

Seismic probe deployment a sea change for Sandians

Seafloor Earthquake Measurement Systems placed off California coast

By Bill Murphy

Lab News Staff

As Sandia telemetry jocks they've all done their share of field work — but not when the "field" is heaving and pitching under their feet.

Joe Ehasz, Ron Franco (both 2664), and Mark Platzbecker (2665) last summer spent a week on an excellent adventure — riding the Pacific swells on a 150-foot workboat supervising the planting of Sandia-designed-and-built

seismic probes in the sea floor. Last month, Mark and Joe went down to the sea in ships again to complete the installation, tweaking the probes' computer and communications components into fighting trim.

The probes — Seafloor Earthquake Measurement Systems, or SEMS — were installed for the Minerals Management Service (MMS), a bureau of the US Department of the Interior that oversees mineral resources of the Outer Continental Shelf. MMS has been working

with Sandia since the late 1970s to develop a reliable, autonomous system for monitoring seismic activity in close proximity to offshore oil platforms. MMS needs the data to gain a better understanding of the stresses and strains an oil rig is exposed to; that understanding should help MMS develop better guidelines for platform design and operation.

The SEMS IV effort was launched shortly after SEMS III was deployed in 1991. The SEMS III device differed from earlier SEMS efforts in that it was designed to be hard-wired to a nearby oil platform via underwater cable. Previous SEMS had been designed to be completely autonomous, sending data up to an attached buoy to be periodically retrieved. The approach, while technically viable, proved to be too maintenance-intensive to be practical. MMS wanted a system that could provide data on seismic activity occurring near the platform with minimal oversight. The hard-wired approach was reckoned to be ideal.

Earlier efforts taught lessons

Unfortunately, while the SEMS III probe was an elegant design, it was damaged during the tricky installation process and never worked properly. The design and installation

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FULL STEAM AHEAD — The *American Patriot*, a 150-foot workboat, steams for oil rigs off the coast of southern California. The *Patriot* was hired by Sandia to help deploy Seafloor Earthquake Measurement System units adjacent to three oil drilling platforms.

Generation X planning team helps VPs peer into 21st century

By John German

Lab News Staff

No slackers were in attendance. Nobody whined. MTV was not discussed. And no one wore grunge.

In fact, none of the 19 Sandians who participated in a recent two-day mini planning session in Albuquerque bore much resemblance to the media's typical characterizations of members of "Generation X" — a label denoting some 46 million post-"Baby Boomer" Americans born after about 1960.

Dan Hartley, VP for Laboratory Development Div. 4000, convened the group of under-35-year-old Sandians at the suggestion of Paul Stanford (VP-15000) in an effort to elicit an "X-er" perspective on the Labs' future as part of upper management's current strategic planning effort. Participants were selected from more than 40 volunteers.

"The VPs wanted to test the hypothesis that Sandians from a different generation have different outlooks."

"In 20 years, Sandia will be managed by many of the people hired in the last five years," says Paul Shoemaker (12100), who facilitated the meeting. "The VPs wanted to test the hypothesis that Sandians from a different generation have different outlooks."

Discussion focused on issues relevant to the Labs' and nation's future — national security, nuclear weapons, geopolitics, economics, environment, technology, education, etc. Sub-teams developed separate world views and

(Continued on page 5)

Sandia LabNews

Sandia National Laboratories

Vol. 48, No. 10

May 10, 1996



TE AYUDO (I'll help you) — Janice Leach (6741) helps Daniela Mosqueda with her Spanish lesson during Sandia's Week of Caring at the Martineztown House of Neighborly Services. During the week, volunteers tutored schoolchildren and teens and told stories to preschoolers. See story on page 5.

3 California site picks experts' brains for weapon design lore

6 Employee Recognition Night to honor more than 100

12 Sandia team pioneers videotape keyword search capability

This & That

Congrats, Recognition Award Winners - 104 Sandians will receive individual employee recognition awards Saturday evening, along with representatives from nine teams that are being honored. Check out the individual winners' photos and the team citations in the center section of this issue. Notice especially the men because it'll be a long time before you see that many wearing neckties at the same time again. Rumor has it that 38 percent of those pictured in ties needed help to "tie up."

* * *

About an April 12 item - A manager sent a note last week saying some employees and retirees may have interpreted part of an April 12 column item as demeaning. The item included this sentence: "Difficult decisions will have to be made to move us from our formerly secure, entitlement-type situation where 'Uncle Sugar' took care of us into a world where we must prove our worth constantly and do it more efficiently." The manager thinks that sentence maligns dedicated Sandians "who have provided the principal national deterrent through several decades." After rereading the sentence, I agree that it's a bit strong, and I'm sorry if any employee - present or past - found it demeaning. That certainly was not my intent. Sandia has some of the brightest, hardest-working people anywhere - always has. My main point is about the future: Our past is proud, but it does not entitle us to a successful future.

* * *

Hagengruber town meeting rescheduled - We announced in the last issue that Roger Hagengruber, VP of National Security Programs Div. 5000 and Manager of the National Security Programs Sector, would speak at a May 15 town meeting. Roger's hectic schedule has forced a change, and the meeting will now take place on Tuesday, May 28, at 9 a.m. in the Tech Transfer Center (Bldg. 825). Counting a 30-minute or so question/answer session after his talk, it should last about an hour.

Roger is a captivating speaker and I'm sure he'll have some very interesting things to say about future directions for Sandia's national security work, so mark the new date and time in big letters at the top of your May 28 calendar page. The meeting will be video-linked to Sandia/California's Bldg. 904 auditorium.

* * *

What's that awful smell? - Felix Gutierrez (7618) was amused by an entry he noticed in the reason-for-shipment block on an outward-bound "shipper" form. The form accompanied Ryan Snyder's (1801) package addressed to a California computer firm. The entry: "Dead Mouse."

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

Cinch those straps down tight!

Required safety equipment saves worker from fall

"Safety coordinators are always being asked, 'Why do I have to use this or that safety protection?' " says Facilities ES&H Safety Assistant Chuck Kearns (7913). "People say, 'I've done this for years, why start using safety equipment now?' "

Earlier this month, David Baynard, a contract maintenance worker, found out why when he and fellow worker Gerald Begay were installing production equipment on the roof of Building 844. As David was about to step to another area of the roof, a sudden gust of wind caught the piece of poly sheeting he was

carrying, making him unable to see a discarded electrical cable. David slipped on the cable and fell off the roof.

A few feet into his fall, the lanyard running from David's safety harness to a safety cable on the roof snapped tight, stopping him in mid-air. After hanging there for a moment, he was pulled to a safe spot by Gerald and then helped off the roof. His worst injury was a bruised elbow.

After a brief period of light duty, David returned to his position.

"Sometimes it's hard to see that personal protective equipment does any good, until it saves someone's life," says Chuck.

"We usually replace safety equipment after an accident," he says, "but I'd rather pay a hundred dollars for a new harness than go to his funeral or never see him work or walk again."

Sympathy

To Fide Molina (7851) on the death of his father, Abelicio Molina, in Albuquerque, March 18.

To Bill Sweatt (5725) and Glenda Sweatt (4415) on the death of his sister and her sister-in-law, Marian Hartshorn, in Sunnyvale, Calif., April 24.

To Gladys Sheldon (5911) on the death of her mother, Amy Rowe, in Wisconsin, May 2.

Sandia News Briefs

Plan approved to decommission Sandia/New Mexico's printed wiring board facility

The Manufacturing Science and Technology Council has validated a plan developed by Manufacturing Technologies Center 1400 to decommission the Printed Wiring Board Facility (PWBF) at Sandia/New Mexico.

The decommissioning process includes a plan to "trade through consolidation" responsibilities with Sandia/California for both PWB activities and Multi-Chip Module (MCM)/Hybrid activities. Under the new plan, Sandia/New Mexico will be responsible for MCM/Hybrid technology development and prototype fabrication while Sandia/California will be responsible for fabrication of PWBs (multilayer rigid boards and flex circuits). In line with the "trade through consolidation," no orders for PWB fabrication in New Mexico will be accepted after May 10.

As part of the consolidation process, an Interactive Collaborative Environment (ICE) system will be installed at both sites. This system will enable designers and technologists at the two sites to interact with the design and layout files simultaneously. Video and audio features are also included for communications. In addition, PWB fabrication equipment will be shipped and reinstalled in California to enhance the site's capabilities.

The decommissioning affects only the PWBF, not the Multi-Chip Module, hybrid, or advanced packaging capabilities in Electronic Processing Dept. 1411. In addition, the plan does not affect the large-area processing capabilities currently being applied in Flat Panel Display technologies or the plating and coating activities, or the plasma processing and cleaning activities within the department.

David Moore, Mike Ashbaugh win quality recognition from McDonnell Douglas

David Moore, Airworthiness Assurance Dept. 9752, and Mike Ashbaugh, Science Applications International Corp., a Sandia contractor, have been presented the highest level of quality recognition from McDonnell Douglas Aerospace (MDA) - The Model of Excellence Award. The award recognizes individuals and teams who champion change for the enterprise, achieve exceptional quality improvements, and enhance excellence in MDA products.

The MDA Executive Business Council selected the DC-9 Wingbox Inspection Team. The team consisted of members from the Center for Aviation Systems Reliability-Northwestern University, Northwest Airlines, MDA Advanced Transport Aircraft Development's Nondestructive Evaluation Group, Science Applications International Corp., and the Federal Aviation Administration Validation Center at Sandia.

The team developed an ultrasonic inspection method and successfully transferred the technology to the airline industry. The inspection can be completed in 48 hours from outside the aircraft with a 94 percent reduction in labor hours. The inspection document was submitted to the FAA and has been approved as an alternate inspection method to the visual inspection requirement. Northwest Airlines estimated the saving across its fleet of DC-9s to be about \$1 million.

Send potential Sandia News Briefs to Lab News, Dept. 12622, MS 0165, fax 844-0645.

Sandia LabNews

Sandia National Laboratories

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Sandia National Laboratories is a multiprogram laboratory operated by Sandia Corp., a wholly owned subsidiary of the Lockheed Martin Corp. and a prime contractor to the US Dept. of Energy.

Ken Frazier, Editor505/844-6210
Barry Schrader, California site contact510/294-2447
Lab News fax505/844-0645

Published Fortnightly on Fridays by
Employee Communications Dept. 12622, MS 0165

LOCKHEED MARTIN



Minding Sandia's business is the mission of weapons-project 'oral historians'

Knowledge Preservation Project perpetuates weaponeers' recollections at California site

By Nancy Garcia

California Reporter

A mind is a terrible thing to waste — especially if it's steeped in hard-earned wisdom, gained through experience, that hasn't been documented anywhere.

That's why Keith Johnstone and Carmen Ward of Military Liaison, Navy Projects, and Use Control Dept. 14714 and Recorded Information Management Dept. 15102, respectively, have been recording videotaped memoirs of retiring weapons scientists at Sandia/California for the past 18 months as part of the Knowledge Preservation Project.

"I think it's extremely important that we do this," says Jim Wright, Director of California Weapon Systems Engineering Center 2200. "We're going to be around taking care of these weapons as long as they exist. An engineer who 15 years from now has to take care of the B83 will find this information valuable."

The Knowledge Preservation Project is an oral and visual history of ideas and experience known only to the people who created the nation's modern weapons. "There were enormous lessons learned that are in jeopardy of being lost," Keith says about the roughly 50 current and former Sandians he's already interviewed since starting the project two years ago in New Mexico (*Lab News*, July 8, 1994). Approximately 150 other staff or retirees have been identified for future interviews.

Assist the next generation

The archive of videotapes from both sites should assist current and future weapons scientists who may need to maintain remaining stockpiled weapons beyond their intended length of service without the benefit of having ever designed or tested a system. Already, Carmen says, the national labs are seeing the third generation of weapons scientists assume responsibilities for defense work.

"Within Sandia," Keith says, "the stockpile is outliving the designers, production engineers, and technicians who assembled the components. In the past, all transfer of information took place through people. The human 'information servers,' if you will, are leaving. That raises

the questions, one, how do we capture and preserve this information, and two, more important, how do we provide access to it?"

"We have lots of databases, designs, drawings, reports, and manuals. But how do you record experience, and most of all, how do you record ideas?"

Acting as moderator, Keith generally tapes sessions with a weapons specialist and one or two colleagues. "The interaction is very important," he says. "You see the whole

process [of design and problem-solving] come alive in front of you." Discussions in these monthly sessions range from technology to policy. Sessions are scheduled in two-hour increments. Up to 20 hours total have been devoted to interviewing any one individual. Occasionally, entire panels of eight or nine speakers and an audience are assembled to discuss weapons systems and political implications. California was the center of development of such weapons as the W55, W68, and B83 — which will be the subject of a panel interview this summer.

Interviews held in TV studio

The California site interviews were first held in some of the few classified conference rooms available. To obtain the best audio quality, however, the venue has been switched to recently remodeled space. Most sessions are now taped in a small, fully equipped TV studio fashioned from former offices conveniently located beside the California site's existing video editing facility. Taping here also provides a consistent "look-and-feel" in tapes from both sites, says Alan Pomplun of Technical Communications Dept. 8815.



RECENTLY REMODELED space at the California site provides a new venue for videotaped interviews conducted for the Knowledge Preservation Project. Above, Keith Johnstone, left, talks to Larry Humpherys of Dismantlement Engineering Dept. 2262 as Carmen Ward watches from the window on the right.

Sandia California News

"What we were looking for was to be able to search for information content," Keith says, "and then deliver it — not only to tell you that it's there, but to deliver it on the desktop. And it works. It's cool."

Eventually, Carmen and Keith hope their videotape archive will be accessible from a workstation in a controlled setting within the labs. They've talked to Lawrence Livermore National Laboratory, in case the other weapons labs want to develop similar programs, and recently demonstrated the project to the Defense Nuclear Agency.

The project also drew attention from nationally recognized science writers at the *San Francisco Chronicle* and *Examiner*, who interviewed retirees John Marion and Jerry Hunting and Sandians Larry Humpherys (2262) and Jim Muir (8970) for long feature articles when Carmen and Keith were in town last month.

They 'changed the world'

Carmen Ward and Keith Johnstone find the Knowledge Preservation Project's "oral history" inspiring. "These are people who changed the face of the world," Keith says. "Nothing compares to the quality they achieved. They used genius and hard work and just kept trying. They were motivated by patriotism. They felt they were protecting America's way of life."

Adds Carmen, "They defined teamwork, quality, and empowerment, issues that people are looking for today. They lived it."

Some information can assist not only the "extraordinary challenge" of maintaining an aging stockpile, Keith says, but could help in recognizing somewhat old-fashioned attempts by non-nuclear nations to develop nuclear weapons capabilities.

Also, some potential technological approaches to problems that had to be discarded in an earlier age may be one day applicable, he adds, saying, "Science can lie dormant for years, and then something changes that allows you to implement it."



DAUGHTERS FILL LOBBY — Some 112 girls took part in Take Our Daughters to Work Day at Sandia/California on April 25. Here the girls and their employee escorts crowd the lobby of Building 911 as they register. Opening talks were given by Dona Crawford (8900) and event chairperson Sandy Ferrario (2261). The girls also had their photos taken and loaded onto a Web page so they could access it from school later and show it to their friends. Throughout the day they visited seven demonstration sites to learn more about Sandia's work.

Carmen and Keith have compiled 300 hours of videotape so far. When they learned there is no commercial software to search videotape archives from a desktop computer, they had James Borders of Engineering Information Management Dept. 9781 create a search capability. Called RePAV for Relevant Point of Access Video, the search function calls up the videotaped section in which a specified keyword is spoken (see "RePAV moves video technology into information management arena" on page 12).

Seismic probes

(Continued from page 1)

experience proved useful, however. SEMS IV, Ron, Mark, and Joe determined, would be plenty robust — tough enough to take a lickin' and keep on tickin'.

The SEMS IV system is a 25-pound, 22-inch-long package. Its watertight, double o-ring-sealed casing houses a sensor package of accelerometers (to detect seafloor movement) and a magnetometer (to aid in calibrating the probe's orientation). A cable emerging from the probe's blunt end links the device to a nearby oil platform. The cable delivers power to the probe; at the same time, data gathered by the sensors are transferred to an electronics package on the oil platform. That package,

essentially a computer system, can be accessed via telephone and modem so that oil company geologists, MMS staff, and others can monitor earthquake activity data in near-real time.

When the SEMS IV system was ready to go, Mark, Joe, and Ron learned that, as the saying goes, the time and tide wait for no one. They found themselves last July standing on the Long Beach Pier at 3:30 a.m. to meet the *American Patriot*, an American Pacific Marine charter workboat that would serve as the mother ship for the week-long, three-platform installation effort.

While a 150-foot vessel sounds large enough to ride out anything the sea might toss at you, Joe, in particular, said he learned the hard way how small a "big" boat can be.

"It wasn't big enough, let me tell you," says Joe. "But those [anti-motion sickness] patches do work — eventually."

'Make it hot!'

The *Patriot* steamed to the Cal Resources/Shell Oil platform "Eureka." After a 5:30 a.m. crew briefing, installation was begun on the first SEMS probe. The water was 700 feet deep; the location was 500 feet from Eureka. The SEMS IV was mounted in a Vibracore frame and dropped over the side. As it sank to the seafloor, its movement was monitored on video via a joystick-controlled, remotely operated vehicle similar to the *Jason Jr.* probe used by Robert Ballard in his exploration of the H.M.S. *Titanic*. With Ron monitoring the progress on the

screen, the Vibracore rig settled to the sea floor.

"Make it hot!" someone shouted, and the rig's vibrating motor, designed to tickle the probe eight feet into the sea floor, came alive — and then went cold.

"Remember, the clock is ticking on our contract with American Pacific," Mark says. "We only had so much time, and we only had so much money and here we were, the first day out and the system crashes . . . yeah, we were concerned."

Luck was with the Sandians this day, however. After some urgent checking around, they tracked down a spare Vibracore rig in Long Beach. It was delivered pronto, and, after a full day lost, the SEMS deployment proceeded. This time, all went well and the team moved on to do similar installations at two other platforms.

During installation at the Chevron platform "Grace," Mark and Joe faced down a pride of sea lions that had made themselves comfortable on the landing deck of the platform. As if sea lions — which are carnivorous, Joe remembered — weren't enough, jumping from the Zodiac inflatable to the platform landing in the pitching seas called for the timing of Karl Walenda, the cool of Neil Armstrong, and the common sense of Evel Kneivel.

Although the SEMS deployment project was interesting, Mark says there was one occasion when he really wondered what he was doing out there. That was when he and Joe wrestled with a Hydroblaster — akin to a powerful firehose — to help *American Patriot* crew members clean out a riser tube through which the cable would be run up the platform.

"It was dark, it was cold, and the swells were slamming in at 10 feet; by the time we were finished, we were soaked and exhausted, but the job got done," Mark recalls.

First an earthquake

Finally, after a week on the *American Patriot*, the three SEMS had been successfully planted in the sea floor. Since Mark and Joe completed topside work during a return visit in March, the systems have been up and running.

"We already caught an earthquake," Mark says with obvious pride as he shows a download of accelerometer data from the SEMS placed beside platform "Irene". "Our customer's really pleased with the way things are going."

Mark notes that although he, Joe, and Ron were the only Sandians to make the trip to California, a number of others made significant contributions to the project. "The guys in the machine shop [Project Machine Team Dept. 1846] did a terrific job," Mark says, and Randy Lockhart, Mechanical Design Services Dept. 9783, "did some great work helping put this together."

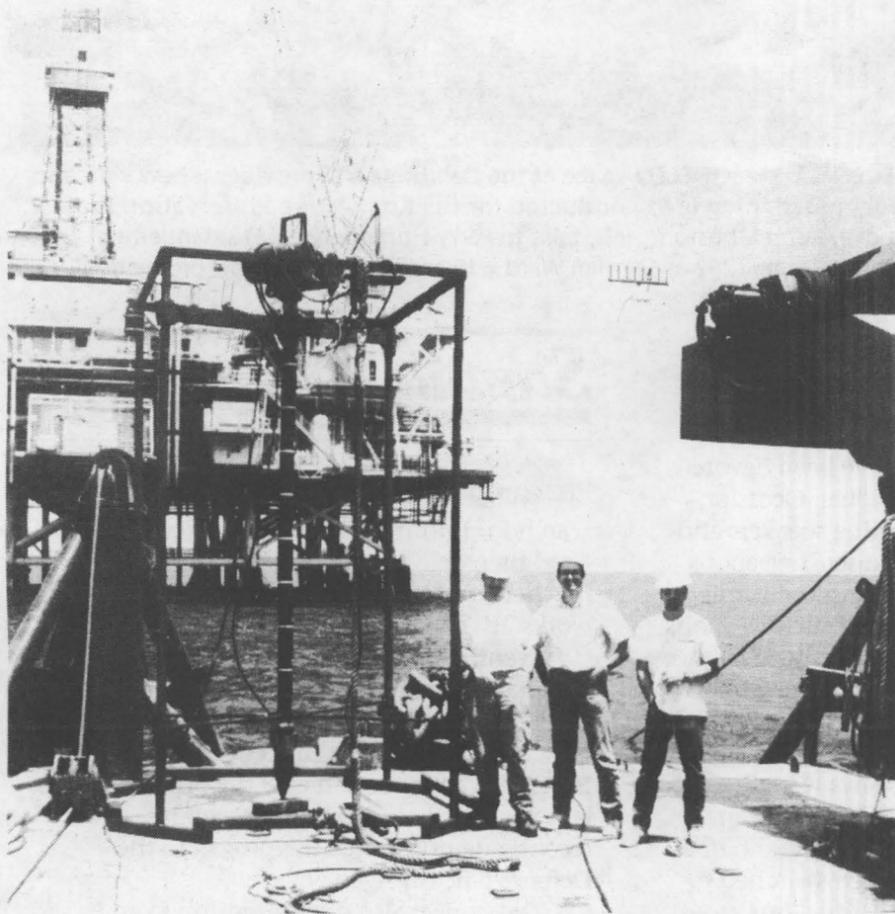
Mark says for him the most memorable and satisfying part of the experience was "kicking back" with Joe and Ron on the stern of the *American Patriot* after a long day of physically and mentally demanding effort and "feeling the cool sea breeze and watching the sun set as we started to steam up to the next platform."

Joe says he remembers best the dolphins, the fog, the ride in the Billy Pugh — a rope hoist you ride 300 feet into the air while transferring from the *American Patriot* to the platform — and an overwhelming sense of the vastness of the sea.

"When you're in the raft [Zodiac], the whole boat would just disappear in the swells," he says. "You don't forget that."

Ron says he took satisfaction in successfully completing a task so far out of the realm of his normal responsibilities.

"You get a real satisfaction in dealing with a lot of uncertainties and managing to overcome them."



JUST FOR DRILL — From left, Mark Platzbecker (2665), Ron Franco, and Joe Ehasz (both 2664) on the deck of the *American Patriot* off the coast of southern California with oil platform "Irene" in the background. The Vibracore rig, with the SEMS unit mounted for installation, is at Mark's right.

Blood donations earn award for Sandia

Employees donating the "gift of life" at Sandia's weekly blood drives earned Sandia the United Blood Service's prestigious Outstanding Business Organization Award, presented at the 1996 Partnership for Life Coordinators' Luncheon April 19.

Dr. Larry Clevenger, Director of Benefits

and Medical Services Center 3300, accepted the award for Sandia. "We'd like to say 'thank you' to the Sandians and contractors who donate," says Mary de Leon-Maestas (3344), Sandia's blood drive coordinator. "You're the ones who do it." Sandians donate approximately 900 pints of blood a year.

! Take Note

Every Memorial Day, Albuquerque-area residents have an opportunity to learn how to perform cardiopulmonary resuscitation (CPR) through Project Heart Start. On Memorial Day, Monday, May 27, Presbyterian Healthcare Services invites you to participate in Project Heart Start and to attend an Albuquerque Dukes baseball game free of charge. Participants may choose to learn infant, child, or adult CPR. Annual participation in a CPR course is recommended, so even those with previous training are encouraged to attend. Families are welcome, and children 13 years and older are eligible to participate in the training. The free event starts

promptly at 9 a.m. at the University of New Mexico football stadium and will end about noon. Arrive before 9 a.m. and park in the west parking lot. Wear comfortable clothing, a protective hat, and sunscreen. Water will be provided. All participants will receive free tickets to the Albuquerque Dukes Project Heart Start Night, Tuesday night, May 28, with the Dukes hosting the Edmonton Trappers. For more information, call 841-1496.

Retiring and not seen in *Lab News* pictures: John Ledman (1472), 33 years; Don Gatto (7611), 20 years; David Gallegos (7815), 11 years.

Martineztown Week of Caring activities 'a huge success'

More than 200 Sandia employees, retirees, and their families put in nine solid days of work during the Sandia National Laboratories Week of Caring. "The week was a huge success," says Community Relations Administrator Redd Eakin (12615). "Thanks to Lockheed Martin funding and Sandia volunteers, we were able to make a major impact."

During the week of April 19-27, volunteers put in hundreds of hours refurbishing the Martineztown House of Neighborly Services building. Walls were cleaned and painted, carpeting was installed, old or damaged electrical wires were replaced, and the surrounding grounds were cleaned and landscaped. Volunteers and community members planted the grounds' only tree in the children's playground. The homes and apartments of the neighborhood elderly were also cleaned and repaired, and their yards landscaped.

"One elderly woman had had a fire four years ago," says Redd, "and not one repair had been made until now. She just didn't have the money." Volunteers sometimes worked until midnight installing new carpet, doors, and window panes that had been missing since the fire.

Local children and teens were treated to field trips, pizza parties, and after-school storytelling and tutoring. Older students were given presentations on mentorship programs and career goals and treated to a basketball shootout with four UNM Lobo basketball players.

Seventy-four boxes filled with food, books, games, hygiene products, videos, and craft sup-



ACTIVE VOLUNTEER — Barbara Surbey (7874) finishes painting the Martineztown House of Neighborly Services during Sandia's Week of Caring. The building was repainted, carpet was installed, and general repairs were made by Sandia volunteers. (Photo by Randy Montoya)

plies were donated to the agency, and the \$530 raised during the week will buy nap mats for the center's preschool and computer supplies for the agency's office.

"Everybody was wonderful," says Redd. "The neatest thing about this was people working with people — each side made a difference to the other."
—Philip Higgs

Generation X

(Continued from page 1)

presented them for discussion.

When it was over, Paul and John Cummings (4512) summarized the X-er world views in an eight-page prospectus and distributed it to members of the Sandia Quality Leadership Council (SQLC).

Outlooks similar, but different

The outlooks that emerged from the meeting were mixtures of pessimism and optimism, pragmatism and enthusiasm. One view predicts a more tightly woven world in which people, nations, and businesses rely increasingly on each other. A second view asserts that various world crises will develop but that society, with the help of technology, will respond successfully. A third view claims society will be only partially successful at overcoming such obstacles and will in most cases respond only in the midst of crises.

For Sandia, according to the X consensus, the future demands a broader, more flexible mission with a worldwide rather than national focus. "The under-35s are more willing to entertain the notion that Sandia may have a more diversified mission set in 20 years," says Paul.

Both the VPs and X-ers agree that Sandia's visibility and success in building constituencies in Washington and at universities and industrial facilities worldwide are critical for its future, he says. They also agree that the Labs' cost-effectiveness is key to its well-being.

But the X-ers concluded that cost effectiveness alone won't ensure a vital future for the Labs — Sandia must reinvent its mission to survive — an emphasis that has since influenced the thinking of some members of SQLC, says Dan.

The X-ers also focused on family issues, such as worker benefits and flexible work arrangements, more than SQLC has so far, he

says, but that perspective "has provided a good balance between their views and ours."

Stephanie Silver, a 31-year-old financial analyst in Organization Cost Management - Direct Dept. 10404, says the Generation X group tended to gravitate toward discussion of issues that reflect the societal position of younger workers.

"If you're going to remain a valuable employee, you need to keep retraining yourself and expanding your knowledge," she says. "Younger employees can't afford to be like some of our parents and grandparents who wouldn't touch a computer . . . It's important to have some kind of educational benefits."

She noted an awareness among her peers that the contract between young employees and their employers has changed. "There's less permanence in the workforce," she says, "and that influences the decisions we make. A good



STEPHANIE SILVER

retirement plan may not be a key factor anymore." But, she says, "The major issues we focused on were basically the same as the ones SQLC seems to be focused on. I saw more commonalities than differences, which I thought was interesting . . . I'd like to think that our prospectus reflected some of the issues upper management will consider in its planning."

"It was nice to see my views of the world echoed by my peers," says Larry Luna, a 36-year-old engineer in Transportation Systems Engineering Dept. 5513. "It shows a lot of open-mindedness by upper management to ask us our views of the future. I don't think we were very far off from what SQLC is thinking."

Dan says he's confident that as SQLC's strategic planning effort moves forward (new

strategic objectives for the Labs are scheduled to be released around June 30), the Generation X team's views will continue to influence the VPs' thinking.

"I was impressed with their abilities to look at the issues on a strategic level without getting bogged down in details," he says. "As we [SQLC] kept trying to reach a consensus, we kept referring back to [the X-ers'] list of objectives . . . It's interesting how many times the VPs have referred to their summary, not only to make a point but also in how they structure their views," he says.



LARRY LUNA

Welcome

New Mexico — Richard Dougherty (4421)
District of Columbia — Thomas Karas (5401)

Retiree deaths

Vivian Montoya (78)	3432	March 4
Martin Quintana (79)	2632	March 4
Eugene Drake (81)	4543	March 8
John Garcia (83)	7116	March 11
Patricia Hinrichsen (79)	8266	March 11
Clarence Olson (78)	2456	March 18
George Horne (68)	2613	March 14
H. A. Hinrichs Jr. (74)	3336	March 15
Abelicio Molina (81)	3423	March 18
Mary Goolsby (84)	7542	March 19
Elbert Mathias (79)	3715	March 21
Roy Buckner (79)	5165	March 27

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

'Recognition Night 1996' will honor Sandians for their contributions to the Labs, nation

Ceremony recognizes accomplishments in service, teamwork, technical excellence, and leadership

For the third consecutive year, more than 100 Sandians — individuals and team representatives — will be honored during the Employee Recognition Awards ceremony. The May 11 "Recognition Night 1996" at the Albuquerque Marriott will include a reception and formal dinner as well as presentation of the awards.

The ceremony will honor 104 individuals and nine teams for their outstanding service to Sandia and the nation during FY95. The awards program, established by Martin Marietta when it assumed management of the Labs, recognizes superior results in four general categories: exceptional service, teamwork, technical excellence, and leadership.

Labs President and Director C. Paul Robinson and Deputy Director John Crawford will present each honoree with a pin symbolizing the award, as well as a framed certificate of recognition. The individual recipients are pictured on these pages. (Not pictured: Lucy Milligan, Ombuds Dept. 11, and Mary Kay Hampton, retired from Badge Office 7437-1.)

This year for the first time, the team recipients were chosen through the same nomination process that applied to individual honorees. In previous years, team awards were presented to the Silver and Turquoise Award winners of the Sandia President's Quality Awards.

Special guests attending the ceremony will include Al Narath, President of Lockheed Martin's Energy and Environment Sector; Jim Tegnelia, President of Lockheed Martin Advanced Environmental Systems Inc.; and Jerry Langheim, VP of Communications for the Energy and Environment Sector.

In an introductory note in the awards ceremony program, Paul notes that the recipients are "an outstanding resource for our nation."



The honorees, he says, "set the standards of excellence and customer service that make it possible for us to be one of the world's leading research and development facilities." Paul says the recipients' achievements "exemplify the words of Harry Truman, for Sandia to 'provide exceptional service in the national interest.'"

The annual awards event is organized by Sandia's Public Relations and Communications Center 12600 and Human Resources Division 3000. The corporate selection committees, which review nominees within similar classifications, are composed of a diverse set of Sandia employees. Don Carson, Director of the Public Relations and Communications Center, says, "Recognition night is a time we take once a year to honor members of the Sandia team for their exceptional contributions to our mission."

The nine teams receiving awards, and their citations, are:

The Team for B61 Enhanced Surety Assessment — For excellent teamwork providing quality system-level concepts for the DOE B61 Enhanced Surety Assessment on an accelerated delivery schedule.

The Team for Benefits Choices '96 — For

reduced escalation of healthcare costs, and designed health plans that met customers' needs and were viewed positively. Educated customers and enabled them to make informed choices.

The Defense Programs Management Services Team — For outstanding support of Division 5000 and Organization 13000, relieving line organizations of internally driven nonprogrammatic tasks.

The Enterprise-Information Viewing Environment Team — For outstanding teamwork creating a vision and implementing a single, laboratory-wide information system.

The Team for the Goodyear Advanced Mechanics CRADA — For the development of wide-ranging technical solutions to difficult applications of importance to our industrial partner and the Labs.

The Team for Intelligent Systems for Induction Hardening Processes — For development of an intelligent controller for induction hardening, the first technology developed under the Partnership for a New Generation of Vehicles deployed on the production floor.

The Team for the Secretarial Quality Process Council — For exceptional teamwork through service on Labs-wide and self-led activities to improve communication among secretaries, staff, and management through the sharing of ideas, issues, and solutions.

The Low Residue Soldering Task Force — For technical excellence qualifying environmentally conscious soldering technology for commercial and military electronics applications.

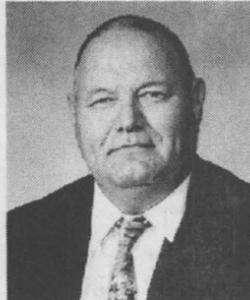
Sandia's 1995 R&D 100 Award Team — For the development and commercialization of the CIVA failure analysis technique for integrated circuits.



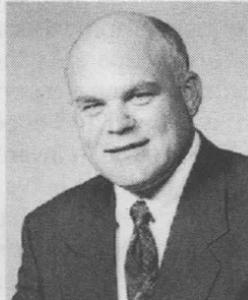
Samuel Anaya
7874



Richard Anderson
1486



Ernest Apodaca
1481



Clinton Atwood
1484



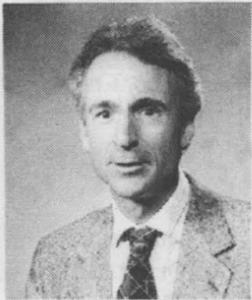
Johnny Baca
1277



Lisa Barham
3343



Glenn Barker
6116



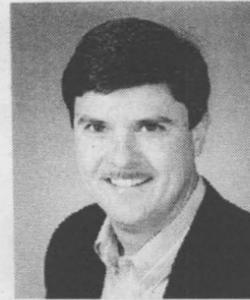
Richard Beauheim
6115



Elouise Becenti
10403



Thomas Bickel
9113



Forest Blair
8930



Denise Blaisdell
4512



Samuel Bolin
2527



Thomas Bomber
5412



Robert Bradley
2103



Michaele Brady
6850



Jeffrey Brinker
1846



Kathleen Cash
6613



David Castillo
7572



David Chandler
8353



Helen Chen
8910



Christopher Cherry
9333



Todd Christenson
2643



Vieta Crain
14309



Sherry Dann
7851



Thomas Denman
2121



Fred Dickey
2674



Narayan Doddapaneni
1523



Robert Dooley
7433



Irene Dugger
5706



Stephen Dwyer
6621



Michael Finley
4412



Randall Gauntt
6421



David Glowka
6111



Sharon Gorman
4415



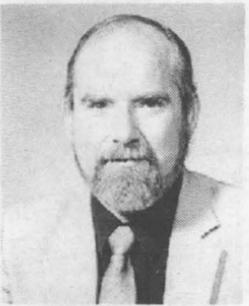
Ann Marie Gutierrez
10501



Darlene Hagerman
10402



Clifford Haynes
1481



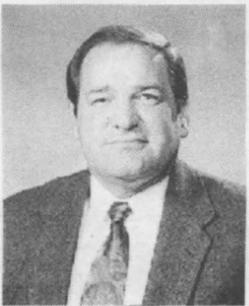
Richard Heckler
6751



Martin Heinstei
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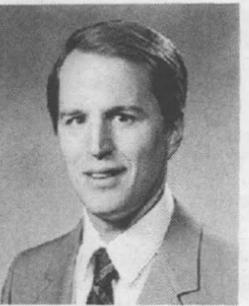
Jeff Hollowell
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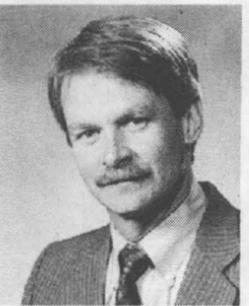
Paul Homan
7601



Larry Hostetler
2523



Richard Hurley
2345



Mark Ivey
6612



Robin Jessen
3611



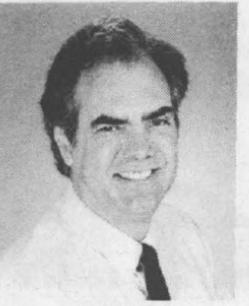
Steven Johnston
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David Jones
1471



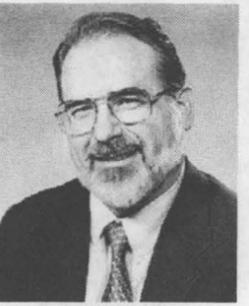
Brian Joseph
2165



Jay Keller
8362



David Kelton
14482



Samuel Key
9117



Deborah Jensen Kill
2336



Marjorie Kirkel
10501



Susan Knisely
5705



Daniel Kral
5715



John Krumm
9611



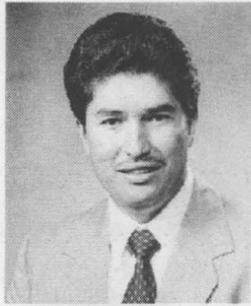
Clinton Landron
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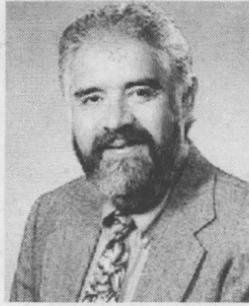
Darlene Leonard
15000



William Lovejoy
4532



Daniel Lucero
6748



Alfonso Lujan
12614



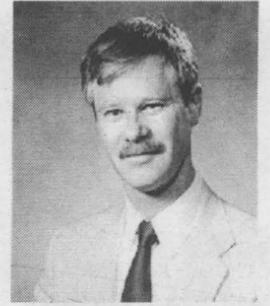
Alphonse Machac
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James Martin
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Keith Matzen
9571



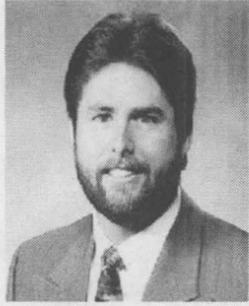
John McBrayer
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Paul McKey
1486



Justine McNabb
9432



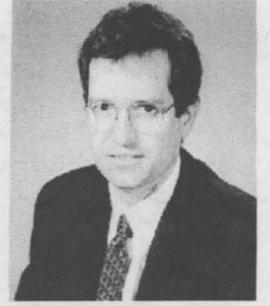
William Mertens
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Dolores Miller
9611



Danny Mitchell
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Leonard Napolitano
8117



Anna Nusbaum
15102



Stephanie Lecho Otts
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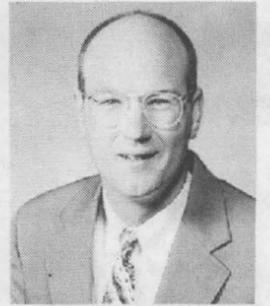
Linda Peterson
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Susan Pickering
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Martin Pilch
6402



David Plummer
2643



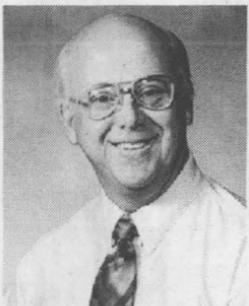
Larry Pope
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David Rakestraw
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Dorothy Rarick
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Stephen Roehrig
2663



Henry Romero
1481



Donna Roth
5500



Wanda Sanderville
3300



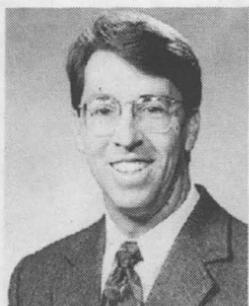
David Schroeder
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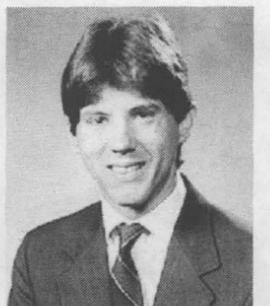
Johann Seamen
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Dorthalea Sheppard
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John Sichler
7442



Joel Siemers
5903



Arlee Smith
1128



Terrance Smith
1481



Timothy Sobering
5722



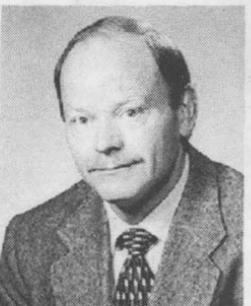
Patricia Spader
11000



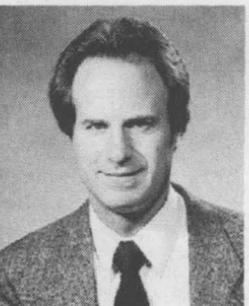
John Stephens
1832



Richard Stulen
8250



Johnny Vaughan
1400



Kurt Wessendorf
1235



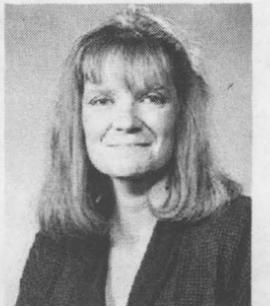
La Wanda Wold
6428



Robert Yawakie
5722



Antonio Zamora
1481



Renee Zittel
10000

Sandia's Bicycle Commuters' Group wants you!

Mayor Chavez to join Sandians in Bike to Work Day Tuesday, May 21

Inflate those tires, grease those chains, and gear up for Sandia's Bike to Work Day! The Sandia Bicycle Commuters' Group (SBCG) is recruiting 1,200 Sandians and Kirtland Air Force Base (KAFB) personnel to ride their bikes to work Tuesday, May 21. Albuquerque Mayor Martin Chavez has confirmed he will join bicycle-commuting Sandians that morning, cycling onto the base through the Wyoming Gate to the Coronado Club. Bike to Work Day is a national event sponsored by the League of American Bicyclists as part of May Bicycle Month. This is the first time Sandia has participated on such a scale.

A lunch-hour forum about bicycle commuting to Sandia will be held May 21, 12:30-1:30 p.m., at the Tech Transfer Center (Bldg. 825). Representatives from Laboratory Services Div. 7000 and KAFB Civil Engineering will address questions about bike safety, paths, and facilities. There will be displays, and a Sun Tran bus will be on hand for demonstration of the new bus bike rack.

SBCG was kicked off in May 1995 with a meeting sponsored by SALUD (then TLC) and a survey of bicycle commuters' interests and concerns. The group was officially recognized last September by VP Lynn Jones (7000) as an advisory group to the division on matters relating to bicyclists' needs.

The club has been active in its first year — contributing to the draft Sandia Campus Design/Development Guidelines, serving on the Greater Albuquerque Bicycle Advisory Committee, participating on Sandia's Traffic Safety Committee, and providing input to KAFB on proposed traffic and gate changes to improve safe base access for cyclists.

SBCG holds monthly meetings and even has a Web site (<http://www-irn.sandia.gov/organization/div4000/ctr4600/bicycle/sba.html>), accessible from Sandia's home page. The site, Bicycle Commuting Resources, contains information about bicycle safety in general and bicycling in Albuquerque specifically.

Sandia and KAFB have the largest number of bicycle commuters (about 1,200 with base bike passes) in Albuquerque. SBCG estimates that about 200 Sandians are regular, daily bicycle commuters and hopes that number will grow. Albuquerque weather and the Labs' casual work environment should make that possible, says Gail Ryba (6211), an officer of the group.

"Sandians increasingly are choosing alternative methods of commuting. People like the exercise they get from bicycling, the stress reduction it provides, and the cleaner environment it fosters," says Gail.

"Since the Labs has such a large number of people who commute on their bikes, efforts to enhance bicycle commuting for our employees should have a large ripple effect in the Albuquerque area. We're working toward making this city, as well as the base, a bicycle-friendly community."

SBCG sponsored a winter commute contest leading up to the City of Albuquerque's Clean Air Campaign the first week of December. The contest promoted winter bicycle commuting. Sandia bicyclists helped prevent about 41 pounds of vehicle CO emissions every day during the winter pollution advisory period (October-February). This comes out to more than 6,100 pounds of air pollution during that time.

"Approximately 135,000 miles were logged

by Sandia bicycle commuters during this time," said Ralph Wrons (7806), SBCG chair. "The emission savings came from the number of vehicle miles that were avoided and also the thousands of vehicle starts and time spent idling in traffic that were prevented."

The City of Albuquerque's Environmental Health Department recently acknowledged the efforts of the 150 hardy Sandians who continued to commute on their bikes during the winter months, saying, "We commend and encourage you to maintain this commitment and to see your group as a model for the community."

"Make sure you have a Kirtland bike pass if you're going to participate on May 21," reminds Gail. Obtain passes in the Badge Office. Call Gail (844-1802) if you want to help organize Bike to Work Day.

— Kathy Kuhlmann (12621)

Sandians' Perspective Survey 1996

Corporate-wide results

Charlie Emery, VP Human Resources Div. 3000, will discuss the latest survey results and how they stack up with previous surveys.

Tuesday, May 14, 3-4 p.m.

Sandia Vista Bldg. (BDM)

Thursday, May 16, 2-3 p.m.

TTC auditorium (Bldg. 825)

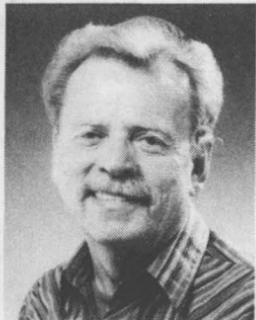
All Sandians are invited

Sandia/California times, dates: TBA

Recent Retirees



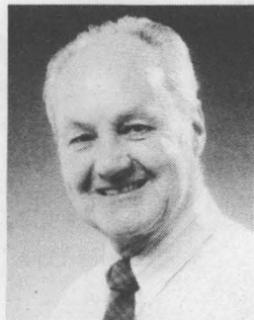
Frank Thome 27
6402



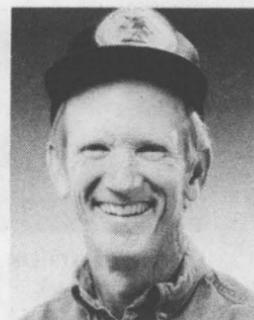
Gene Koenig 36
9741



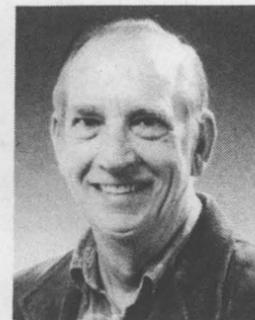
George Kupper 34
10231



Gordon Hansen 37
9322



John Arnold 32
9761



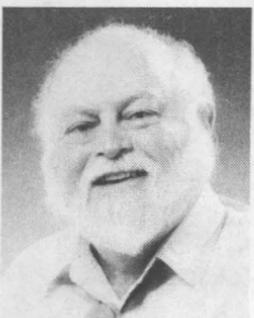
Bob Nagel 36
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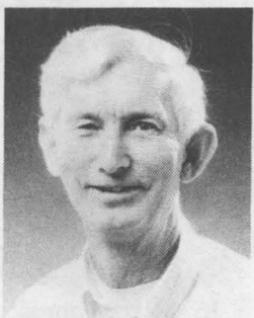
Bob Banks 36
3535



Betty Gatto 38
3344



Al Iacoletti 41
1001



Ed Ratliff 27
9521



Kenyon Nowotny 34
2334



Leroy Gibson 40
1481



Maria Lake 16
2336



Michael Butteri 40
10231



Norman Brown 30
6472



Norman Grandjean 31
12333



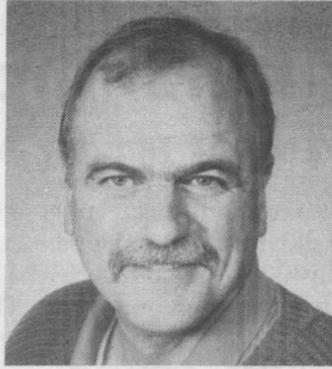
Paul Plomp 30
1404



Richard Oliveira 37
9322

Mileposts

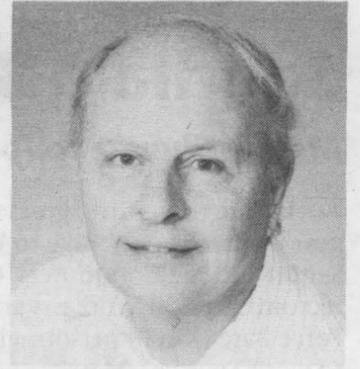
May 1996



Doug Bammann 15
8743



Bob Fraser 30
3560



Roger Busbee 35
8411



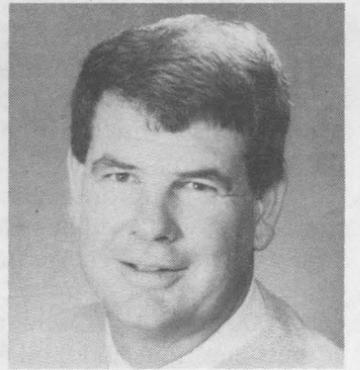
Gary Kinemond 35
2151



Jeanne Lewis 15
2165



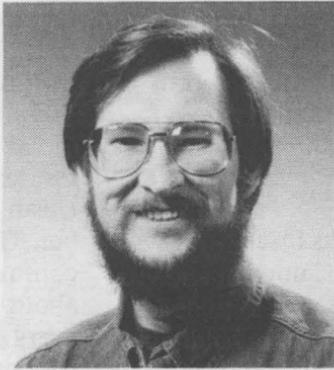
Chuck Hartwig 25
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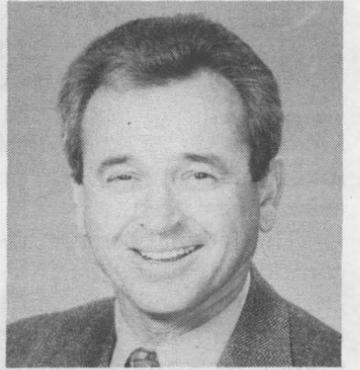
Corey Knapp 15
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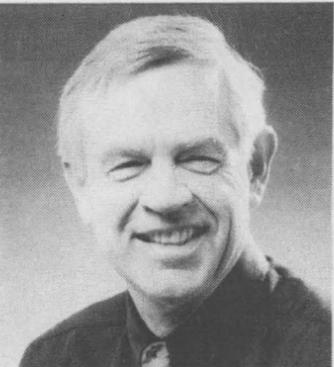
Tabo Hisaoka 35
8515



John Brockmann 15
9114



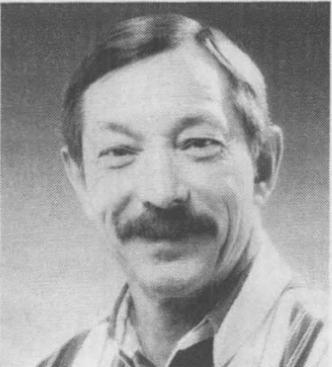
Len Hiles 30
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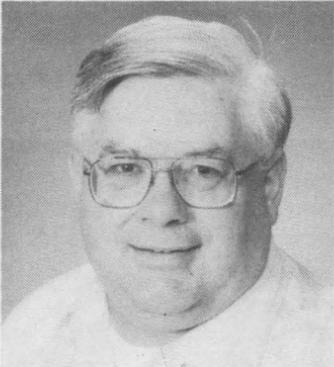
Harry Saxton 25
1800



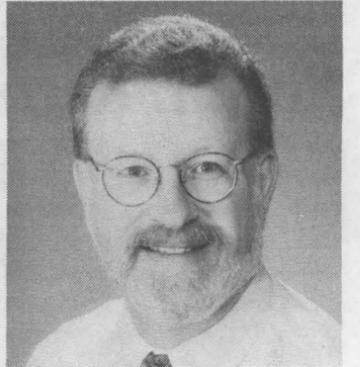
Karen Lee Krafcik 15
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David Cox 20
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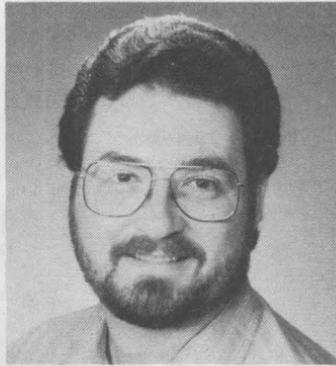
Duncan Tanner 35
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Dennis Beyer 20
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Bob Carling 20
8362



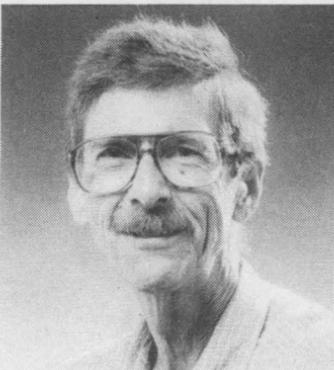
John Hinton 15
8114



Lois Johnston 15
8712



Roy Rentzsch 35
2102



David Huskisson 25
9365



Neville Moody 15
8712



Mary Stoddard 15
8412

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

MISCELLANEOUS

WEIGHT BENCH, Weider, \$40; weights, 150 lbs., w/one 6 ft. & two 16 in. solid steel chrome bars, spin-lock collars, \$85. Martel, 293-1892.

FITNESS SYSTEM, DP Ultra Gypmac, adjustable bench, pulley weight system, \$295 OBO. McConnell, 271-2011.

IBM COMPATIBLE 286, 40MB HD, amber monitor, assorted software, \$200 cash; printer, HP Deskjet plus, \$50 cash. Simms, 256-7257, ask for Wendy.

ALLOY RIMS, fits Nissan or Toyota 4x4, 15 x 7 SE model, great condition, \$225. Smith, 298-5868.

KING-SIZE WATERBED, w/drawers, stained glass, mirrored headboard, maxi-waveless mattress, heater, pad & additional conventional mattress, \$175. Kawola, 298-5813.

HEALTHRIDER aerobic exerciser, like new, must see. Underwood, 246-8281.

CRIB, wood, w/mattress, \$100; high chair, Graco, like new, girl's, \$35; comforter set, pastel, boy/girl, \$30. Chavez, 861-0934.

POOL TABLE, Brunswick regulation-size, 3-piece slate, balls, cues, \$600 OBO. Barthlemes, 286-1491.

PIANO, Yamaha console, rare-walnut finish, superb Japanese-made version, \$2,400. Olsen, 294-2333.

35MM CAMERA, Canon T50 SLR, programmed AE, 80-200 zoom lens, case, flash, manuals, cleaned/serviced, \$195. Wilson, 865-1406.

LIVING ROOM FURNITURE, matching, dusty peach/white, overstuffed-style sofa, loveseat, chair, two ottomans, negotiable price. Adams, 299-6337.

NINTENDO ENTERTAINMENT SYSTEM, 4 controllers, robot, 21 games, excellent condition, perfect for home/cabin, \$100. Clevenger, 821-0046.

SEGA GENESIS, w/4 games, \$150 OBO; Sony AM/FM dual-cassette/CD player, \$100 OBO; all excellent condition. Anderson, 897-2772.

COLOR TV, RCA, 19-in., w/remotes, \$150; RCA boom box, \$200; Sharp VCR, \$50; Simmons pull-out sofa, \$150. Strome, 256-3324.

UNIDEN CELLULAR BATTERY, 4.8V, 850mAh nickel-metal hydride, for CP7500 phone, charcoal gray, 6 months old. Aguilar, 238-0567.

CABINETS, cupboards; double sink; counter tops; 40-in. electric range, exhaust hood; beige toilet; Amana microwave; make offer. Reif, 299-4243.

ELECTRIC PIANO, Hohner, \$100; Rhodes (73) keyboard, stand & speaker, \$200. Baronner, 262-2455, leave message.

DRAPES, 8-ft. tall, 22-ft. long, gold, good condition, make offer. Borgman, 299-6010.

DUAL STROLLER, Graco, blue, excellent condition, \$50. Vortolomei, 821-2216 or 898-4316.

TWO ELECTRIC STOVES, \$30 ea. Campbell, 888-3135, after 6 p.m.

SCANNER, Logitech 256, grayscale, B/W hand model for Windows PC, boxed, manuals, like new, \$30. Dybwad, 296-9047.

PAGER, 10-number storage, audible & physical alert, belt clip, \$45. Sullivan, 298-4880.

OAK & POPLAR LUMBER, rough cut, 2 x 6 x 8, \$8.50 per board (oak), \$7.50 (poplar), going fast. Devejian, 899-9420, leave message.

GATES, chain-link, 6' x 10', \$140; lumber, 4 x 4, 1 x 6, \$70; dog cage, medium, \$15; doors, screen & solid, 36", \$10 & \$12. Garcia, 888-3686.

OAK ENTERTAINMENT CENTER & matching end table, Scandinavian design, \$110 OBO for both. Waters, 822-0989.

CASIO ELECTRONIC KEYBOARD, model CT-400, plus stand/transformer, \$100 firm; Black & Decker 18-in. electric lawnmower, \$50. Freshour, 256-9168.

FORD CAR SHOP MANUALS, '86 Continental, Mark VII, T-Bird/Cougar, LTD/Marquis, Mustang/Capri, \$85. Anderson, 281-4539.

AQUARIUMS, one 32-gal. cube, \$100; one 55-gal., \$200; both w/stands & accessories. Elliott, 299-7158.

FOUR CEMETERY PLOTS, Sunset Memorial, Garden of Gethsemane, value \$800 ea., asking \$2,400 for 4. Mincks, 510-447-3649.

TRAILER, haul Bobcats to Cadillacs, heavy-duty, 18' x 6-1/4', dual-axle, electric brakes, hinged ramps, Delta cross-bed storage box. Dolce, 299-8801.

PUSH LAWN MOWER, Sears Craftsman, 20-in. wide, great condition, \$50 OBO. Kesti, 821-9208.

COLOR TV, Sylvania 19 in., w/remotes, excellent condition, \$100 OBO. Jeantette, 764-9665.

TWO CUSHIONS, large, 3 x 3-ft. dimensions, excellent condition, best offer. Ricker, 821-5597.

WESTERN HOGNOSE SNAKES, native species, captive bred, 1 yr., 6-in., eating well (pinkie mice/rats), \$30 ea. Showalter, 237-9561.

PIANO, spinet, excellent condition, \$500 OBO; chairs, heavy Spanish Ernest Thompson originals, \$250 ea. OBO. Raglin, 296-2018, after 7 p.m.

LUNA PRO, by Gossen, 1 owner, 1973, prime condition, w/original leather case, \$50 OBO. Lenfest, 292-5780.

WHIRLPOOL REFRIGERATOR, 25 cu. ft., side-by-side (water/ice in door), \$100; Culligan RO water filter, \$100; Carver tuner, \$75. Baugher, 265-8306.

OUTBOARD MOTOR, Johnson, 5-hp, Model LT10, manufactured 1940, runs but needs propeller, \$50. Meikle, 299-4640.

BASS GUITAR AMPLIFIER, Acoustic 150, professional type, good condition, \$375. Aragon, 888-3473.

LAPIDARY EQUIPMENT, saws, 8-in. polisher, tumbler, cutting material; stationary bike, recumbent style, \$45; fiberglass tub-sink, \$5. Navratil, 293-5527.

ROWING MACHINE, Vitamaster stow-away, new condition, \$40. Gentry, 298-3574.

MULTI-FAMILY GARAGE SALE, Saturday, May 18, 13100-13300 Manitoba NE, 7 a.m.-noon, baby items, furniture, much more. Wampler, 299-4910.

TRUNDLE BED, twin-size, w/2 mattresses & 2 frames, \$45 OBO. Thompson, 292-2877.

RADIAL SAW, \$175; 10-in. table saw, \$225; grandfather clock kit, \$100; new Craftsman mower, \$130. Foflygen, 294-9768.

GUN SAFE, 8 long guns, 5 shelves, American Security Products, 15D x 22W x 60H, \$675 OBO. Salmen, 881-8612.

REFRIGERATOR/FREEZER, Amana, w/ice maker, side-by-side, 22 cu. ft., \$175 OBO. Potter, 294-3107.

WORD PROCESSOR, 1995 Brother WP5900, w/grammar & spellcheck, like new, paid \$425, asking \$300. Portlock, 256-7937, ask for Bus.

ETHAN ALLEN SOFA SLEEPER, \$125; oak crib, \$100; oak rocking chair, \$75; girl's 24-in. bike, \$50. Biringier, 821-8741.

ANTIQUA TEA CART, wrought iron, very ornate, great decorator item, \$45. Jordan, 856-6964.

COUCH, gold-floral pattern, \$100 OBO. Owen, 293-8149.

HEELER, cross, 1 yr., house broken, neutered, obedience school, loves dogs & people, good runner dog, needs bigger yard. Clausen, 856-4018.

ELECTRIC LAWN MOWER, Sunbeam, 20-in. cut, 3-hp, \$75. Snyder, 877-1797.

BASS SPEAKER, 18-in., Peavey, Gallien-Krueger amplifier, 200-watt channel, Boss Graphic equalizer, Ernie Ball volume pedal, \$400/all. Pierce, 299-2801.

REFRIGERATOR, good condition, \$150 OBO; electric range, good condition, \$50 OBO. Shaut, 299-8569.

HOT TUB, Dimension One, 5-seat, \$2,250; Whirlpool, large-capacity washer & dryer, \$125/ea.; more good stuff. Woodware, 293-4369.

BUNK BED FRAME, red, tubular metal construction, top twin, bottom full size, \$60. Klavetter, 299-4299.

MACINTOSH LCII, 8/40, 80 MB external HD, price negotiable, \$550 OBO. Bohnhoff, 899-2605.

DEADLINE: Friday noon before week of publication unless changed by holiday. MAIL to Dept. 12622, MS 0165, FAX to 844-0645, or bring to Bldg. 811 lobby. You may also send ads by e-mail to Nancy Campanozzi (nrcampa@sandia.gov). Questions? Call Nancy at 844-7522. Because of space constraints, ads will be printed on a first-come basis.

Ad Rules

1. Limit 18 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. No phone-ins.
4. Use 8 1/2" by 11-inch paper.
5. Type or print ad; use accepted abbreviations.
6. One ad per issue.
7. We will not run the same ad more than twice.
8. No "for rent" ads except for employees on temporary assignment.
9. No commercial ads.
10. For active and retired Sandians and DOE employees.
11. Housing listed for sale is available without regard to race, creed, color, or national origin.
12. "Work Wanted" ads limited to student-aged children of employees.

HIDE-A-BED, queen-size, ivory, pretty, comfortable for sitting/sleeping. Edmonds, 271-4530.

BUNK BED SET, crew quarters, solid pine, 3-drawer chest, 4-drawer chest, like new, \$475. Hansknecht, 899-0644.

MOTORCYCLE HELMETS: AGV, \$150; Lazer, \$50; cover for 750s, \$50; kryptonite disk lock, \$20; everything new. Linnerooth, 299-6558.

COLOR TV, 20-in. Zenith, brand new, remote control, time, tip-top shape, \$175 OBO. Wilson, 899-2537, between 8 a.m.-5 p.m.

TODDLER BEDS (2), w/stowable rail, \$40 ea.; non-absorbent toddler/crib mattress, \$20; 4-piece Minnie bedding, \$10; turtle sand-box, \$25. Binasiwicz, 857-0057.

TRANSPORTATION

'85 FORD, dually, low miles, all toys, camper special camper shell, new tires, warranty, crew cab, 460, clean. Arana, 873-9064.

'94 MAZDA MX-3, 11K miles, white, like new, AC, AM/FM cassette, 5-sp., 36 mpg, 22 months remains on warranty, \$10,800. Robbins, 292-7355.

'91 TOYOTA MR2, 56K miles, 5-sp., turbo, custom paint, power everything, 1 owner, \$12,500. Fraser, 281-2766.

'89 PONTIAC LEMANS LE, 30,600 miles, \$4,000. Romero, 298-7934.

'85 FORD ESCORT, AC, AT, 4-dr., great condition; Ford conversion van, loaded, excellent condition, AC, below book, \$10,900 OBO. Beazley, 255-5652.

'84 HONDA 125cc SCOOTER, low miles, very reliable, cheap transportation, many extras including trunk, \$550. Giron, 866-1028, ask for Pat.

'87 ISUZU PICKUP, 5-sp., AC, radio, 76K miles, white, new upholstery, excellent condition, \$3,500 OBO. Davis, 881-7483.

'90 SUBARU LEGACY, station wagon, all-wheel drive, loaded, excellent condition, clean. Hall, 299-3594.

'90 CHEV. 2500, ext. cab, 2WD, 350 engine, 4-sp., AT, 8-ft. bed, Silverado package, 61,500 miles, original owner. Gonzales, 293-9647.

'90 JEEP CHEROKEE, 4WD, 6-cyl., 77K miles, AC, tires good, gray, excellent condition, below book, \$10,000. Baldonado, 864-0553.

'81 CHEV. CONVERSION VAN, excellent condition, dual AC, captains' chairs, fold-out bed, 115K miles, clean, must see, \$3,495. Black, 281-9016.

'95 CHEV. SILVERADO, extended cab, 4x4, 1/2-ton, 350 V8, loaded, keyless remote. Orona, 275-3232, ask for Andy.

'89 CHRYSLER LEBARON COUPE, 5-sp., excellent student or commuter car, \$3,995 OBO. Maestas, 843-8377.

'79 TRIUMPH SPRITE, restored, new top, new upholstery, new paint, good tires, make reasonable offer. Sarason, 266-6880.

'82 VW RABBIT L, 2-dr., 4-sp., 45 mpg, AM/FM cassette, repair records, diesel, original owner, \$700. Andrews, 281-5574.

'95 FORD F-150, white, 17K miles, large 6-cyl., 5-sp., AC, AM/FM, tool box, HD suspension, excellent condition. Morrison, 292-1324.

'89 CHEV. CAMARO RS, V6, 5-sp., AC, PL, cruise, keyless-entry alarm, cassette, tint, gray, \$4,600. Miranda, 293-8644.

'93 JEEP CHEROKEE, 4WD, 6-cyl., 62K+ miles, bids through 5/15 until 4 p.m., shown Mon.-Fri. to 4 p.m., right to refuse bids, subject to prior sale, as is. SLFCU, 237-7384.

'87 MERCURY SABLE GS, 3.0L, V6, AT, AC, cruise, cassette, 1 owner, garaged, 109K miles, newly rebuilt transmission, great condition, \$2,950. Abel, 296-6089.

'90 HONDA ACCORD EX, 4-dr., 5-sp., sunroof, AC, tint, PL, PD, excellent condition, 77K miles, \$10,000. Sullivan, 881-0880.

'94 SATURN SL2, 4-dr., 5-sp., manual, AC, PS, PL, AM/FM cassette, 35K miles, \$11,900 OBO. Simons, 296-0974.

'90 SUBARU JUSTY, 4x4, 70K miles, great-looking car, \$3,995. Rector, 286-1217.

'93 VOYAGER, 65K miles, original owner, 3.0L V6, FWD, airbag, child seats, luggage rack, AM/FM. \$9,700. Courtney, 281-2905.

'91 FORD EXPLORER XLT, 4WD, 6-cyl., 4 dr., white, 87K+ miles, \$14,000. Miller, 281-3936.

'95 DODGE NEON SPORT, 4-dr., 5-sp., airbags, 4W-ABS, PW, PM, PL, cruise, CD, 10K miles, \$11,500. Tweet, 293-6105.

'90 TOYOTA 4-RUNNER, SR-5, V6, AC, AT, 4-dr., 4WD, 65K miles, \$14,500. Grazier, 292-7926.

'94 CHRYSLER LEBARON, convertible, 29K miles, AT, power extras, turquoise w/white top, leather interior, great condition. Magnuson, 268-5955.

'92 PLYMOUTH DUSTER, white 2-dr., sporty, AM/FM cassette, AT, excellent condition, \$1,000 below book, \$5,500. Aragon, 897-3878.

RECREATIONAL

'94 FORD COACHMAN VAN CAMPER, 4,500 miles, Onan generator, AC, microwave, refrigerator, shower, \$32,900. Graving, 865-5581.

'78 TIOGA ARROW MOTORHOME, sleeps 6, rear bunks, Dodge 360 engine, nearly new tires, \$6,950 OBO. Long, 296-2590.

OUTDOOR ENVIROSHADE, smoke blue/white stripe, 9'6"W x 9'6"L x 7'8"H, excellent condition, high quality, marked for easy assembly, \$100. Weston, 892-3364.

FISHING BOAT, Sears super gamefisher, 14-1/2 ft., w/suntop, cover, seats, Mercury 10-hp outboard, Shoreland'r trailer, w/spare, \$2,500. Hughes, 299-6674.

BOY'S BICYCLE, 12-in., excellent condition, \$25; swimming pool, plastic, round, 12-in. deep, 4-ft. wide, \$5. Meeks, 828-9825.

FALCON BICYCLE, hand-built, 20-in., Cr-Mo frame, very light, all Campy Chorus components, \$700. Romero, 867-6444.

CANNONDALE DELTA V600, Coda cranks, bars & front shocks, Ritchey Vantage rims, extras, excellent condition, \$1,700 invested, \$1,200 OBO. Szklarz, 294-3769.

'80 CATAMARAN, Prindle 16, double trapeze, hardware upgrades, 2 sets of sails, trailer, covered, excellent, \$1,200. Murata, 881-8459.

'90 PALOMINO POP-UP CAMPER, hard side, excellent condition, sleeps 6, heater, refrigerator, dual gas, electric pump, \$3,370. Blain, 293-3971.

ROAD BIKE, Merlin Extralight, 57cm C-T, complete w/3 wheelsets, \$2,700. Fellows, 822-9578.

GOLF CLUBS, King Cobra copies, 3-SW, steel shafts, \$195; Big Bertha copies, 1,3,5 woods, stiff graphite shafts, \$150. McCarthy, 296-4490.

REAL ESTATE

20 ACRES, NE of Edgewood, frontage on paved SR 472, close to new elementary school. Kureczko, 281-8206.

3-BDR. HOME, 2,300 sq. ft., 2-1/2 baths, 2-car garage, 2 yrs. old, 2+ acres, fireplace, fenced back yard, mountain views, \$214,950. Salazar, 281-0560.

4-BDR. HOME, 1,480 sq. ft., 1-3/4 baths, excellent condition, east of Tramway, deck, views, fireplace, auto sprinklers, 2-car garage, \$124,900. Hegar, 237-2206.

4-BDR. HOME, brick, 2,421 sq. ft., 2-1/4 baths, Eldorado district, \$199,000. Bencoe 294-3768.

4-BDR. HOME, 2,100+ sq. ft., LR/DR, family room, La Cueva district, immaculate, excellent location, far NE Heights, \$168,000. Peterson, 823-9614.

3-BDR. HOME, 1,748 sq. ft., 1-1/2 yrs., 2 baths, FR/DR/LR, 2-car garage, fireplace, landscaped, new area, \$172,900. Koepke, 296-5643.

5-BDR. HOME, Mossman, 2-1/4 baths, 2,400 sq. ft., w/in-law quarters, study, formal LR/DR, large kitchen, large yard, \$169,500. Fisher, 881-8072.

WANTED

TRAILER, enclosed U-haul style, approximate 4 x 8 bed. Wifall, 292-1747.

CHILD'S WOODEN PLAYHOUSE, w/or without swingset, Eagle's Nest or similar. Kent, 275-9880.

MESSAGE TABLE, portable. Estill, 883-1531.

MUZZLELOADER SHOOTING ACCESSORIES, for 50-cal. Hawken: jag, patch extractor, powder measure. Kercheval, 864-6549.

ROOMMATE for June & July, 10 minutes to base, nice 3 bdrm. home, \$250/mo. Duran, 292-7588.

PBS SPECIAL, "In Search of the Oregon Trail," shown on KNME, Monday, April 29, 1996. Kuehne, 281-5446.

OPERATING/SERVICE MANUALS for Tektronics Model 454 Oscilloscope, from salvage auction. Schulze, 298-9328.

TWIN BED, w/box spring or frame & mattress; 2 full-size (double) mattresses. Weed, 823-2396.

LOST & FOUND

LOST: Gold wedding band, at Manzano softball field, on 5/2/96. Lierz, 293-2886 or 844-7184.

LOST: Earring (pierced), saucer-shaped, sterling silver, 1-in. diameter, Native American design, lost possibly around Hardin field. Dann, 892-2829 or 844-0296.

WORK WANTED

STUDENT-AGED PERSON, to help maintain garden & pool, about 4 hours/wk., good pay. Gemmill, 292-5910.

DETAIL YOUR VEHICLE, interior & exterior, w/professional products, hand wax, \$50-\$75, depending on size. Ortiz, 292-5589.

LAWN MOWING, 15 yr. old will do mowing & yard work (Tramway & Indian School). Donald, 237-9288, ask for Justin.

HOUSE SITTING, by responsible college senior, available through July, prefer NE Heights area, will consider others. Perrine, 293-1429.

RePAV moves video technology into information management arena

Keyword search capability opens video to archival applications

By Bill Murphy

Lab News Staff

Videotape is a great entertainment medium, but as a tool for serious historical archiving, it leaves something to be desired. That's what a team of Sandians discovered when they embarked on the Knowledge Preservation Project to record and preserve the singular weapons design knowledge cultivated at the Labs over half a century. (See "Minding Sandia's business is the mission of weapons project 'oral historians'" on page 3.)

The project team, including project leader Carmen Ward, Recorded Information Management Dept. 15102; Keith Johnstone, Military Liaison, Navy Projects, and Use Control Dept. 14714; and Jim Borders, Engineering Information Management Dept. 9781, was charged with developing and implementing a process to save vital weapons design lore — not the stuff recorded in lab notebooks but in the individual memories of scores of Sandia researchers. The on-going preservation process involves interviewing key weapons experts who have worked at Sandia over the years.

"What we're doing is picking their brains, but more than that, their psyches, to try to learn not just what they did, but why they did things the way they did; to find out what worked, what didn't work, what might have worked had the supporting technology been more advanced, and so on," says Keith.

Preserving the art and the science

Video was seen as ideally suited for recording the kinds of anecdotal information the project was designed to preserve: the *art* as well as the science of weapons design, the seat-of-the-pants hunches, the intuitive leaps, the frustrations, the insights, and the synergies that have driven Sandia's weapons work over the decades.

The concept sounds fine, but many of the interviewees expressed skepticism about the process and its ultimate utility. As Keith put it: "These folks said, 'Sure, you'll record this [interview] and it'll sit on a shelf someplace for 20 years while the tape slowly degrades into oblivion. Why should I bother?'"

"The trouble with video — and these guys [interviewees] knew it — is that you often don't know what you have on tape, and when you *do* know, you don't really have a good way to access it quickly and easily," Carmen says.

Keith said the team made a commitment to the participants that the information and insights they provided *would* be used, it *would* be accessible — at the desktop — to a new generation of weapons engineers.

"That was the commitment we made," Carmen says. "Our challenge was to develop a way to deliver on it."

Carmen says team member Jim Borders embraced the challenge with rare enthusiasm. His solution: RePAV — Relevant Point of Access Video. It's a software-based video retrieval system that makes it possible to search a video and access the relevant section based on keyword input. "The search capability in video traditionally has been limited to the fast-forward and rewind buttons," Keith says. "That's not good enough when you're talking about finding relevant data from among the thousands of hours of reminiscences we're trying to preserve.

... RePAV takes video out of entertainment and puts it into information management."

System will just get better

RePAV works like this: The audio portion of a videotaped interview is transcribed and linked to a time code keyed to the video. Meanwhile, the video is converted to a digitized format that enables almost instant access to any frame. When you type in a keyword, the software finds the word in the transcript, matches it up with the time-coded information, then accesses the video segment where the word is spoken.

"Here's another thing — the system is pretty good now, pretty robust, but the fact is, it's only going to get better," Keith says. "The technology vector is in our favor in every way: Data compression, storage capacity, processor speed, resolution, networking, digital imaging — we're seeing breakthroughs in all of these areas on a regular basis. Every incremental improvement in any one of these technologies just makes RePAV run that much better."

NFL, CNN interested

While RePAV was designed to give researchers access to weapons design data, the technology has potential applications far beyond Sandia's fences. Several national organizations that store vast amounts of videotape, including CNN and the National Football League, have expressed interest in the RePAV system, Carmen says, and research and archival facilities the world over clearly could put the system to immediate use. The Knowledge Preservation Team, responding to outside interest, is reviewing the licensing options for the RePAV technology.

Keith is convinced the RePAV technology has profound significance for researchers. "More and more information is captured on video and *only* on video. . . . the [RePAV] technology and the need have come together. . . . I think this will change the way people gather history; I'm convinced of it."



ALL DRESSED UP AND SOMEPLACE TO GO — Bruce Draper (1323) showed his daughter, Catie Draper, age 13, what it's like to work in a clean room in the Microelectronics Development Laboratory on Take Our Daughters to Work Day, April 25. An estimated 700 daughters spent all or part of the day at Sandia/Albuquerque and an additional 112 at Sandia/California (see photo on page 3). The event, sponsored by the Sandia Women's Program Committee, was in conjunction with the Ms. Foundation for Women's nationally designated day, a time when girls get the uninterrupted and positive attention of adults in a job setting.

Coronado Club

May 10 — "Western Night" dinner/dance. \$7.95 all-you-can-eat buffet, 6-9 p.m. Music by Isleta Poorboys, 7-11 p.m.

May 12 — Mother's Day brunch, 9 a.m.-4 p.m. (Seatings at 9-11 a.m.; noon-2 p.m., and 2:30-4 p.m.) \$8.95 all-you-can-eat buffet, kids 3-12, \$4.95, under 3 free. Menu items include baked ham, turkey, baron of beef, salads, deserts, breakfast items, and vegetables. All mothers receive a free flower. Reservations required (265-6791).

May 18 — Swimming pool opens for season, 11-5 p.m.

May 24 — Kids' bingo. Buffet from 5-8 p.m. Cartoons, movies, and bingo, 7-9 p.m. Free hot dog and soft drink for all kids playing bingo. Cost of a bingo packet is \$2.50.

May 27 — Memorial Day buffet, noon-5 p.m. on the patio. Pool open 11 a.m.-6 p.m. Music by Bob Weiler and Los Gatos, 2 p.m.-6 p.m.

Fun & Games

Bowling — SANDOE Bowling Association February Bowlers-of-the-Month include: Scratch — Kathy Rima, 555; and Stephen Winters (9322), 603; Handicap — Peggy Burrell (ret.), 497 and 641; and Manny Avila (12615), 549 and 639.

Winners of the No-Tap Scotch Doubles Tournament at Holiday Bowl March 16-17 were Reyes (7433) and Trinie Chavez with a 1,443 combined handicap series. Second place was taken by Manny Avila and Pat Sanchez (13913) with a 1,439 combined handicap series.

Special Olympics — The 1996 Special Olympics State Summer Games will be held May 31-June 1. Volunteers are needed to assist the New Mexico Special Olympics with track and field events, cycling, and other activities associated with the games. An orientation meeting will be held May 15 in the Bldg. 811 conference room, 9-11 a.m., for all interested volunteers. Call Sam Holmes at 897-0916 for more information.