

Labs Helps Keep Next Generation of Microchips Super Clean

Imagine a topographic map of New York City inscribed on your thumbnail — hundreds of skyscrapers, thousands of roads and alleyways, and multitudes of sidewalks and parking garages.

Now try to read that map. Or better yet, find a

basketball on some imaginary backlot court and flick it off that tiny terrain.

Seems like an odd challenge, but finding and removing speck-sized particles — so small they can't even be seen with an optical microscope —

from the detailed surfaces of thumbnail-sized microchips is what some researchers in Sandia's Microelectronics Development Laboratory are working hard to achieve.

The goal of the research is to develop new manufacturing equipment and processes that result in ultra-clean integrated circuits — contamination-free manufacturing (CFM), as it's called. The work is being conducted through the Contamination-Free Manufacturing Research Center, a national center of expertise for CFM research headquartered at Sandia. (See "CFM Research at Sandia — An LDRD Seed That Grew" on page four.)

'Killer' Contaminants

During manufacturing, if even the tiniest bit of debris falls on the surface of a microchip, it can alter the intended wiring pattern or cause a connection not to form, ruining the whole chip, explains Bob Blewer, Manager of Advanced Silicon Projects Dept 1305.

These days, he says, with feature sizes of a typical circuit approaching one-half micron (100 microns is about the diameter of a human hair), it takes only a one-tenth-micron particle to ruin a chip. (A "killer" defect can be caused by a piece of debris as small as one-fifth the size of a feature.)

And as feature sizes on integrated circuits shrink, researchers are having an increasingly difficult time finding and removing ever-smaller killer contaminants. "A particle that's less than the wavelength of visible light can't be seen, much less removed, by conventional methods," he says.

Tiny unwanted particles form in any number of
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TRICKY CONTAMINANTS — Nicole Korbe of Films and Operations Dept. 1323 artificially contaminates a silicon wafer by spraying silicon nitride particles onto its surface. Once contaminated, the wafer will be subjected to advanced cleaning techniques being developed at Sandia's Contamination-Free Manufacturing Research Center.
(Photo by Randy Montoya)



LAB NEWS

VOL. 46, NO. 3

SANDIA NATIONAL LABORATORIES

FEBRUARY 4, 1994

Technology Ventures Corporation

New Nonprofit Corporation Hopes to Show Entrepreneurs the Way to Profit

Though Sandians with bright ideas for commercializing a technology shouldn't immediately call Technology Ventures Corporation, TVC is still high on the list of possible ways to get an idea to market.

That's according to Sherman McCorkle, President of TVC. Forming TVC was one of the commitments Martin Marietta made last year in its proposal to manage Sandia. The company, a nonprofit New Mexico corporation founded by Martin Marietta, aims to assist technology-based start-ups and early-stage companies.



SHERMAN McCORKLE

"TVC has close ties to the Labs," says McCorkle, "but it's not a privileged or exclusive relationship. We don't

have any special rights to Labs technologies or ideas. And we'll be working with other institutions as well, such as Los Alamos National Lab, the Phillips Lab, and the New Mexico universities."

So, as has long been the case, Sandia employ-

ees with technologies they're interested in commercializing should talk first with Technology Transfer and Commercialization Center 4200. [The point of contact is currently Kevin Murphy (4204) on 271-7827.] After that, TVC could be the next step.

"We just need to make certain Sandia agrees that a start-up company is the best way to commercialize a given technology before we start to discuss it with Labs scientists and engineers," says McCorkle.

Being located within easy reach of the Labs — currently at Park Square, off Louisiana Blvd. — gives TVC an advantage in accessing Sandia technologies and possibly linking them with venture capital or other sources of funding for commercialization, he says. "We'll be here every day working with the Labs, not just occasionally."

Technology Matchmaker

McCorkle describes TVC as an important element of the commitment Martin Marietta made to DOE for technology commercialization and economic development. By helping businesses get started or expand, TVC should over the course of time also be helping to create new jobs.

Martin Marietta will contribute \$1 million a year for five years for the operation of TVC. Those funds come from Martin Marietta's fee
(Continued on Page Five)

Sandia Quality Leadership Council

'Alphabet Soup' Of Councils Is Now A Single Flavor

Sandia's alphabet soup of councils created to deal with various Labs activities — including the primary Sandia Management Council (SMC) — has been consolidated into a single group named the Sandia Quality Leadership Council (SQLC).

"The principal reason for this change is to make it clearer to all Sandians that quality, as it appears in Total Quality Management, is a concept that pervades everything Sandia does," says Labs President Al Narath. "Quality is a measure of how well we delight our many customers, external as well as internal, at a time when customer needs are escalating rapidly."

Executive Staff Director Virgil Dugan (12100) says the change was also made in the hope that it would provide more flexibility and allow SQLC members to concentrate their time on the most important issues, rather than being constrained by the more structured SMC arrangement.

"The thought was that by consolidating, council members would not have to face a compartmentalized agenda, but rather, be able to work from an agenda of topics needing attention at the time of the meeting," says Virgil.

Membership of the SQLC remains the same as for the SMC, he says: the Labs' Director (President), Deputy Director (Executive Vice President), Vice Presidents, and the Executive Staff Director. Also, he says Sandia managers who had been members of the various subcouncils — Sandia Quality Council, Sandia Program Council, etc. — will continue to deal with those issues, even though the subcouncils no longer exist. These managers will attend SQLC meetings when SQLC members need their specific input.

The newly named group will hold its first
(Continued on Page Two)

This & That

Record number of happy feet - Liz Scott-Patterson (5501) reports that Sandians were extra generous in their support of the latest annual "Shoes for Kids" campaign. Your donations totaling \$6,160 late last year bought new shoes for 280 elementary school kids in Albuquerque, 90 more than in 1992. Liz thanks everyone who donated money and time.

* * *

A great start! - I think a tradition was born this Tuesday, Feb. 1, when President Al Narath gave a well-attended State-of-the-Labs address to Albuquerque community leaders. This is one of many ways that the Labs is trying harder today to keep our communities better informed about what we are doing and to establish better working relationships with the leaders. Al also met with Albuquerque media that afternoon (see photo below).

* * *

Teeming with teams? - Have you noticed how few committees there are today? Almost no one suggests forming a committee any more, but "teams" are popping up everywhere. I am certainly in favor of teamwork, and we practice it in many ways in this department, but I also wonder whether we go too far in this direction sometimes. I recently read about a corporate employee who said he was spending so much time participating in teams that he didn't have time to get his own job done. So we don't get to the point where we are "teeming with teams," we need to be sure we don't put a team to work on a problem when an individual could do the job just as well, faster, and cheaper. It's worth thinking about.

* * *

Good definition - The buzzword "empowerment" is tossed around a lot these days, sometimes in vague ways I can't fully grasp. But I read a "definition" of empowerment that has some meat to it in a Sandia booklet issued last year by Sandia's Intelligent Systems and Robotics Center (ISRC) 2100. That passage says the staff must be prepared for the future by "encouraging them to push against the perceived boundaries of their most current responsibilities, and by providing them the opportunity, encouragement, and coaching to establish leadership or to branch out into new technical or programmatic areas. This is the definition of empowerment in the ISRC."

Center Director Pat Eicker may want to plug me for plugging the booklet if he gets too many requests for it, but *Charting the Course for the Intelligent Systems and Robotics Center* has much more good stuff in it for charting courses for other Sandia groups as well.

* * *

No roll model - Sometimes you must also serve as the target if you take shots at others who misuse words, use buzzwords, and experience notable typographic errors, and I'm a big target. In a back-page story in the last issue, I wrote the phrase "Sandia's retirement roles." I know *rolls* is the correct word, but in a weak moment I wrote *roles*, and our crack proofreading crew read right past it. Two Sandia retirees - Bob Austin and Ted Sherwin - were kind enough to contact me to point out my error. I sure hope their free LAB NEWS subscriptions don't get fouled up.

* * *

Made to be broken - I promised my wife, Renae Perrine (6200), that I wouldn't announce that she turned 40 this week. I lied. ●LP

(Continued from Page One)

Leadership Council

meeting Monday, Feb. 7, and Virgil says it will generally retain the same schedule of meeting the first and third Mondays of each month.

"There will probably be more emphasis on 'program' subjects during the second meeting of the month, just to retain that convention, but the SQLC would not necessarily be limited to program business on that day," he says. Similarly, the SQLC will generally address, but not be limited to, non-program business during the first meeting of the month.

The SQLC's newly defined purpose, he says, is to:

- Continuously improve Sandia's ability to satisfy laboratory customers and stakeholders.
- Assist in the executive decision-making process.
- Advise the executive office (the Labs' Director and Deputy Director) on corporate/strategic-level issues.
- Help ensure complete, coherent understanding of laboratory status, as well as management and operations policy and practice.
- Build effective teams within the executive management group.
- Set and track corporate metrics.

Clarification of Council Purpose

Among the benefits expected from the consolidation and new name, Virgil says, is a clarification for all Sandians of the SQLC's leadership role in quality, defined in its broadest, all-encompassing meaning.

"People have generally thought the council made decisions," he says. "In fact, the principal focus is on reviewing progress, stimulating discussion of important programmatic and policy issues, and providing opportunities for the members to exchange information in a timely manner. It is also an advisory group serving the Labs' Director."

Decisions fall into three types, says Virgil: The Director makes the decision based on council advice; he seeks a consensus decision; or he delegates the decision to someone else.

The second type, he says, is the most characteristic of Sandia.

Virgil says the less structured format designed into the new council arrangement is expected to give members more opportunities for activities such as group visits to specific divisions or facilities for firsthand looks at Labs work, and talks with Sandians about specific topics. ●HK

LAB NEWS

Published Fortnightly on Fridays by
Employee Communications Department 12660

SANDIA NATIONAL LABORATORIES
An Equal Opportunity Employer

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LIVERMORE, CALIFORNIA 94550-0969
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MARTIN MARIETTA



AL MEETS THE PRESS - Sandia President and Labs' Director Al Narath discusses Sandia's status today, where he thinks the Labs is going, and why at a Feb. 1 press conference that preceded his first State-of-the-Labs address to the Albuquerque community that evening. Al explained that Sandia will be working harder to keep Sandia's communities better informed as the Labs evolves into an institution that is increasingly involved in post-Cold War programs to help US business and industry excel in the world economy. At the evening presentation, Sandia, the Greater Albuquerque Chamber of Commerce, and the Albuquerque Hispano Chamber of Commerce signed agreements to collaborate in several ways to help New Mexico businesses. Both Chambers will receive about \$10,000 to help identify and qualify clients for technical assistance from Sandia, identify the needs of local businesses, and make recommendations about how to make Sandia more accessible to small businesses. (Photo by Mark Poulsen)

Saving Hundreds of Miles a Week

Home Work Gets Passing Grade from Sandia Telecommuters

While thousands of Bay Area "road warriors" spend frustrating hours stuck in bumper-to-bumper traffic each day, a few pioneering Sandians have reduced their commute time to a 10-second stroll from breakfast table to desk.

That's thanks to a pilot telecommuting program now offered at Sandia/California. Employees

Consistent schedules are proving to be an essential ingredient of telecommuting for these Sandians.

who qualify for the program work part of each week in their home offices, with phone, computer, and fax connections to Sandia.

Originally a corporate program proposed last spring, the program was developed to better understand issues surrounding a telecommuting policy. After Charlie Emery, Vice President of Human Resources Div. 3000, approved the pilot concept, Jo Sandelin of Personnel and Employee Resources Dept. 8522 was named pilot project manager and telecommuting coordinator.

"The telecommuting program is an excellent concept for two major reasons," Jo says. "One, it accommodates employee needs by helping to improve their quality of life while increasing job productivity. Telecommuting also may allow Sandia to employ certain workers, including disabled persons, who would otherwise face great difficulty in getting to work."

Helps Meet Air-Quality Regs

"Two, the program helps meet regulations passed by the Bay Area Air Quality Management District and Alameda County that call for large employers to limit the number of single-occupant automobiles driving to and from their sites," Jo continues.

To date, the one-year pilot program — which began Nov. 1 — has attracted four participants. Two of them are Karinne Gordon, a part-time technical writer in Technical Communications Dept. 8535, and Nathan Good, an architect and facilitator with Facilities Planning Dept. 8611.

Karinne, who lives in Tracy, signed up for telecommuting because of child-care concerns, while Nathan saw an opportunity to cut down on his daily 200-mile, 3½-hour round-trip commute between Santa Rosa (Calif.) and Livermore.

Jo expects more Sandia employees to take advantage of telecommuting. "Although we currently have only a small number of employees in the program, many other people could benefit from it," she says.

Solving a Child-Care Dilemma

"I applied for the telecommuting program when my child-care arrangement changed, and I



LEARNING ABOUT computers at an early age, two-year-old Jonathan Gordon watches his mother Karinne (8535) at work in their Tracy home.



DEMONSTRATING HE "has phone — will travel" is Nathan Good (8611), who spent a lot of time in his car during the 200-mile daily commute until telecommuting was adopted as a pilot program by Sandia/California.

needed to spend more time with my two-year old son, Jonathan," says Karinne, who works 25 hours per week. "I spend about 80 percent of my time at the computer, so it's just as easy to work at home as on-site."

At home, Karinne edits technical documents, marketing publications, and brochures using a Macintosh computer with a fax-modem that lets her exchange documents with her customers. Once cc:Mail — Sandia/California's internal e-mail — is fully up and running, the system's dial-in capability will allow Karinne to transfer on-line documents directly to computers at the Labs.

"My department manager, Bob Tucker [8535], has been extremely supportive," Karinne says. "We both felt this experiment would work out well because the results I produce for my customers will show if I'm putting the required time into projects."

"The program represents a change, so some people remain skeptical about it," Karinne continues. "I feel that it's a matter of time until most people are comfortable working with telecommuters. The key is that I accomplish my work on time, and my customers are happy with their final product."

Long Commute Took Toll

When Nathan Good joined Sandia 18 months ago, concern over defense spending cuts and the announcement of a new operating contractor made moving his family from Santa Rosa to the Livermore area uncertain at the time. Instead, Nathan commuted about 1,000 miles per week, often spending 3½ hours in his car each day.

"I would leave my house at 4:30 a.m. to arrive at Sandia by 7 a.m., and often worked long days to avoid the afternoon rush-hour traffic," says Nathan. "Although I listened to good music and books on tape in the car, the commute created stress, increased my risk of having an auto accident, and was taking its toll on my family life."

Nathan's current architectural duties include designing a new Visitors' Center, maintenance materials storage facility, and commons area that will serve as a new entrance for the California site.

According to Nathan, his job is a perfect match for telecommuting. "Much like a writer, I need long periods of uninterrupted, concentrated work

time to develop ideas and document them on the computer to generate a sound graphic presentation," he explains.

"At Sandia, people often call or stop by my desk throughout the day, so it's difficult to get the concentrated time I need. By working at home on Tuesdays and Thursdays in my private architectural studio, I can concentrate without distractions.

"I installed a separate phone line for my Sandia work, and do not answer personal phone calls during the day," he continues. "Telecommuting has worked well for me because of my private office, but if someone attempted to do this working at their dining room table, I'm not sure how effective it would be for them."

At home, Nathan uses a Macintosh computer to generate building designs, then brings the

"By working at home . . . I can concentrate without distractions."

diskettes to the Labs on days he works on-site. In the future, the Macintosh will be linked directly with a new drafting system, allowing Nathan to exchange project files via modem.

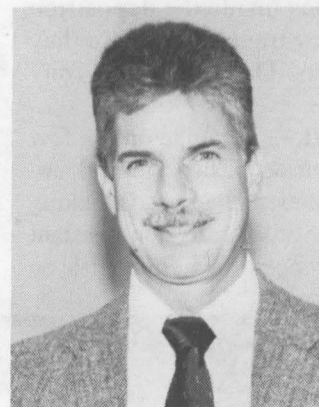
Both Karinne and Nathan keep to a consistent schedule so that co-workers know how to get in touch with them. They agree that this is one necessity for making telecommuting work.

Employees at Sandia/California who are interested in receiving a comprehensive information booklet that describes all guidelines and other aspects of the pilot telecommuting program may contact Jo Sandelin on 294-2073. •MSheehan

SANDIA CALIFORNIA NEWS

Supervisory Appointment

DON HALL to Manager of Financial and Technical Library Dept. 8523.



DON HALL

Don joined Sandia at Albuquerque in 1983 as an MLS in Engineering Information Systems, working on the design of a new data base and computer system. In 1985 Don transferred to Livermore to work in the Design Definitions Department in engineering procedures.

In 1991 he became the Administrative Assistant for Center for Engineering Services 8200.

Don has BS degrees in biochemistry and computer science from the University of Minnesota and an MBA in information science from the University of Texas at Austin. He worked for Texas Instruments in Austin for five years in computer programming and systems analysis.

He was an adjunct professor at the University of New Mexico in 1984-85 and is active in the Institute of Electrical and Electronics Engineers and the Association for Computing Machinery. •

(Continued from Page One)

Clean Microchips

ways during manufacture, says Bob. They may form during chemical vapor deposition, for instance, when metal-bearing gas molecules used in the deposition process leave a thin metallic film on the deposition chamber walls; the metal film can later flake off, contaminating a wafer wherever the debris falls.

A tiny bit of water vapor that gets inside the deposition chamber (as little as one part per billion) can also stimulate particle formation, he says.

In the not-too-distant past, wafer manufacturers were willing to chalk up a certain number of defective chips per wafer as an acceptable sacrifice, says Bob. Not anymore. Because of the high cost of processing each wafer, manufacturers are not willing to give up even eight to 10 defective chips per wafer. (A typical wafer contains 150 to 250 microchips.)

Thus, US chip makers are turning their attention to the equipment used in chip manufacturing

“Being able to rescue one chip per wafer can save a company millions of dollars per year.”

— chemical vapor deposition chambers, etching chambers, clean rooms, etc. — as well as to the techniques used to build wafers.

“Being able to rescue one chip per wafer can save a company millions of dollars per year,” Bob says. “The better the equipment and the cleaner the manufacturing step, the better chance the microelectronics industry has of being profitable.”

Cleaner Wafers

Through the CFM Research Center, Sandia and SEMATECH (a consortium of semiconductor manufacturers) have offered to help US chip makers develop the next generation of ultra-clean wafer technologies. Already SEMATECH has asked the Labs to focus on four technology areas that show promise for helping keep wafers clean, or for “saving” wafers that have already been contaminated.

Defect formation — Sandia is studying ways to design chemical vapor deposition chambers so that metal-bearing gases are whisked away from wafer surfaces and chamber walls more efficiently, before contaminants form. Labs researchers are using advanced computer modeling techniques to study the path of particles inside the deposition chamber, seeing how they travel and where they form. (Technical contacts: Dan Rader and Tony Geller, both 1512)

Sensor development — Because only a few molecules of water vapor inside the deposition chamber can cause particle formation, the Labs is looking at ways to develop ultra-sensitive, corrosion-resistant sensors to detect the presence of water, as little as

PAUL RESNICK of Radiation Technology and Quality Assurance Dept. 1332 places a pod full of contaminated silicon wafers into a wet station. The wafers will be subjected to a contaminant-removal technique, called megasonic cleaning, that uses sound waves and dilute chemical solutions to agitate particles and remove them from the wafers' surfaces, thereby “saving” individual microchips.



CFM Research at Sandia — An LDRD Seed That Grew

At Sandia, contamination-free manufacturing (CFM) research began three years ago under the auspices of Sandia's Laboratory Directed Research and Development (LDRD) program, a program that allows Sandia to identify and direct a portion of its R&D funding into emerging research areas.

A year after Sandia began the research, SEMATECH wanted more. Together the two created the national Contamination-Free Manufacturing Research Center, headquartered at Sandia and coordinated through a five-year cooperative research and development agreement with SEMATECH. The center opened in summer 1992 (LAB NEWS, June 12, 1992).

Today the center has grown to include several major industrial partners and universities

and is moving toward becoming a self-sustaining national center of expertise, says Bob Blewer, Manager of Advanced Silicon Projects Dept. 1305.

“This is a good example of an LDRD seed that really grew,” he says. “Previously, there was no national scientific coordination on ultra-clean wafer manufacturing technologies. Since industry discovered we were here, it's a little like drinking water from a fire hose.”

Building on SEMATECH's continued support, the center is experiencing a steady growth of participation from government and industry. Research money from the Labs' National Center for Advanced Information Components Manufacturing (NCAICM), an industry user facility, supplements the industry support.

one part per billion, says Bob. “We hope to be able to blow the whistle on a few molecules of water in a billion gas molecules,” he says.

One possible detection method, direct absorption spectroscopy, may be able to detect less than 10 parts per billion of water. Laser techniques may also detect water molecules in the one-part-per-billion range.

Similar sensors are being developed that can detect a variety of minute contaminants other than water, he says. (Technical contact: Ray Goehner, 1821)

Improved wafer environments — During wafer manufacturing, small enclosed pods are used to store and transport wafers in between manufacturing steps. These sophisticated “wafer houses” have a controlled atmosphere that keeps the wafers free of possible contaminants.

Unfortunately, the plastic pods can “outgas” organic contaminants in tiny amounts, creating an organic layer on a wafer's surface and causing metals not to stick during deposition. Sandia is helping design tiny on-board sensors that can monitor the state-of-health inside the pods, including temperature, presence of organic contaminants, changes in conditions, and presence and size of contaminant particles. (Technical contacts: Dale McIntyre, 1841; Alan Liang, 6411)

Wafer cleaning — “Conventionally, if we suspect or measure contamination on a wafer, we can run it through a cleaning solution that helps to lift off particles from the surface, thereby preventing defects on individual microchips,” says Bob.

The technique most commonly used for particle removal is called megasonic cleaning, in which a cleaning solution and high-frequency sound waves are used to remove particles from a wafer's surface. Although the technique has been in practice for many years, it is not well understood.

Research at Sandia has shown that with selected sound wave intensities and dilute solutions, this method can be used to remove much

smaller particles than previously possible. Megasonic cleaning also dramatically reduces the amounts of chemicals and water required to clean the wafers. Future Sandia work will target a better understanding of how to remove such particles after the wafers have been polished. (Technical contacts: Paul Resnick, 1332; Carol Adkins, 1841)

Several other wafer cleaning techniques are also under scrutiny.

Research Benefits Industry

Bob says CFM research at Sandia is expected to give the US electronics industry a boost in its effort to reclaim its share of the world market. “In 1993, the electronics industry was the largest manufacturing industry in the world and the largest employer in the US — bigger than the steel, automobile, and aerospace industries put together,” he says. “Microelectronics is the most competitive portion of the electronics industry today.”

He adds that Sandia's help in designing the next generation of microelectronics manufacturing equipment is particularly significant in times of rapidly advancing IC technology. “The cost of a new chip fabrication facility today is more than a billion dollars,” he says. “Every three years the microelectronics industry advances to a new

“It's increasingly important that the US regain and maintain a leadership position in chip making.”

generation of microchips, often requiring new equipment.”

Because equipment is a large portion of the cost of a new plant, any improvement will benefit manufacturers. Sandia research projects include the participation of equipment makers as well as wafer manufacturers, he says.

Many of the CFM technologies under development at Sandia are useful outside of wafer manufacturing. For instance, sensors being developed for monitoring contamination inside deposition chambers can be adapted to monitor smokestack emissions or clean room air at microelectronics plants and other environments.

“Because of the enormous advantage superior microelectronics afford in commercial and military applications,” says Bob, “it's increasingly important that the US regain and maintain a leadership position in chip making.” ●JG

Employee Death

Patsy Mahan of Custodial Services Dept. 7615 died suddenly Jan. 14.

She was 56 years old.

Patsy was a team supervisor and had been at Sandia since 1978.

She is survived by two daughters and two sons.

Sandia News Briefs

Don Pierce Elected President of Professional Society

Don Pierce of Reliability Physics Dept. 2276 was recently elected president of the Electrical Overstress/Electrostatic Discharge Association (EOS/ESD), a 2,000-member international professional society. The EOS/ESD addresses reducing damaging effects of electrical transients on electronic equipment and devices, a major problem in the microelectronics industry. The association sponsors an annual symposium on the subject, conducts tutorials across the country, awards university research grants, and develops test and measurement standards for industry use.

Sandia to Help DOE Prove Advanced Cleanup Technologies

Mike Hightower of Environmental Characterization and Monitoring Systems Dept. 6612 is the technical coordinator in the new DOE Innovative Treatment Remediation Demonstration Program. The program is sponsored by DOE's Office of Environmental Restoration and Waste Management. Mike will work with DOE to select sites for demonstrating new technologies that have not yet achieved widespread acceptance in the private sector. He will also help select participants from the Environmental Protection Agency, DOE, and private industry. Jim Phelan, Environmental Restoration Technologies Dept. 6621, is on a technical group that suggests technologies for demonstration, and Vince Loyola (6612) is a member of the technical group that evaluates the technology performance. The first project in the program will evaluate use of groundwater remediation treatments at DOE's Pinellas Plant in Florida, operated by Martin Marietta Specialty Components. Several new projects are being planned, using the Pinellas model. Contact Mike on 844-5499 for information.

Safety Symposium Set for July 12-14 at Sandia

Surety Assessment Center 12300 will host a symposium on high-consequence operations safety July 12-14 at Sandia/NM. The symposium is being held to share strategies, methods, and experience in avoiding high-consequence accidents or incidents. Discussions and special presentations will include protective technologies, assessment processes, and lessons learned from high-consequence events in areas such as weapons, mining, power reactors, and food processing. Potential contacts, suggestions for the symposium, and papers and abstracts are invited. Contact Angela Campos, Systems Studies Dept. 12331, on 844-4721, fax 844-9225.

Supercomputing '94 Scheduled for Nov. 14-18 in Washington

Supercomputing '94, the seventh annual high-performance computing and communication conference, will be held Nov. 14-18 in the Washington, D.C., Convention Center. In addition to serving its traditional purpose of advancing supercomputing technology, this year's conference will focus on computational science and engineering research and education. Applications to biology and medicine, design and manufacturing, and environmental issues will be emphasized. Submission deadline for papers, tutorials, roundtables, and panel sessions is April 4. For information, call 515-294-0673, fax 515-294-0888, E-mail info@sc94.ameslab.gov.

WIPP Tour Starts Off Quality New Mexico Conference April 7-8

Quality New Mexico's April 7-8 Conference and Awards Ceremony will begin with a 9 a.m. tour on Thursday of the Waste Isolation Pilot Plant. A reception and dinner follow the all-day tour. On Friday, April 8, speakers from around the country who are implementing total quality in business, education, and government will present success stories and lessons learned. Registration fee is \$95. Call Quality New Mexico Executive Director Julia Gabaldon on 242-7903 for more information. Julia is a Sandia Loaned Executive to Quality New Mexico, which was formed to promote and develop statewide focus on quality practices in New Mexico.

Send potential Sandia News Briefs to LAB NEWS, Dept. 12660, MS 0413.

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Technology Ventures

for managing and operating Sandia.

TVC is not a Martin Marietta venture capital fund, however. It is an intermediary that won't invest in the companies it assists. "You might think of us as a matchmaker who locates a promising technology, helps package it for commercialization, and then assists in presenting it to appropriate financing sources," says McCorkle.

TVC won't just find money and then leave a company to sink or swim, he says. "When a new company starts up or a small one expands, investment money alone isn't enough to ensure success. We'll be there to help those companies get the assistance they need in management support and business development."

Though TVC will be working with Sandians in both New Mexico and California, the location of TVC in New Mexico means that most of its early efforts will be focused in that state — both with the Labs and in developing relationships with other federal labs and with research universities.

Labs Will Encourage Entrepreneurs

Warren Siemens, Director of Org. 4200, says, "The Technology Transfer and Commercialization program plans to encourage the entrepreneurial interests of Sandians by providing a focal point for interactions with TVC, changing our leave-of-absence policy to allow Sandians to return within a limited time, and providing training and referral

services to would-be entrepreneurs."

TVC expects to work out agreements with several venture capital firms that will be sources of funding for technology commercialization. Each firm with whom an agreement is signed will be expected to have at least \$10 million in uncommitted funds that can be invested in technology start-ups. The first of those agreements, with San Francisco-based Technology Funding Inc., is already in place.

TVC is currently evaluating about 20 ideas for possible commercialization, though that process is still in the initial stages.

In March, TVC will move to the University Center Research Park, at 851 University Blvd. SE. In about a year, the company expects to occupy a new 50,000-square-foot building at University Center.

Besides housing TVC staff, the new building will provide space for other organizations involved in technology commercialization, such as New Mexico Industry Network Corporation. Others who will probably be located in the facility are technology transfer staffers from Sandia and Los Alamos national labs, universities, and DOE, as well as people from venture capital firms with whom TVC has agreements. ●

Retirement Open House

The Labs is holding an open house in honor of retiree **Allen Church (9332)** at the Kirtland AFB Officers Club (east), Ground Zero Lounge, Thursday, Feb. 17, 4:30-7 p.m. Refreshments will be served. Friends and acquaintances are invited.

Take Note

University of New Mexico Women's Career Development Program is looking for female scientists and engineers in the Albuquerque community to become mentors to female college students. The program seeks to increase the retention rate of female students in science and engineering by providing them with a relationship with an experienced professional in the Albuquerque community. A workshop will be provided for mentors. For more information, call Carol Fleming on 277-4774 or 277-2605.

Hair-raising electric shows, eye-popping laser demonstrations, and magical chemistry shows are promised at the third annual Jefferson Community Science Extravaganza on Saturday, Feb. 12, 1-4 p.m., at Jefferson Middle School (Lomas and Girard NE). Learn how to make a kaleidoscope, and meet hawks, snakes, and other creatures at this benefit for Jefferson's math and science department. Cost is \$3 for folks ages 14 and up, \$2 for those 6-13, and children under age 6 get in free.

The Rio Grande Chapter of the Association of Records Managers and Administrators will host a two-day education seminar, "Records Management — Take It to the Next Level," Feb. 24-25. Topics to be covered include active filing systems, implementing records management programs, vital records, cost benefit analysis, and evaluating imaging needs. For more information, location, and times, contact David Gaynon (7145) on 845-9824.

Employee Death



ROBERT LEDERER

Robert Lederer of Advanced Fuzing Development Dept. 5166 died suddenly Jan. 21.

He was 51 years old.

Robert was a senior member of the technical staff and had been at Sandia since 1963.

He is survived by his wife, two sons, and a daughter.

Sympathy

To Otto Simon, Jr. (2863) on the death of his father in Chicago, Dec. 25.

To Bill Rahe (1956) on the death of his father in Albuquerque, Jan. 16.

To Stephen Passman (6212) on the death of his mother in Tampa, Fla., Jan. 19.

Card of Thanks

Monalisa Davenport (7615), her husband Delbert, and their children were severely injured in a car accident on Oct. 9, 1993, while on their way to the Balloon Fiesta in Albuquerque. Mona's mother was killed in the accident.

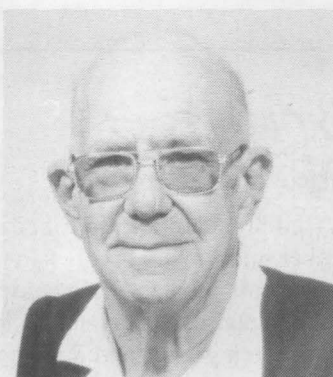
My family and I are extremely thankful for all that people at Sandia have done for us. I am more than thankful for knowing such an outstanding group of people. My husband recently received his prosthesis. I have graduated from a wheelchair to crutches. The same goes for my niece. She is also rid of her partial body cast. Our two sons who were also in the accident are healthy. Thanks to the good Lord, soon we will all be up and about. I don't know if I would have been able to go through what I have without friends like all of you. Thank you all for your support and prayers. Above all, I thank you for being there for my family and me.

Monalisa Davenport (7615)

MILEPOSTS

LAB NEWS

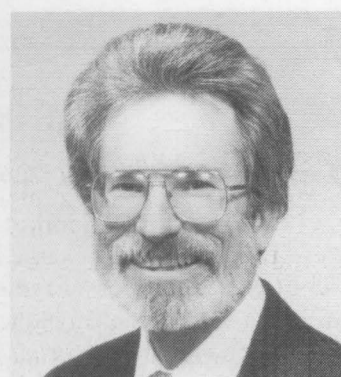
February 1994



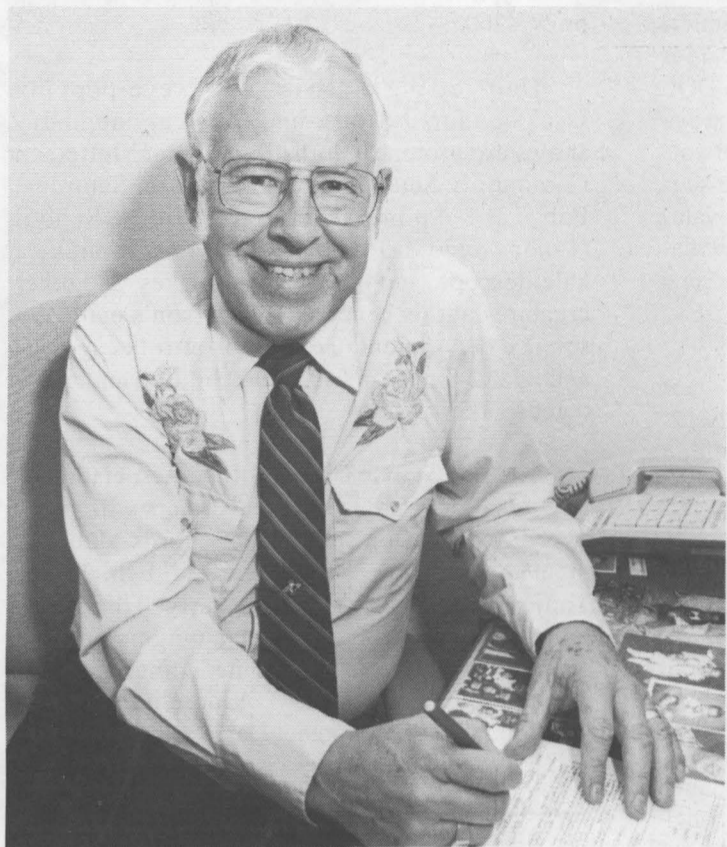
G. W. "Bill" Walker
12367 45



Theresa Apodaca
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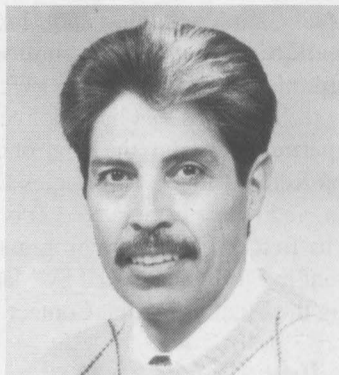
Tom Barger
5931 25



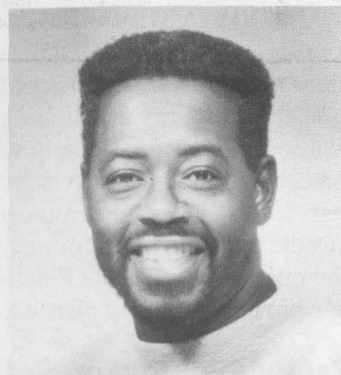
Melquiades "Mickey" Sanchez
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Garland Tilley
7259 20



Joe Santana
2883 25



Vernon Wallace
2473 15



Marshall Berman
6515 25



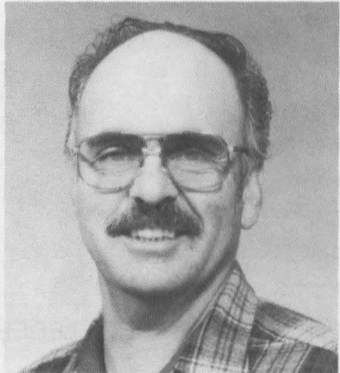
Stanley Edmund
6352 15



Arlan Andrews
2902 30



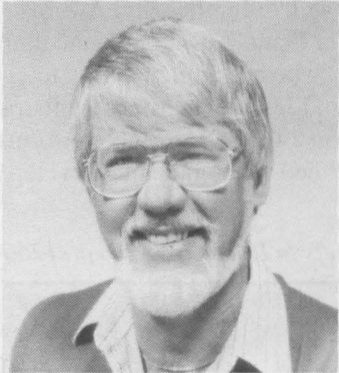
Keith Gawith
2481 30



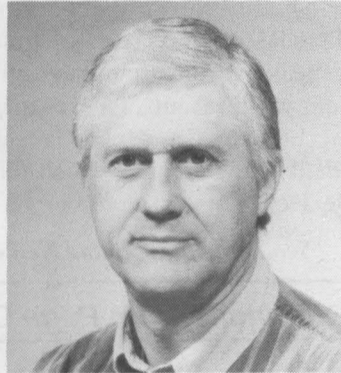
Louis Sanchez
7617 20



James Schwank
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Floyd Braaten
2653 25



Dave Waymire
5941 20



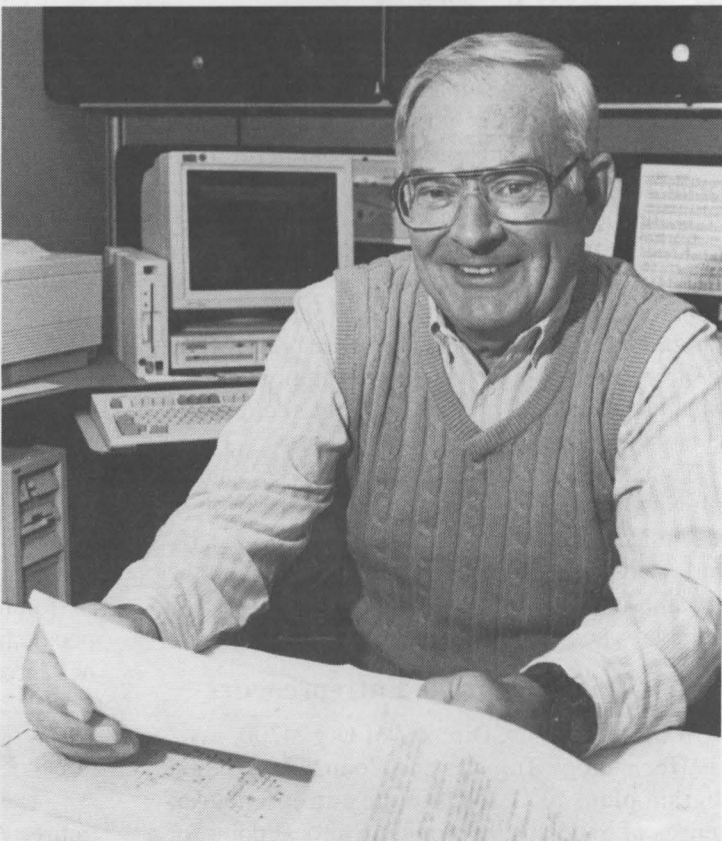
Ted Simmons
8284 25



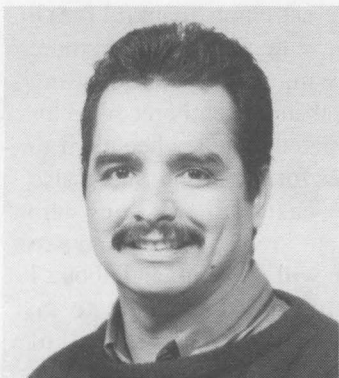
Sandy Ferrario
5361 20



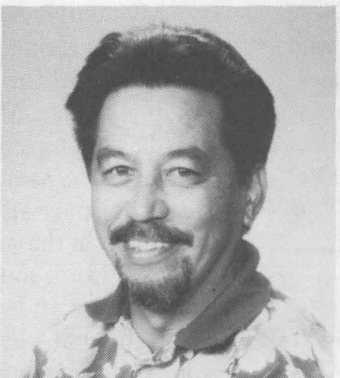
Stanley Meyer
2703 30



Sherwood Duliere
12336 35



Robert L. Martinez
9249 15



Patrick Tamayo
8283 20



Shelia Daigle-Beard
8641 15

Take Note

Mardi Gras comes to Albuquerque Saturday, Feb. 5, 6-10 p.m., in the form of a masked costume ball to benefit the American Cancer Society at the Ramada Hotel Classic. Costumed revelers can dance to the sounds of New Orleans-style jazz bands and eat Cajun cuisine. Prizes are offered for the most beautiful, most handsome, most humorous, and most creative costumes. A silent auction

features a wide variety of items donated by local businesses. Proceeds from the ball will be used to fund community public education programs, support services for adults and children living with cancer and their families, and for cancer research. Tickets are \$30 per person and \$50 per couple. For tickets and information, call the American Cancer Society on 262-2333.

Fun & Games

Bowling — SANDOE Bowling Association December Bowlers-of-the-Month are: Scratch — Sharon Voccio (5905), 536; and Handicap — Dora Gunckel (6400), 520 and 646. Steve Winters (9323) won the Four-Game No-Tap Tournament at Holiday Bowl Jan. 22-23 with an 827 handicap series. Second place went to Fred Gunckel (2643) with an 825 handicap series. The next tournament will be a best-ball on Feb. 12-13 at Fiesta Lanes.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

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

Ad Rules

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

MISCELLANEOUS

TRAVEL TRAILER, 20-ft., loaded, water cooler, TV antenna, propane/electric refrigerator, two holding tanks, awning, sleeps five, excellent, \$2,500 OBO. Stayner, 275-0259.

MOVING BOXES, and packing materials, free. Carroll, 281-6209.

WATERBED, queen-size, mahogany, mirrored, shelved headboard, 6 storage drawers, \$275 OBO; bar stools, three, sturdy, padded seat and back, \$15/ea. Chavez, 294-4184.

WOODBURNING STOVES, Sierra or Avolon; 1920 antique coal stove; all in excellent condition; TV stand. Ask for Steve. Garcia, 343-8207.

DUPLEX RECEPTACLES, 12; 24 light switches; six 3-way switches; two dimmer switches. All 120 Vac w/some switchplates. Bailey, 281-4383.

HORSE TRAILER, '89 3-horse slant, bumper-pull, saddle racks, lots of travel storage, \$4,500. Bitsui, 897-1268.

PICCOLO, \$200; trumpet, \$35; saxophone, \$25; Maytag washer, old, works, \$65; Western Electric dryer, works, \$25. McGee, 857-0661.

SKI WEAR, woman's size 12, White Stag, bibs, jacket, sweater, hat, gloves, muffler, pink/navy, worn twice, \$100. Seyfer, 292-0179.

MAGNAVOX STEREO, belt drive turntable, dual-cassette, CD player, \$135; baby changing table, \$40. Sanchez, 873-2058.

'84 POP-UP CAMPER, sleeps six, refrigerator, stove, outside snap-on enclosed awning, rarely used, \$1,500 OBO. Campos, 275-7830.

NAGELS SERIGRAPHS. Martinez, 255-5515.

SINGLE PEDESTAL DESK, cherry wood, 4-drawer, slide-out work panel, 42"W x 30"D, \$85. Green, 281-4533.

PUEBLO POTTERY, three bowls, \$90, \$105, \$130; large wedding vase, approx. 21-in., \$475; cedar chest, lid has padded top, good condition. Locher, 266-2021.

FINANCIAL SOFTWARE, Quicken version 3.0, for the Mac, \$20 OBO; Game Boy game packs, \$13/ea. OBO. Poulter, 291-0607.

FLY ROD, Scott 7-1/2-ft., for 2-3 weight line, compound taper, sock, tube, \$195. Nichols, 281-0801.

OAK CRIB, Simmons, w/mattress, \$100; large oak changing table, \$50; Perego twin carriage, \$125. Cap, 294-2741.

DIAMOND SOLITAIRE RING, woman's, 14k gold setting, never worn, \$300 OBO. Langlois, 293-3097, leave message.

STEREO, Yorx desktop, dual-cassette, AM/FM, CD, excellent condition except for cassette player which needs repair, \$65. Dunivan, 296-3937.

COMPUTER, Zenith Z-100, w/amber monitor and dual floppy drives, runs on Z-DOS system, \$220 OBO. Adkins, 271-0025.

GE ELECTRIC STOVE, continuous cleaning, harvest gold, excellent condition, \$100; Yamaha silver-plated flute, w/case and stand, \$100. Langwell, 293-2728.

ARTIFICIAL CHRISTMAS TREE, 6-1/2-ft., scotch pine, \$25; bathroom mirror, 34"x34", \$15; medicine cabinet, light fixture, \$10; Avon collectibles. Bisbee, 293-0356.

IRISH SETTER PUPPIES, 7 weeks old, AKC-registered, 1st shots, parents on premises, \$300. Johnson, 865-9762.

FUTON, queen-size, 4-in.-deep cotton, w/pine frame, absolutely clean, firm, \$175. Eckles, 843-8686.

MINOLTA CAMERA, 35mm Reflex, single-lens, probably needs repair, two 50mm lenses, f 1.7 and f 1.4, \$40 all, make offer. Ludwick, 296-6447.

WATERBED, king-size, semi-waveless, deep drawer pedestal, bookcase mirror headboard, padded rails, paid \$750, sell for \$375. Davis, 294-1048.

PICNIC TABLE, w/benches, \$20; girl's roller skates, white leather, size 6. Lippis, 898-8429.

WORD PROCESSOR/TYPERWRITER, Panasonic, easy-to-use, plus extra equipment, good condition, \$150 OBO. To, 296-1933.

STUDENT DESK, double pedestal, dark finish, \$40; two Kaye's breakfast bar stools, flower pattern seat and back, \$40. Stone, 821-5070.

DRESSER w/hutch, \$50; oak veneer TV stand, swivel top, \$25; Hoover upright vacuum, w/bags and belts, \$15. Branstetter, 292-5978.

GIUITAR, SG copy, hardshell case, practice amp, \$350 OBO; acoustic guitar, softshell case, \$50 OBO. Schultz, 275-9349.

GAME BOY, 12 games, carrying case, cleaning kit, battery charger, two years old, all for \$150. Parker, 866-1468 leave message.

BUNK BEDS, set, \$150; two Playschool twin comforters, blue, matching sets of sheets, curtains, rug, \$65. Mayer, 299-8524.

SNOW TIRES, Goodyear Suburbanite G70-14 belted, on 15-in. wheels, like new, \$30/ea. or \$40 for pair. Dybwad, 296-9047.

GOLF CLUBS, Golfsmith, two sets, \$100 and \$140. Dwyer, 271-1328.

SOFA SLEEPER & LOVESEAT, oak trimmed, neutral pattern, \$300 for both; step bumper, for late model Ford pickup, \$25. Monroe, 296-2170.

GUNS: .44 Mag Desert Eagle, w/2-6X Redfield, extras, \$1,000; .22 Ruger Pistol, 6", \$125; .22 Marlin automatic rifle, w/4X, \$50. Ennis, 836-0504.

ROTTWEILER PUPPIES, AKC/OFA-registered, 6-weeks, male and female, have first shots, \$450 OBO. Cordova, 881-0343 or 837-2475.

'77 CAMP TRAILER, 17-ft., oven, two-way refrigerator, heater, toilet, hot water heater, brakes, very clean. Schaub, 865-8807.

SOLOFLEX, w/butterfly and leg attachments, excellent condition, \$700 OBO. Bradley, 836-6650.

SKI RACK, Barrecrafters Model SX72, fits medium to large cars w/rain gutters, excellent condition, \$50. Adelmann, 898-0335.

PRINTER, dot-matrix, Panasonic KX-P1123, 24-pin, \$100. Ruby, 821-0982.

SOFA, French provincial cut velvet; velvet occasional chairs, blue, gold; dining set, 6-piece, maple. All excellent condition. Swinford, 255-9270.

STEREO RECEIVER, Lloyd's Model #R720, \$15; Lloyd's speakers, model #WW099, \$15, or all for \$25; ski rack \$30; houseplants. Dixon, 298-5617.

EXERCISE MACHINE, Easy Glider, like new, \$40; Phoenix juice extractor, drink your fruits and vegetables, excellent condition, \$80. Liguori, 256-3613.

BAR STOOLS, four, white, excellent condition, \$125; wood side racks, for Ford LWB, \$35; wood screen doors, two, 36-in. Garcia, 888-3686.

CAMERA, 35mm, 35-135 power zoom, macro, databack, automatic, manual, advanced Richo Mirai, new condition, cost \$610, asking \$210. Rainhart, 821-3690.

COMPUTER, Macintosh Classic 2/40, Imagerwriter-1 printer, software, \$600 OBO. Maynard, 277-3869.

HOSPITAL BED, electric, brand new, never used, \$350; organ, Lowery model Festival PCM, two keyboards, recording capability, make offer. Westfall, 884-4526.

CAST-IRON SINK, white porcelain, classic design, approximately 19"W x 17"D x 8.5"L, free, don't let me throw this away. Martin, 260-1952.

YAMAHA CLAVINOVA, Model CVP5, w/several ROM music books, \$1,800 OBO. Westfall, 884-8701.

HEWLETT PACKARD PLOTTER, 7595A, plots A-E size, \$2,100; drafting table, 3' x 5', w/drawers, \$150; drafting machine, Vemco, \$30. Davie, 281-9136.

WATERBED, custom-made, king-size, tall bookcase headboard, eight drawers on slides, two cedar-lined sections, excellent condition, \$550 OBO. Eaton, 293-0166.

COLOR PEN PLOTTER, HP7475, like new, \$275; stair-stepper, \$50; rowing machine, \$65; food dehydrator, \$50 OBO. Eaton, 293-0166.

SKI MACHINE EXERCISER, \$90; Tandy 1000 HX computer, w/color monitor, Deskmate software, \$75 OBO. Stichman, 856-6242.

PA SYSTEM, Peavy, 100W amplifier, 50W channel output, input for four microphones, two 16-ohm speakers, \$350. Douglas, 281-9843.

BED, extra-long, 80", twin-size, two mattress & frame, \$50; antique walnut headboard, twin-size, \$75. Nagel, 298-2779.

BACKPACKS, two, metal frame, excellent condition; port-a-potty; chain saw, 18-in.; large pillow chair. Hanson, 298-2120.

HITACHI COLOR TV, 19-in., w/stand, excellent condition, \$100. Aragon, 881-4795.

BIRD CAGE, w/custom stand and cover, ideal for cockatiel and smaller, \$25 OBO. Burke, 266-2334.

GERMAN SHEPHERD PUPPIES, white, four, intelligent, parents on premises, must see. Gutierrez, 877-1076.

TRANSPORTATION

'91 MAZDA TRUCK, B2600si, AT, PS, PB, AC, camper top, extended cab, low mileage, must see, \$8,500 OBO. Langlois, 293-3097.

'89 OLDS CUTLASS CALLAIS, PB, PS, AC, PW, new paint, two-tone, tinted windows, new brakes, \$5,000. Neumann, 821-2566.

'80 CORVETTE, clean, low mileage. Martinez, 255-5515.

'78 DODGE VAN, good running condition, \$2,000. Meirans, 271-2313.

'88 GRAND AM, 4-cyl., turbo, 4-dr., blue, AT, AC, PS, PB, cruise, all electric, 76K miles, \$4,000. Cole, 864-6534.

'84 FORD LTD, 6-cyl., 4-dr., retail \$1,900. Kent, 881-1888.

'89 GEO SPECTRUM, AT, PS, PB, AC, AM/FM stereo cassette, 43K miles, blue/blue, \$3,895 OBO. Harrison, 897-2023.

'91 CHEV. EURO LUMINA SEDAN, AC, AM/FM stereo cassette, black, 15K miles, great condition, \$11,000 OBO. To, 296-1933.

'62 MERCURY CONVERTIBLE, no motor, good body, good collector's car, \$500 OBO, 1016 Isleta Blvd. SW. Gutierrez, 877-9960.

'91 PONTIAC FIREBIRD, Formula, AT, AC, AM/FM cassette, PS, PB, PW, air bag, bright red, 8K miles, \$11,000. Durkee, 255-4211.

'72 DODGE CHARGER, PS, PB, AC, AT, 318 CID, a classic, excellent condition, \$5,195. Baney, 294-8970.

'92 CELICA GTS, 5-sp., fully loaded, anti-theft device, 13K miles, excellent condition, \$17,500. Nelson, 828-2755.

'64 FORD FAIRLANE, 6-cyl., AT, fully restored, must see, \$3,500 OBO. Glenn, 821-6952.

VW SINGLE-CAB PICKUPS, two '61 models, one '70 model, no engines, \$450-\$1,650. Roberts, 1-864-3529 after 7 p.m.

'83 OLDS. CUTLASS SUPREME, V6, AC, AM/FM cassette, 2-dr., 98K miles, runs well, \$2,000 OBO. Cole, 275-7126.

'76 CADILLAC ELDORADO CONVERTIBLE, 130K miles, leather interior, AM/FM cassette, runs well, a classic, \$7,800. Hotchkiss, 268-0266.

'82 DATSUN 210, 2-dr. hatchback, 5-sp., AC, 124K miles, \$1,000 OBO. Eras, 898-0729.

'85 BUICK CENTURY LIMITED, 4-dr., 70K miles, one owner, AC, AT, PS, PB, cruise, very good condition, \$3,200. Jaeger, 299-0860.

'86 FORD TEMPO, 4-dr., 5-sp., good gas mileage, good condition, below book. Schaub, 865-8807.

'81 CORVETTE COUPE, T-top, white/red leather, 47K miles, AT, AC, all options, beautiful #2 original condition, \$10,550. Tsutsumi, 898-4204.

'87 CHEV. PICKUP S10, 74K miles, PS, PB, AT, AC, new rims, clean, one owner, \$5,500 OBO. Gallegos, 839-7326.

'88 TOYOTA CELICA CONVERTIBLE, 78K miles, AC, PB, PS, cruise, PW, electric top, AM/FM cassette, 5-sp., 30+ mpg, \$8,500 OBO. Dwyer, 271-1328.

'87 TOYOTA TERCEL, 2-dr., 5-sp., cloth, AC, cassette, 30+ mpg, \$2,650 OBO. Holmes, 292-0898.

'81 BUICK SKYLARK LIMITED, 72K miles, \$1,250. Witt, 888-3307.

'85 FORD ESCORT, 2-dr. hatchback, AT, AC, 43K miles, excellent condition, \$2,500. Casper, 268-4464 leave message.

'87 JEEP CHEROKEE PIONEER, 4WD, 4-dr., upgraded AM/FM cassette stereo, 109K miles, new tires, bearings, brakes, shocks, good condition, \$5,600. Lojek, 898-2979.

'88 DODGE CARAVAN, AT, PS, PB, AC, AM/FM stereo cassette, 44K miles on new motor, burgundy/burgundy, \$5,500 OBO. Harrison, 897-2023.

'85 TOYOTA CELICA GTS, all options, 109K miles, excellent condition, \$4,100. Garsow, 296-9451.

BOY'S BIKE, 24-in., 18-sp., \$60. Aragon, 881-4795.

'83 MERCURY ZEPHYR, 4-dr., AT, AC, PB, PS, 64K miles. Miller, 255-7716.

'81 MAZDA 626, 5-sp., 90K miles, new tires and battery, needs paint job, \$975. Smith, 294-4531.

REAL ESTATE

4-BDR. HOME, Siesta Hills, more than 2,400 sq. ft. plus sunroom w/spa, near Gibson gate, mountain views, lovely. Petruno, 265-1826.

3-BDR. HOME, Ruidoso, NM, 2+ baths, 2,000 sq. ft., 2-car garage, fireplace, Alto Golf Club membership, \$149,900. Head, 828-2628.

MOBILE HOME, 14x60, '85 Oak Cove, includes small porch and skirting, good condition, \$10,000 firm. Torres, 1-864-1488.

2.1-ACRE HOMESITE, near Tome, irrigated, most underground utilities, Albuquerque local phone service, water rights, beautiful, green. Roberts, 1-864-3529.

4-BDR. MOUNTAIN HOME, 2 baths, 2,300 sq. ft., 2.5 fenced acres, passive solar, den, large kitchen, dining room, fireplace, office area, \$98,500. Neas, 281-8646.

3-BDR. HOME, 2-1/2 baths, far NE heights, 2,150 sq. ft., many extras, great condition, good schools, great deal. Kubik, 856-0627.

WANTED

PROPANE TANK, 500-gallon minimum. Wilde, 281-4511.

SNOW CHAINS, used, worn out, broken, for art project, price negotiable. Bailey, 281-4383.

OLD SLIDE RULES, for SCIAID program, to teach the next generation. Rakoczy, 881-1372.

JET SKI, w/300 engine. Smith, 299-5060.

OPUS, out-of-print enormous-beaked penguin, from comic strip "Outland," doll, figurine, any size. Gonzales, 296-9055.

HOUSEMATE, male or female, 3-bdr. house, separate baths, fenced-in yard, 2-car garage, large closets, \$250/mo. + 1/2 utilities. Ewen, 836-3563.

TRICYCLE, 12, 14, or 16-in. Adkins, 271-0025.

ACCORDION SHEET MUSIC, dating back to whenever. Stefanov, 299-7009.

LAB BENCH in good condition; drawers in pedestals, in good condition, top not necessary, will pay good value. Ashmore, 881-4653.

HOUSEMATE, non-smoker only, to share 4-bdr., 2 bath house, Wyoming and Spain area, \$250/mo. + 1/3 utilities. Garcia, 821-7154.

UPRIGHT FREEZER, prefer frost-free, will consider the defrosting type. Orand, 275-2255.

COLLAPSIBLE BABY STROLLER. Peterson, 256-7514.

INVERSION BOOTS, used, can't find them new anywhere. Martin, 260-1952.

DOG HOUSE, for medium-size dog, cheap; lightweight shell for full-size truck bed. Loving, 281-7808 after 7 p.m. weekdays.

MOVING BOXES, all sizes, I will pick up. Eaton, 293-0166.

LOST & FOUND

FOUND: Earring, pierce-type, pearl stud, pink pendant, gold, near Bldg. 800, Jan. 19. Terry, 844-9272.

FOUND: Light for bike, on dirt path east of Eubank Gate. Bodette, 845-3162.

LOST: Silver "Dream Catcher" earring, between cafeteria and Gate 6, on Jan. 26. French, 844-2367.

Coronado Club Activities

Boot-Scoot with the 'Boys Tonight

POLISH YOUR BEST BOOTS and gallop down to the C-Club tonight, Feb. 4. (If you have time, grab your Stetson on your way out the door.) The Isleta Poorboys are back in town, and when you hear their music, you'll want to dance. Naturally, those good-taste experts in the kitchen crew know you'll need your strength for dancing, so they're whipping up some great dishes. You can choose filet mignon or fried shrimp (\$11.95 for either), or go for the all-you-can-eat buffet (\$6.95). Dinner is served 6-9 p.m., and the 'Boys are on stage from 7 to 11. Call for reservations — 265-6791.

THINK NEW ORLEANS — Friday, Feb. 11, is Mardi Gras night at the club. There's no finer time for celebrating, whether your favorite is music, eating, or just general partying. The Red Hot Chiles Jazz Band will be on stage from 7 to 11 p.m. They're a Santa Fe group that has appeared in many national jazz festivals and plays jazz ranging from Dixieland to traditional. Starting at 6 p.m., you can enjoy an all-you-can-eat buffet for \$7.95,

featuring orange-glazed pork roast, chicken fricassee, boiled beef, and Creole trout almondine. Make sure you get a place — call for reservations on 265-6791.

CATS TIMES TWO — Bob Weiler and Los Gatos will play twice this month for your Sunday brunching and tea dancing — Feb. 6 and 27. As usual, the brunch buffet will open at 10 a.m. and continue until 2 p.m. with a delectable selection of goodies. The Cats will play from 1 to 4 p.m. both Sundays. Reservations required for brunch — call 265-6791.

BRING YOUR VALENTINE to the Sweetheart Brunch and Tea Dance, Sunday, Feb. 13. Brunch is served 10 a.m.-2 p.m. From 1 to 4 p.m., you can dance to the sweet, sweet sounds of Max Madrid and the Star Dusters. Makes you want to whisper sweet nothings, doesn't it? Cost of the brunch is \$6.95 for members, \$7.95 for guests. Reservations required for brunch (265-6791).

Fun & Games

Golf — Sandia Golf Association congratulates SGA member Dennis Chavez (ret.) for shooting a hole-in-one on Dec. 8 at Los Altos Golf Course. Dennis used a 4-wood on hole 4, making the ace at a distance of 227 yards. This is Dennis' second hole-in-one for 1993.

An SGA members' meeting will be held Feb. 15, after work, at the Coronado Club, to discuss this year's golf activities. Association fees can be paid at this meeting. New members are welcome. If you have questions, please call Mark Retter (5123) on 293-4754.

Boating — The United States Coast Guard Auxiliary is again offering courses in "Boating Skills and Seamanship" and "Sailing and Seamanship." These courses introduce students to basic piloting, navigation rules, legal requirements, seamanship, and other topics to help them enjoy boating activities. Classes begin Tuesday, Feb. 15, 7 p.m., at the Armed Forces Reserve Center (400 Wyoming NE). Both courses continue for approximately 13 weeks. There is a charge of \$15 for each course text with worksheets. Additional family members pay \$5 for worksheets only. To register, call 897-1695 or 298-0116.

Relay Race — You can run all night at the Relay for Life for the American Cancer Society May 27-28 at the UNM track at Stadium and University SE. This event raises funds to fight cancer. Relay teams walk, stroll, or jog during competition that begins at 6 p.m. on Friday and continues through noon on Saturday. Teams need 10-15 members. T-shirts, goodie bags, snacks, and drinks will be provided to participants, who are encouraged to camp out at the track. There will be continuous live entertainment, music, magic shows, and more. Team and individual awards will be given for team and camp decoration, and most money raised. Register your team, join a team that needs more members, or volunteer to help with the event. For information, registration forms, or to volunteer, contact Bert Benedick or Martha Holcomb on 262-2333.

Feed Back

Q: AT&T policy was quoted as the reason for the original division of our salaries into base and non-base components. We are now told that this policy will be continued, yet Martin Marietta does not split salaries in this manner. Oak Ridge Lab does not. In fact, no other DOE lab does this.

Was the AT&T story a management lie?

A: Sandia follows the contract between the Department of Energy and the contractors. The AT&T contract required Sandia to follow the normal practices of AT&T and AT&T Bell Laboratories, with regard to compensation and other administrative practices. We did exactly that, adopting the base/non-base components of salary.

The new contract between Martin Marietta and DOE retains the base/non-base salary programs. DOE has asked that the contractor conduct a review of the use of non-base compensation at Sandia and report by October 1994.

Ralph Bonner (3500)

Q: Technology transfer is being stressed more and more at Sandia as part of our changing activities. To meet this challenge, I think Sandia should consider adopting mandatory educational hours as a requirement for each merit review. This would be a way of continually improving our training and technical quality.

In-hours, out-of-hours, and conference atten-

dance could count toward the yearly goal of, say, 40 hours total. Promoting education at Sandia more formally may be a way of transitioning to new corporate goals and meeting customers' needs, and the needs of a changing environment.

A: The Sandia Management Council (SMC), as well as the Corporate Training and Development Board of Directors, have considered establishing a mandatory 40 hours per employee per year. But they believe a mandatory 40-hour requirement places unnecessary limitations on employees, as well as their managers.

The choice of 40 hours seems somewhat arbitrary since it disregards individual learning abilities or styles, and assumes that in 40 hours anyone should be able to learn the things they need to know to do their job. SMC and the directors would rather be in a position to have Sandians receive as much or as little job-related education training as they need. In other words, some individuals may need much more than 40 hours to do their jobs, while others who do not require additional training might resent a mandate of being in a class for a specific amount of time just to meet a quota.

The new Performance Management process will, in fact, encourage employees and managers to discuss job-related education and training requirements.

Ralph Bonner (3500)

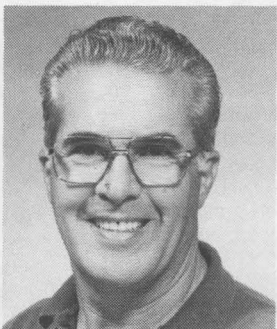
Recent Retirees



Guillermo (Bill) Griego 7617 30



Sig Thunborg 2161 40



Ray Chavez 7437 32

Welcome

Albuquerque — Marty Barnaby (6429), Nicole Bottarini (12111), John Brewer (10402), Lorraine Cordova (12111), Carolyn Ellis (10501), I. M. Nei-Nei Freeman (12111), Lisa Gordon (10504), Susan Hess (12111), Tina Johnson (12111), Lolly Jones (7045), Deborah Kernan (12111), Deepesh Kholwadwala (2121), Misch Lehrer (7611), Sandra Milliman (12111), Dolores Parker (12111), Frank Quintana (10321), Dorothea Rolli (10504), Marie Rosales (12111), Lorraine Sanchez-Guerra (12111), Gina Terrazas (12111), Maria Walsh (7574). Other New Mexico — Nancy Aldridge (12111), Stanley Atcitty (7908), John Forester (6412), Brian Griego (7613), James Lucero (7613), Viola Madrid (12111), DeAnna Remenar (12111), Juan Romero (2471), Faye Woods (12111).

Elsewhere: France — Raymond Tuminaro (1422); New York — Reid Bennett (1325), Linda Cecchi (1306); Pennsylvania — John Krumm (1611); Texas — Phillip Coleman (1208); Utah — Joanne Fredrich (6117).



CECIL SONNIER of Special Verification Applications Dept. 9208 has been awarded the Institute of Nuclear Materials Management's (INMM) Distinguished Service Award. He was cited specifically for being "a leader in the international safeguards community by fostering the role of containment and surveillance technology, which has greatly enhanced the INMM international safeguards." Cecil is the second recipient of the award. INMM is a nonprofit, international professional organization formed in 1958 to ensure that nuclear materials are properly protected, managed, handled, stored, and used for purposes approved by treaty or law. Cecil has been with the Labs since 1956 and has for the past 15 years coordinated Sandia's involvement in international safeguards and related work.