

Flat panel displays may become TV screens of the future

'N-cake-um' means increased US competitiveness

By Dawn Hipsh

Summer Science Writer

A strand of blonde hair — that's about the width of conductors being tested by Sandia for flat panel displays of the future. Such displays would enable a 40x40-inch television to hang from a wall, not unlike those portrayed by space-age movies and cartoons.

"The 'Jetsons' era' is slowly becoming a reality," says Walter Worobey of Electronic Processing Dept. 2411, "and flat panel displays will play a big role in many upcoming technologies."

For instance, the television screen of the future won't just be for television, says Walt. Using fiber optics and cable, television units will become

centers for home shopping, electronic money exchange, e-mail, and videoconferencing. Flat panel displays have already made their debut in laptop computers and "smart car" displays that provide drivers with city maps and alternate routes to their destinations.

These and other technologies are the focus of the Sandia-based National Center for Advanced Information Components Manufacturing (NCAICM, pronounced "n-cake-um"), designed to improve US competitiveness in flat panel displays and advanced information components. The center brings teams of researchers

TV screens of the future will become centers for home shopping, money exchange, e-mail, and videoconferencing.

together from Sandia, Los Alamos, Lawrence Livermore, and industry to address technology development in flat panel displays.

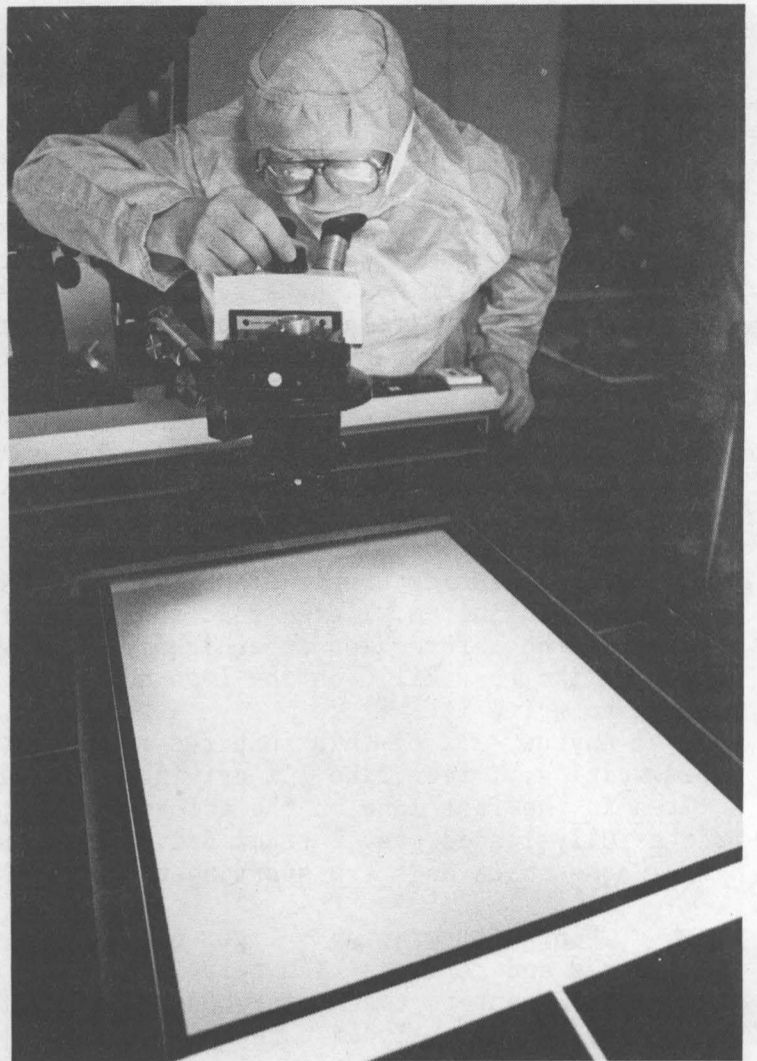
Market potential is enormous

"Some economists project that microelectronics, optoelectronics, and optical displays will be part of an information systems market that exceeds \$2 trillion by the year 2000," says NCAICM director Jim Jorgensen, Manager of Information Components Manufacturing Dept. 2903. "Japanese and other foreign manufacturers, who currently dominate the US consumer electronics and small-area flat-panel display markets, also recognize the huge potential market for next-generation technologies." The Japanese project a high-information-content flat panel display market of \$40 billion by the year 2000.

For now, Walt and technician Bill Morgan (2411-1) "smock up" with lab coats, surgical head pieces, and shoe coverings and disappear into the Bldg. 878 clean room where they use equipment designed for making printed circuit boards to electroplate flat panel display patterns on pieces of window glass. Display patterns consist of small metal conducting lines that will be needed to address images at the pixel level.

Once created, lines are tested for

(Continued on page 9)



VIEWING THE FUTURE? — Walter Worobey of Electronic Processing Dept. 2411 examines a flat panel display pattern in a Sandia clean room. The Sandia-based National Center for Advanced Information Components Manufacturing is working on new technologies for future large flat panel optical displays.

Sandia National Laboratories **Sandia** LabNews

Vol. 46, No. 18 September 2, 1994

Labs gets a clear 'message received' after Galvin task force visit

Sandia emphasizes integrated, 'science-based engineering'

By Ken Frazier

Lab News Managing Editor

The visit to Sandia of Robert Galvin and five other members of his task force evaluating the future of the DOE national laboratories Aug. 16 went very well, Sandia executives say.

Sandians involved worked hard to present a unified, integrated message about Sandia, and they believe they were successful. By all accounts, Galvin and his colleagues were impressed with what they heard and saw about Sandia.

"Our message was well received," says

Sandia President Al Narath. "The presentations were all based on our strategic plan. Our strategic vision appeared very much in harmony with the views expressed by Galvin and the task force members. We were extremely well received."

Galvin is chairman of the Secretary of Energy Advisory Board Task Force on Alternative Futures for the DOE National Laboratories. Secretary of Energy Hazel O'Leary commissioned the task force to examine options for change within the DOE multiprogram laboratories and to propose to her by February 1995

(Continued on page 8)

Surprise challenge from Galvin: Ten lab directors will propose collective vision

As a result of an unexpected challenge from Robert Galvin during his Aug. 16 visit to Sandia, the directors of the DOE multiprogram national laboratories quickly agreed to develop a collective vision of alternative futures for the labs.

The first meeting, in fact, has already been held. It took place this Tuesday (Aug. 30), in Dallas. A second meeting might take place soon. The lab directors then plan to present their vision directly to Galvin on Sept. 28.

The challenge also resulted in a quick reorganization of the agenda for the first two afternoons of Sandia's Fall Leadership Forum, Aug. 23-25, in Santa Fe. Sandia senior managers organized a group activity to develop and build a vision, or visions, of the future of the DOE national laboratory community while exploring Sandia's place within it.

Galvin, Chairman of the Executive Committee of Motorola's Board of Directors, is chairman of the Secretary of Energy Advisory Board Task Force on Alternative Futures for the DOE National Laboratories. The Galvin task force is

(Continued on page 9)

He made clear that he meant futures, plural — that he wanted various alternatives proposed.

Winning teams named for Sandia President's Quality Award

4

Nation's top bomb squads get unique training, Sandia style

6



This & That

Foot in mouth (ISDN style) - I wonder how many Sandians have come up looking foolish by answering their fancy new ISDN phones with some flippant remark. Most of you know that these phones display the name of the telephone "owner" if the call comes from another Sandia phone. However, another Sandian may at times call from someone else's phone, or the owner may transfer an outside call directly to you.

Recently, after checking the ISDN display and assuming I knew who was calling, I answered with "How in the (let's say 'dickens') are you?" Oops! Someone I knew well enough to handle that greeting had transferred an outside call to me. Thank goodness, the fellow calling had a good sense of humor and readily accepted my embarrassed explanation, but that wouldn't always be the case. A lesson learned.

* * *

Punning on empty - I'm betting the term "information superhighway" has spawned more bad puns and similes by writers than any other term in years. You can't pick up a newspaper or a publication from the high-tech world today without reading that someone has wrecked on the information superhighway, is accelerating on it, is just now coming up to speed on it, is encountering barricades on it, has hit a slippery stretch of road on it, ad infinitum. I even read somewhere that someone felt like a crash dummy on the information superhighway. I haven't yet read that anyone "feels like road kill" on the info superhighway, but I'm probably not the first to write it.

Anyhow, all of this inspires me to try for the ultimate piece of bad writing: I feel like I'm driving a '64 Plymouth Valiant with bald tires in the fast lane on the information superhighway and up on my rear is a fully loaded gravel truck driven by a huge, surly guy named Bubba Joe whose chili dogs are starting to work on him. Top that!

* * *

Thanks for writing - I get quite a few memos and notes from Sandia employees and retirees. I'm sorry that I don't have time to answer them all, but I want to thank everyone who takes the time to send us ideas and comments. Although I can't reply to them all, I assure you I read every one and share appropriate ones with the *Lab News* staff, so thanks, again. We really do appreciate hearing from you.

* * *

Hot, wet, and windy - So far at Sandia and in Albuquerque this summer, we've seen the highest wind speed ever recorded (113 mph at the Labs' solar thermal test area), highest single-day temperature (107), and the most rainfall in any 24-hour period (2.12 inches, officially at Albuquerque Airport). Plus, the last time I checked we were headed for the hottest August on record. I'm wondering if I'll see one more record this summer: the largest salary increase I've ever received. I think that's a hot idea, but it's probably all wet, too.

* * *

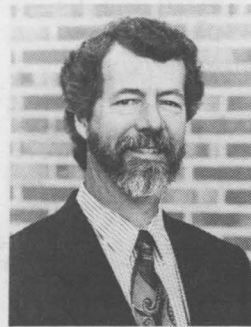
Cheap gifts only, please - September is "Be Kind to Editors and Writers Month," which one publication describes as "a time for editors and writers to show uncommon courtesy toward each other." And it sure wouldn't hurt the rest of you, either, I might add! But please, appreciative readers, keep all gifts under 25 bucks so I won't feel obligated to send you a thank-you card.

- Larry Perrine

Supervisory appointments

GARY CARLSON to Manager of Fuel Science Dept. 6211.

Gary joined Sandia in 1966 as a member of the Aerodynamics Department. His work at the Labs has been in physical chemistry, biomedical engineering, physics, and instrumentation



GARY CARLSON

development. Other organizations he's worked for include Shock Response of Solids, Radiation Physics, Simulation Technology Research, and Command and Control departments.

In 1982, Gary left Sandia to continue work in implantable drug delivery systems. He was Vice President for Clinical Applications for Intermedics Infusaid, Inc., a small biomedical device company in Norwood, Mass. He returned to Sandia in 1986.

He was named Distinguished Member of Technical Staff in 1992.

Gary has a BS in chemistry from the University of Idaho and a PhD in physical chemistry from the University of California at Berkeley. He is a member of the American Chemical Society, Phi Beta Kappa, and Sigma Xi.

TRISH LARSON to Manager of Environmental Operations Dept. 8644.

She joined Sandia/California in 1990 to work on projects involving neural networks

and fuzzy logic in the Sensor Development Department.

Her next assignment was detonator project engineer for the W89 SRAM

(short range attack missile) program,

then she served as project leader on integrated manufacturing and design initiatives.

Most recently she has been working on atmospheric radiation measurements with the Unmanned Aerospace Vehicle project.

Before her arrival at Sandia, Trish was a manufacturing design engineer for Hewlett Packard in Roseville for two years.

She has a BS degree in electrical engineering from Cal Poly at San Luis Obispo and a master's in the same field from Stanford University.



TRISH LARSON

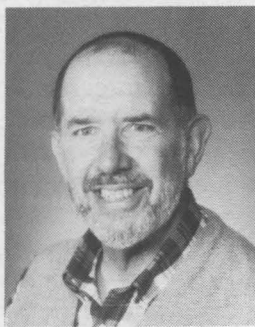
JAKE McMICHAEL to Manager of Operations Dept. 8305.

He joined Sandia/California in April 1979, working in the Systems Control Division as a program engineer on the W79

Artillery-fired Atomic Projectile (AFAP) program, then the W87 Peacekeeper warhead.

More recently, he has provided project management support for Project Straight-Line, the Fuel Oil Spill bioremediation effort, and the Gas & Oil National Information Infrastructure program.

Before coming to Sandia, Jake had a 20-year career in the Navy as a naval aviator and aeronautical engineering duty officer. His last assignment



JAKE McMICHAEL

(Continued on next page)

Sandia LabNews

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Lab News 505/844-7841 fax 505/844-0645

Published Fortnightly on Fridays by
Employee Communications Dept. 12660, MS 0413

MARTIN MARIETTA

Martin Marietta and Lockheed agree to a 'merger of equals'

Martin Marietta and Lockheed corporations announced Tuesday they have agreed to merge the two companies, creating a \$23 billion advanced technology colossus. The companies referred to it as a "merger of equals."

The new corporation, Lockheed Martin, will employ about 170,000 people and will be headquartered in Bethesda, Md., Martin Marietta's current HQ location. The merger will become effective in early 1995.

Daniel Tellep, chairman and chief executive officer (CEO) of Lockheed, will hold the same positions in the new corporation. Norman Augustine, Martin Marietta's chairman and CEO, will become its chairman and CEO when Tellep retires.

Further details and any expected effects on Sandia will be explored in a future *Lab News* article. Martin Marietta operates Sandia for DOE.

Process to convert rocket propellants to fuel studied

'Syngas' could generate electricity

By Mike Sheehan

Lab News Correspondent

If Sandia's Joel Lipkin and his research partners at Alliant Techsystems have their way, materials once used in bombs and missile propellants may soon power industrial turbines and electric fuel cells.

"Our joint project will analyze and test a new reforming process designed to convert excess energetic materials, such as explosives and liquid rocket fuels, into a synthetic fuel gas that can be used to generate electricity directly or be burned in turbines," says Joel, a technical staff member in Technology Applications Dept. 8113.

"Obsolete munitions are a big problem around the globe, and we hope to develop a safe, effective way to convert them into valuable fuels."

The cooperative research and development agreement (CRADA) recently signed between Sandia and Hopkins, Minn.-based Alliant Techsystems is valued at \$227,000. Alliant, one of the nation's largest munitions manufacturers, is providing funding for Sandia's participation in the CRADA and is also operating a prototype processing facility in Philadelphia as part of the agreement.

"At Sandia, our job during this six-month cooperative effort is to develop computer simulations of the chemical kinetics and gas flow in the reforming process," Joel says. "Alliant will be able to use these simulations to conduct experiments on its prototype system. Both partners will help analyze the results."

Also, numerical modeling performed by Sandia researchers based on the experimental results may enable Alliant to build a full-scale system. According to Joel, scientists at

Sandia's Combustion Research Facility have analyzed similar processes in the past, and they have developed models that describe the thermal decomposition of a variety of materials.

"The prototype reforming system can process several liters of material per day, but the goal is to scale up the system by roughly a factor of 50," Joel says. "By working closely with Alliant, and using our computational expertise to study and test system characteristics, we hope to show that the concept is feasible at this larger scale."

An alternative to incineration

According to Joel, the decomposition process may provide a viable alternative to incinerating hazardous materials. To reform the explosives, the experimental process uses a high energy plasma heat source operating at atmospheric pressure, which breaks down the solid and liquid materials into their constituent parts: carbon, hydrogen, and nitrogen.

"After Alliant separates the munitions from their metal casings — which are then reclaimed as scrap — the liquid and pulverized solid energetic materials are suspended in a slurry and injected into a high-temperature chamber," Joel says. "The materials spend about two seconds decomposing into product

gases within the chamber. Next, these gases are reformed as they flow through a high temperature pipe, quickly becoming a synthetic fuel gas after an additional 2-3 seconds residence time in the process."

Worldwide application planned

In addition to domestic application, Alliant plans to expand the use of its reforming process to solve munitions disposal problems around the globe.

"Alliant has set up companies in partnership with the governments of Ukraine and Belarus to demilitarize munitions within these countries," says Larry Blagdon, Alliant's Business Director of Ordnance Reclamation and Demilitarization. "If this new process proves effective, it will provide an important step toward further demilitarization of explosives and rocket propellants, eliminating weapons that could potentially fall into the wrong hands."

The principal Sandia researchers involved in the waste conversion project are Mark Allendorf (8361), Andy Lutz (8745), and Colin Hackett (8746).

The decomposition process may provide a viable alternative to incinerating hazardous materials.



Sandia California News

Supervisors

(Continued from preceding page)

was production manager of the Naval Aviation Depot at the Alameda Naval Air Station.

He has a BS degree in naval science from the

US Naval Academy at Annapolis and a master's degree in electrical engineering from the US Naval Postgraduate School at Monterey, Calif.

Jake is a member of the Project Management Institute and is certified as a project management professional. He has 7000 flying hours, holds a current airline transport pilot rating, and is a certified flight instructor.



MICROELECTRONICS NETWORK DAY — Sandia's San Jose Microelectronics Office sponsored the first ever Microelectronics Network Day at the Santa Clara Convention Center Aug. 17. The event attracted 200 participants from some 70 companies in Silicon Valley, according to Jay Jakubczak (8006), San Jose Microelectronics Office manager. Among the industry participants were (left photo) Glen Cheney (left), President of SEMI/SEMATECH and a former Sandia VP, who gave the keynote address, and Bob Fink (right), chief operating officer



for Lam Research Corporation. In photo above, Graham Alcott (center), external programs director for Intel Corporation, presents a plaque of recognition to Ed Cole (2275, right) for his work in technology transfer of Sandia's CIVA (charge-induced voltage alteration) failure analysis technique. "This technology transfer effort from Sandia to Intel is expected to realize many millions of dollars in productivity improvement for Intel," says Alcott. California Programs VP John Crawford (8000, left) watches the presentation. (Photos by Cary Chin)

Sandia President's Quality Award winners announced; awards attract interest from cross-section of Labs

Silver Award winners double number from last year

More Sandia projects were nominated for this year's Sandia President's Quality Awards (PQA) than last year — the first for the awards — and the level of achievement was higher, with twice as many silver award recipients as last year.

Award winners were notified Thursday, following final approval by Labs President Al Narath last week. Al will present awards to Albuquerque winners during a PQA ceremony Oct. 20 in the Technology Transfer Center (Bldg. 825). The ceremony will be telecast live to Sandia/California, where California Programs VP John Crawford (8000) will present awards to winners there.

"The primary purpose of the Sandia President's Quality Award program is to provide Sandians a means to assess and improve their work, based on customer focus, process management, and results," says program coordinator Mary Nation of Quality Tools Dept. 12911.

She says the number of nominations increased from 86 last year to 110 this year.

Mary says 42 Sandians from all Labs divisions — all trained in Malcolm Baldrige and PQA criteria — volunteered to score nominations. Those scoring high in the first level of contention were submitted to a second level for award evaluation.

There is a Gold Award category, but none were presented last year or this year. There were five Silver Awards last year and 10 this year; 11 Turquoise Awards last year, five this year; and 12 Special Recognition awards last year, 11 this year.

Team member names and organization numbers or company names are those submitted with applications.

Silver Awards

This year's Silver Award laureates — one of the 10 is a repeat winner and will be recognized but will

not receive another award — with a brief description of the projects for which they were nominated and team members are:

- *WR Production of MC4437 Current Stack* — Met DOE assignment to manufacture war reserve-certified current stacks, active ceramic major components in the neutron generator, after the supplier to Martin Marietta Special Components indicated it was no longer interested in supplying them, enabling component exchange schedule for the W76.

Team members — Paul Lemke (2400), Pat Appel, Steve Lockwood, John Matsko, Roger Moore (all 2476), Bernice Abeita, Mary Gonzalez (both 2476-1), Johnny Moya, Mike Romero (both 2481-3), Tim Scofield, and Jim Tichenor (both 2561).

- *H1501A Transportation Accident Resistant Container Program* — Designed, developed, produced, qualified, and fielded the H1501A hardware to support movement of the US Army's tactical nuclear weapons by preventing dispersal of plutonium due to a transportation accident.

Team members — Paul Johnson (2171), Steven Ehle (5301), Kevin Carbiener (5321), Barry Bolden (5361), Larry Brown, Mark Higuera, Robert Monson (all 5364), Paul Lari, Brian Oden, Gene Simpson, Cook Story (all 5365), John Liebenberg (5366), Jack Donaworth (5514), Rex Easton (8116), Ken Henry (8274), Christine Wright (8534), Gerald Dittman (Lawrence Livermore National Lab), and Del Houser (Ret.).

- *Laboratory Directed Research and Development Program* — Solicits proposals for and evaluates projects focused on long-term, cutting-edge research and technology development that are relatively small, well-specified, short-term (1-3 years), and emphasize early exploration and exploitation of forefront science and technologies.

Note: This project also was nominated last year and won a silver award; it will be recognized at the Oct. 20 ceremony but will not receive another award.

Team members — Peter Mattern (1010), Laura Lopez, Charles Meyers (both 1011), Bob Turman (1221), Del Owyong (1312), William Camp (1421), David Womble (1422), Stephen Rottler (1511), Jim

Borders (1823), Ron Diegle (2502), Louis Cropp (2643), Joel Weiss (4500), Tom Palmieri (4503), Jim Gerardo (5601), Duane Lindner (5605), Marion Scott (6114), Robert Luna (6603), Jim Costa (8711), Dan Rondeau (9903), John Brewer, Carol Peterson (both 10402), Tim Knewitz (10601), Larry Adcock (DOE/AL), and James Lester (DOE/KAO).

- *GPS Satellite Global Burst Detector* — Supplies global burst detector payloads for nuclear detonation detection systems on Global Positioning System satellites, including an optical sensor to detect bursts and a digital control to interface with the optical sensor and sensors supplied by other agencies.

Team members — Norm Blocker, Paul Phipps (both 9206), Steve Yearout (9212), and Greg Christiansen (9222).

- *Lightning Arrestor Connector Pentagon /S/ Implementation* — Designed two new Lightning Arrestor Connectors (LAC) to improve LAC-assured safety and reliability by implementing Pentagon /S/ controls in the design and production processes. /S/ features are design features, tests, processes, etc., identified as critical to nuclear weapon safety.

Team members — Larry Andrews (2235), Terry Ernest (2251), Mark Ekman (12324), Larry Demo, Melanie Turley, and Willie Washington Jr. (all Martin Marietta Special Components/PP).

- *Safeguards and Security Access Enhancement Team* — Improved security processes and made changes in the system, reducing operating costs and personnel while increasing access efficiency, changing security boundaries, installing exit-only turnstiles, improving Mardix booth service, and establishing "limited area" access in certain buildings.

Team members — Wendell Forster (7401), Jim Blankenship, Laura McCarty (both 7402), Reyes Chavez (7433), and Ronald Coonen (7435-1).

- *Tactical Automated Security Systems Program* — Developed Tactical Automated Security System (a security system that can be rapidly and effectively deployed with minimal site preparation) concepts for the Air Force, wrote specifications, evaluated and recommended commercial equipment, and delivered prototypes of the RF communications, annunciation, thermal imaging, portable power systems, and relocatable sensors.

Team members — Robert Graham (5822), Michael Christiansen, David Gangel, Michael Kmatz, Ronald Madsen (all 5831), Douglas Adams, Roy Fitzgerald, Daniel Pritchard (all 5838), John Harrington (9615), and Gary Johnson (EG&G).

- *Sandia/New Mexico Earth Day Festival* — Defined, planned, and executed the first Sandia/New Mexico Earth Day Festival, attracting an estimated 3,000 people to displays, exhibits, and activities aimed at enhancing pollution-prevention awareness and encouraging adoption of pollution-prevention practices.

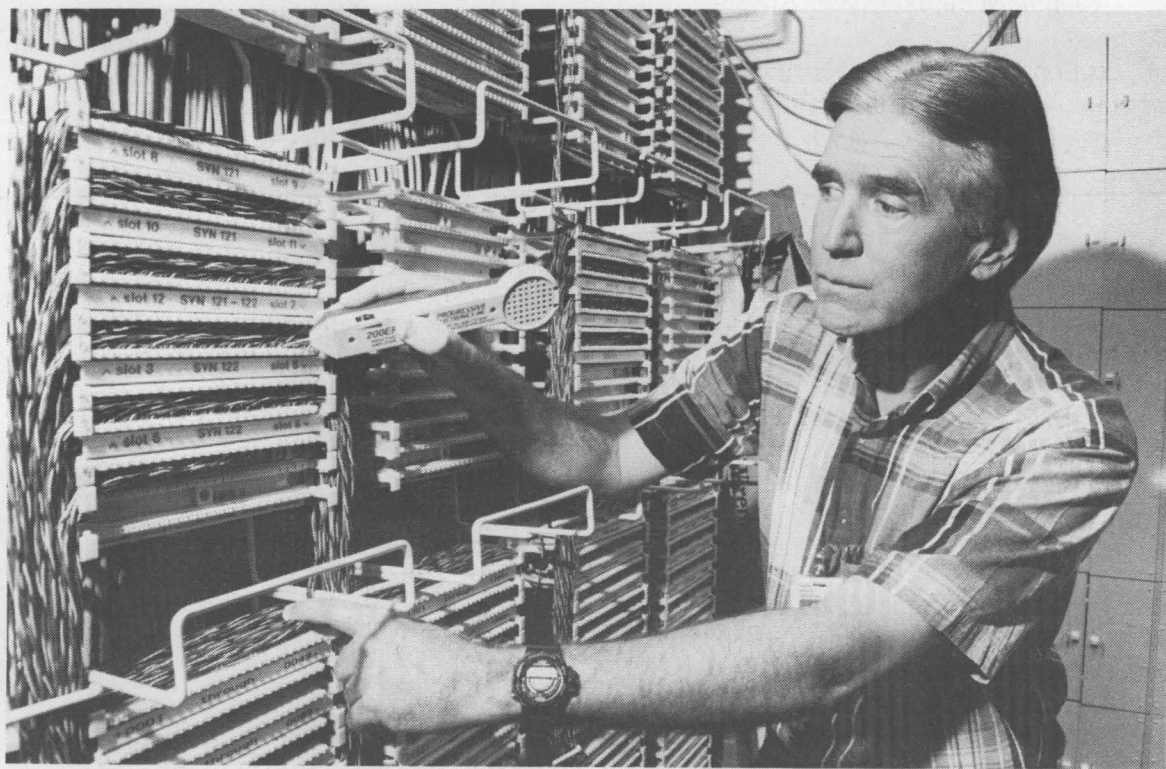
Team members — Fran Stohl (6212), Ken Hanks (6911), Maria Walsh (7574), Robyn Davis, and Jim Fish (both 7576).

- *Project Stage Right (Phase 1)* — Designed an interim storage system for plutonium pits to increase existing facility storage capacity, reduce radiation exposure to personnel, guarantee the safe handling and storage of plutonium pit containers, and provide management tools to increase coordination and control planning effectiveness.

Team members — Billy Caskey, William Morse (both 9616), and Frank Wunderlin (Technadyne Engineering Consultants).

- *Lithium Battery Quality Development Process* — Developed commercial lithium/thionyl chloride technology that revolutionized the way nuclear surety devices were powered in weapons and, used in conjunction with new multichip module technology electronics, reduced the size of the power supply by 50 percent and doubled the service life.

Team members — Wendy Cieslak, Henry Street, David Weigand (all 2223), Laura Halbleib (12323), Roy Hanson (12336), David Miller (E-P Industries), Larry Demo, Don Hardy, Mike Nenadovich, and
(Continued on next page)



FIRST OF MANY — Bill Hill (contractor) is seen here putting finishing touches on circuits in the Bldg. 836 Intermediate Distribution Room, the new hub of voice and data communications for that building. Bldg. 836 is the first Sandia building to be completed as part of the Intra-building Recabling Project, scheduled to bring improved communications services and high-speed data transmission capabilities to 7,500 Sandia desktops by December 1995. Seventy-five miles of new fiber optic cable and 113 miles of new copper wire bring high-speed data transmission and video capability to Bldg. 836 offices and centralize local-area network and ISDN phone hardware for easier access and maintenance. The rewired building should be a significant improvement in reliability, versatility, and service compared to previous services provided by the Air Force, says Tim Francis (contractor). A ribbon-cutting ceremony in Bldg. 836 yesterday, featuring Chief Information Officer Mike Eaton (13100), celebrated the completion of the building's rewiring. The next building, 804, is scheduled for completion by October.

Outside business reps spend fact-finding week at Labs

'Red Team' to help reengineer Sandia's Human Resources processes

A team of 15 businesspeople representing such companies as Battelle, Honeywell, IBM, Westinghouse, and Xerox recently spent a week at the Labs evaluating how Sandia's Human Resources (HR) Program compares with HR programs in the commercial sector.

The purpose of the fact-finding mission — Aug. 15-19 — was to assess the Labs' current HR services and gather information necessary to recommend changes based on customer needs, commercial business practices, and making HR-related job tasks easier.

Sponsored by Sandia's Human Resources Laboratory Process Reengineering (HR LPR) Team, the assessment is a preliminary, diagnostic step in reengineering Sandia's human resources processes, says Shirley Wallace (10605), project manager for the review. HR is one of six areas initially being reengineered at Sandia (*Lab News*, April 29).

The assessment includes all Labs HR processes, including staffing, employee assistance, health promotion, training, labor relations, performance appraisal and management, and workers compensation, to name a few. A second Red Team will review Labs processes relating to clinical medicine services.

A diagnosis and prescription

Shirley says this is the first time an independent review team, commonly known as a "Red Team," has been used to assess processes

"The report will say, 'Here's what appears to be wrong and what could be improved.'"



OUTSIDE LOOKING IN — Charles Emery, VP for Human Resources Div. 3000, addresses representatives of outside businesses serving on the Human Resources Red Team that recently spent a fact-finding week at Sandia diagnosing Labs Human Resources processes. Charlie says it is beneficial to have outside professionals looking at Sandia practices and making assessments.

that are entirely administrative. In the past Red Teams have been used to provide an objective look at technical projects within the DOE complex, such as tank farm operations at DOE's Westinghouse Hanford site.

During the fact-finding week, Red Team members heard presentations by several HR managers, interviewed employees and other HR customers, and discussed individual processes with HR employees. Team members next will draft recommendations and present them to Sandia's HR LPR Team by Sept. 30, says Carol Harrison (7900), a member of that team.

Shirley likens the review to a diagnosis and prescription for Labs HR processes. "The team's report will say, 'Here's what appears to be wrong and what could be improved in terms of increased efficiencies, customer satisfaction, cost savings, and cost avoidances,'" she says. "Then it's up to Sandia management to decide whether, and how, to implement those recommendations based on customer requirements and expectations."

Although the Red Team comprises mostly representatives of outside companies, a few Sandians are serving on the team, including Shirley and Wendy Bechdel (2000). Doug Weaver (6604), an independent review expert, is team leader.

Other organizations participating in the review include Martin Marietta, Oak Ridge and Los Alamos national laboratories, CH2M Hill, and several business consulting firms. Each member has commercial, DoD, or DOE background in HR policies and practices.

For more information, contact Carol on 845-0575 or Shirley on 844-2147.

—John German

(Continued from preceding page)

Glen Roubik (all Martin Marietta Special Components/PP).

Turquoise Awards

The nomination titles and team members of Turquoise Award laureates are (one is a repeat winner and will be recognized but will not receive another award, and one submitted a nomination but specified in entering that it could not receive an award):

- *Tritium Research Laboratory Transition Project* — Adana Dean (8200), Charlie Laguer (8271), Wylie Fabyan, Gerald Giovacchini, Michael Hansen, Todd Howe, Henry Irwin, Joel Kuhlmann, August Margin, Marion Martin, Jerry Parker, Val Pestanas, Michael Serpa, James Smith, Rex Steele, LaNeen Stewart, Cornelius Visbeck, Roger Watson (all 8281), Robert Gamble, Toff Garcia, and Thomas Gorman (all 8641).

Note: This project also was nominated last year and won a Turquoise Award; it will be recognized at the Oct. 20 ceremony but will not receive another award.

- *Reengineering of Sandia's Environmental Restoration Project* — Joan Woodard (6600), Doug Weaver (6604), Tom Blejwas (7500), Warren Cox (7581), Jim Brinkman, Fran Nimick, Mike Wade (all 7582), Dick Fate, Carole Lojek, Doug Reaber, Sam Rogers, and Mike Young (all 7585).

- *Development of a Use Control Technology* — Lewis Suber, Robert Taylor (both 5122), Marv Daniel (5931), Robert Martinez (5932), Max Schell (8416), James Dremalas, Ming So (both 8417), Bill Even (8716), M.J. McLean, H.M. McLeroy, D.E. Altoff, A.R. VanHook, L.E. Lacy, and S.M. Tubbesing (all AlliedSignal).

- *The American Challenge* — Sarah Everist (1324), Gary Tipton (1332), Edward Coghlan, Jeffrey Danneels, John Norwalk, Jerry Savage (all 7908), Ruth Bucknall, Ivan Harris, Tom Tjaden, Mark Wiltse (all Applied Materials), Louie Guenther (Henderson

Construction), Phyllis Chavez, George Roth, Jim Wernicke (all L&M Technologies), and Paul Westfield (SEMATECH).

- *President's Quality Award Design Team* — Sylvia Joyce (1000), Jeff Keck (2561), Suzanne Weissman (6000A), Clyde Northrup (7251), Tony Aragon, Mike Patton (both 7435), Cliff Yokomizo (8007), Cynthia Schneeberger (10210), Vicki Malone (10502), Gene Smit (10601), Leon Sikora (12909), Allison Kane, and Mary Nation (both 12911).

Note: The Sandia President's Quality Award Design Team submitted its nomination at the request of some of its customers. It was handled and judged like all others, but the team specified with its submission that it would not be eligible for an award.

Special Recognition

Projects and team members receiving Special Recognition are:

- *Department 7906 Facilities Engineering Process* — Sandra Begay-Campbell, Darryl Drayer, Larry Luna, and Mary Alice Padilla (all 7906).

- *Structurally Efficient Automotive Airbag Design* — Vance Behr, Dan Luna, Don McBride, James Nelson, Larry Whinery (all 1552), Bob Croll, Buddy Lafferty (both 1554), Ken Gwinn (1562), and Rick Saxton (2654).

- *Sandia Wafer-level Software for Reliable Devices* — Eric Snyder (1081), Ric Bradley, William Miller, Donald Pierce, Norman Smith, Scot Swanson, Danelle Tanner (all 2276), Victor Chavez (4202), Ronald Lau, Gregory Miller, and Edward Tabibian (all Hewlett Packard).

- *The Sandia/California Incident Examination Process* — James Bartel (8281), Ollie Rohrback (8284), Corey Knapp (8415), David Abrahams, Don Putz (both 8609), and Peggy Hatcher (8643).

- *The Sandia Telephone Company* — Dan Naru (10214), Dave Darsey (13311), Bob Dougherty (13902), Paul Baca, Paul Montavon, Joe Sena (all 13914), Larry Tolentino, Mike Vahle (both 13916), John Eldridge, and Fred Jones (both 13917).

- *Mail Sorting and Delivery Process* — Ellen Evans (7601), Bert Langford (7611), John Ayala, Bill Edgar, Irene Gonzales, Eric Lamb, Roseanne McCaslin, Gary Mueller, Cecil Tafoya, Martin Urban, and Stella Zamora (all 7613-2).

- *6000 Career Development Process Management Team* — Perry Horse (3521), Maureen Kiphart (6000), Suzanne Weissman (6000A), Bruce Engler (6114), Gary Carlson (6211), Sharla Bertram (6342), Diana Suina (6400), Roger Cox (6405), Susan Bourcier (6524), Maria Armendariz (6613), and Charles Hanley (6913).

- *Sandia Quality Leadership Council (SQLC) Planning Team Process* — Maureen Baca, Georgianne Smith, Sharon Sturmoski, Steve Wilkes (all 12909), Jeanne Evans, and Whitney Wolf (both 12911).

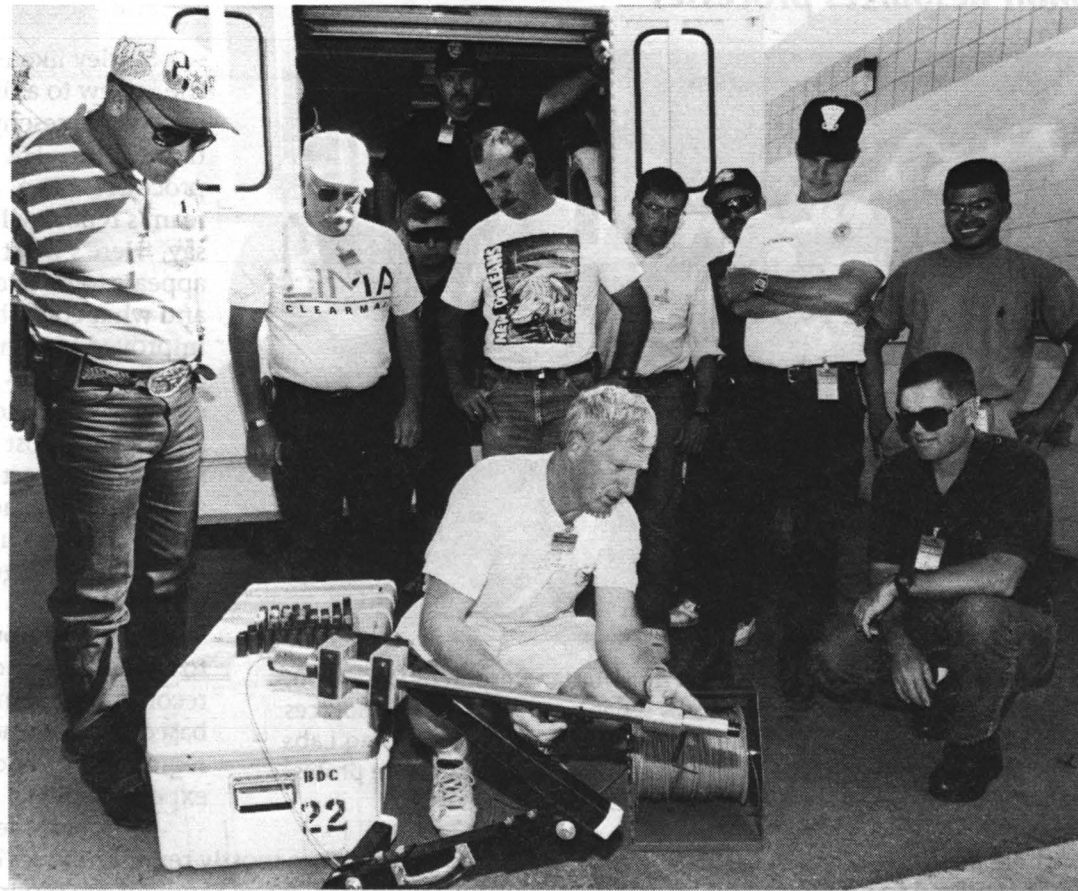
- *The Small-Business Technology Transfer Program* — Joanna Chavez, Harry Davis, Kim Ford, Vanessa Garcia, Jerry Hanks, Barbara Jordan, Kevin Murphy, Leland Traylor (all 4221), and Subra Subramanian (8800).

- *The MC4438 Single Stronglink Assembly for PRESS/CM* — Marcus Craig, Eli Perea, David Plummer, Ruben Urenda, Kenneth Varga (all 2643), Ross Curran, Mike Fitzgerald, and Scott Russell.

- *Employee Development Center* — Geri Albright, Karen Gillings, Gay Hill, Sharon Moyer, and Marv Torneby (all 3531).

Fun & Games

Boating — The US Coast Guard Auxiliary is again offering courses in power boating and sailing. Classes begin Tuesday, Sept. 13, 7 p.m., at the Armed Forces Reserve Center (400 Wyoming NE). Both courses meet one night a week for 13 weeks. There is a charge of \$15 for the text and workbook. Additional family members pay \$5 for workbooks only. Courses introduce basic requirements, seamanship, navigation rules, and more. To register, call Ben Gardiner (ret.) on 298-0116.



OPERATION ALBUQUERQUE creator Chris Cherry (9333, kneeling, center) discusses the Percussion-actuated Non-electric (PAN) disrupter with members of several of the nation's top bomb squads. The disrupter, developed at Sandia under a Work for Others project for the Federal Bureau of Investigation, is a relatively new arrival in the arsenal of tools used to defeat bombs. Chris says it can disable a wide variety of explosive devices in a variety of situations, with a higher success rate than most other available tools. He says it sets bomb squads years ahead of their criminal adversaries.

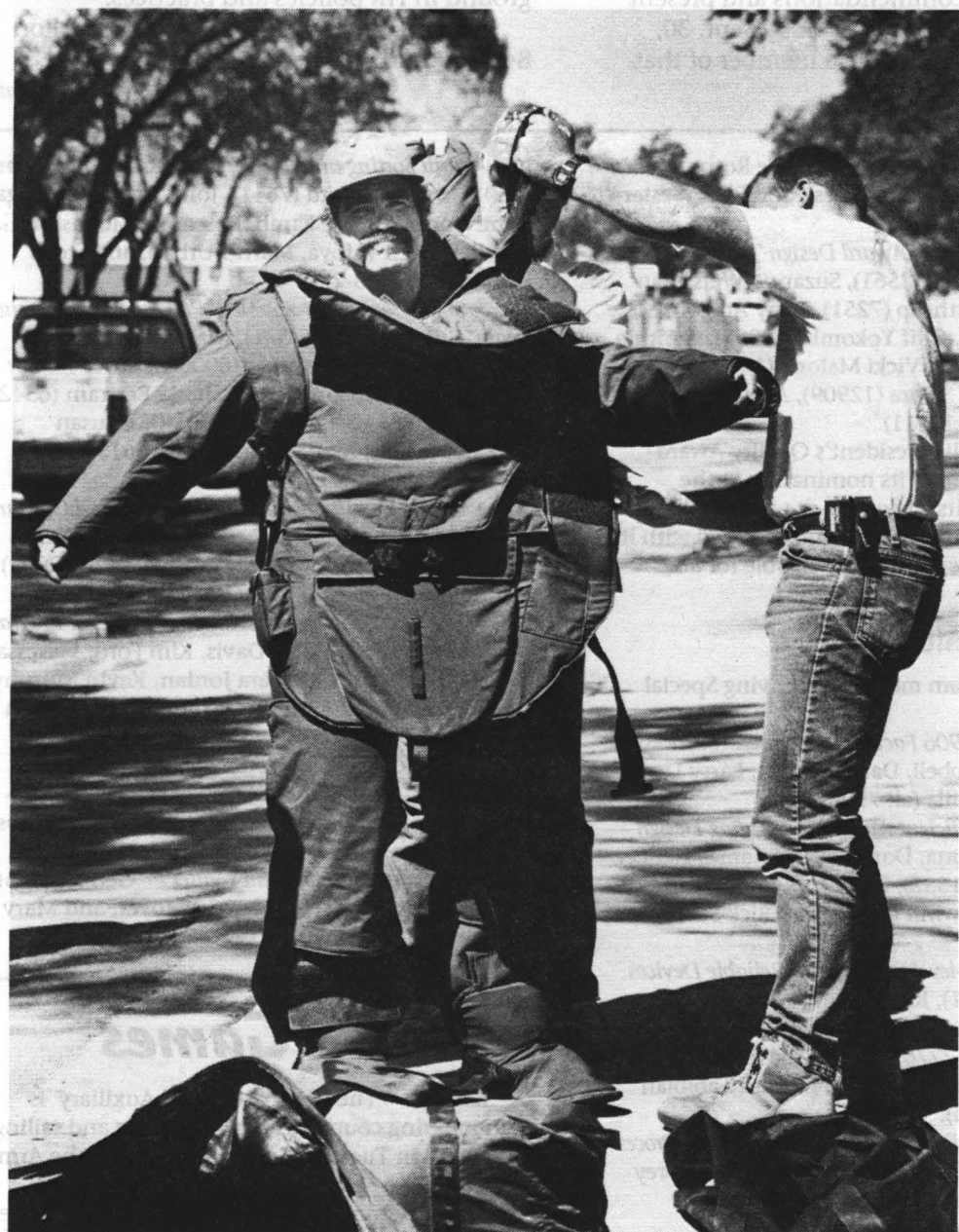


A SAFE DISTANCE is often a bomb technician's best friend. This approaching bomb tech watches as an ordinary-looking cardboard box explodes into a fiery cloud during exercises at APD's south bomb range near Albuquerque.

Photographs by Randy Montoya



US SECRET SERVICE bomb tech Charlie Schulz peers through a shattered car window after his team disabled a mock bomb on the car's front seat.



PROTECTIVE BODY SUITS made of fire- and fragment-resistant materials are a welcome safety measure for a bomb squad member chosen to get a close-up view of a bomb or set up remote disabling equipment. Here team members help Mike Davies of the New Mexico State Police suit up for an inspection.

Nation's top bomb squads get 'mitts-on' instruction

"Fire in the hole! Fire in the hole! Fire in the hole!" shouts a crouching US Army bomb squad technician, plugging his ears with his fingers.

A sharp blast pierces the calm mid-afternoon air at downtown Albuquerque's Civic Plaza. A splintered attaché case tumbles violently out from under a park bench. Passers-by pause behind yellow police tape to see what's causing the commotion as several of the nation's best bomb "techs" emerge from their hiding places behind walls and trees.

The crude homemade bomb inside the attaché case didn't explode. The blast was the sound of the Percussion-actuated Non-electric (PAN) disrupter, an advanced bomb-disabling device developed at Sandia, as it shot a super-high-speed burst of specialized liquid through the suitcase. The disrupter destroyed the suitcase's inner workings so instantaneously that the bomb never had a chance to detonate.

If this had been a real-life bomb threat, a park bench, trees, and perhaps lives would have been saved. But it wasn't. The exercise was part of a training conference for a select group of bomb technicians representing some of the most elite bomb squads in the country — the Federal Bureau of Investigation (FBI), US Secret Service, Los Angeles Police Department, and the New York Police Department, to name a few.

The week-long event Aug. 22-26, called Operation Albuquerque, was co-sponsored by Sandia and the Albuquerque Police Department (APD) to provide hands-on training to the nation's top bomb technicians. Conference organizer Chris Cherry (9333), himself an expert in bomb disablement, personally selected the 28 participants from law enforcement agencies nationwide.

To make the training seem as real as possible, participants were divided into four bomb

squad teams and asked to tackle simulated bomb threat scenarios all over Albuquerque. Each scenario was "played" as if the bomb and the situation were real.

Players, wearing red badges, weren't given any information about the bombs or the scenarios before play. Yellow-badged observers recorded the actions of each team. As the scenario progressed, players attempted to find the bomb, assess its hazards, control the area, and defeat the device. After play, teams were debriefed and their actions critiqued.

Many of the bomb facsimiles — all created by John Dunkin, John Montoya, Bobby Jones (all 9333-1), and Rod Owenby (9333) — featured small "det charges" or flash bulbs that went off if players accidentally tripped the devices. Most were booby trapped, making play more difficult and lifelike for the bomb squads.

In one scenario, teams were dispatched to the New Mexico State Fairgrounds to locate and disable a bomb placed on the front seat of a parked car. In another scenario, teams had to locate a bomb hidden in Albuquerque's Winrock Shopping Center — "without raising the eyebrows of the public," says Chris.

In still another scenario, a female police officer, wired to a "body bomb," was held hostage by a jealous boyfriend with his "finger on the button." Players were expected to nego-



CRUDE terrorist-type devices bomb squads typically are called upon to disable include dynamite, gas bombs, pipe bombs, and suitcase bombs.

tiate with the man and disable the bomb without "harming" the hostage.

Each day featured two or three new scenarios. Teams played a total of 16 scenarios each during the week. Chris says APD's cooperation made the lifelike exercises in public settings possible.

The advanced bomb-disabling techniques taught at the conference and the high caliber of players made the training unlike other training available in the bomb squad community, says Chris. "The goal was to practice advanced techniques that protect the life and limb of the public and the bomb techs," he says.

He says the conference drew on Sandia's expertise in explosives, electronics, X-ray diagnostics, disablement, and shock physics. "This is a unique community service for Sandia to conduct," he says.

Charlie Schulz of the US Secret Service says the training involved the whole spectrum of bomb types and bomb threat situations. "It was nice to have the entire city as your playing field," he says. "With the spectators and the police tape, there's a greater degree of realism than most [police training] can have."

Olden Burchett, Dept. 9333 Manager, says because each team included bomb techs from several different law enforcement agencies, much of the training's benefit derived from the diversity of players on each bomb squad.

"We get to see how people from other regions do things," says Mike Davies of the New Mexico State Police. "For me, it's been educational to see how similarly we all think."

"We've had the luxury of having Sandia in our backyard for so many years that we've had some unique training opportunities," says Lt. Ray Schultz, who leads APD's bomb unit.

"We're hoping this becomes an annual event."

—John German



UP CLOSE AND PERSONAL — A bomb-gear-wearing player carefully aims the PAN disrupter in preparation for disabling a car bomb remotely. The bomb, sitting on the front passenger seat, is wired to the dome light so players can't open the car doors.



BYE-BYE BOMB — The PAN disrupter blasts a suitcase bomb out from under a park bench at downtown Albuquerque's Civic Plaza, instantaneously disabling the device with a super-high-speed liquid projectile.

Galvin visit

(Continued from page 1)

specific alternatives. She appointed Galvin, longtime chairman of Motorola, Inc., and now chairman of its executive committee, to head the task force.

Describing what distinguishes Sandia

The task force's National Security Subgroup visited Sandia June 16-17 (*Lab News*, July 8), but this was the first official visit of Galvin and other members of the whole task force. The briefings and demonstrations took place in Bldg. 858.

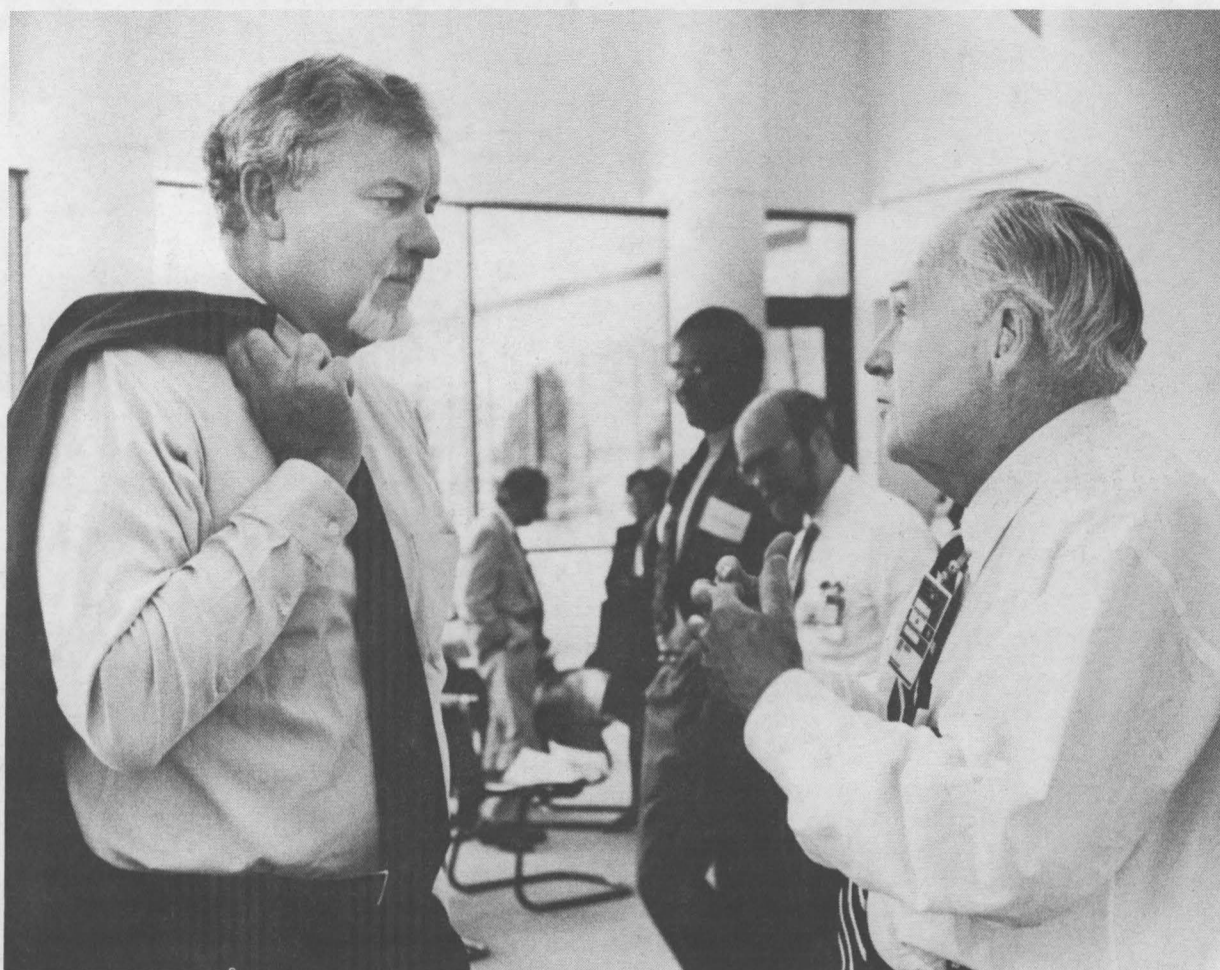
"Our task in a one-day visit was to describe for these folks, who are mostly strangers to our laboratory, exactly what we do and why it's impor-

tant, but also some of the hows, some of the ways we do business that differentiate us from other organizations — universities, industries, or other labs," says Sandia VP for Laboratory Development Paul Robinson (4000).

Sandia had three major displays, one for each business sector (Defense Programs, Work for Others, Energy and Environment), and the three sector leaders, VPs Roger Hagengruber (5000), Gerry Yonas (9000), and Dan Hartley (6000), all spoke.

Then there were four displays of Sandia's four Integrated Capabilities (Advanced Manufacturing Technology, Electronics Technology, Advanced Information Technology, and Pulsed Power Technology). Each of the program directors for those areas spoke — Bill

"Our task in a one-day visit was to describe for these folks, who are mostly strangers to our laboratory, exactly what we do and why it's important."



EXCHANGING VIEWS — Sandia President Al Narath (left) and task force Chairman Bob Galvin chat during a break in the day's agenda. Galvin and five other members of the Secretary of Energy Advisory Board Task Force on Alternative Futures for the DOE National Laboratories heard presentations about Sandia's programs and strategic plans.

Alzheimer (2900), Ruth David (1090), Paul Percy (1300), and Don Cook (1200). What was particularly important for their talks, says Paul, was to "shine a flashlight on the future."

"I kept getting great comments about the quality of our people," says Paul. "The task force members were very impressed with them and their grasp of the issues and their ability to speak about how we do business."

This wasn't by accident. "When we did a

dry run 11 days before the visit, those parts were everything we expected," says Paul. "But we realized that we still hadn't captured in a sufficiently concise way the real message of how Sandia does its work overall. We came up finally with a diagram, using Sandia's Thunderbird and labels and geometric shapes. (See "Graphic images symbolize Sandia's special strengths," below.)

"We used the diagram to show how Sandia (Continued on next page)

Graphic images symbolize Sandia's special strengths

Sandia came up with a new way to present its strengths in a simple graphic image or two for the Galvin task force visit (see main story).

The executives know it helped them present a unified message about Sandia to the Galvin task force. They think it will also help many Sandians in thinking and talking about their work.

As VP for Laboratory Development Paul Robinson says, a simple way of portraying what Sandia is all about was necessary for the Galvin visit. After a lot of discussion, what emerged was this, superimposed on the Sandia Thunderbird symbol:

Along the base, each enclosed in rectangles, Sandia's four research foundations: Engineered Materials and Processes; Microelectronics and Photonics; Computational and Information Sciences; and Engineering Sciences.

Above them, enclosed in overlapping ovals, Sandia's four integrated capabilities: Advanced Manufacturing Technology, Advanced Information

Technology, Electronics Technology, Pulsed Power Technology.

Together, the four research foundations

and four integrated capabilities make up Sandia's technical core competencies.

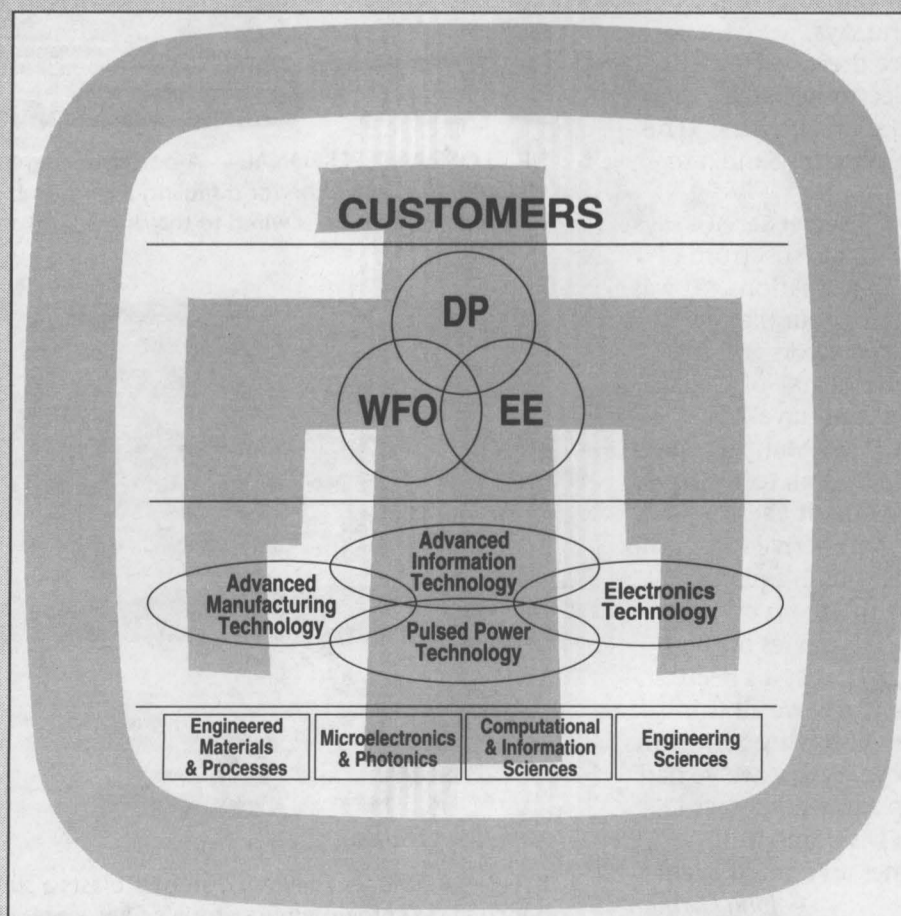
At one higher level of integration appear, in overlapping circles, Sandia's three business sectors: Defense Programs, Work for Others, and Energy and Environment.

And at the top, Sandia's customers.

This image was used on materials provided the Galvin task force visitors and on all displays they saw. At each display the relevant item on the image was highlighted in a circle of white.

Paul and others believe it helped unify the message Sandia presented and conveyed the reality that Sandia is vertically integrated from its research foundations all the way through to the products and services it provides its customers.

"It simplifies our view of ourselves," says John Cummings (4000), Paul's deputy and chairman of Sandia's core group for the Galvin task force visits. "It provides a view that we can all share for the future."



Flat panel displays

(Continued from page 1)

conductivity and other factors that will affect image enhancement.

Working under a two-year NCAICM contract, Bill and Walt have begun investigating plasma flat panel display patterns on small 3.5x3.5-inch glass panels. Plasma displays sandwich photoluminescent phosphors between conductive lines on glass plates. These phosphors serve as a light source when voltages are applied across the conductive lines.

Forty-inch displays the goal

Once the panels and patterns are tested and understood, Bill and Walt will begin working with larger glass pieces and more complex patterns. The final industry product will be a 40-

inch display about the size of a big screen TV.

"We're hoping to make the display and its production as inexpensive as possible," says Walt. "The flat panel displays are what we call 'green technologies' because we are developing them with fabrication processes that are friendly to the environment and have minimal waste disposal problems."

Most current small-area flat panel displays use liquid crystal technology. According to Walt, liquid crystal technology is not easily scaled up for large area displays required for future commercial and military applications to things like cockpit displays, command and control centers, high resolution data visualization, and portable computer and communications systems.

Alternative display technologies being investigated at Sandia include light-emitting polymers, plasma displays, electroluminescent displays, and field emission displays. Sandians

working on various aspects of these technologies include Glen Kepler (1704), Wen Hsu (8347), Bob Walko (2231), Tom Felter (8715), Dale McIntyre (1841), Larry Kovacic (2476), Tim Estes (2411), and Tom Bomber (4112).

Funded by DoD's Advanced Research Projects Agency, NCAICM currently directs 25 projects with US industry that, in addition to flat panel displays, include agile manufacturing technologies associated with advanced silicon integrated circuits, high-speed optoelectronic communications, and electronic systems.

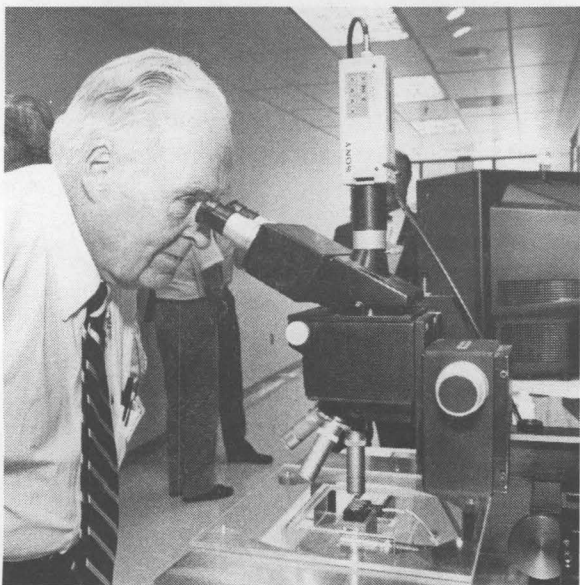
"One of the benefits of locating NCAICM at Sandia," says Jim, "is that we are industry-neutral, and we don't have any technological axes to grind."

"Our main goal," he says, "is to help US industry capture a significant share of the international flat panel display market, something that will increase US industrial competitiveness and support the nation's security."

Galvin visit

(Continued from preceding page)

organizes itself as a vertically integrated laboratory," says Paul. "We build on the research foundations, integrate to a higher level, and work through the business sectors to execute programs that delight customers. That flow



GETTING DOWN TO DETAILS — Bob Galvin checks out Sandia's microscopic steam engine, a micro-actuator, at exhibits set up for his task force visit.

from the bottom to the top was the crucial message."

"The message came through that Sandia is certainly among the strongest of the laboratories in integrating all of the technical disciplines together. There is always a tendency in labs of every type for the research part and the program part each to do its own thing, with very little connectivity between them. That connectivity is the greatest strength of Sandia," he says.

An overall competency

"It's our overall competency. We call it 'science-based engineering.' It gives us that unifying effect that we need."

Paul says he thinks this unified message had good effect, adding that the Galvin task force members indicated to AI and others at the end of the day, "We really got your message today, really understand it."

Paul says that at one point Galvin said to him, "Do you know what a terrific team you have here? You have a magnificent team."

All in all, he says, there were clear indications that Galvin feels proud of the national labs. And he says the Sandians who made the presentations clearly felt the same kind of pride in the message they presented.

He can't praise enough all the Sandians who contributed. "I have never seen anything at Sandia that tops the way people pulled together as one team."

Galvin challenge

(Continued from page 1)

charged with recommending to DOE Secretary Hazel O'Leary by February options for change within DOE's multiprogram national labs.

During his visit to Sandia August 16 (see separate story), Galvin challenged the directors of the 10 DOE laboratories to get together to provide their view of what kind of alternative futures for the labs make sense to them.

A welcome invitation

Galvin said he would like to hear what they would propose, that he was open to their ideas. He made clear that he meant futures, plural — that he wanted various alternatives proposed — and encouraged innovative, even experimental, ideas.

The invitation is considered an important gesture, a welcome opportunity to the labs to present a coherent vision of their collective future for consideration by the Galvin task force.

The following Friday, August 19, the lab directors conducted a conference call, and the August 31 meeting was quickly set up. Dallas

was chosen as both a neutral site and a non-stop airline flight from most of the labs.

The labs involved are Sandia, Los Alamos, Lawrence Livermore, Oak Ridge, Argonne, and Brookhaven national laboratories; Lawrence Berkeley Laboratory, Pacific Northwest Laboratory, Idaho National Engineering Laboratory, and the National Renewable Energy Laboratory.

"This is an important opportunity for the labs to take a hand in shaping their own future," says Sandia President Al Narath. "I'm very encouraged by the strong commitment that the laboratory directors have made to address this strategically important issue collectively." —Ken Frazier

Sympathy

To Diana Helgesen (2752) on the death of her sister, Nancy Stone, in California, June 2.

To Juan Ramirez (1204) on the death of his mother-in-law, Linnie Herndon, in Valdosta, Ga., Aug. 1.

To Diana Mares (3544) on the death of her mother in Albuquerque, Aug. 4.

Sandia's Galvin Core Group

Here are the members of the Galvin Core Group, Sandians who have worked together to prepare for the various visits of the Galvin Task Force, its members, and subgroups:

John Cummings (4000, chair), Steve Binkley (6908), Dennis Hayes (5600), Laura Gilliom (5603), Dick Salzbrenner (1832), Lori Parrott (12610), Ron Detry (8200), Janet Jenkins (12610), Bill Alzheimer (2900), Greg Mann (4514), Whitney Wolf (12911), Don Cook (1200), Joel Weiss (4500), Tom Young (2901), Tom Workman (2014), Jack Walker (6501), Peter Mattern (1010), Kay Hays (1709), Gil Herrera (1308), Pace VanDevender (4700), Deborah Payne (12670), Mike Dyer (8800), Ruth David (1090), Bert Westwood (1000), Dirk Dahlgren (12400), Charles Tapp (12900), Tom Palmieri (4503), and Bob Eagan (1700). John Cummings adds that many other Sandians contributed on an ad hoc basis.

ECP drawing contest

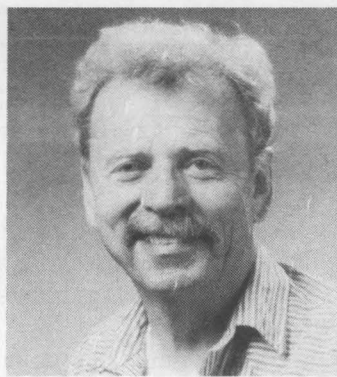
Sandia's Employee Contribution Plan (ECP) Executive Committee invites all Sandia children (daughters, sons, grandchildren, nieces, nephews) ages 5-12 to enter a drawing contest. There are three categories: Category A — ages 5-6; Category B — ages 7-9; and Category C — ages 10-12. The winner in each category will receive a gift certificate to Planet Fun family recreation center.

The drawing should depict the child's view of this year's ECP campaign theme, "Keep the Light Shining," as it relates to helping others through sharing and caring. The picture should be drawn on a piece of art paper or construction paper approximately 18 inches by 12 inches. Please print the child's name and age on the front of the drawing in the lower right-hand corner and place the Sandia employee's name and office phone number on the back of the drawing.

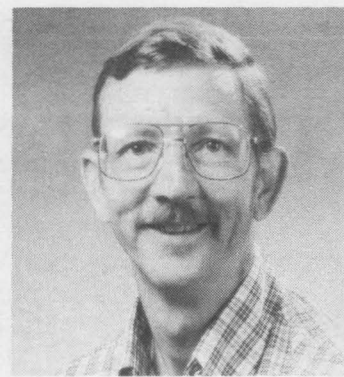
Send or bring the drawings to Juanita Sanchez (12640) at MS 0617, Bldg. 800, Rm. 105, by Sept. 15. These drawings will be displayed on bulletin boards throughout the Labs

Mileposts

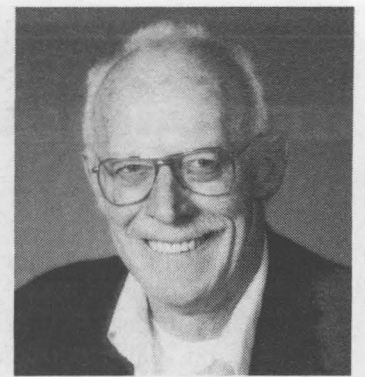
September 1994



Gene Koenig 35
2741



Donald Ukena 15
5933



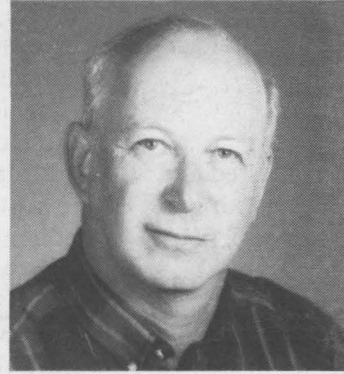
Doug Macmillan 35
8411



Robert Croll 30
1554



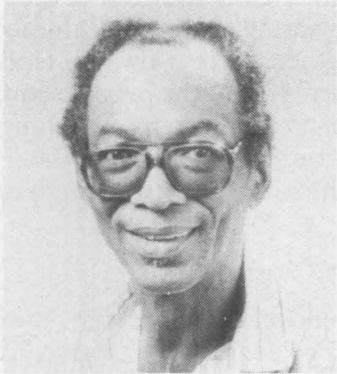
Sharla Bertram 25
6307



David Abrahams 35
8609



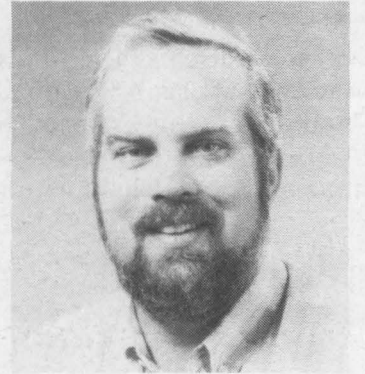
Fred Enote 15
12363



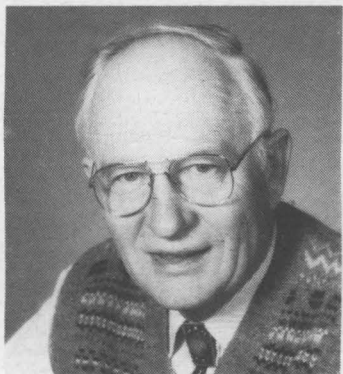
Carl Hadley 20
7613



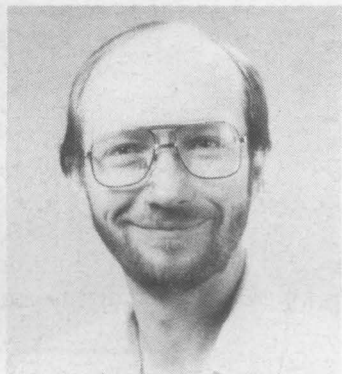
Lynn Jones 25
7000



Vance Behr 15
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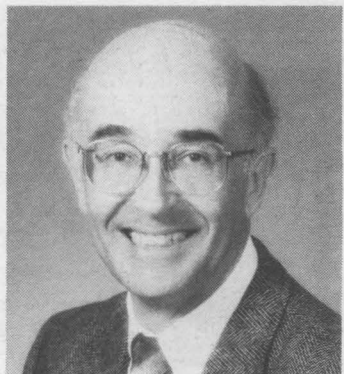
Gabe Gabrielson 35
8741



John Wronosky 15
2338



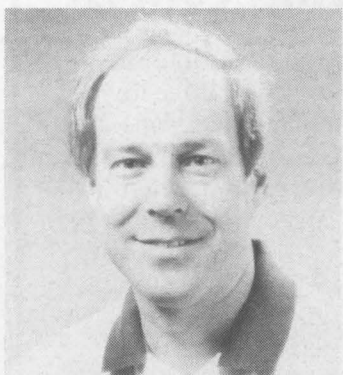
Marti Butler 20
9299



Ron Detry 25
8200



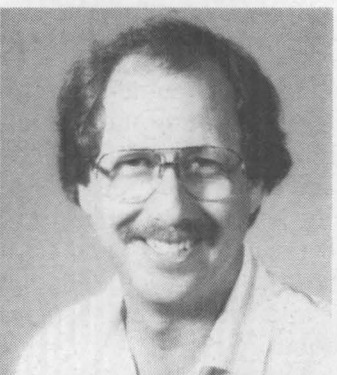
Karen Andersen 20
7711



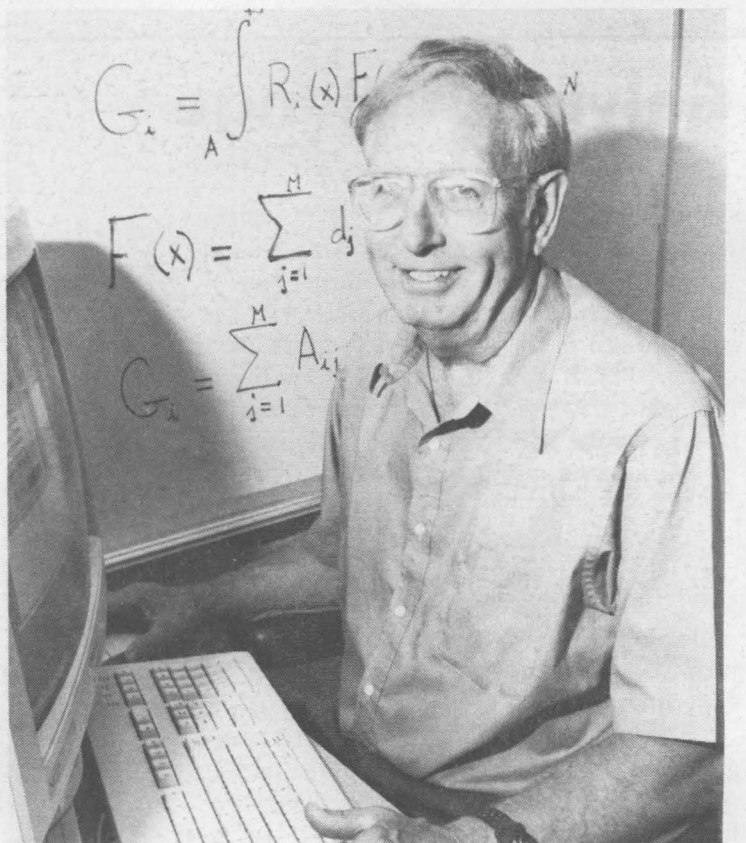
Mike Coltrin 15
1126



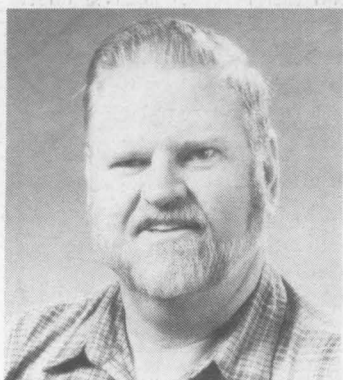
Marge York 25
9111



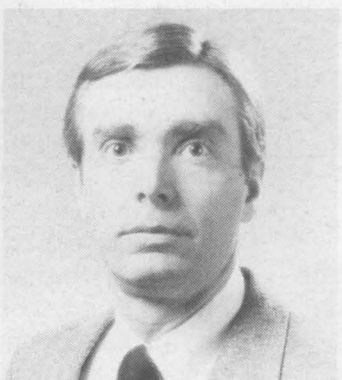
Howard Johnsen 15
8713



Frank Biggs 35
9312



John Kirkland 25
2664



Jack Wise 15
6111



Evelyn Tuttle 20
7913

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

MISCELLANEOUS

MOTORCYCLE TIE-DOWN STRAPS, An-cra brand, vinyl-coated handlebar hooks, zinc cams, nylon webbing, \$14/pair or \$25/two pair. Schkade, 292-5126.

DOUBLE OVENS, 27", self-cleaning, \$50; 30" electric cooktop, \$30 both, harvest gold. Kiphart, 889-8848.

IN-LINE SKATES by Roller Derby, Eclipse Men's size 7, hardly worn, \$60 OBO. Cady, 296-4968.

STEREO, Marantz 2230 receiver, pair 5G speakers; dual turntable; Sony cassette deck, together or separate, best offer. Jensen, 821-2373.

CUSTOM DRUMSET, 13-pc, Tama, Sonor, Zildjian, Paiste, Anvil road cases, numerous accessories, sell for \$3,500. Rathbun, 888-3344.

DAY BED, w/white canopy, trundle, mattresses, and all linens, great for girls, excellent condition, \$600 OBO. McMahon, 822-8147.

IRISH SETTER PUPPIES, AKC-registered, 6 wks. old, first shots, \$200. Johnson, 865-9762 after 5 p.m.

SOLOFLEX, complete with butterfly & leg extensions, \$750. Andrade, 836-0342.

REFRIGERATOR, 19.1 cu ft., side-by-side, frost-free, upright, freezer; double pedestal executive desk, slide projector & screen; free-standing bar. Chavez, 275-0490.

BABY GRAND PIANO, Sohmer, 4'11", walnut, all wood, excellent condition, appraised at \$6,000, asking \$3,500. Hartwigsen, 865-7836.

OAK BEDROOM SET; Western pool table light fixture; couches, chair & tables. Pena, 898-2388.

RATTAN DINETTE SET, w/glass top, four chairs, two bar stools, \$300 OBO. Gomez, 883-8752.

BACKPACK, Northface, blue, new, \$150. Skeeter, 291-8422.

CLARINET, Bundy Gemeinhardt flute, will trade both for VHS camcorder. Aragon, 888-3473.

SIMMS, 1-meg, 3-chip set, 80nsec. access time, not compatible w/386, \$10 ea. Barnaby, 255-5624.

METAL STORAGE CABINET, 2-door, \$40; 6-drawer pine dresser, \$80; Schwinn bike from 1950s, \$40. Olbin, 275-2681.

GOLD MEN'S WRISTWATCH, 14K brushed gold, Lucien Picard, expandable turquoise band, paid \$1,500, sell for \$395. Locher, 256-3406.

TABLE, octagonal, 41"x41", solid wood top, \$50, four ladder-back chairs, \$5 ea., solid stain, set, \$60 OBO. Beard, 821-0309.

DINETTE SET, \$150; sofa, \$150; 2-piece sofa, \$100; swivel rocker, \$50; portable playpen, new, \$30; Hiawatha bicycle, classic, \$60. Sanchez, 898-9598.

PRINTER, Epson FX 850, \$150. Edenbum, 869-2911.

CANNING JARS, quarts, pints, jelly, also canner. Beck, 294-4591.

BEDROOM FURNITURE, 6-drawer chest, 2-shelf stand, mirror stand, queen bed; weight-lift equipment; patio drape & rod. Tripp, 822-8580.

BEDROOM SET, 4-piece, dark walnut finish, \$400; hide-a-bed sofa & loveseat, oatmeal-colored fabric, good condition. Spears, 266-9782.

REGISTERED QUARTER HORSE, 7-year-old bay mare, sell or trade, pretty, gentle, Western pleasure, \$2,100 OBO. Miller, 292-5634.

WATERBED, black leather, padded, w/six drawers, heater, mattress, almost new, \$300. Garcia, 877-3477 or 873-2895.

AUTHENTIC INDIAN ART, a few exceptional pieces, tapestry, rugs, jewelry & miniatures. Remschneider, 831-9293.

HAWAII ENTERTAINMENT BOOK, many 1/2-price discounts, valid through Dec. 1, paid \$28, sell for \$10. Caskey, 294-3218.

COUCH, w/two matching chairs, good condition, \$75 for all. Baca, 265-2881.

LAPTOP POWERBOOK 145B, 4MB RAM, 80MB HD, Newton message pad 110, new, unused, \$1,600/\$600, asking \$1,200/\$450. Kirby, 268-8666.

BOLT-ON PLATFORM HITCH, for Mitsubishi/Raider w/ hitch plate, 2" ball, \$90 new at dealer, \$40 for this one. Madole, 298-6081.

WOOD STOVE, used, Warnock Hersey radiant space heater; chimney connectors, fireplace tools, \$350 for all OBO. Blythe, 281-8287.

STEPLADDER, 6' aluminum; 36" aluminum-frame screen door, all best offer. Miller, 292-5634.

POULTRY FENCING, 3' x 77' roll, \$20; large rubber-tired wheel, Baro, \$25; Scotts drop spreader, Model PS1, \$22. Stang, 256-7793.

BUNDY CLARINET, good condition, \$75 OBO. Chavez, 864-7034.

AMAZON PARROTT, blue-fronted, 3 yrs. old, talks, whistles, w/cage & accessories, \$500. Hebron, 291-9639.

RECLINERS, double, La-Z-Boy, loveseat, white w/brown specks, excellent condition, \$500 for both. Jones, 883-1284.

WINDSURFING EQUIPMENT, '94 Seatrend 9' x 4" and '94 AHD, 9'2", both with straps, pads & fin. Ritchey, 298-4311.

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

TAMARRON RESORT, Durango, golf rounds, 2 days for 2 couples, including cart, through Oct. 15 season, \$800 value, asking \$475. Nordeen, 296-7898.

BROWN LEATHER COUCH, \$350; upholstered couch, \$200, both excellent condition; Mattel Intellivision, 13 games, Intellivoice, 3 games, \$75. Staley, 892-0287.

ALLOY WHEELS, three 6.5 x 14 inches, for '84-'85 BMW 5-series, \$75 each. Gough, 822-0090.

SANDIA MEMORY GARDENS, Garden of Mercy, 2 plots, 2 vaults in ground, bronze double marker, 16' x 28', best offer. Haycraft, 299-3220.

BUNK BEDS, mahogany, twin size, w/box springs, mattresses, excellent condition, \$200. See, 864-7854.

DALMATION PUPPIES, AKC-registered, \$275 each. Williams, 294-7030, ask for Rick or Ila.

GARAGE SALE, Saturday, Sept. 3, 1125 Bonita Dr., Bosque Farms, old electronics, automobile parts, other miscellaneous. Scramton, 869-6589.

CAMPER SHELL, blue aluminum shell for long wide-bed truck, old, but completely serviceable, \$50. Kuehne, 281-5446.

WATERBED, queen-size, semi-wave, liner, heater, bookshelf/headboard, padded side rails, 4-drawers, sheets, good condition, \$135. Zierer, 899-0147.

SECTIONAL COUCH, 9-ft. each leg, earth tones, excellent condition, \$1,500 new, \$350 OBO. Martin, 294-8387.

TIRES, 175/70 SR13, M&S radials, \$35/2; blue papasan chair, \$40; electric typewriter, needs work, \$10. Antonich, 271-1635.

COLOR TV, RCA XL-100, 19-in., \$25. Blackburn, 293-5978.

WHEELCHAIR, Everest & Jennings, folding model, like new, \$150; adjustable folding walker, \$35; adjustable crutches, never used, \$40. Owens, 836-7802.

BABY ITEMS: crib, \$60; Fisher-Price port-a-crib, \$45; swing, \$15; changing table, \$15; walker, \$10; backpack, \$5. Koepp, 294-7136.

STUDENT FLUTE, Artley, closed-hole, just refurbished, w/case, \$100. Glaser, 293-8110.

TWO OXYGEN "E" TANKS, regulator & cart; new bedside commode, \$75; new shower stool, \$25. King, 821-4692.

FOUR TIRES, Lee Radial G/T, P245/60R15, plenty of tread, \$200 OBO. Alsbrooks, 869-7840.

LANDSCAPE MATERIAL, smooth river rock, small to medium size, free to you, you haul them. Georg, 291-0233.

TROY-BUILT PLOW, adjustable mounting frame for Horse model rototillers, used twice, \$100. Dickenman, 892-9561.

SOFTWARE, collection; utilities, business, finance, games, all complete w/manuals & original disks, \$100. Mann, 343-0524.

CLARINET, Artley student model, enhanced mouth piece, very good condition, excellent tone, w/case, \$250. Molecke, 296-5850.

MOLUCCAN COCKATOO, 2 yrs. old, hand tamed, talks, w/cage & tree, extremely loving, must sell, \$1,900. Chirigos, 255-5172.

WASHER & DRYER, Kenmore, stackable, \$650. Gussler, 293-6498.

CD PLAYER, Denon DCD 1500II, analog & digital outputs, remote, manual; Quantum Calcflash II ambient/flash meter, \$125 ea. Brooks, 275-0056.

BLACK LAB CROSS, spayed female, 7 yrs. old, well trained, mellow personality, loves kids, free to good home. Yourick, 822-8148.

MAPLE DINING ROOM TABLE & 6 wrought-iron chairs, upholstered, very good condition. Barton, 268-7349.

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.

WINDSURFING SAIL, \$80; Fischer CD player, \$75; life jacket & wet suit, small, \$100. Navoda, 831-0114.

TRUMPET, Conn, w/case, excellent condition, \$200. Behr, 856-6273.

IBM TYPEWRITER, steno table & chair, all \$150; 4-piece Samsonite luggage set, \$95. Baca, 265-2881.

STOVE/OVEN/MICROWAVE UNIT, electric, great condition, \$250; brown couch, 8 ft., very comfortable, sitting or sleeping, great condition, \$80. Brost, 298-6969.

GLASS CLOWN FIGURINES SERIES, 13 collectable, \$100 for set; port-a-crib, \$30. Parson, 291-8394.

CAR COVER, beige, cloth, form fitted for '80-'82 Toyota, hatch-back SR-5, \$50. Jackson, 293-0262.

SINGLE-DISK CD PLAYER, Scott, \$60; Hiltz, 275-1758.

VACATION RESORT CONDO, Colorado, choice, sleeps six, one week between Oct. 1 & Nov. 15, 1994, \$295. Spence, 266-3002.

ROLL-AWAY BED, \$25; child's bike, excellent condition, \$25; swing set, assembled, \$20. Fate, 293-2131.

GARAGE SALE, Sept. 3, 9 a.m.-2 p.m., woman's career clothing, sizes 8-12, baby clothes, toys, furniture, signs from Copper/Tramway. Robertson, 293-1007.

'92 TERRY RESORT FIFTH WHEEL, 21 ft., loaded, immaculate condition, hardly used, includes hitch. Marquez, 294-9014.

MOBILITY CART, Amigo, and battery, \$600; Bruno cart lift, \$550. King, 821-4692.

CAB-OVER CAMPER, custom, 9-1/2 ft., on 3/4-ton Chev., gas/electric, refrigerator, pressure water, stove w/oven, heater, toilet, \$3,800 OBO. Schneider, 299-6243.

SCUBA GEAR, US diver regulator, octopus, gauges, tank, Elan BCD, lights; O'Neill woman's wetsuit, rarely used, \$850 OBO. Draelos, 837-9345.

UNM BASKETBALL TICKETS, '94-'95 season, section 16, row 31, seats 5 & 6, \$579, including parking. Drebing, 293-3335.

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

DOGS, free to good home(s), two large dogs, two-yr.-old female, spayed, & her seven-month-old son. Myers, 865-1121.

TIMESHARE, white week, Galveston, Tex., beachfront, 2-bd rms., 2-baths, RCJ affiliated, \$4,500. Castillo, 294-5182.

'88 HYUNDAI EXCEL GL, 5-spd., 4-dr. hatchback, AC, AM/FM cassette, 68K miles, very good condition, \$2,100. Shain, 266-3126.

'72 GLASSMASTER TRI HULL, Johnson electric trolling motor, 100-hp, electric anchor, fish finder, '88 trailer, extras, \$3,500. White, 294-5692.

TRANSPORTATION

'84 NUWA RAWHIDE 5TH WHEEL 27-ft., AC, awning, large ref. center, bath, excellent condition, \$6,200. Chavez, 299-5102.

'80 CHEV. MALIBU, 2-dr., white, 6-cyl., 48K miles, excellent condition, \$2,500. Kerschen, 821-2848.

'72 VW VAN, needs starter, fixer-upper, \$1,000. Gomez, 291-0691.

'52 CHEV. PICKUP, original, 6-cyl., 3-spd., some interior restoration, runs strong, daily driver, needs some work, \$1,500 OBO. Martin, 281-7227.

MOUNTAIN BIKE, Nishiki, 21-in. frame, Deore LX/XT components, Fatrac tires, \$200 OBO. Schafer, 296-0017.

'86 NISSAN 4X4 PICKUP, king cab XE, camper shell, runs great, 69K miles, not driven off road, below book, \$6,200. Tebo, 296-4964.

'81 DATSUN 210, 4-dr., very good body, AM/FM cassette, runs well, \$700 OBO. Beard, 821-0309.

'87 NISSAN PULSAR NX/SE, 5-spd., DOHC, silver, T-top, garaged, excellent condition, 51K miles, includes cover & alarm, \$4,900. Sjaardema, 299-8042.

'84 FORD CONVERSION VAN, fully loaded, well maintained, 63K miles, \$7,000. Collins, 296-7192.

'91 MAZDA NAVAJO, blue, pwr.-all, AC, OTF 4WD, immaculate condition, FM cassette, sunroof, tilt, tint, \$14,900 OBO. Stuppy, 898-4720.

'55 CAMEO PICKUP, very rare, restored to factory original, everything new, acrylic enamel, white/red, \$15,000. Boehmke, (510) 447-6670.

'92 TOYOTA CELICA GT, convertible, like new, only 18K miles, 5-spd., AC, dust cover, \$18,000. McConnell, 271-2011.

ROAD BIKES, 10-spd., Peugeot, 23 & 24 in., new tires, great condition, owners manual included, \$75 ea. OBO. Zaffery, 296-0724.

MOUNTAIN BIKE, CyclePro, 20-in., 15-spd., \$100; Motobecane Gran Prix, French-made, 62 cm, \$125; Centurion Scott Triathlon, Shimano 600 components, \$375. Shepard, 298-4879.

'87 OLDS STATION WAGON, Custom Cruiser, 9-passenger, PS, PB, power windows & doors, 59K miles, excellent condition. Bragg, 275-3172.

'79 VOLVO, 245 DL, 5-spd., 227K miles, still in excellent operating condition, service records, \$1,800. Carson, 294-2230.

'80 MAZDA RX7, 50K miles, AC, new paint job, excellent condition. Chavez, 293-2853 after 5 p.m.

PEGASUS BIKE, 10-spd., still in condition, only \$75. Jojola, 242-8459.

'89 FORD F-150 PICKUP, 6-cyl., 4-spd., 26,500 miles, excellent condition, \$8,000 OBO. Vigil, 281-6443.

'80 TOYOTA 4X4 TRUCK, new motor, 6K miles, new tires, stereo, excellent condition, \$4,500. Chavez, 293-2853 after 5 p.m.

CHEV. SUBURBAN, 454 V8, new rings, bearings, water & oil pumps, heavy-duty transmission, built for towing \$3,800; '29 Nomad trailer, \$8,000. Kingley, 821-7975.

RACING BIKE, 90 TREK 1100, 21-spd., w/cage & pump, black w/turquoise trim, \$275 OBO. Douglas, 281-9843.

'94 RAM 1500 Magnum V6, w/Laramie SLT package, AC, PS, AM/FM tape, airbag, PW, tinted, shortbed w/bedliner, alarm, \$20,000 OBO. Perea, 298-3258.

'94 TOYOTA PASEO, 4K miles, AT, AC, PS, cruise, AM/FM cassette, sunroof, anti-theft device, \$14,000. Daut, 255-2529.

ALUMINUM BOAT, 14-ft. MirroCraft, deep hull, console steering, mounted 25-hp Johnson, electric start, w/tilt trailer, accessories, \$2,000. Christian, 275-3261.

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

'83 GM RV, Crosscountry by Sports-coach, 26-ft., 8-cyl., sleeps 6, low mileage, excellent condition. Baughman, 884-5082.

'88 SUBARU GL, station wagon, 4WD, AT, AC, AM/FM stereo, PS, PW, PL, 74K miles, good condition, \$5,200. Tucker, 292-8954.

MOUNTAIN BIKE(S), Offroad Master & Fisher Advance, 26-in. models, almost new, \$400 ea. or both for \$775. Bono, 299-4634.

'92 OLDS TORONADO TROFFEO, excellent condition, low mileage, one owner, diamond white exterior, real leather interior, loaded, \$19,500. Perez, 828-9005.

ROAD BIKE, Cannondale SR400, 3.0 Criterium aluminum frame, 62 cm, Shimano RX100 components, profile bar, Avocet computer, \$350. Mann, 343-0524.

'83 WINNEBAGO, 30-ft. Chieftain, 48K miles, 454 Chev., sleeps 6, 6.5 Kw Onan generator, many extras. Kimbrel, 881-7361.

'88 CHEV. CONVERSION VAN, Good Times "Elan" top line, extended roof, loaded, immaculate, new \$33,000, original owner, \$14,900. Chirigos, 255-5172.

'71 FORD, 3/4-ton pickup, with 9.5-ft. overhead Mitchel camper, fully equipped, 77K miles, \$1,990. Schroll, 299-9142.

'87 TAURUS LX SW, 6-cyl., loaded, new tires, 126K miles, 64,000/block & cat. conv., \$4,900. Cooper, 888-0967.

'90 MUSTANG GT, convertible, 5-spd., blue, white top, \$11,500; '78 FXE Harley, black w/chrome, custom, \$7,250. Gonzales, 292-4185.

BOY'S BICYCLE, 10-spd., 23-in., excellent condition, \$40. Jackson, 293-0262.

'89 DODGE GRAND CARAVAN LE, loaded, immaculate, 45K miles, transferable 7/70 service contract, \$9,000. Smith, 888-8811.

'88 SILVER PONTIAC LEMANS, 4-dr., 70K miles, good condition, \$1,900 or trade for small truck. Carroll, 299-9486.

10-spd. race bike, Peugeot, \$100. Navoda, 831-0114.

BICYCLES, girl's 20-in., \$35; men's 26-in.; Fuji touring, \$135, both like new. Hiltz, 275-1758.

REAL ESTATE

3-BDR. HOME, NE Heights, 1-1/2 baths, LR, DR, FP, 2CG, 1,400 sq. ft., new AC, remodeled baths and kitchen, price reduced. Montoya, 296-4268, before 9 p.m.

3-BDR. HOME, Ameriwest/Centex, near Spain & Morris, 2-1/2 baths, 1,800 sq. ft., nearby public park, beautiful views, \$157,500. Paek, 294-5679.

3-BDR. HOME, Copper/Tramway area, 1-3/4 baths, updated, 2-car garage w/attic storage, 1,750 sq. ft., solar greenhouse, many extras, \$141,500. Olsberg, 291-9786.

3-BDR. HOME, 1 bath, 1-car garage, newly renovated, pitched roof, large yard, mt. view, 1,040 sq. ft., near Tramway/I-40, \$82,900. Smith, 296-1908.

WANTED

PICNIC TABLE, tablesaw, patio table & chairs; wicker loveseat, rocker, chair; flagstone. Rockwell, 884-4206.

SANDIA BOLO TIE, formerly used as 15-yr. or 20-yr. award, Shephard, 298-4879.

HOUSEMATE, large 4-bdr. home in NE, large yard w/hot tub, non-smoker, no pets, \$450/mo., share utilities. Well, 293-0468.

OUTBOARD MOTOR, 5-7hp, good condition, w/without gas tank. Jones, 883-1284.

RELOADING PRESS, single or turret, scale, powder measure. Ginn, 883-0004.

DRUM SET, 5-piece, used, name brand, good condition. Douglas, 281-9843.

CAMPER VAN, good condition, wheelchair lift preferred. Randall, 299-3935.

HOUSEMATE, male or female, non-smoker, large home, Eubank & Paseo del Norte, \$325/mo., utilities included. LeGalley, 822-0676.

SIMPLICITY PATTERNS, discontinued, 7666 (KK), 7805 (A). Alsbrooks, 869-7840.

DINKY TOYS, English-made. Riley, 869-2119.

BABYSITTER, for 5-year-old, occasional evenings & weekend afternoons, prefer 13 or older, Dennis Chavez area. Adams, 821-9079.

APARTMENT, condo, or house for out-of-state parents to rent during Oct. or Nov. '94. Glass, 268-5391.

LOST & FOUND

Found: Pair of black prescription glasses in 802/3160E conference room on Thursday morning, Aug. 25. Rael, 844-6448.

Children invited to enter 'Kids' View '94' drawing contest

A Sandia Day event

Sandia Day committees at the New Mexico and California sites are looking for a few good young artists — Sandians' children, grandchildren, nieces, and nephews — to enter the "Kids' View '94" competitions. The kids are asked to draw a picture of what their parent, grandparent, aunt, or uncle does at Sandia.

Separate competitions will be held at each site. Competitions are divided into three age groups. The first-place winner in each age group at each site will receive a \$100 savings bond, and the second-place winner a \$50 bond. The age groups are eight and under, 9-13, and 14-18.

Entries will be displayed at both sites on Sandia Day, Saturday, Oct. 22 (previous similar events have been called "family days"). Special recognition ceremonies are planned for the young artists on Sandia Day, and selected

drawings will be published in the *Lab News*.

Here are the simple rules:

- Drawings must be in black ink (felt tip or similar pen) on white paper no larger than 17 by 22 inches.

- A short paragraph describing the work done by the Sandian should accompany the entry or be included as part of the drawing. The paragraph must be written or narrated by the child.

Entries must be received with the entry form by 4 p.m., Friday, Sept. 30. Drawings from kids with relatives at Sandia/California should be mailed to Laura Santos (8601), MS 9905, phone 510-294-1214. Kids with relatives at Sandia/New Mexico and other sites should send drawings to Nancy Clise (6000), MS 0724, phone 505-844-1586. Winners will be notified as soon as possible before Sandia Day.

Coronado Club

Sept. 2 (tonight) — Friday night kids' bingo. Buffet at 5 p.m., with cartoons and movies. Bingo starts at 7 p.m. Free hot dog and soft drink for all kids playing bingo.

Sept. 5 — Labor Day pool and patio party, 11 a.m.-6 p.m. Last day of 1994 swimming. Entertainment, Bob Weiler & Los Gatos; Pixie, Mitzie, and Sparky the clowns. Admission free to all club members, \$3 for guests. A la carte buffet.

Sept. 8, 15, and 22 — Bingo nights. Card sales and buffet, 5:30 p.m., early birds' bingo begins at 6:45 p.m.

Sept. 9 — Friday night dinner/dance. Filet mignon or fried shrimp, \$11.95; all-you-can-eat buffet, \$6.95. Music by the Isleta Poorboys, 7-11 p.m.

Sept. 11 — Sunday brunch buffet, 10 a.m.-2 p.m. Adult members, \$6.95; non-member guests, \$7.95; children 4-12, \$1; children 3 and under, free. Tea dance, music by Best Shot, 1-4 p.m.

Sept. 16 — *Dieciseis de Septiembre* Fiesta. All-you-can-eat Mexican buffet, 6-9 p.m., \$7.95. Together Band, 7-11 p.m., Ballet en Fuego, 8-8:30 p.m.

Kids' View Entry Form Drawing Contest for Sandia Day '94

Child's name: _____ Age _____
(please print)

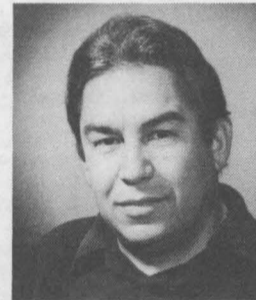
Sandian's name: _____ Org. No. _____

Sandian is my (please circle one): Parent Grandparent Aunt Uncle

Child's description of what this Sandian does at work: _____

Please check one: Written by child Narrated by child

Employee death



TOM KAIN

Tom Kain of Electronic Fabrication Team A 2412-1 died suddenly Aug. 15. He was 51 years old.

Tom was a fabrication tradesman, and had been at the Labs since 1975.

He is survived by a brother and sister.

Fun & Games

Softball — Sandia Laboratories Softball Association (SLSA) will hold its end-of-the-season softball party Wednesday, Sept. 7, 5 p.m., at the Coronado Club patio. Board members are needed for the 1995 season and could be elected at this meeting if enough people volunteer. Everyone who played in the league this year is invited to attend the party. Prizes and refreshments will be provided. For information, call Don Wrobel (6319) on 891-8409.

Coed softball — The SLSA fall coed softball league is scheduled to begin Sept. 19. Registration deadline is at close of business on Friday, Sept. 9. Upper and lower divisions will be available, depending on the number of teams registered. If possible, all games will be played on Tuesday, Wednesday, and Thursday at the Manzano fields. Cost is \$250 per team. Turn in a roster and registration fee to the Sandia Employee Recreation Program office. Make checks payable to SLSA. If you have questions, please call league president Don Wrobel (6319) on 891-8409.



RUSSIAN AGREEMENT — Prof. Nikolay Nikolaevich Ponomarev-Stepnoy, deputy director of the Kurchatov Institute, with Sandia VP for Defense Programs Roger Hagengruber at his side, signs an agreement that enables Sandia to provide physical security technology and procedures for the institute. The Kurchatov Institute is a center for reactor research located in Moscow. Sandia is DOE's lead laboratory for physical security technologies, which include sensors, alarms, barriers, communications, and access controls. The signing took place Aug. 3 in a Bldg. 802 conference room.

Congratulations

To Donna G. Chavez (2401) and Lester Arakaki (5838), married in Kauai, Hawaii, July 29.