe County deputy sheriff and owned a heavy-equipment company. He is a certified American Red Cross Community First Aid and Safety CPR instructor.

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RICHARD HARRIS to Manager of Integrated Engineering Information Technology Dept. 13422.

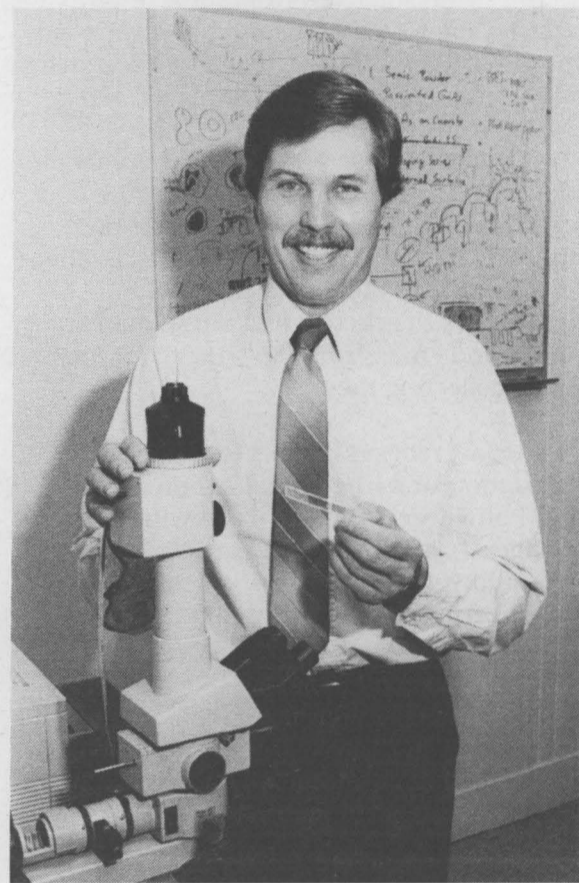
Rick has worked in Component Development and Engineering Support Center 2000 since joining Sandia in 1984 as a member of the ESD II and Computer Aids Department. He was working in Electronic Engineering Information Systems when he was promoted. Rick's work at the Labs has been designing and analyzing electro-mechanical devices and developing and integrating information technology.



RICK HARRIS

He was one of the Sandia pioneers of the customer service unit approach to delivery of computing infrastructures. Rick was a member of the ACCORD Project, which selected ProEngineer, a solid-modeling software package for mechanical design and manufacturing, as a standard for Sandia.

He has an MS in mechanical engineering from the University of Michigan. Before becoming a Sandia employee, he worked the summer of 1982 in thermal technology at IBM and the summer of 1983 at Sandia on mechanism analysis. He is a Professional Engineer and a member of the American Society of Mechanical Engineers.



OUTSTANDING CONTRIBUTIONS in semiconductor materials have earned a Sandian fellowship in the American Physical Society (APS). Paul Gourley, Semiconductor Physics Dept. 1112, was elected a Fellow of the APS at the Nov. 6 meeting of the APS Council. Paul will receive his certificate of fellowship from the Division of Materials Physics at the American Physical Society's March meeting. Paul's citation reads, "for outstanding contribution to the understanding and application of artificially structured and bulk semiconductor materials through the use of laser/optical spectroscopies and microscopies." Fellowship in the American Physical Society is limited to one half of one percent of members of the unit (Division of Materials Physics in this case).

## Retiree deaths

Bob Gregory (56).....	2700	.....	Dec. 4
Mary Geilenfeldt (82).....	4152	.....	Dec. 10
Calvin Jackson (81).....	3520	.....	Dec. 11
Charles Boston (76).....	1474	.....	Dec. 18
Bonifacio Griego (84).....	4212	.....	Dec. 19
Leo Chavez (84).....	4222	.....	Dec. 22
Richard Jackson (85).....	7616	.....	Dec. 27
John Byrne (69).....	7131	.....	Dec. 27
Antonio Salazar (69).....	3618	.....	Dec. 31

Organization numbers indicate retirees' positions at the time of retirement and may not correspond to present-day organizations.



# Reengineering Q&As II: Floor space, retraining, ES&H costs, purchasing obstacles, e-mail

*Sandia officials answer more employee questions from California, New Mexico town meetings*

Several Sandia administrators who are involved in various aspects of the Laboratory Process Reengineering (LPR) effort at the Labs made presentations and answered questions at reengineering town meetings Dec. 12-13 at Sandia/New Mexico. A similar meeting was held in mid-November at Sandia/California and was reported in the Dec. 2 *Lab News*. The basics of Sandia's reengineering activities were covered in that issue, along with some questions from Sandia/California employees and the answers.

Here, as a follow-up to questions and answers published in the Jan. 20 *Lab News*, are more selected questions and answers, resulting mostly from the Sandia/New Mexico town meetings with still a few from the California meeting. Some original questions and answers have been combined, shortened, or excerpted to save space. Some answers are exact, and a few are indirect attributions.

As indicated, the following answers are provided by VP Charlie Emery (3000), VP Lynn Jones (7000), Donna Martin (10200), Virgil Dugan (12100), and Mike Eaton (13100). The *Lab News* thanks these folks for providing answers, and thanks Cynthia Musselman (10605) and Linda Jaramillo (10606) for their help in collecting them.

**The last reorganization resulted in the elimination of a line of management. The result, however, was that we now have more managers [e.g., centers that are only managers, a lower manager/worker ratio]. In reengineering, is this going to be addressed? Are we going to use full-time equivalent management and related factors to shift people to where they are needed?**

Charlie Emery (VP 3000) — We have completed a survey on "span of control" for all supervisors and managers. We are currently analyzing this data in order to make recommendations in February.

**Where do you envision getting the "business requirements and critical skills" you talked about, when it's hard to find business investment/disinvestment processes at the project, program, sector, or even corporate level within today's Sandia?**

Charlie — Several factors help determine future requirements and associated skills. One is our operational planning activity, which projects revenue streams for three years to provide a periodically updated revenue-based, customer-based resource plan. Others include our recently published strategic plan; the strategic staffing forum, which assimilates skill requirements and staffing needs; decisions on whether to make or buy certain services needed in our work; and discussions with customers on their requirement expectations.

**I've heard DOE thinks a higher turnover at Sandia would be beneficial. If this is true, how will it impact the requirement to attract and keep the right people? Will "pay for performance" be the answer, or will we need more, such as redeployment?**

Charlie — I'm unaware of any official DOE position that suggests that a higher turnover at

Sandia would be beneficial. In any event, I believe that our ability to attract and keep the right people at Sandia will be enhanced not only by paying for performance, but also by applying an aggressive redeployment process so that all Sandians are fully utilized.

**I have heard that redeployment will be swift and immediate. If reengineering means that people will immediately lose their jobs, how successful will it be? Would the corporation consider supporting natural attrition?**

Charlie — The intent of reengineering is not for people to immediately lose their jobs. On the contrary, job loss will be the exception rather than the rule, and will generally be a last resort. The corporation would support natural attrition combined with other staffing methods in order to be responsive to financial shortfall or change in business requirements. Natural attrition may not be responsive enough, in and of itself, to run Sandia in an agile and customer-responsive manner.

**What is the time frame allowed for retraining before a person is laid off, once it is determined his or her job has gone away? Also, will people be retrained for jobs with equal pay and responsibility positions?**

Charlie — There are no set time frames, but retraining periods will be established on a case-by-case basis, according to business needs and the aptitude of an individual to become proficient in a new area, with the intention of providing equitable pay and responsibilities to those involved. In a current case of 10 California employees retraining in the field of software engineering, we anticipate 12 months of formal and on-the-job training, and participants will retain their current salaries during retraining.

**I've heard that administrative people will be redeployed to the technical line or mission-related work. If administrative burdens are reduced, what makes you believe the line will have jobs for 360 more administrative people? What happens to those people who can't find "mission-related" work?**

Charlie — There are an amazing number of administrative jobs being performed by technical people in the line. We believe it will be possible to allow many of those people to find more "mission-related" work [even if they need to be retrained or refreshed through redeployment options to do so], leaving administrative jobs in the line that will need to be filled. We also have contractors performing administrative jobs. In the event, however, that there is insufficient budget or an individual is unwilling or unable to retrain in an area of business needs, separation may be the best option for that individual.

**I am classified as an MLS/MIS [a member of the laboratory staff with experience or educational background in management information systems]. My skills are the same as many employees classified as MTS [member of the technical staff]. Movement or redeployment is very constricted in the present system of internal posting. Are there any plans to reclassify or re-evaluate the classifications?**

Charlie — I don't have an answer for you at this time. Currently, we have a redesign team working on reclassifying the technical jobs and reviewing exempt MLS job structure. The reclassification for technical jobs will be completed in 1996, and administrative jobs will be completed in 1997.

**How much is Sandia spending on ES&H activities? Is it all necessary? What are the**

**priorities?**

Lynn Jones (VP 7000) — A lot. I have no idea exactly how much because ES&H activities are interwoven into everyday operations. Our best estimate, published in the DOE ES&H Management Plan, is, for FY94-96, approximately \$65 million a year for Sandia/New Mexico and \$10 million a year for Sandia/California.

Is it all necessary? Probably not. Currently all Sandia operations must be in compliance with all applicable laws, federal regulations, Sandia policies, and DOE orders and rules, regardless of hazard or value. We are working to implement a framework that ensures maximum contributed value with minimum associated risk. Under the framework we would have to have operational requirements in compliance with the pertinent regulations, laws, and policies, and performance-based operational requirements that apply DOE order principles and objectives to routine operations. For highest-hazard activities, though, we would enforce rigorous compliance with all applicable DOE orders and rules.

And finally, our priorities are: activities to address highest-risk situations (those most likely truly to cause injury); activities to address situations of highest risk to the environment; requirements imposed by law; contractual obligations to DOE, employees, and subcontractors; and best management practices.

**Is anyone in senior management taking ownership of overseeing the chargeback system?**

Executive VP Jim Tegnalia answered that Lynn has formed a team led by Ray Heath (10606) to examine the issue of chargeback. He added that he believes in the principle of chargeback, but that there are problems with the way it is being implemented at Sandia.

**Why does it cost Sandians more for floor space here than equivalent space costs in Albuquerque?**

Lynn — Primarily because of overhead costs that are unique to operations of a DOE national laboratory, including the fact that DOE strongly influences the operation and maintenance of its facilities. For example, many Sandia operations have extraordinary requirements for heating, ventilating, cooling, and electricity. This results in more complex building systems that require a higher level of operations and maintenance effort than many commercial facilities. Also, the complex has an extensive infrastructure, requiring us to maintain, operate, and repair streets, sidewalks, parking lots, cranes, hoists, ditches, arroyos, storm drains, and a complete utility distribution system for gas, water, electricity, and sewage. And finally, almost all of our maintenance staff are full-time, regular employees whose salaries receive the normal loads for fringe benefits, corporate indirect, and center support.

**What is MIIP, and why haven't staff members seen or heard of the Conduct of Operations/Quality Assurance implementation plan?**

Virgil Dugan (Director 12100) — MIIP  
(Continued on next page)

*"Is [Sandia's spending on ES&H activities] all necessary? Probably not."*

*"Job loss will be the exception rather than the rule, and will generally be a last resort."*



(Continued from preceding page)

stands for Management Information & Integration Program. It has provided a set of integrated requirements representing both DOE's Conduct of Operations and Quality Assurance orders. The reengineering town meetings were intended to provide one vehicle for communication to the staff. The implementation plan has been presented for review to numerous Sandia groups and now has been submitted to DOE for approval. When it is approved, there will be a concentrated communications effort on its behalf.

**Do you believe DOE will allow us to apply DOE orders, rather than strict compliance?**

Virgil — DOE has been briefed on our approach to Conduct of Operations and they are very supportive of the concept. Yes, I believe DOE will allow us to apply the fundamental principles of DOE orders or other appropriate performance-based guidelines and criteria in low-hazard areas. Remember, we are suggesting strict compliance in high-hazard areas. The administration's attempts to reinvent government to reduce taxpayer costs provide an incentive for DOE to be receptive to such proposals.

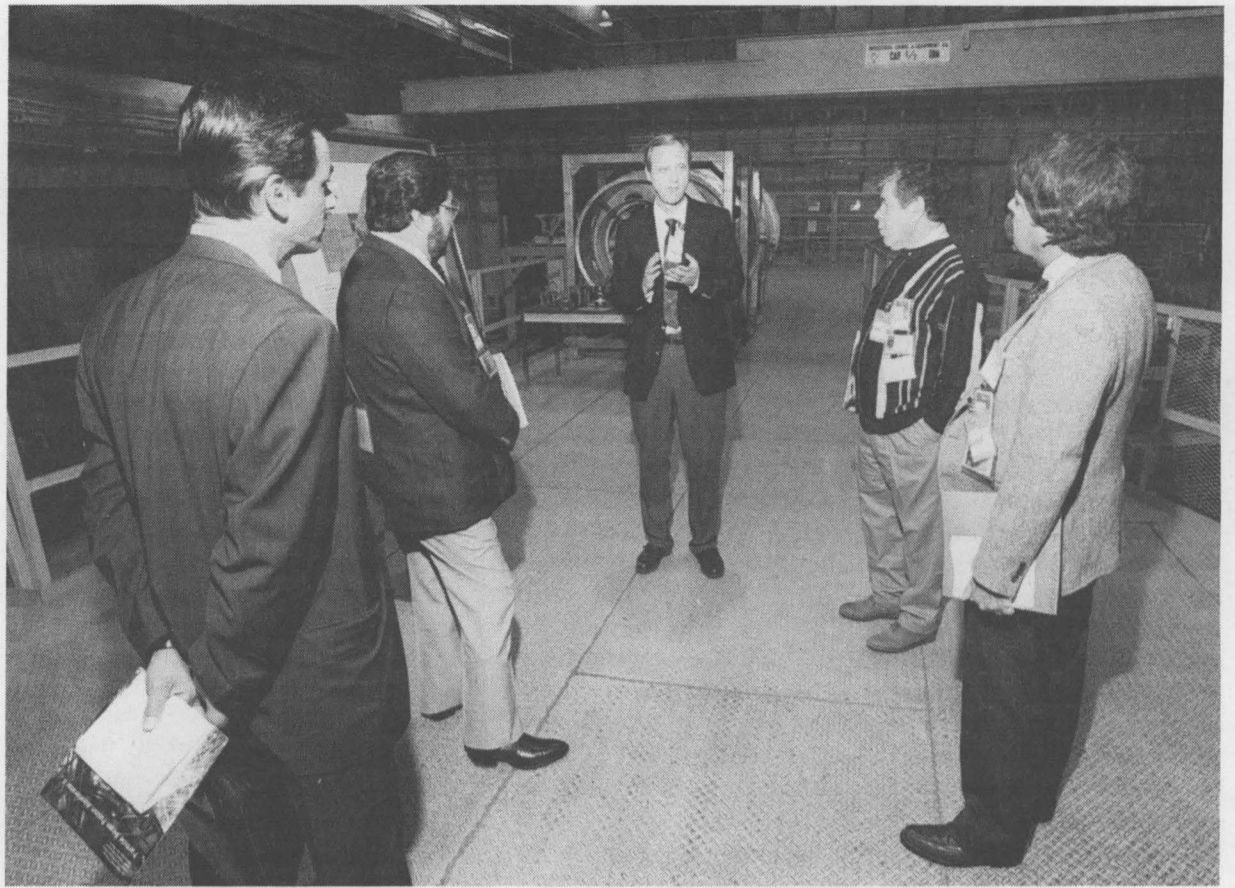
**Will reengineering do something to streamline purchasing? I'm trying to place a contract for \$3,500 and when I quizzed the fellow about why he hadn't returned the proposal, he told me the contract was a problem. It turns out it is 93 pages long, and when I asked the buyer about it, she said, "I told him that page 16 tells him what pages apply to him!"**

**Questions:**

(1) Would you sign a 93-page contract without reading the entire thing? (2) If we know what pages apply to him, why don't we limit his contract to those pages? (3) Why is it just as much hassle for a \$3,500 contract as for a \$350,000 contract?

Donna Martin (Director 10200) — Our primary goals for reengineering are to significantly reduce cycle time and simplify the acquisition process. Our vision is to put transactions into the hands of the user/requester for commercially available commodities and to do so electronically, eliminating all paper. In 1995, we are committed to a significantly enhanced consultant and manpower process and to defining a credit card enabled process for low-value commercially available products, both of which will reduce paper and cycle time. To specifically answer your questions: (1) I would personally choose to read every line of a contract I would sign; (2) our goal is to reduce paperwork to only applicable language; and (3) we intend to make procurement of low-dollar [commercially available]

*Procurement's goal is "to significantly reduce cycle time and simplify the acquisition process."*



**COMMUNITY LEADERS** — Members of the Board of Directors of the Albuquerque Hispano Chamber of Commerce spent the morning at Sandia recently at a community leaders' breakfast and tour. Here several members of the group get a briefing at the Particle Beam Fusion Accelerator II (PBFA II). From left are Chris Pohl, TC Enterprises, Inc.; Antonio Montoya, L&M Technologies; Doug Bloomquist, Manager of Fusion Accelerator Dept. 1236; Julian Garza of McDonald's of Corrales; and Guy Riordan, Southwest Securities. At the breakfast, the community leaders were welcomed and had an informal briefing from Sandia President Al Narath on the future of Sandia and cooperative efforts between Sandia and the Hispano Chamber. There were questions and answers with Al and other Sandians, and then they toured the Microelectronics Development Laboratory and PBFA II. The visit was arranged by Redd Eakin of Community Relations Dept. 12671 and Bobbie Burpo of Protocol Dept. 12670.

commodities "hassle-free" via direct [credit card] procurement.

**How long will it be until we have corporate-wide e-mail?**

Mike Eaton (Director 13100) — The company essentially has a corporate-wide e-mail system. This capability evolved from independent local solutions, and the challenge is to tie them together into a sensible enterprise-wide solution. Projects now under way will continue to improve the reliability and pervasiveness of the system. By the end of FY95, there will be sufficient infrastructure in place that people with appropriate hardware and software will be able to have supported enterprise-wide mail capability.

**Why are we using Mosaic? No other corporation of any size has selected this technology to "bet the business on." (Los Alamos and Lawrence Livermore are exceptions.)**

Mike answered that Mosaic is the dominant interface into the Internet, and it offers a good hypertext viewing environment for internal applications. Further, he said, large companies such as Boeing are beginning to release their own information services based on Mosaic.

**Two questions involved electronic review of documents, one asking if it was being considered — in view of the time it would save, for example, in review and approval of SAND Reports — and the other**

**asking if legal issues that might arise out of electronic review and approval of documents had been considered.**

Mike answered that electronic review and approval are being considered and discussed with Labs policy groups, and are expected to be the norm once the whole Labs complex is connected electronically. He said both legal and regulatory issues are being explored, and that commercial applications are available today to ensure authorized electronic signature/approval.

**Mike was asked if the long-term Chief Information Officer plan includes moving California information systems under its management control and/or creating a customer service unit (CSU) for California application services. He was also asked if the California site will be involved in the corporate information integration plan for the future.**

He answered that a CSU will be created for California. The answer to the second part of the question was "yes," and he asked California employees to ensure that it happens.

**A few centers are developing significant local [non-central site] "supercomputing" capabilities. Is Org. 13000 reducing support for scientific supercomputing? What's in the strategic plan for central-site scientific supercomputing?**

Mike — Support for central-site scientific supercomputing is being significantly downsized. Staff assigned to this function have already been reduced from 29 to 15 over the past year. A strategic plan and a transition plan are currently being developed with input from the affected user community and from funding sponsors.

*Editor's Note: If you have reengineering questions or concerns that were not addressed in this selection of questions and answers, or the preceding one (Lab News, Jan. 20), you may contact the Laboratory Process Reengineering/Chief Information Officer Council through Mike Ebben (10600) by fax on 844-9074 or via e-mail.*

## ! Take Note

Retiring and not seen in Lab News photos: Charles Daniels (1512), 34 years; Terry Demaree (2742), 30 years; Merejildo Gallegos (2719), 33 years, and Paul Baca (7435), 10 years.

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Central New Mexico middle schools will compete in the regional MATHCOUNTS competition on Saturday, Feb. 11, 8 a.m.-2 p.m. at UNM's Woodward Hall. MATHCOUNTS is a nationwide program designed to address the problem of declining math skills among US stu-

dents. Winners of the regional competition, sponsored by the Albuquerque Chapter of the National Society of Professional Engineers, will advance to the state competition; then state winners will enter the national competition. Although the Feb. 11 regional competition begins at 8 a.m., written exams are scheduled for the morning, so the public is encouraged to attend after 12:30 p.m. For more information, call Mark Schaefer on 893-3245 or Lisa DeBettignies on 766-1366.



# Feedback

## Too many Voicemail bulletins?

*Q: I have just come back to my office and the message light on my ISDN phone is lit. But when I try to get to my messages, I am interrupted by a bulletin broadcast. When it continued into something about ES&H phone numbers, I hung up, but my message light is still lit.*

*Is Sandia really saying that our customers come last? That's the way our message system works. In order for a message system to be useful, the user must be able to access the messages.*

*I will call our message system something other than a total failure when I can connect to it and hear "you have X messages and X bulletins. To play your messages . . ."*

*A: While bulletin broadcasts are viewed by some as an invasion of their "space," they were made part of our communication network after careful consideration by senior management. We do, however, try to keep them to a minimum, to lessen the total volume of voicemail messages and to retain the "special" meaning a "bulletin" should have. It should be noted that groups are constantly asking to place bulletins on the system. By exercising the prerogative to refuse all requests except those specifically ordered by a vice president, we have been able to protect our customers from an excessive number of bulletins.*

The following information — summarized from three *Weekly Bulletin* issues last year — should help anyone in very quickly dispatching unwanted bulletins. First, note that the "message waiting" light does not illuminate for bulletins. Further, when a bulletin is encountered, one can simply press the pound key (#) twice to skip it until later, or #-7 to skip immediately to the end of the bulletin and delete it. This causes a minimum of inconvenience. The entire process may involve listening to enough of the bulletin to decide whether or not it is of interest, and then skipping or skipping/deleting it. The process requires only a few seconds to complete.

Our proprietary voice information system does not provide the option of playing bulletins at any time other than first. But we hope that the information supplied here will help everyone manage those few bulletins that do appear, with a minimum of inconvenience.

Anyone with additional questions, concerns, or suggestions on this topic, may call Gary Shepherd, 845-8078, for additional consultation and/or explanation.

Herb Pitts (13400)

## Sandia's salary structure

*Q: What information is compiled from outside resources to establish Sandia's salary structure? Several technical publications (e.g., Chemical and Engineering News, Today's Chemist at Work, publish an annual salary review which seems to indicate that our salaries are lower than our counterparts outside of Sandia (at least mine and several others that I have asked). I know that occasional lump sum payments are made to those Sandians who fall under the appropriate salary level, but that fails to address the issue of lower permanent salaries. Comments, please.*

*A: Thanks for your inquiry. As noted in Sandia's Compensation Manual (available for reading from your supervisor) Sandia participates in a number of salary surveys of engineering and scientific personnel, technicians, and administrative employees.*

The significant difference between these surveys and the one you reference by the American Chemical Society (ACS) is that Sandia's surveys capture all of the data from the participating companies. The ACS survey is

based on a random mail survey where respondents chose to reply or not. Typically, such self-disclosure samples tend to reflect higher average salaries than do surveys that capture all employees' salaries.

As to the use of lump sum payments, the ACS data suggests (for those who reported a lump sum) that they averaged in the 5 percent range. If such data is extended to the entire survey, the lump sum probably would be in the 2-3 percent range.

The other point made in the article (effect of inflation, salary differences based on where one works, etc.) are not new and do not differ from self-administered surveys such as those put out by mechanical engineers (MEs), electrical engineers (EEs), and physicists.

Most of the companies in surveys Sandia uses are in the electronic, computer, mechanical, and materials areas and in heavily R&D oriented areas, as opposed to production oriented ones. There are some exceptions, such as DuPont and Eastman Kodak. In general, the salaries paid to EEs, MEs, and computer scientists are higher than those paid to chemists. Chemical engineers in oil companies, however, do rather well.

In addition, start rate offers for new college graduates show that chemists and chemical engineers typically average less than do the EEs and MEs.

Sandia's data on employment dynamics (are we able to hire the talent we need and do they stay at Sandia?) suggests that our salaries are sufficiently competitive.

Marv Torneby (3500, recently retired)

## Prostate cancer screening test

*Q: With the higher rate of early detection of prostate cancer offered by the PSA [prostatic specific antigen] test, I am troubled that the PSA is not a routine feature of Sandia's periodic medical exams. The earlier detection time, offered by the PSA, results in a much higher survival rate for prostate cancer, which would appear to be one of the goals*

*of the Sandia Medical Organization. Is there any plan to implement PSA testing as a normal feature of the routine medical exam? If not, then I would appreciate an explanation. Please publish your response in the Lab News. Thank you.*

*A: The Medical Organization currently includes prostatic specific antigen (PSA) testing as a part of the screening battery offered in the context of voluntary health exams for male employees age 50 years or over, consistent with the guidelines of the American Cancer Society. Examinations are offered every two years for employees age 50 and older and are intended to complement personal health care received through your private primary care physician. Employees who wish to have annual PSA testing are encouraged to contact their physician for guidance and assistance.*

Larry Clevenger, MD (3300)

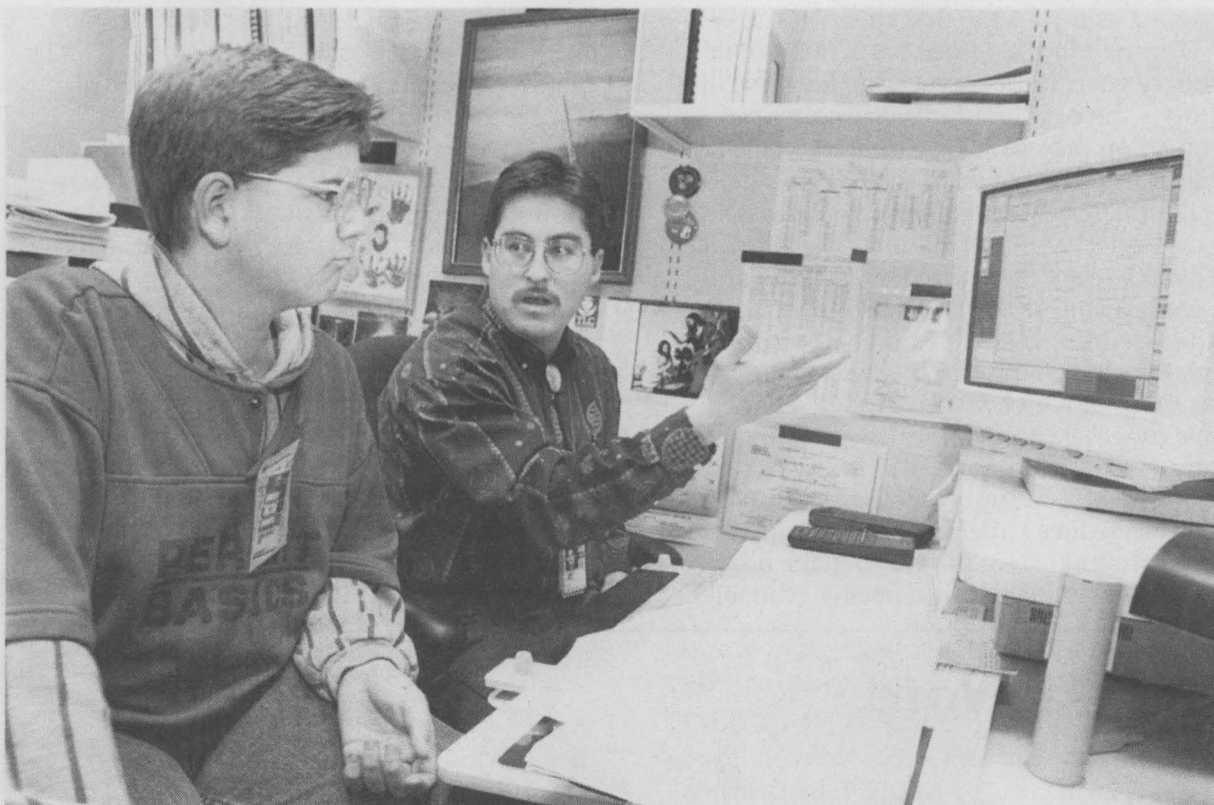
## An 800 number for retirees?

*Q: Does Sandia have an 800 number for retirees in other states to use when calling Sandia for information about benefits and retiree information?*

*A: Retirees may use 1-800-417-2634 when calling Sandia/New Mexico. If calling Sandia/California, retirees may call 1-800-472-6341. The Sandia Voice Information System will instruct them to enter the 7-digit telephone number of the person they are calling. If the retiree does not know the number for the person they are calling, they can press zero to get connected to the Sandia/Department of Energy locator. The locator will give them the number for the person they are attempting to contact. The retiree can then call the 800 number again and, when instructed, enter the 7-digit telephone number for the person they are trying to contact.*

Carlos Griego (3344)

(Editor's Note: Phone numbers for several Sandians who regularly deal with retiree matters are listed in the front of the 1995 Retiree Directory that was recently mailed to all retirees.)



**ROCKET SCIENCE** — Kenneth Chavez of Flight Dynamics Dept. 1551 shows Farmington High School sophomore Adam Milner a computer simulation of a rocket trajectory. Adam, who visited the Labs recently as part of Sandia's Education Outreach Program, toured the wind tunnel facility, a chamber for testing the aerodynamics of models, and learned to produce aerodynamic predictions on the computer. He has spent the past three years designing a seven-foot rocket, a Public Missiles Limited Triton ARV, with a customized Milner airfoil fin that determines the rocket's drag and speed, but he has never had the opportunity to launch it. With Sandia's help, Adam believes he will be able to finish his rocket ahead of schedule, and may be ready to launch it this summer at a rocket competition in Arizona. After that, Adam says he plans to turn his love of science into a career, perhaps at Sandia.





WET WORK — Divers orient a crane hook that removes test equipment from the pool.

Photos by Randy Montoya



WATER IMPACT FACILITY — Luis Abeyta inspects conditions at the Water Impact Facility. The 300-foot tower was built in 1957, but the pool wasn't installed until 1985.



TAKING THE PLUNGE — Facility test engineers Luis Abeyta, left, and Dale Hamblin enter the water to set up an underwater test. Water impact tests are performed five or six times a year at the site.

## Divers in the desert

When it's 100 degrees outside, Sandia's scuba-certified test engineers don't seem to mind reporting to their underwater office, a 50-foot-deep pool at the Water Impact Facility located in Area 3. In the winter, when a thick layer of ice must be broken through to set up for tests, it isn't quite so appealing.

"We have a unique facility," says Luis Abeyta (2761), a 10-year veteran diver and dive team director. "Over the years, we've tested ice penetrators, torpedoes, pressure vessels, shipping containers, and underwater detonation." Other "famous customers" include the F-111 crew escape module and the Space Shuttle's solid rocket booster nose cone.

Objects are normally dropped from the 300-foot tower into the water. For velocities that must be faster than free fall, a high-strength cable is attached at one end to the test object and at the other to a rocket sled on the nearby sled track. Once fired, the rocket accelerates the test object down toward the water. Just before impact, the cable is cut and the object plunges into the pool.

All divers must perform at least one dive a month to remain eligible to work at the facility. Other members of the dive team are Dale Shamblin (2761), Kevin Babb (2712), Doug Cotter (5123), Johnny Molina (2707), and Mike Skaggs (5167).



DIVE TIME — Dive team director Luis Abeyta prepares for a dive.



UNDERWATER OFFICE — The divers prepare to adjust an underwater parachute that will catch the test device when it enters the water.

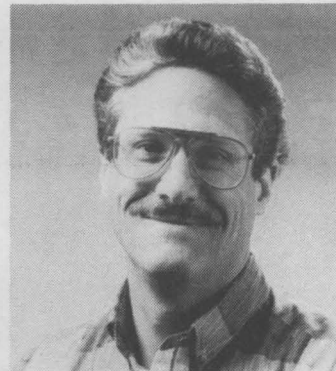


# Mileposts

February 1995



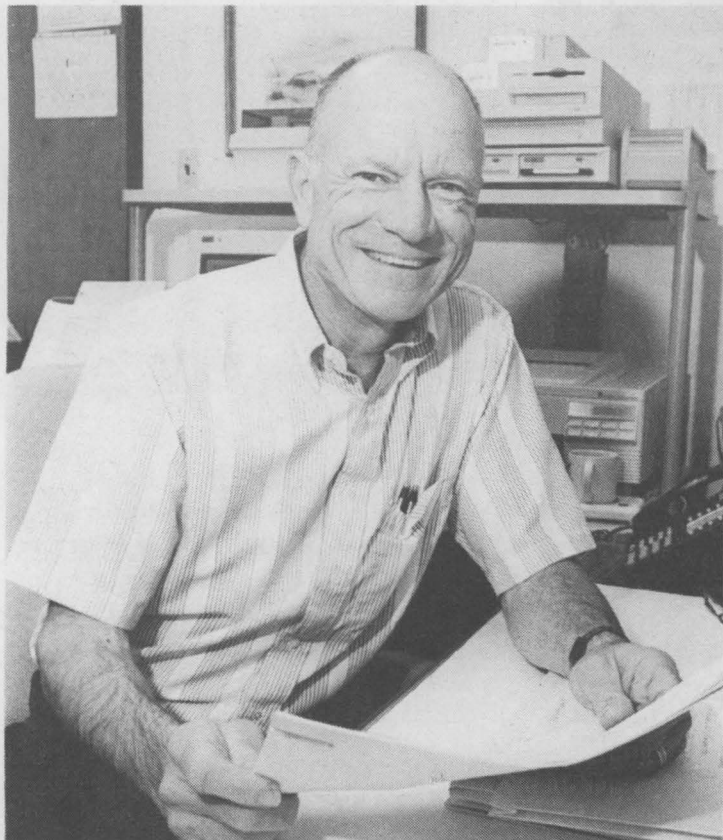
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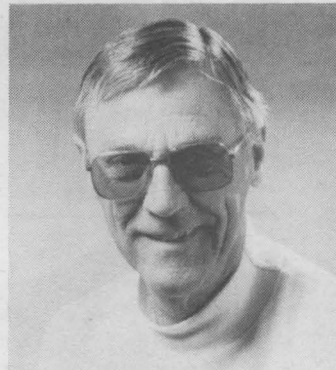
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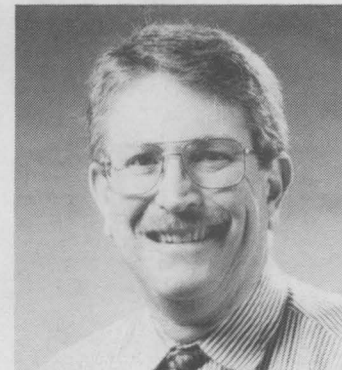
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Fred Harper 15  
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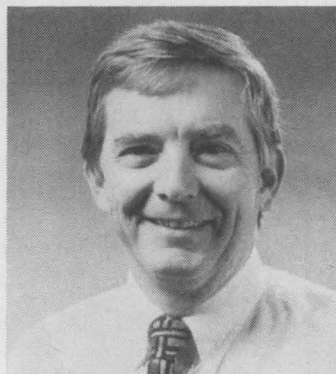
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Harold Morgan 15  
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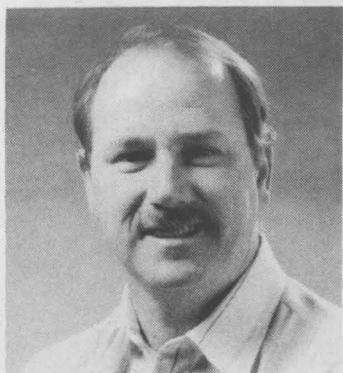
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Clyde Layne 15  
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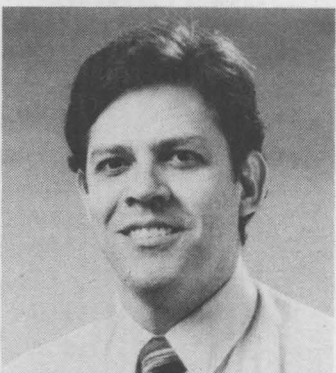
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Jerry Boyd 15  
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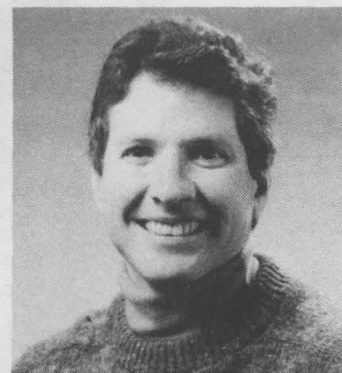
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Patrick Sena 15  
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Stanley Kravitz 25  
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Rob Rechar 15  
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Sandra Manes 15  
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Harry McCormick 15  
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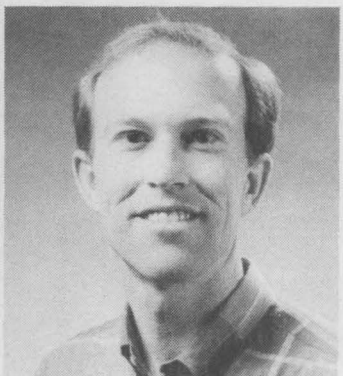
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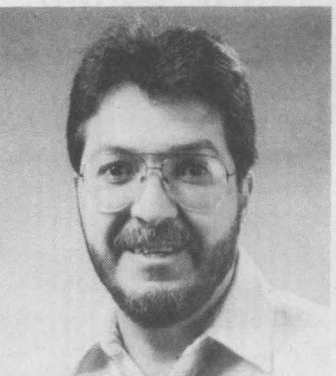
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Judy Odinek 15  
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Phil Hoover 15  
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Stephen Ortiz 15  
5838



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

## MISCELLANEOUS

**YOUTH CROSS-COUNTRY SKIS**, 170cm no-wax, Fischer Crown, Rottefella NNN bindings, Artex high-top boots, size 39 (7), new condition, paid \$175, make offer. Rodacy, 293-2668.

**CRIB**, \$50; infant/toddler boy clothes; Sunbeam stand mixer, \$15; twin electric blanket, \$10; electric throw blanket, \$6. Forster, 293-7231.

**TREADMILL**, Lifestylar 2808, like new, 1.25-hp DC motor, 8.0-mph., electronic controls, pulsemeter, \$375. Corn, 881-7568.

**LONG-HAIRED CALICO CAT**, female, spayed, declawed, affectionate indoor pet, approx. 5 yrs. old, free to loving home. Evanoff, 293-4025.

**WOVEN ROLL-UP SHADE**, wood, yellow & white, 46-1/2" x 46-1/2", \$25. Vandewart, 298-4741.

**SYLVANIA TV**, 25-in., \$150; 14-in. wheels, hubcaps, Michelins, off Dodge Spirit, \$90. Lachenmeyer, 268-7818.

**MOVING**: must sell, rocker, \$40 OBO; portable crib, \$25. Deal, 296-3894.

**WALNUT CHINA CABINET**, huge, 8 doors, 4 w/glass inserts, lots of hanging stemware space, new condition, \$800. Henry, 296-1781.

**FULL-SIZE SPINDLE BED**, \$225; twin bed, \$100; coffee table, \$65; swivel bar stools, \$20 ea.; electric oven, \$125; Kirby vacuum, \$375; color TV, \$75. Newman, 266-6928.

**CAL-SPA HOT TUB**, \$4,000; twin bedroom set, wood, \$500; trumpet, like new, \$200; cockatoo & cage, \$2,000. Smith, 344-5886.

**CONVECTION TURBO OVEN**, Farberware, \$65; 5-globe wood/brass chandelier, \$30; unused Broan 8-in. automatic wall fan, \$45. Reed, 268-7484.

**DIESEL COMPRESSION TESTER**, Mac Tool, \$95; GM, VW, Peugeot blow plug adapters, \$12 ea.; Jetta, Peugeot, Astrovan, Pontiac, Grand Am manuals. Larsen, 292-7896.

**EXECUTIVE DESK**, \$500; office desk chair, \$100; old books, offers; Spanish sword replica, \$100; old albums, offers; pilot video course, \$100. Eikelberg, 296-0899.

**AUTO/TRUCK PARTS**, call for list. Chavez, 842-6374.

**SECURITY STORM DOOR**, 32" x 80", brown, \$35; Sanyo refrigerator, 1.7 cu. in., \$45; Toastmaster toaster oven, \$20. McGirk, 884-4592.

**TREADMILL**, Lifestyle 3000 (Sears), 3/4-hp motor, auto incline, approx. 4 yrs. old, excellent condition, \$50. Fraser, 892-8435.

**TRAVEL VOUCHER**, good anywhere America West flies, fully transferrable, \$200 value, sell for \$150, must be used by Mar. 22. Mozley, 884-3453.

**CLARISWORKS**, version 2.1 for Macintosh, \$85 OBO. Poultier, 291-0607.

**BOY'S SNOW GEAR**, ski bibs & jacket, size 7, like new, \$30; tan, lined all-weather coat, \$15. Mayer, 299-8524.

**HUNTING & COLLECTIBLE RIFLES** and shotguns from grandma's estate, priced at Ron Peterson's estimated value. Pryor, 294-6980.

**ATARI 800XL COMPUTER**, w/1010 recorder; Commodore 64 computer w/2 disk drives, monitor, GeoWorks, and Koala pads. Rogers, 256-0066.

**TWO ADORABLE KITTENS**, 2 months, Fluffball & Tiger, and their young mother, Contessa, free to good homes. Pecore, 839-5120.

**PRO KENNEX POWER CHAMP 2**, tennis racket widebody design, size 3-7/8, w/case, excellent condition, (jr. size). Wagner, 823-9323.

**KING-SIZE WATERBED**, w/all accessories, oak rails, headboard w/shelves, 2 sets of sheets, \$125. Dwyer, 271-0741.

**COPENHAGEN TEAK DINING TABLE**, 36-in. square, two 12-in. slide-out leaves, center tile inlay, earth tones, excellent condition, \$200 OBO. Phelan, 869-6094.

**RADIAL TIRES**, four 235/60SR14, raised white letters, mounted on 14-in. Chev. 5-bolt wheels, \$100. Bender, 294-7750.

**CRIB MATTRESS**, \$10; never-used changing table w/baby pad, \$35; oak entertainment center, \$55. Bennett, 889-0929, after 5 p.m.

**COMPUTER PERIPHERALS**, 145W, 4FH, SCSI tower w/660 MB disk, Teletbit Plus modem, Desktjet 500 printer, good value. Senglaub, 296-7476.

**VACUUM CLEANER**, Royal Dirt Devil, upright, aluminum housing, hard case w/on-board attachments, "Power Edger", new \$140, asking \$65. Schkade, 292-5126.

**SCOTT CD PLAYER**, \$45; Toshiba 19-in. color TV, \$35; Casio keyboard, \$40; exercise trampoline, \$10. Hiltz, 275-1758.

**MONITOR**, 19-in., 1,200 x 1,600 resolution, Sigma Designs grayscale w/PC card, great second monitor for Windows, DTP, \$500 firm. Mitchell, 294-2973.

**EPSON LQ500 PRINTER**, 24-pin, for draft LQ & graphics, has two ribbons & manual, \$80. Henry, 266-6467.

**SOFA**, 85-in. long, brown tones, Herculeon material w/oak trim, \$100 OBO. Mills, 299-4752.

**BEDROOM SET**, queen headboard, dresser, large chest of drawers, nightstands, French country, good condition, \$350 OBO. Garcia, 294-1442.

**RECLINER**, yellow/green tweed, w/heat & massage, \$100 OBO. Eldredge, 881-4528.

**THOMASVILLE DINING TABLE**, 42" x 64", w/4 armchairs, two 16-in. leaves, pecan finish \$550; Drexel coffee table, 40" x 40", w/glass top, \$375. Salazar, 281-0560.

**TRUCK SHELL**, \$475; bed liner, \$120; fender tool box, \$100, from '88 F150 short bed, all good condition. Arning, 256-9229.

**RISC RAM** for Power MAC & Power PC, 8 MB, 40-2, 80ns, 72-pin, used only 3 days, \$375. Brannon, 260-1322.

**QUEEN-SIZE BED**, mattress, box spring, metal frame, 4 yrs. old, \$150. Garner, 889-3180.

**BABY CRIB**, playpen, baby items. Chavez, 899-9744.

**486DLC33 COMPUTER**, 128 cache, coprocessor, 4MB, fast RAM, VGA monitor, 2400 modem, \$595; MX80, PTR, \$10 (if w/comp. purch.). Mason, 299-2836.

**GAS RANGE**, Kenmore, w/microwave shelf, exhaust vent, combination self-clean oven, 4 yrs. old, moving, will sacrifice, \$375. Chavez, 294-7933.

**BARRECRRAFTERS SKI RACK**, w/locks, for car w/raingutters, \$75. Dale, 291-9020.

**GOLFSMITH GOLF CLUBS**, 3-SW, excellent shape, \$100; golf balls, all colors and brands, 5/\$1. Dwyer, 271-1328.

**TELEMARK SKIS**, Kazama Outback, 195cm; Volle cable 3-pin, \$175. Lorence, 275-3586.

**WHITE PERSIAN-CROSS CAT**, spayed female, free to good home, cannot keep, will pay for declawing, if desired. Cole, 296-5928.

**FAMILY TENT**, Sears, 9' x 12', blue cabin style, excellent condition, \$60. Caskey, 294-3218.

**ELECTRIC RANGE**, Frigidaire, 30-in., clean, good working condition (except clock), well taken care of, \$100. Fields, 883-9789.

**PIMENTEL ACOUSTIC GUITAR**, model 001, excellent condition, owned 5 yrs., \$250 OBO. Hernandez, 292-9166.

**386 PERSONAL COMPUTER**, 16MHz, 640KB HD, 2400BPS internal modem, VGA monitor, Desktjet printer, \$800 OBO; computer desk, \$75. Huff, 296-3788.

**SOFA**, sectional quality by Kroehler, beige, 34 x 34 ea., 4 sections, like new, \$30 ea., \$100 for all 4. Dybwad, 296-9047.

**WEIDER SUPER CIRCUIT EXERCISE MACHINE**, butterfly press & pull-down, 225 lb. maximum resistance, excellent condition, must see, \$200. Burstein, 899-8971.

**ROWING MACHINE**, converts to other exercises, \$50; wood screen door, \$10. Goodwin, 294-6702.

**COSINA CT-1A CAMERA**, w/flash, original price \$300, sell for \$70; cherry china cabinet base, slight damage, \$100, original \$900. Smith, 298-5868.

**TOM TURKEY**, Bourbon red, approx. 8 months old, reddish brown & white, \$25 OBO. Stude, 897-4352.

**SOFA** (nice solid rust), \$100, loveseat (floral earth tone), \$50; \$120 for both, good condition (no kids). Jenkins, 822-0231.

**WOODBURNING STOVE**, large, cast iron, \$400. Tapia, 857-0475.

**SOFA SLEEPER**, (full), excellent condition, mauve, gray tones, \$375; wedding gown, size 5, w/veil, (cleaned & boxed), \$160. Clavey, 292-7667, leave message.

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to Dept. 12622, 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.

**WOODBURNING STOVE**, long-burn capacity. Garcia, 343-8207.

**FLAGSTONE**, only \$0.95/foot delivered. Sandoval, 345-9590, ask for Eric.

**PORT-A-POTTY**, flushing type, \$50; Entertainment '95 coupon book for Orange County, CA (Disneyland) area, \$20. Koepp, 294-7136.

**SNELL K-II BOOKSHELF SPEAKERS**, black oak, \$200; Legacy Signature II+, 3-way floor standing speakers, rosewood, \$700. Norton, 299-3763.

**DOGHOUSE**, Igloo-style, large size, \$25. Heald, 281-7885.

**PIANO**, Wuritzer upright, w/matching bench, \$800; camera, Nikon N4004, automatic w/AF Nikkor 35-70mm lens, \$250 OBO. Tenorio, 821-8967.

**COMPUTER**, Tandy 1000EX, w/monitor, external 3-1/2 drive, printer, \$175 OBO; Audio Lab bass-reflex speakers, \$45 OBO. Jojola, 828-3981.

**COFFEE TABLE**, w/2 matching end tables, glass top, brass trim, excellent condition, \$100. Roeske, 255-6188.

**ENTERTAINMENT CENTER**, 60" L x 30" D x 30" H, good condition, \$65. Merewether, 822-9551.

**ANTIQUE FURNITURE**, light pecan finish, head & foot board, chest of drawers, dresser w/mirror & chair, \$400. Gorman, 292-7119.

**RIFLE**, 30-06 Remington Model 742, autoloader, including scope, sling & case, excellent condition, \$400. Terhune, 823-6606.

**NORDICFLEX GOLD**, has computer & all attachments, hardly used, \$900; Little Tykes table w/2 chairs, \$15. Garcia, 344-3406.

**GE WASHER**, white, good condition, \$85; two camping cots, \$20. Deller, 298-5705.

**FIREWOOD**, approx. 2 cords, some needs splitting, bargain price, all in stove lengths, you haul, at my residence. Stixrud, 298-0478.

**WORKBENCH**, gray metal, 5-ft. long, one drawer, w/heavy-duty shop vise attached, \$35. Washburn, 275-3751.

**MARCY WORKOUT CENTER**, bench press, leg lifts, lat pull-downs, curls, 180 lbs. of weights, originally \$650, sell for \$300. Langwell, 293-2728.

**WEDDING RING SET**, good quality, heavy half-carat solitaire w/diamond/emerald band, brand new, \$1,500. Craven, 296-5928.

**PORTABLE WASHER/DRYER**, Kenmore, \$325; brass lamp, \$25; playpen, FP swing, backpack, carrier, highchair, more. Levant, 293-0079.

**RECLINER**, \$55; chair, \$30; hamster cage w/apr., \$12; Dutch/California rabbits, \$10; children's desk, \$10. Parr, 837-1719.

**WOMAN'S SKI BOOTS**, shoe size 7-1/2, Nordica NR-960, good condition, best offer. Edwards, 271-2186.

**QUEEN-SIZE MATTRESS & BOX SPRING**, \$100; Tappan dishwasher, \$25; Craftsman router, bits & table, \$75; dinette set, \$75. Furry, 281-1024.

**SKIS, BOOTS, POLES**, Head/188, Olin Mark/160, both w/Solomon bindings; woman's Nordica size 8; Scott poles, 117cm., \$200 OBO. Kawola, 298-4288.

**TELEMARK SKIS/BOOTS**, Tua Toute Neige 200 cm., Volle releases, cables, Asolo Extreme Pro 9.5, excellent, \$450. Nicholl, 293-2977.

**HO TRAINS & LAYOUT**, \$40; leaf blower/vacuum, \$35; Tektronix oscilloscope, \$50; weed cutter, \$50; chainsaw, \$150. Axness, 296-4691.

## TRANSPORTATION

'88 ISUZU IMPULSE, hatchback, 5-spd., 80K miles, PL, PW, PS, PB, AM/FM cassette, sunroof, AC, excellent condition, \$3,700. James, 344-5251.

'61 BUICK ELECTRA, 4-dr., hardtop, white, AC, PW, collector's item, needs some TLC, will negotiate price. Henning, 296-6337.

**SHELBY GLHS (DODGE)**, limited production, incredible performance, practical, \$8,000; 10-spd. Centurian bicycle, \$30. Lachenmeyer, 268-7818.

'84 CHEV. TRUCK, 4WD, 5-10, Tahoe model, 73K miles, AM/FM cassette, one owner, good condition, \$5,000. Locher, 266-2021.

'92 HONDA ACCORD LX, 36K miles, 4-dr., AT, fully loaded, excellent condition, 4-year warranty remaining, \$13,500. Roberts, 856-6770.

'93 NISSAN, ext. cab, 2x4 pickup, 17K miles, bed liner, matching camper shell, AC, PS, PB, stereo, like new. Linebarger, 291-0417.

'91 CHEV. S-10, 45K miles, excellent condition, no PS, AC, \$5,500 OBO. Duran, 867-0840.

'78 VOLVO 244DL, 100K miles, sunroof, AC, \$1,400 or make offer. Chu, 298-1073.

'85 MERCURY TOPAZ, 4-dr., AT, AC, new tires, 63K miles, like new, \$3,000 OBO. Mancuso, 275-9225.

'86 VW VANAGON, AT, PS, AC, 2,100cc, 7-passenger, very clean. Nichols, 281-1968.

'90 GEO STORM, red, 5-spd., stereo/cassette, new tires, gold rims, 73K miles, good on gas, \$6,000 OBO. Barela, 877-9535.

'79 MERCEDES 300 SD, creme w/palomino interior, excellent condition, \$5,250. Salazar, 281-0560.

'88 FORD F150, 5-spd., 6-cyl., camper shell, new tires, trailer towing, original owner, 39K miles, excellent condition, \$6,000. Sanchez, 292-1982.

'84 CHEV. MONTE CARLO, V6, maroon, PS, PB, AC, good condition, 136K miles, \$1,300. Gutierrez, 821-0974.

'59 CHEV. APACHE TRUCK, 1/2-ton stepside, complete ground up restoration, recently appraised at \$10,000, asking \$8,500 OBO. Lujan, 865-1897.

12-SPD. BICYCLE, Trek 400, \$150. Goodwin, 294-6702.

'81 CHEV. PICKUP, 1/2-ton, great work truck, 6-cyl. engine, 3-spd. transmission, good tires, \$1,875 OBO. Martin, 296-8154.

'84 CROWN VICTORIA, low miles, new tires, excellent condition, only \$2,500. Vigil, 242-5134 or 243-4798, ask for Sandra.

'93 TOYOTA 4RUNNER, SR5, V6, 4WD, 5-spd., 23K miles, power everything, Dolby SS, cassette/CD, luggage rack, custom wheels, \$24,900 OBO. Martino, 265-1738.

'77 280Z COUPE, '79 engine, good compression, AM/FM cassette, AC, tinted windows, \$1,650. Pierce, 299-2801 or pager 857-1844, ask for Greg.

'85 PONTIAC SUNBIRD, PS, PB, AT, AC, AM/FM cassette, sunroof, tilt wheel, new brakes, runs well but could use paint, \$1,400. Langwell, 293-2728.

'87 NISSAN MAXIMA, one owner, loaded, excellent condition, 79K miles, \$5,400. Volk, 299-1702.

'81 TOYOTA SR5 PICKUP, 95K miles, equipped w/Brahma camper shell, original owner, \$1,150. Woodard, 299-4575.

JEEP CJ-7, hardtop, \$500. King, 899-1770, evenings.

'82 FORD F250 KINGCAB, V8, 5.8L, 4-spd., 3/4-ton, full-size, \$3,000. Tenorio, 821-8967.

16-IN. BICYCLE, Murray, \$20. Jojola, 828-3981.

'86 SUBARU XT GL, AC, 5-spd., stereo, excellent condition, only 69K miles, \$3,200 OBO. Roach, 296-0432.

'87 1100 SHADOW, low mileage, very clean, \$2,900. Bouchard, 266-9019.

'91 LINCOLN MARK VII, luxury sport coupe, excellent condition, well maintained, leather, JBL stereo, HO 5.0L, \$16,750. Horschel, 271-9407.

'90 NISSAN MAXIMA SE, 5-spd., loaded, sunroof, Bose/CD system, 70K miles, metallic blue, immaculate, must sell, \$9,950. Summers, 881-7765.

'90 ACURA INTEGRA GS, excellent condition, 39K miles, AM/FM cassette, power sunroof, \$11,300. Danneels, 292-1548.

'67 FORD MUSTANG, rebuilt engine & transmission, must sell, \$3,800 OBO. Lee, 897-0122, ask for Ken.

MAN'S BICYCLE, Peugeot 12-spd., new condition, \$100. Garcia, 344-3406.

'86 JAGUAR XJ6 VANDEN PLAS, sunroof, electronic trip computer, new tires, complete service records, 73K miles, \$10,500. French, 856-6126.

'84 PONTIAC FIREBIRD, great condition, low miles, \$2,600 OBO. Kapuranis, 275-8299, leave message.

'63 FORD GALAXIE 500, 390 V8, AT, PB, PS, upgrades, white on sky blue, 118K miles, transmission ok, \$1,995 OBO. Stang, 256-7793.

'93 INFINITI G-20, dark green w/tan leather interior, loaded, 11K miles, top-notch warranty/service, \$17,850. Dunkin, 293-8801.

'78 PORSCH 924, \$2,300 OBO. Brooks, 243-7502, call for information.

MAN'S ROAD BIKE, Schwinn World Sport, 12-spd., 23-in. frame, good condition, \$150 OBO. Byrne, 844-8716.

## REAL ESTATE

2-BDRM. PATIO HOME, beautiful, sublease available, 3-12 months, 2 baths, Sandia Heights, 1,520 sq. ft., fully furnished, equipped. Levin, 856-1885.

NEW CORRALES HOME, Southwest style, vigas, tile, radiant heat, great views, 2,600 sq. ft., paved road, natural gas, CTV. Karler, 298-3265.

4-BDR. HOME, 2-1/2 baths, 7.5% assumable, immaculate, 2-story, 2,050 sq. ft., double garage w/opener, open house Feb. 5, 1-4 p.m. \$155,000. Miner, 298-4779.

## WANTED

PORTABLE GASOLINE GENERATOR, 1,500-3,000 watts, new or low use, quiet muffler. Leeman, 281-7949.

OPAQUE PROJECTOR. Rogers, 256-0066.

NORDICTRACK EXERCISER, cross-country ski type. Ragland, 864-1388.

GERMAN SPEAKERS, for monthly casual get-together at Lily's European Restaurant on Juan Tabo, Thursday, Feb. 16, 7 p.m. Ruby, 293-6624.

STEADY SOURCE of healthy mice for bullsnakes; tropical fish to stock 10-gal. fresh water aquarium. Rockwell, 884-4206.

RABBIT HUTCH. Reno, 296-6290.

STUDENT needs scientific calculator, Texas Instrument or other well-known brand, good price. Serafin, 864-3524.

DARKROOM EQUIPMENT, black & white. Weaver, 298-2653.

SMALL CEMENT MIXER, 1/3 yard. Vaitkus, 281-5007.

## LOST & FOUND

FOUND: one earring for pierced ear, two tiny chains w/red bead attached to each one. Marquez, 844-8959.

## SHARE-A-RIDE

CEDAR CREST VANPOOL has part-time and full-time openings, Frost Rd., N-14. Rentsch, 281-5017 or Burns, 281-3922.

## WORK WANTED

HOUSESITTING JOBS, short-term or long-term, reliable, experienced, mature adult student, references available on request. Schkade, 292-5126, ask for Patricia.



## Sandia News Briefs

### Invoice payment process being reengineered; customer ideas needed

Financial Services Center 10500 is reengineering the invoice payment process and asks its customers to identify problems that affect them and to submit ideas for improving the process. You may fax your concerns and ideas to Debbie Rider (10506) on 844-4780. All attempts will be made to keep customers informed as the changes occur. Center 10500 asks for your patience during this process.

### DOE/Sandia to host Suspect/Counterfeit Items seminar

DOE and Sandia will host three one-day Suspect/Counterfeit Items seminars on Feb. 14, 15, and 16, 8 a.m.-4 p.m. at the Coronado Club. DOE Headquarters is sponsoring these seminars for all interested DOE, Sandia, contractor, and vendor personnel at no cost to the participants. Each seminar consists of a general introduction module in the morning and various special interest modules in the afternoon. Room sizes are restricted to 80 participants per day. Contact Jerry Letz on 271-7922 or Betty Fleming on 271-7921, both in Product Assurance Dept. 10104, and give your name, phone number, and the date of the session you will attend; also leave your fax number if you need more information.

### Seminar focuses on applying Sandia technology to health care

A special seminar, "New Technologies for Minimally Invasive Diagnostics and Therapies," will be held April 27-28 in Albuquerque at the Ramada Classic Hotel. This Sandia-sponsored seminar will feature discussions about opportunities for teamwork among industry, universities, and Sandia and will explore opportunities for applying defense technologies to biomedical applications. Sandia technologies applicable to minimally invasive procedures include image processing and image analysis; telerobotics and human-machine interfaces; high-performance computing applications for data fusion, 3-D visualization, and functional imaging; modeling, simulation, and virtual reality; microsensors and micromachines; noninvasive physiological monitoring systems; and laser diagnostics and therapy. The conference will also feature exhibits and Sandia tours. Registration deadline is April 3. For information, call Technology Transfer and Commercialization Center 4200 on 271-7888 or send a fax to 271-4202.

Send potential Sandia News Briefs to Lab News, Dept. 12622, MS 0413, fax 844-0645.

## Sandia in the News

This is a periodic column listing a selection of recent print and broadcast news reports about Sandia. It is provided by Media Relations Dept. 12621 to give Sandians a sense of what is being said about Labs work in national and international media.

Electronic Design reported on the work of Sandia's Electronic Components Center in developing the first practical, noninvasive method for detecting and imaging currents in operating integrated circuits. The article said Sandia's use of magnetic force microscopy to detect and image the magnetic fields produced by internal currents in operating integrated circuits overcomes previous shortfalls in this area.

Bill Drotning (2171) was quoted in *Assembly* on Sandia's development of an articulated robot arm to automate cleaning of circuit boards. Bill said the robot arm will reduce human exposure to hazardous solvents, shrink the waste stream, and improve cleaning process quality.

The computer simulation developed by Mark Boslough (1443) and colleagues combining two theories on the demise of dinosaurs (asteroids and volcanoes) has received more media attention. As reported in the *San Francisco Examiner*, the computer simulates seismic waves generated by an asteroid impact and projects that these seismic waves would have produced massive volcanic eruptions on the opposite side of the earth. Both of these occurrences would have contributed to a global climate change — maybe a big freeze — caused by dust from the asteroid impact and soot from the volcanism, and maybe help explain the disappearance of the dinosaurs.

Sandia's Knowledge Preservation Project was discussed in both *Physics Today* and *The New York Times*. In the project, archivists are videotaping the experiences of about 180 of Sandia's early nuclear weapons developers to record both technical information and the culture of weapons construction.

*Photonics Spectra* ran an article on Sandia's use of a new holographic imaging technique to

map an underground oil spill. The new technology will provide researchers with images of underground spills without needing to sink boreholes into the contaminated area and can detect contamination at deeper levels than that detected by ground-penetrating radar. Lew Bartel (6114) discussed the technique, originally used for seismic measurements, and its new application in the environmental area.

*Discover* magazine and the *Memphis Business Journal* both discussed Sandia's work with the Charles Retina Institute to develop a robotic system for use in microsurgery.

## Coronado Club

Feb. 3 (tonight) — Friday night dinner/dance. Dinner 6-9 p.m. Filet mignon or fried shrimp, \$11.95. All-you-can-eat buffet, \$6.95. Music by Isleta Poorboys, 7-11 p.m.

Feb. 9, 16, 23 — Thursday bingo nights. Card sales and buffet begin at 5:30 p.m., early birds' bingo begins at 6:45 p.m.

Feb. 12 — Sunday brunch buffet, 10 a.m.-2 p.m. Tea dance, 1-4 p.m., music by Best Shot. Member and spouse showing club membership card will receive \$1 discount on buffet.

Feb. 17 — Mom & Dad Night Out dinner/dance. (Free baby sitting provided at the Kirtland AFB nursery for children of members who make dinner reservations. Nursery will accept a maximum of 10 children.) Dinner, 6-9 p.m. All-you-can-eat buffet (baked ham, baron of beef, roast turkey breast, poached fish, chef's choice), \$6.95 (less \$1 discount for member and spouse showing C-Club membership card). Music, 7-11 p.m., by Together band.

Feb. 19 — Sunday brunch buffet, 10 a.m.-2 p.m. Tea dance, 1-4 p.m., music by Los Gatos.

Feb. 24 — Kids' bingo night. Buffet, 5 p.m., with cartoons and movies. Bingo starts at 7 p.m. Free hot dog and soft drink for all kids playing bingo.

Keep your schedules open for this future special event: *Tuesday, Feb. 28* — Fireside chat with UNM football coach Dennis Franchione. Jim Crouch, moderator, plus the UNM Chaparrals. 5-6:30 p.m. Free munchies. Open to all Sandia and DOE employees.

## ★ Congratulations

To Teri and Jeffrey (1518) Gruda, a son, Keaton Scott, Dec. 18.

To Carol (1322) and Jim Ashby, an adopted daughter, Lydia Marie, Jan. 26.

## Favorite Old Photo



"Preacher Lewis."

This picture, taken in front of St. James Episcopal Church in Mesilla Park, N.M., shows my father "Preacher" Lewis (in the derby), my mother Edith, their three older daughters, and Sid Howard (a student at New Mexico A&M) at the wheel of the new 1915 Studebaker. One of the early New Mexico ranchers told my father, "This country is so damn sorry, we can stay here a long time and never be bothered by anyone else." Little did they know a new type of pioneer would be coming — the engineer and scientist, who would perfect new weapons for the defense of our country and later direct these new sciences toward peaceful purposes.

— Hunter W. Lewis (retired)