

Sandia helps bring quiet, nonpolluting electrical power to remote Lake Powell marina

Project may save the National Park Service \$100,000 a year in energy costs

By Chris Miller

Lab News Staff

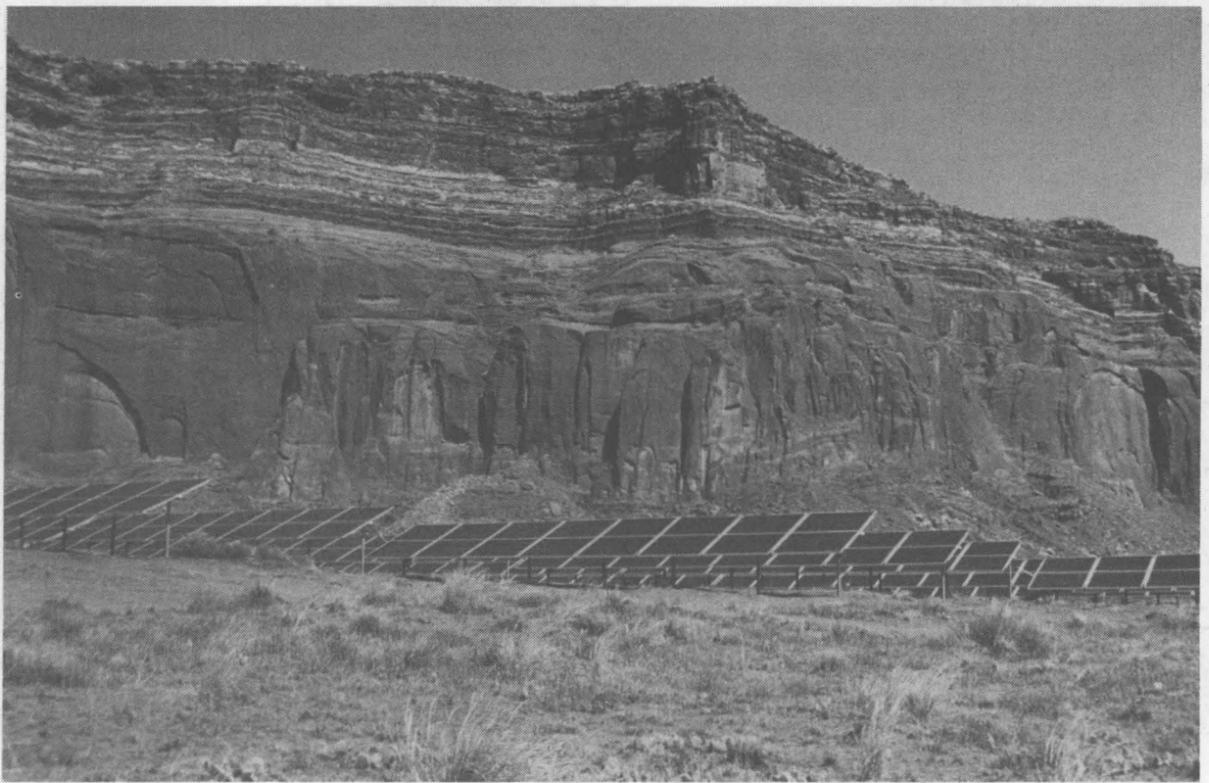
A remote marina on the north shore of Lake Powell in southern Utah is now powered by a 115-kilowatt photovoltaic system, thanks in part to Sandia technical expertise. The system is expected to save the National Park Service \$100,000 a year in energy costs, while eliminating the risk of diesel fuel spills in the picturesque lake as well as eliminating the need for noisy diesel-fired generators.

Sandia was one of several federal, state, and private partners participating in the \$1.5 million project, which began in 1992 and culminated this summer with the system's installation at the marina. The location is accessible only by boat and is a frequent stop for boaters needing fuel and supplies.

The site's recently replaced power system consumed 65,000 gallons of diesel fuel annually. The fuel was delivered in nearly 2,000-

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"Photovoltaic systems are increasingly attractive for these uses as their costs come down."



ROWS of solar photovoltaic panels line the shore near the Dangling Rope Marina on the remote north shore of Lake Powell in southern Utah. The photovoltaic system began operating this summer, replacing a diesel-powered generator that was costly to operate, noisy, and polluting. Sandia tested the photovoltaic system's power converter for six weeks.

Sandians win three DOE grants for basic environmental cleanup research

Three Sandia research groups that proposed methods to investigate or restore damaged environmental areas each have won grants of more than a million dollars from DOE to test the validity of their proposals.

DOE officials say the Environmental Management Science Program is the first of its kind to bring together scientists who desire to understand the whys and hows of "everything in the universe" with the engineers who must methodically complete defined tasks.

Addressing intractable problems

The awards, which demonstrate unusual support for fundamental environmental science and engineering, are among 135 distributed nationally to 52 universities and 11 national laboratories. The intent of the \$47 million program, managed by DOE's Environmental Management Science Program, is to stimulate innovative fundamental research that will help the agency manage and dispose of radioactive and hazardous chemical waste. The prospective research "should address problems that are considered intractable without

(Continued on page 5)

Fall Leadership Conference

At press time for this issue, Sandia executives who participated in last week's 1996 Fall Leadership Forum at Angel Fire, N.M., were considering scheduling presentations (two in New Mexico, one in California) by the eight VP champions of the Labs' new strategic objectives. We may also have a *Lab News* article in the next issue by *Sandia Daily News* editor Bruce Hawkinson, who covered highlights from the Forum last week.

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LabNews

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New staff augmentation process does away with tons of 'stealth hours'

New method is faster, easier, cheaper

By Bill Murphy

Lab News Staff

Faster. Easier. Cheaper. Those are the bywords of the staff augmentation reengineering process now coming to fruition at Sandia, according to Jon Bedingfield, Manager of Staff Augmentation in Human Resources Staffing Dept. 3535.

The recently announced staff augmentation contract consolidation (*Lab News*, Aug. 2), reducing the number of separate contracts from 1,200 to 14, is just one part of a larger process to reengineer the way staff augmentation is done at Sandia. While the contract consolidation will save the Labs about \$31 million (based on FY95 expenditures), the tangible change that will be noted at the line level is in the way the process has been streamlined.

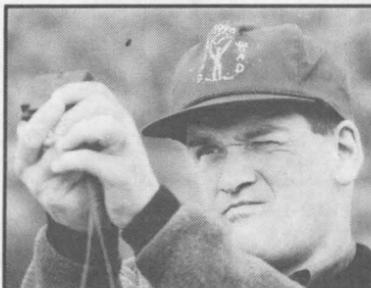
In the past, staff augmentation personnel — or contract associates — were acquired

through the procurement process and handled by Procurement Dept. 10200. Under the new system, all staffing is handled through Human Resources. As Jon puts it: "Now, when a manager thinks of staffing — whether permanent or temporary — he or she can think of one source, that being Human Resources. The manager can now use one process, fill out one form, for all staffing needs."

The old process was cumbersome as well as costly, due in large part to the number of separate contracts involved (1,200) and in part to procurement process red tape. Procurement Department representatives, who probably know better than anyone just *how* cumbersome the process was, worked closely with Human Resources people in redesigning staff augmentation from the ground up.

"About a year ago," says Glenna Hickman (3535), "a decision was made at the corporate

(Continued on page 4)



3 Labs scientists present latest work at combustion symposium

7 Cibola Search and Rescue team members train to save lives

This & That

Uncertainty fuels staff-cut rumors - Rumors about Sandia staff cuts appeared several weeks ago in local newspapers. Some information in the stories was accurate, but other information was speculative, misleading, and in some cases wrong, including the eye-catching headline, "Sandia plans more layoffs." Our workforce is down about 500 in the past year, but this results from normal staff attrition and our early 1996 voluntary separation incentive program (VSIP), NOT layoffs.

Because Sandia now expects an FY97 budget that's \$80-90 million less than the FY96 budget, the Labs must prepare for possible additional staff movements/reductions, but Executive VP John Crawford said in an Aug. 16 phone message to employees that no decision about overall staffing levels will be made until after the divisions submit their staffing plans Sept. 1 and Sandia's budget picture clears in the next few months. John reiterated what upper management has said for months: Sandia has no plans for layoffs, or even another VSIP at this time. If circumstances should make it necessary to move people internally to match them to available jobs, Sandia would rely on established staff realignment procedures, explained in detail in the *Lab News* and in a series of meetings early this year.

When FY97 staffing decisions are made and if a new VSIP becomes necessary, the Employee Communications staff will do all we can to make sure you get the news through official company channels. In the meantime, don't believe every rumor you hear or read in the media, especially those sensationalistic headlines.

* * *

Humor promotes performance? - Humor in the workplace not only makes work more enjoyable, but can also facilitate employee performance, according to a new study reported in the Business Outlook section of the Aug. 19 *Albuquerque Journal*. The syndicated article said a Penn State professor had studied management's humor style on several hundred Canadians and concluded that "a good sense of humor is a key communication tool, thus facilitating good performance." The article went on to say, "Using humor is a kinder and gentler way of motivating employees and is much better than humiliating them. A lighter touch indicates that the manager may indeed, after all, be human." I think that last part may even apply to most Sandia managers.

* * *

John too soon gone - The *Lab News* loses a valued staff member Sept. 10: John German, who's been reporting and writing *Lab News* stories since hiring on with us fresh out of the University of New Mexico's professional writing program in 1990. We hate to see John go, partly because he is one fine writer with outstanding news judgment (he recently won a national news writing award) and partly because he's such a fine human being. John will soon join Canon Communications in Santa Monica, Calif., to edit the computer-industry magazine *Micro* (formerly *Microcontamination*). We'll miss you and your talents, John, and we wish you great success in your new job.

Larry Perrine (845-8511, MS 0129, lgperri@sandia.gov)

Astronaut to talk about space shuttle flight experiences

Susan Helms will speak to Sandia employees from 9-11 a.m. Thursday, Sept. 12, about her experiences as a NASA astronaut. The presentation will be at the Technology Transfer Center (Bldg. 825).

A lieutenant colonel in the Air Force, Helms joined NASA's astronaut corps in July 1991. Since then she has completed three missions, traveling more than 14 million miles and logging 912 hours in space. She has orbited the earth 544 times.

Her most recent mission (June 20 to July 7) was on board the space shuttle *Columbia*, where she served as flight engineer and payload commander. The Life and Microgravity Spacelab mission was the longest space shuttle mission to date and served as a model for future studies on board the International Space Station. The mission included studies sponsored by 10 nations and five space agencies. The crew included astronauts from France, Canada, Spain, and Italy.

Helms has a bachelor of science degree in aeronautical engineering from the US Air Force Academy and in 1985 received a master of science degree in aeronautics/astronautics from Stanford University. Prior to being selected as a NASA astronaut, Helms was a weapons separation engineer at the Air Force Armaments Laboratory and served as assistant professor of aeronautics at the US Air Force Academy.

After completing a year of training as a flight test engineer in 1987, Helms was assigned as an Air Force Exchange Officer to the Aerospace Engineering Test Establishment, Canadian Forces Base, Cold Lake, Alberta, Canada, where she worked as a flight test engineer and project officer on the CF-18 aircraft. She was managing the development of a CF-18 Flight Control System Simulation for the Canadian Forces when selected for the astronaut program. As a flight test engineer, Helms has flown in 30 different types of US and Canadian military aircraft.

Helms' parents, Lt. Col. (Ret., USAF) Pat and Dori Helms, live in Albuquerque.

Major ion beam conference to be held in Albuquerque

Sept. 1-6 session at Hyatt brings together international materials science community

IBMM-96, a major international conference on ion beam modification of materials, will be held in Albuquerque Sept. 1-6. The conference, expected to draw 350 scientists, engineers, and industry representatives, including about 200 foreign participants, is co-chaired by Sandian

Charles Barbour of Ion Solid Interactions and Defect Physics Dept. 1111 and Michael Nastasi of Los Alamos National Laboratory.

The Albuquerque conference at the Hyatt Regency Hotel is the tenth in an international series that began in 1978 in Budapest, Hungary. The IBMM conferences (held every two years) are the premier international forum to present and discuss recent research results and future directions in the field of ion-beam modification and formation of materials.

The conference brings together materials scientists, ion-beam practitioners, and those interested in industrial applications to promote a cross-disciplinary flow of information and knowledge among many diverse materials areas.

The emphasis is on the science of materials properties, involving both fundamental processes and changes occurring either during or subsequent to ion bombardment. While covering the traditional topics of previous IBMM conferences, IBMM-96 will highlight areas of specific concern to the US materials research effort and currently of prime interest to the international community.

Sandians Eric Chason, Dave Follstaedt (both of Nanostructure and Semiconductor Physics Dept. 1112), and Kevin McCarty (Surface Chemistry Dept. 8716) served on the con-

ference program committee.

In addition, a number of Sandians served on the conference organizing committee: Karen Conley (1111), Chris Apblett (1323), Jon Custer (1323), Jerry Floro (1112), Tom Friedmann (1153), Jim Knapp (1111), Paula Newcomer (1152), and Mike Siegal (1153).

Registration is Sunday, Sept. 1, 2-8 p.m. at the Hyatt Regency. The opening night reception at the Hyatt is from 7-9 p.m.

Conference presentations begin Monday, Sept. 2.

Sandia LabNews

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Congratulations

To Teresa and Brian (2265) Oden, a son, Kyle Mason, July 29.

Recent Patents

Steven Kempka (9111) and Robert Walters, Boise, Idaho: Directed Flow Fluid Rinse Trough.

Douglas Bloomquist (9536), Rudy Buchheit (1832), John Greenly, Lansing, N.Y., Dale McIntyre, Eugene Neau, and Regan Stinnett: Methods and Apparatus for Altering Material Using Ion Beams.

Sandians shine in international combustion symposium presentations

New computational modeling workshop precedes scientific meeting

By Nancy Garcia

California Reporter

Papers presented by Sandians at this summer's 26th biennial Combustion Symposium represent a range of the fluid mechanics, chemistry, and computational modeling that is also being addressed by combustion researchers across the globe.

The July 28-Aug. 3 symposium in Naples drew some 1,000 scientists and engineers. One of the five plenary lectures was delivered by Sandian Jim Miller (8353) on theory and modeling in combustion chemistry.

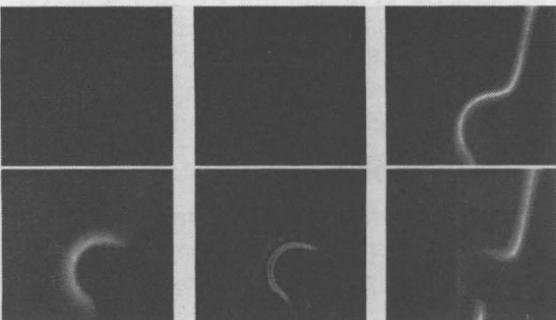
Work was also featured by eight other Combustion Research Facility staff. Larry Rahn, Manager of Diagnostic & Reacting Flow Dept. 8351, Jay Keller of Combustion in Engines & Furnaces Dept. 8362, and Combustion & Physical Sciences Center Director Bill McLean (8300) all chaired sessions. Industrial & Environmental Programs Manager Bob Gallagher (8366) also attended.

Jim's lecture addressed how theory and modeling impact technologically important combustion problems. These problems depend on elementary reactions that govern flammability limits and pollutant formation.

He focused on four areas he found interesting in his own work, in which researchers have made much progress over the last 20 years. One, "prompt NO," is a phenomenon only recently explained by theory in which nitric oxide is formed at the top of the burner through an unusual process, with molecular nitrogen forming hydrogen cyanide upon reaction with a CH radical, then oxidizing to nitric oxide. Usually, no cyanide intermediary is formed when nitric oxide, an air pollutant, is produced at high temperatures.

A history of misunderstanding

"Prompt NO has a long history of misunderstanding," Jim says. "It's probably only in the last five to six years it's been accepted that this is the reaction responsible for the phenomenon, and the last two to three years that it's been explained by theory."



SERIES OF IMAGES highlights the important chemical changes at two points in time (top and bottom) as a vortex interacts with a premixed methane-air flat flame in the experiments carried out by Quang-Viet Nguyen and Phil Paul.

In another area, a theoretical model has accurately predicted anomalous experimental behavior in which there is an abrupt and non-statistical change in how rapidly a fuel will burn. "It's extremely interesting to physical chemists," Jim says. "It disobeys one of the prime assumptions in reaction rate theory," precepts that stretch back to the 1920s.

A third example explains how a scheme for removing nitric oxide from stationary power plants and utility boilers works. Injecting ammonia into the hot gases produces nitrogen gas and water as the main end products. At

high temperature, this reaction tends to have exotic molecular intermediaries. The overall reaction is unusual because it involves breaking and reforming three bonds at once, which shouldn't necessarily be energetically favored. Most chemical reactions, Jim says, entail only breaking one bond at a time, much the way a chain will break first at its weakest link.

Finally, he discussed formation of soot from fuels that do not have the basic initial substructure soot builds upon — a six-membered ring. The first ring acts something like the dust that forms the nucleus of a snowflake in a freezing cloud, sowing a process in the exhaust in which a large sequence of six-membered rings forms and curls up into a clump of soot. The first ring, Jim says, may be formed by two "resonantly stabilized free radicals" of three carbons and three hydrogens joining.

In his career at Sandia, Jim has published many review and invited papers on the theory and modeling of these and similar problems. His work, involving collaborations around the world and across other centers at Sandia, is funded by DOE's Office of Basic Energy Sciences, Chemical Sciences division. He said the Combustion Symposium lecture was his most significant invited talk yet.

Fundamental interactions

Jackie Chen (8351), collaborator Inge Gran, and postdoctoral employee Tarek Echekki are also studying combustion details through modeling. Jackie co-authored two papers on computational simulation of turbulent premixed flames of methane (a simple hydrocarbon fuel) and air. The team's direct numerical simulation approach resolves combustion and turbulence information in time and space using detailed descriptions of the chemical kinetics and transport.

The resultant data base, Jackie says, can reveal fundamental interactions between turbulence and chemistry. In one paper they reported recent results in which flames that exhibit negative flame propagation counter strong gradients generated by turbulent eddies, thereby playing a stabilizing role under intense turbulence. From detailed analysis of the governing equations, they were able to identify that diffusion tangential to the locally curved flame surface, or local flame curvature, is responsible for the negative flame speeds. Cur-

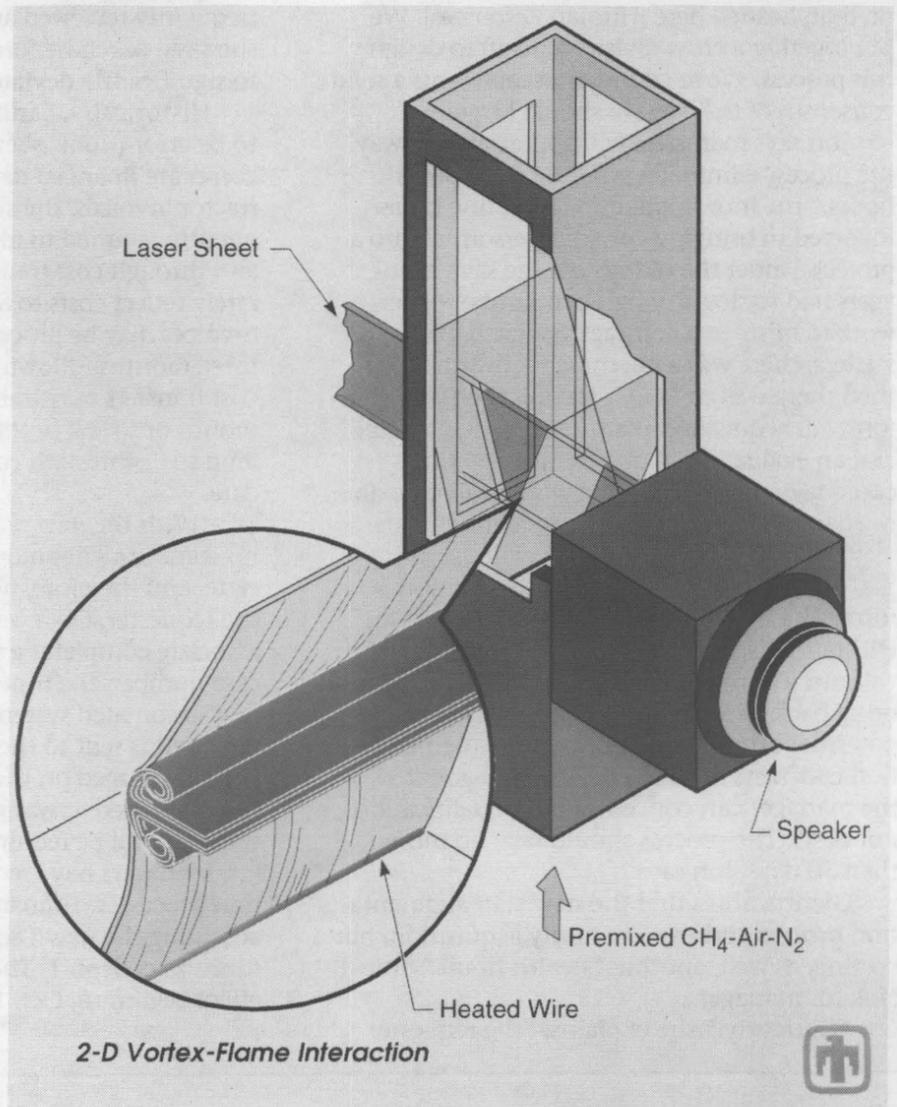


DIAGRAM SHOWS the experimental apparatus used to study the interaction of a vortex with a premixed methane-air flat flame.

Sandia California News

rently, flame surface tracking combustion models do not account for negative flame speeds. In another paper, they explained the chemical mechanism by which two flamelets mutually annihilate each other as they propagate toward one another, consuming the reactants in-between.

Quang-Viet Nguyen and Phil Paul (both 8351) presented experimental results that show what happens when a premixed methane-air flat flame interacts with a two-dimensional vortex. Their experiments are tailored to isolate the fundamental aspects of turbulent combustion modeling: unsteadiness, flame curvature, and strain. This makes it possible to compare their measurements to computer simulations of the vortex-flame interaction currently being performed by Jackie and Habib Najm (8351).

A poster by Habib at the symposium described modeling of premixed flame-vortex interactions. Using detailed chemical kinetics, Habib and postdoc Pete Wyckoff (8920) investigated the extinction of premixed flames subjected to unsteady strain-rate due to the vortex flow. Results suggest the validity of one out of several possible scenarios for flame extinction under the given flow conditions. The reaction zone is observed to move into the combustion products, where the abundance of hot products and the scarcity of oxygen lead to depletion of active radicals such as H, O, and OH that are crucial for flame chemistry.

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Augmentation

(Continued from page 1)

level to move staff augmentation to Human Resources and to form a corporate level team to do that, headed here [Human Resources]. We put together a cross-divisional team to design this process. We're confident it represents a solid consensus of the way we should be going."

Jon says managers will appreciate the way the process eliminates what he calls "stealth hours," the inordinate number of line hours involved in bringing contract personnel into a project. Under the old system, he says, managers had to slog through a mound of paperwork to bring in a contract associate. For starters, there was a purchase requisition form, then there was an RFQ, a technical criteria form, an acquisition plan, a statement of work, and an evaluation plan. The whole process could take months; no one would call it flexible or adaptable to changing work requirements.

The new process, Jon says, will use a simple, one-page Tactical Staffing Requisition form. The manager will send that form to an HR staffing specialist assigned to the line, who will run it through the appropriate hoops and bring back to the manager the résumés of potential candidates. Because staff augmentation contracts have already been negotiated, the manager can concentrate on qualifications, not costs. The process should take no more than 30 days, Jon says.

Glenna notes that the new staff augmentation process addresses not only acquisition, but costing, as well, another "stealth hours" time-sink for managers.

"Currently," she explains, "the requester

[manager acquiring a contract associate] submits a purchase order which has a commitment amount forecast throughout the period of performance." Forecasting, she says, has the beneficial effect of projecting cost for multiple future periods, but to accurately reflect costs and purchase commitments, forecasts must be frequently reviewed and revised. Otherwise, she says, purchase forecasts have the potential to significantly deviate from actual cost.

Historically, Sandia has found forecasts to be error-prone, skewing the credibility of corporate financial data. Upon receipt of contractor invoices, she says, intervention is frequently required to identify the tasks invoiced, and through cost transfer adjustments to accurately reflect costs to Sandia cases. In addition, invoices may be processed as late as two to three months following work on a project and cost transfers may trail invoice processing by a month or so. All of these events, Glenna says, tend to distort both cost and commitment data.

"With the new process," she says, "there is no commitment amount on the contract associate, and therefore, no forecasting required of the requester. On a weekly basis, the contract associate completes a time invoice indicating case number, the time invoice goes through a new automated system, and the next week, payment is sent to the contractor. Because work is charged on the time invoice directly to the case where it was performed, far fewer cost transfers will be required."

Managers have received training in the new processes. Human Resources will begin accepting the new Tactical Staffing Requisition forms as of Sept. 1. The new contracts will take effect beginning Oct. 1.

Staff augmentation changes in brief

Here are the major changes in Sandia's staff augmentation process:

- Moves point of service to Human Resources Staffing Dept. 3535
- Streamlines acquisition of staff augmentation personnel
- Acquires personnel within 30 days. Under the procurement-based system, six to nine months could elapse to bring a contract associate into a project
- Requires only a single form — a Tactical Staffing Requisition — to trigger acquisition, in contrast to full procurement cycle (Purchase Requisition, technical criteria, acquisition plan, statement of work, evaluation plan)
- Adds flexibility to acquisition
- Makes available all labor categories; requester chooses most appropriate candidate
- Eliminates need for forecasting
- Commits funds as work is performed vs. annual funding commitments
- Streamlines time capture and payment through semi-automated time-keeping process
- Achieves cost savings on travel by piggybacking on Sandia systems
- Charges costs where work is performed; cost transfers are no longer necessary

Symposium

(Continued from preceding page)

Habib is also a co-author on a paper presented at the symposium, a result of a collaboration with Prof. Omar Knio of Johns Hopkins University on numerical algorithms for modeling of reaction and mixing effects in a swirl-chamber combustor.

Roger Farrow (8366) applied a laser diagnostic technique under development at the CRF,

degenerate four-wave mixing, to track the methyl radical profile along a flat flame. This chemical species is one of the first products produced by burning methane. "It's kind of a key player in the chemistry," Roger says. The technique Roger used is the first all-optical, spatially resolved way to track this short-lived intermediary, which falls apart in less than a picosecond — a trillionth of a second. His experiments showed good agreement with computational models of methyl radical production.

The work, carried out with collaborator Volker Sick of Germany and former Sandia postdoc Mary Bui-Pham of Lawrence Berkeley National Laboratory, could also help optimize a way to grow diamond thin films in flame, in which methyl radicals must be deposited on a substrate.

Steve Margolis' (8361) modeling work was presented by his collaborator, Prof. Forman Williams of the University of California, San Diego. The pair have modeled how solid, porous fuels such as propellants and explosives perform when burned. Deriving and analyzing these models has been the primary focus of Steve's work for the

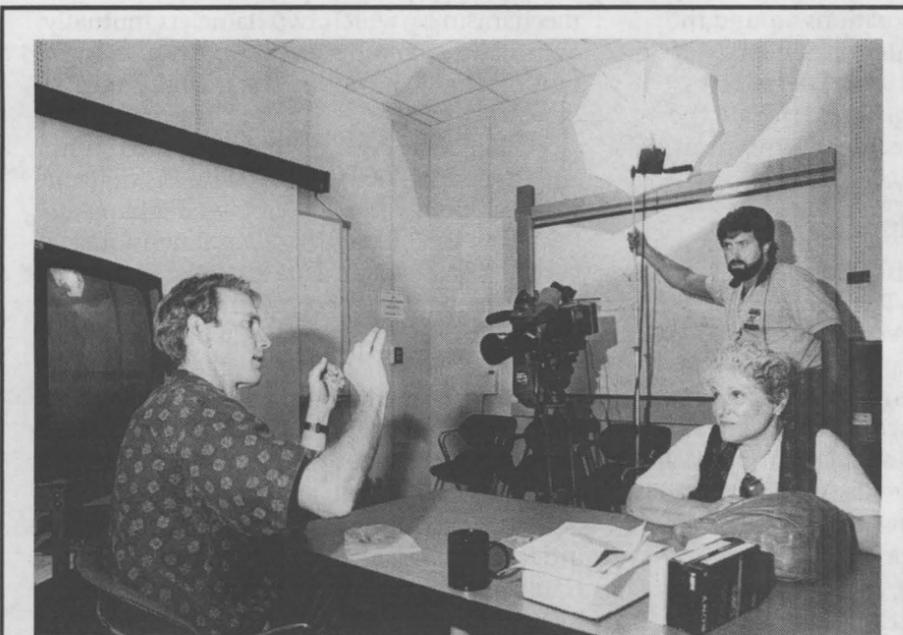
last several years, and is an area in which he has worked for more than a decade.

Rob Barlow (8351) has been investigating combustion in turbulent jet flames. The data he has collected feature simultaneous laser measurements of temperature and several species concentrations. In addition to chairing a session at the Combustion Symposium, Rob presented a paper describing his work with Greg Fiechtner on an indirect measurement of oxygen atom concentrations and NO production rates. In the turbulent jet flames Rob studies, the oxygen atoms react with nitrogen gas to produce the pollutant nitric oxide. "Direct measurements of oxygen atoms in these flames would be very difficult," he says, "but it is critical to know whether combustion models are predicting the right concentrations."

'Apples to apples'

At the last symposium in Irvine, Calif., two years ago, Rob began calling upon his fellow researchers to organize a workshop to compare computational models for turbulent non-premixed flames. Common in utility boilers and turbines, these flames are fed by fuel and air mixing within the combustor. "There are many parts to these combustion models," Rob says, "and one of the most controversial is the submodel that couples turbulence and chemistry." Rob wants to ensure that people working in this regime can efficiently compare turbulence-chemistry submodels on an "apples-to-apples" basis in which the other submodels employ common parameters.

Rob himself ended up organizing a presymposium workshop with J.-Y. Chen of UC Berkeley and five others. The two-day workshop drew 61 researchers from 11 countries. "It was something that needed to be done," he says. He envisions a series of annual workshops to promote international collaboration in this research area.



SANDIA ON CNN — Mark Boslough (9232, left) displays a piece of meteorite while being interviewed by a CNN news crew that visited Sandia recently. The CNN crew, which included executive producer Bailey Barash, foreground, and cameraman Mark Biello, interviewed Sandians for four different stories that will air over the next few months on the cable network's weekend science program. The stories deal with stockpile stewardship, microelectronics, the possibility of objects such as comets and asteroids striking Earth, and computer modeling of a Parasaurolophus dinosaur skull done with the New Mexico Museum of Natural History and Science.

Dangling rope

(Continued from page 1)

gallon loads 35 times a year in 70-mile round-trips from Wahweap Marina. Each trip took 10 hours and cost \$1,000 just for barging costs. The Dangling Rope Marina's diesel generators ran continuously, day and night, creating noise and air pollution.

The new photovoltaic system consists of 384 300-watt photovoltaic panels supplied by ASE Americas. The panels are situated in 48 parallel strings occupying a little more than an acre of land. The system includes a 2,400-kilowatt battery bank and a 250-kilowatt dc-to-ac hybrid power inverter developed by Kenetech Windpower. A propane generator is included in the system but is expected to operate less than 1,500 hours a year.

Labs tested power converter

Sandia tested Kenetech's power converter for about six weeks in June and July to ensure its functional and qualitative performance before it was shipped to the marina, says Roger Hill of Photovoltaic System Applications Dept. 6218. Roger says Sandia's testing helped identify possible concerns, from which Kenetech was able to make design modifications. Sandia

will help assess the photovoltaic system's performance and will analyze and report data to private and public entities interested in finding markets for hybrid systems, according to Roger.

"This type of system has the potential to be a good power source for facilities in remote areas and for small villages," he says. "Photovoltaic systems are increasingly attractive for these uses as their costs come down."

Jeff Burks, director of the Office of Energy and Resource Planning for the Utah Department of Natural Resources, says that four national parks and other federal agencies have already been in touch with Glen Canyon National Recreation Area seeking detailed information about the Dangling Rope Project. "This system will be noticed by thousands of visitors each year and will have enormous educational benefits," Burks says. "It will also enhance the potential for technology transfer."

In addition to the National Park Service and the Utah Department of Natural Resources, other project partners include Pacificorp (Utah Power and Light); DOE, including the Office of Utility Technologies (source of Sandia funding for the project) and the Federal Management Program; ARAMARK Leisure Services; and the Environmental Protection Agency. In addition, Applied Power Corporation installed the system, and C&D Power Systems supplied the battery storage system.



SIGN designating the Dangling Rope Marina is lighted at night with energy collected by a small solar panel. The marina converted its electrical power this summer from a diesel-powered generator to a photovoltaic system with the help of Sandia.

Environmental

(Continued from page 1)

new knowledge," according to a prospectus distributed by the agency.

Sandia principal investigators, who will each receive grants over a three-year period, are:

- \$1.2 million, principal investigators Jess Wilcoxon (1152) and Jim Martin (1152) with program manager George Samara (1100), for a proposal to use sunlight to energize very small semiconductor particles held in suspension in liquid.

Their idea calls for waste streams to flow over beds of these cheaply energy-charged particles to oxidize harmful organic chemicals into harmless carbon dioxide and diluted mineral acids.

While solar detoxification is potentially much cheaper than incineration, previous solar efforts have been hampered because the active material of choice, titanium dioxide, can only absorb less than seven percent of available solar radiation and also tends to recombine subatomic elements — electrons and their "holes," or vacancies — that need to stay separate for the process to work. Materials substituted for titanium dioxide corroded. But recent work has produced noncorroding clusters of atoms whose ability to absorb different wavelengths of light is merely a function of the size of the cluster. The clusters also demonstrate a low rate of electron-hole recombinations. Use of this stable group of inorganic nanoparticles will be investigated by the project.

- \$1.2 million, Steve Conrad (6416) with co-principal investigator Bob Glass (6115) to combine realistic physical models with supercomputer data to study how harmful organic solvents sink into the water table and to analyze the effectiveness of three promising methods that might be used to remove them.

The solvents might be degreasers or dry cleaning fluids drained into the ground through storage leaks or dumped before the substances were known to be harmful. These solvents have sunk into aquifers, contaminating groundwater supplies.

Using a glass-walled sandbox similar in appearance to an ant farm, the Sandia research group will evaluate capillary and gravitational action through a variety of soils as the solvent

sinks. The team also will evaluate these cleanup techniques: surfactants, used to increase the solubility of organic solvents in water, speeding the cleanup; air sparging, which injects air down a well whose bottom opening has been drilled to lie beneath the trapped solvent — the air vaporizes the solvent, and the two rise together through the water table until they enter the waterless zone closer to the surface, when they exit through another well and the solvent is captured; and large-scale alcohol injection that reduces capillary forces within the pores of an aquifer, making it easier to force out the solvent. The evaluation technique, by more closely mimicking the conditions of the natural environment, should help lead to improved cleanup techniques.

- \$2 million, David Alumbaugh (6116), with Sandians Bob Glass and Jim McCord (6115) and two researchers at the University of Arizona, to develop a hybrid scientific method that will determine the composition and rate of movement of harmful materials through arid sites above the water table.

In the eastern part of the US, where the water table is closer to the surface, movements of contaminants are easier to model and standard fluid modeling programs are used. In the dry Southwest and arid parts of Oregon, Idaho, and Washington state, where the majority of contaminated sites are located, the water table is deeper, making it more difficult to model the flow of contaminants through the unsaturated zone. "It becomes more of a nonlinear problem," says Dave.

His group's proposal combines information about soil's electrical resistance with statistics about geology and with moisture and contaminant distribution in soil samples into a complex computer code.

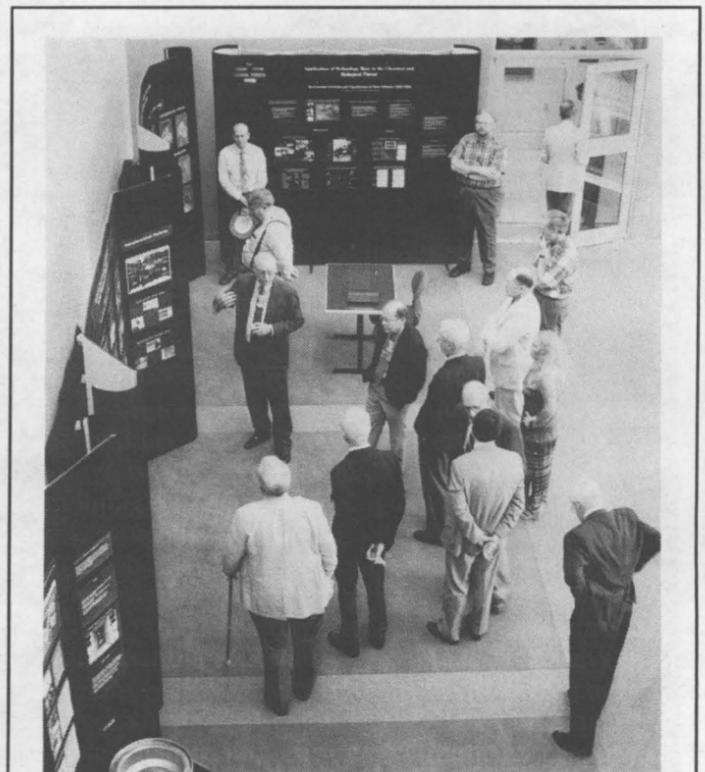
Proposed research is expected to contribute to environmental management and restoration actions that would decrease risk for the public and workers, provide opportunities

for major cost reductions, and reduce time required to achieve major cleanup actions.

The investment itself resulted from congressional interest in encouraging longer term research to ultimately reduce clean-up costs of environmentally damaged areas.

Announcement of the awards was made via video link with participation from Energy Secretary Hazel O'Leary, Assistant Secretary for Environmental Management Al Alm, and Director of Energy Research Martha Krebs.

— Neal Singer



SHARING INFORMATION — Members of the University of California National Security Panel for Los Alamos National Laboratory and Lawrence Livermore National Laboratory listen to Tom Sellers, Director of International Security Programs Coordination Center 5300, describe items in the Bldg. 858 display of information about Sandia's work on satellite instrumentation, sensors, security, and weapons transportation. The panel visited Sandia on Aug. 7 for an overview and discussion of Sandia's national security programs. Facilities toured by the panel included the Microelectronics Development Laboratory and Particle Beam Fusion Accelerator II.

Sandia peers at future through high schoolers' eyes

By Philip Higgs

Lab News Intern

You can say what you want about today's teenagers, but some California seniors at San Ramon Valley High School have a newfound fascination with something a little atypical of their age group: ideas and issues of national security.

As part of a new Sandia-sponsored program last spring, two Government and Economics classes were asked to study current trends in the world's economic, political, and social scenes and imagine those scenes' possible paths for the next 25 years. Two groups of students formed to become the first participants in the pilot run of "2020 Vision," a scenario-building exercise designed for high school juniors and seniors by Sandia/California's Science and Technology Outreach Dept. 8818.

"We saw a need to bring younger people and their ideas into the exercise of scenario building," says Rob Rinne, senior adviser for National Security Issues Dept. 8104. "Bringing in a different culture — the youth culture — is important to this practice."

Students were given five weeks to develop their visions of the future with only two rules. Scenarios could not be self-contradictory, engendering crises simultaneous with world peace. Scenarios also had to be plausible, following the laws of physics, and the hand of God could play only a minor role — in other words, Boris Yeltsin could not be sucked through a wormhole in the fabric of the space-time continuum and find himself running Russia in the year 2010. Other than that, students were given free rein.

Before forging the future, however, students were assigned one section of the world each and sent to the library and Internet to investigate current situations. The students then regrouped to imagine the directions each of these "world areas" might take in five conceptual international developments: sudden chaos



SAN RAMON VALLEY High School (Calif.) student Molly Karns (left) listens as Nick Fanelli (right) discusses his findings from the Sandia-sponsored "2020 Vision" program.

in the third world, a resurgence of imperialism, the continuation of current trends, American neo-isolationism, and economic competition's domination of international relations.

The resulting synthesis of scenarios was presented to Sandians in California July 3 and in New Mexico July 9 by two student participants, Molly Karns and Nick Fanelli. "We chose to go for a broad overview of many ideas instead of just one or two deep scenarios," Nick explained at the New Mexico seminar.

The program was introduced late in the school year, when most seniors' minds are on summertime and college next fall, but those involved wanted to cover as much as they could, according to Jim Nelson, a San Ramon Valley High government and law teacher. "As the project went on, a lot more kids were doing more and more things than you'd find in a traditional social studies class," he says.

Not surprisingly, many of the students' scenarios centered around problems in the Middle East. In one supposed situation, religious unrest throughout the Middle East clears the way for an unnamed Iraqi dictator's dominance over the entire region. In his drive to unify the disordered states, he refuses trade with any country but those in his own region. A secret cache of black market nuclear weapons amassed before this isolation fuels his vision of a Middle East superpower, but a shrinking economy, the result of a stagnating oil trade, keeps this dream strangled until the dictator's eventual ousting from power.

A Russian-Chinese alliance begun sometime after 2000 was also imagined, after Russia's people and economy had suffered from a late-century reversion to Communism. China's financial strength, thanks to a recent spurt of technological superiority and foreign investment, lends the apprehensive Russians new confidence in their government, and a sudden shift of international power is felt worldwide. The United States, fearing the worst, initiates free trade agreements with Japan and South Korea, and by 2020 has formed a strong alliance with the two to counteract the Russian/Chinese threat, re-establishing the US as a world leader in technology.

Sizable international alliances, as you may have guessed, are the mainstay of many scenarios, with a tightly unified Europe also making an appearance in the students' futurist visions. On a somewhat gloomy note, few students imagined a peaceful world, opting instead for computer terrorists and cold wars to come.

Research tools of the future

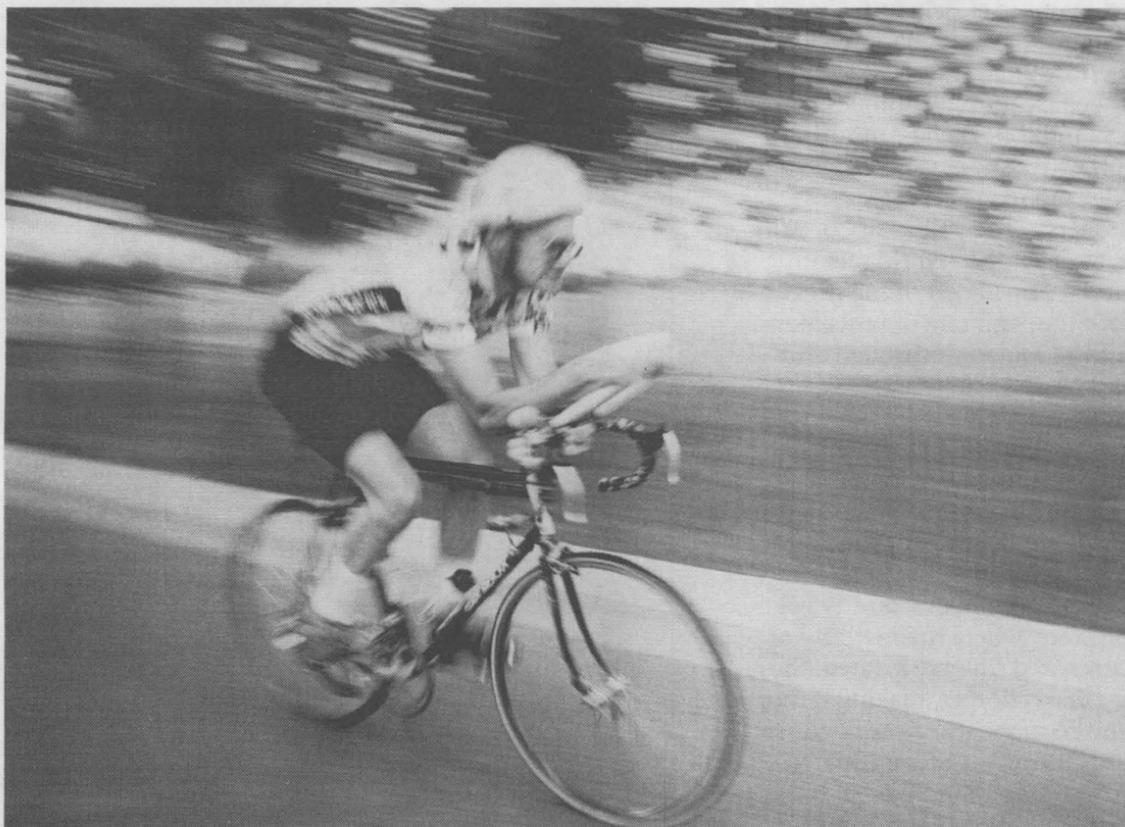
"We're hoping to expand the program next year," says Dept. 8818 Manager Karen Scott. "In the long run, we want to build a course where students in the program across the country are hooked up to links and libraries [through the Internet] and can access important information" about the world's situation from a variety of sources, she says. A student whose school library is lacking certain readings or information could find them on-line from a school a thousand miles away, or from sources such as the CIA's home page. "This will increase high school students' awareness of the global issues that drive US national security concerns, making them better prepared to participate fully as citizens in the future."

Computers and the Internet itself "are the research tools of the future," says Stacey Au, leader of Dept. 8818's Technology Program aimed at applying Sandia's practices and technology to education. "Anytime we can get kids learning on computers is vital, because they need to get interested and they need to learn how to use the technology. A big part of the 2020 program was getting the kids on computers." San Ramon Valley High has just completed a student computer facility, and they want to make sure it gets used for the right things.

During the summer, two teachers are spending time at Sandia/California to develop the project into at least a semester-long course, if not a year-long one. Albuquerque Public Schools is being approached about hosting one of the next pilot programs.

While getting students interested was difficult initially, most of those involved saw it as useful and eye-opening. "At least for me, it made me much more aware of what I can and can't do," said Molly at the seminar. "I can't go out and work for or against one of these scenarios just like that. I know I have to go and get the knowledge that will get me there."

A compilation of the students' future scenarios can be obtained from Stacey Au at 510-294-3639.



JUST LIKE CARL LEWIS, Roger Eaton of Energetic and Multiphase Processes Dept. 9112 has won nine Olympic gold medals. Only in his case, they're New Mexico Senior Olympic medals. Roger started commuting to Sandia by bicycle 30 years ago, and in those 30 years, "I calculate that over 150,000 miles of dirt, asphalt, and rock have passed under my bicycle wheels — the equivalent of six times around the world!" he says. Pedaling that far, Roger figures, takes the "energy equivalent of 45,000 large bananas." He became interested in racing 10 years ago, and since then he has won 10 road-race and time-trial state championships in addition to his nine gold medals. Roger is not a first-generation bicyclist in his family. Although he can't remember ever seeing his father on a bike, he does remember his grandfather's stories about how, in the late 1800s, he and Roger's great uncle Frank would ride their bikes from their Kansas farm into Nebraska to follow the crop harvest. "To condition themselves for the trip, they would perform their farm chores with bags of sand tied to their legs," says Roger. "Well, at least that's what they told me." (Photo by Randy Montoya)

Search and rescue Sandians train to scour New Mexico's wilderness at a moment's notice

Search and rescue motto: 'That others may live'

Rewarding, yes. Relaxing, no.

That's how six Sandians might describe a demanding hobby that sometimes requires them to scramble out of bed at 2 a.m., spend the night in the drizzling rain or freezing cold, carry 200-lb "bundles" down precarious mountain slopes, or spend their weekends practicing survival techniques in New Mexico's backcountry.

But if you're the type of person who likes to camp, hike, hunt, or mountain bike, know that if something goes wrong, help is on the way.

"That others may live" — the search and rescue motto — is what keeps the 50 members of the Cibola Search and Rescue (CSAR) team going when the coffee runs out and the tips of their fingers are turning blue. Six Sandia employees are CSAR members: Mike Dugger (1832), John Mindock (4813), Bruce Berry (1554), Terry Hardin (1342), Dave Ricker (3050), and RoseMarie Renn (9709). Dozens of other Sandians are members of other local teams, including the Albuquerque Mountain Rescue Club, Search and Rescue Support, and Sandia Search and Rescue.

That others may live

Search and rescue services are deployed some 340 times a year in New Mexico and are provided at no cost by the state's all-volunteer search and rescue community, says Mike, CSAR's president. On call 24 hours a day, seven days a week, search and rescue volunteers are prepared to plunge into the New Mexico wilderness with only minutes' notice; they often emerge having saved a life or delivered a distressed person to safety.

Of the 50 to 60 missions performed each year by CSAR, most involve searching for lost hikers and hunters during the spring, fall, and early winter months, when people do most of their wilderness trekking, says Mike. Occasionally, the team participates in litter evacuations for people who need medical attention in the wilderness, including responding to remote airplane crashes.

Most missions begin at night, when relatives or friends of lost hikers and hunters realize something's wrong. "The usual scenario is that the wife or buddy of a hiker or mountain biker realizes an hour or two after dark that the person is missing and calls the police," John says. "We get some false alarms, too," he adds. "Occasionally, the guy is having a beer somewhere. But it's better to be safe than sorry."

Red and yellow alerts

Missions begin in one of two ways. Volunteers can be called at home or at work and put on "yellow alert," which means they have time to gather the supplies appropriate for the mission type. Or they can be put on "red alert," which means they depart immediately. For red alerts, some members have bundles of equipment in their vehicles ready to go. Sandia policy allows team members to leave work in such an emergency.

When volunteers arrive at base camp, a variety of search strategies may be used, depending on the terrain, the subject profile, and weather conditions, says Mike. Typically, "hasty teams" are organized and sent out along obvious byways in the area.

"People usually follow trails, streams, washes, or canyons, so that's where we look first," says John. "Eighty percent of the time the hasty teams are successful."



TRAINING TO SAVE LIVES — John Mindock (center, kneeling) reviews orienteering techniques for Cibola Search and Rescue team members who attended a recent practice session at a trailhead in the Sandia Mountains. The group trains together at least monthly. (Photos by Mark Poulsen)

If they aren't, volunteers might conduct line searches, which involve members canvassing defined areas in groups so that no area is left unexplored. "We do line searches when we think the person has a broken leg or is unconscious or dead," he says.

Each team member carries enough food, clothing, and equipment to be self-sufficient for at least 24 hours. Members stay in touch with the base camp via radio.

To prepare for their missions, CSAR members gather at a local trailhead at least monthly. The group specializes in ground searches, so members practice "orienteering" — using compasses and landmarks, triangulating locations and distances, and recording distance and direction data. They also periodically practice helicopter evacuations, tracking, and wilderness survival techniques. All members take basic first aid training, and some have EMT (Emergency Medical Technician) certifications.

"Our state has one of the most advanced

"Many people hiking during the summer are not prepared for what Mother Nature can dish out."

systems in the nation to manage search and rescue incidents," says Mike. "This is another reason people who love the outdoors are fortunate to live in New Mexico."

Many wilderness-goers unprepared

John, who has been a search and rescue volunteer for three years, says the growing popularity of outdoor activities such as mountain biking, hiking, and rock climbing has increased the need for search and rescue volunteers.

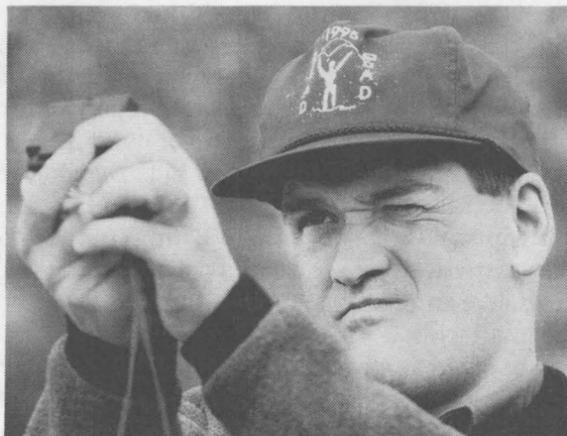
"There are more people out in the wilderness these days," he says, "and more of them are unaccustomed to being there and aren't prepared."

Most often, hikers and mountain bikers get into trouble either when they deviate from main trails or take shortcuts, or when they underestimate how fast the weather can change, Mike adds. "Hypothermia can kill any time of year," he says. "Many people hiking during the summer are not prepared for what Mother Nature can dish out."

But the toughest people to rescue are the hunters, says John. "They often don't follow trails, they tend to venture farther into the wilderness, and it's usually colder during hunting season. The danger of them dying before they're found is greater."

He says search and rescue may be as rewarding a pastime as it is a demanding one. "There's nothing like the feeling of having rescued someone and seeing them returned to their families," he says.

CSAR is always looking for new members. Call membership officer Bruce Berry at 897-3652 for more information. —John German



CIBOLA SEARCH AND RESCUE President Mike Dugger triangulates his position using a compass and a hilltop he's chosen as a landmark.

★ Congratulations

To Nicole (5312) and Larry (1251) Andrews, a daughter, Christina Marie, July 8.
To Karen and John (2343) Williams, a son, James Spencer, July 21.
To Kathy and Robert (5717) Cross, a daughter, Logan McKenzie, Aug. 2.



PREVENTIVE MAINTENANCE — George Barbera of Mechanical Infrastructure Dept. 7878 makes adjustments to a backflow prevention device in Building 811. George and colleague Ed Wilsey (also of 7878), both licensed backflow technicians, inspect, repair, and test some 330 backflow prevention devices throughout the Labs on a semi-annual basis. Their work is part of Sandia's Cross Connection Control Program. A cross connection is a condition that can exist if domestic water systems are not installed properly or if an approved backflow prevention device/anti siphon device is not installed or maintained properly. Under certain conditions — such as when a line break creates a pressure differential, turning a potable water line into a siphon — a cross connection or faulty backflow prevention device could result in contamination of drinking water. Cross connections — unauthorized, improperly installed connections into a water line — are especially dangerous because they circumvent the protection offered by backflow prevention devices. The devices can be maintained, protecting properly installed water systems, but can do nothing to protect a system that has been compromised by a jury-rigged connection. According to George and Ed, Sandians can play a key role in helping to identify cross connections. Sandians who see a cross connection or a backflow prevention device leaking, or suspect that a cross connection exists, should call Telecon Desk at 844-4571. George and Ed remind Sandians they should contact Ernie Duran at 845-3223 concerning specific requirements prior to tapping into any Sandia potable water system.

(Photo by Randy Montoya)

Feedback

Q: I work in Bldg. 823 and have noticed that there are a lot of cars parked in the fire lane in front of the building. Yesterday, I counted 11 vehicles there at the same time — all with government license plates (presumably Sandia official vehicles). Many were trucks. This occurs almost every day in front of Bldg. 823. Because of this parking in the fire lane, traffic was quite severely restricted in the parking lot. However, the worst part is that all three of the fire hydrants outside of Bldg. 823 were blocked. Had there been an emergency in the building, emergency vehicles would have found it very difficult to do their jobs, and a fire might have been disastrous. What is Sandia policy about parking vehicles in areas with yellow curbs? I assume that it is not permitted, so what can be done to keep the parking lots clear, the fire hydrants accessible, and the fire lanes open for emergency vehicles?

A: Thank you for your concern regarding government vehicles parked in the fire lane near Bldg. 823. We have requested the Motor Pool to notify all government vehicle users that parking in a fire lane is a parking violation and that violators will be cited in Metro Court. A request will go to the Air Force to begin issuing citations immediately. Sandia Security Police Officers have also been requested to provide closer surveillance in that area and similar areas.

Frank Gallegos (7400)

Q: The Internal Web needs a much better index or perhaps a better search engine. I had a hard time finding out where Just-In-Time (JIT) was located once my old bookmark to RTE66.DPE, or whatever it was, no longer worked. Things seem easy enough to locate once you know where they are and have bookmarked them, but finding them in the first place is too difficult. I hear that Digital Equipment is making AltaVista available for Internet use. Is there any likelihood that we will be using something like that at Sandia?

A: Recent changes in both the search and index functions should address your concern. The search engine has loosened its requirements for syntactically correct Web pages. This makes more information available for "hits" from the search engine. We are looking at commercial search products to replace Harvest, our existing freeware search tool. The need to run across multiplatform servers makes some solutions (like AltaVista) unacceptable. The index was recently revised also; it now has built-in search capabilities. The index only goes against keywords that are defined by the page provider, so the usability of the index is based on humans as well as technology. In the example you gave, the page now shows up in the index because an interim page with keywords was added. The binoculars (find) on the Netscape toolbar are a powerful tool to use once you are at a site. Your comments are welcomed by e-mail to webco@sandia.gov or by phone at 284-3100.

Paul Merillat (4800)

Q: Why does Shipping and Receiving remove original receipts from Federal Express packages sent to Sandia? I recently had to call a supplier and get a copy of the receipt for a product they sent to me because Receiving removed the original. And maybe you can also explain why, when a package is shipped to Sandia overnight from across the country, it takes three days to move the package across the Tech Area?

A: In response to your question about packing slips, the slips are retained for our records. Currently, upon receiving a package at Receiving, our clerks take the packing slip and create a delivery ticket. This delivery ticket is distributed to the recipient along with the package. At the close of the day, the packing slips are placed in our imaging system to create a soft-copy record of all receipts. We use this record to respond to packages that need to be returned because of damage, incorrect items, or a shortage or overage of items. To send the original packing slip to each customer would require immediate imaging of each individual packing slip. At present, it is not cost-effective for us to perform this step because the delivery ticket duplicates most of the information listed on the packing slip. Thanks in large part to your question, we are currently tracking the number of customer requests for original packing slips to determine whether to change our process. For the moment, all customers who desire a copy of their packing slip may obtain one by contacting Glen Gabaldon (7613) at 844-3221 or Pro Sedillo (7613) at 844-3753.

In response to your question about the delay in delivering your package, we receive more than 900 packages a day and distribute about 86 percent of the packages to their destinations within a day of arrival. The packages that are not delivered within this time frame usually require extra time for property barcoding, are misdirected because a customer changes offices or buildings, or are undeliverable because the recipient is unknown. If you call Receiving Team supervisor Johnny Ayala at 844-3703 and give him the purchase order number, waybill number, and the name of the originating company for your specific package, he will search the records and determine the cause for the delay. You may be interested to hear that as of June 10, a new process has been implemented that uses all Dept. 7613 clerks in processing overnight deliveries. This improvement has resulted in reducing processing time and delivery time by approximately two to three hours. We are in the process of benchmarking cycle times. We regret that you encountered a problem and urge you to contact Johnny to discover the cause of the delay. With this new system in place, the problem you encountered should not occur in the future.

Reggie Tibbetts (7613)

Take Note

Retiring and not seen in *Lab News* pictures: James Schulze (2165), 30 years.

The on-site Prudential customer service representative, Melissa Gonzales, is located in Bldg. 832. Her schedule is Monday, Tuesday, Wednesday, and Friday, 9 a.m.-3 p.m. She is not at Sandia on Thursdays. Melissa can be reached at 844-0657.

KAFB's Labor Day End of Summer Bash will celebrate the 50th anniversary of the Air Force on Monday, Sept. 2, at Hardin Field from 11 a.m. to 5 p.m., with contests and activities specially geared to celebrate the anniversary. The event includes displays and activities such as the Air Force mini-jet, two static display helicopters from the 58th Special Operation Wing, voter registration and information booth, demonstrations by KAFB Honor Guard, military working dogs, armadillo races, live entertainment, magic, face-painting, fun runs, walks, bicycle races, mariachis, Indian dancers, food, and beverages. Among the prizes to be given away is a seven-night cruise for four on the *Big Red Boat* including airfare, a stay at Disney World, car rental, and park passes. A flea market will also be held 11 a.m.-5 p.m. If you would like to set up a table, call the Que Pasa center for more information. A space costs \$25 for off-base people and \$15 for on-base personnel.

Native American engineer shows kids the path to careers in science and math

Sandra Begay-Campbell completing a three-year term as AISES chairperson

"INJNEER" proclaims red lettering on a yellow license plate, not too unusual a decoration for an office wall at a New Mexico R&D lab. The double entendre is clearest, though, when paired with the plate's county tag.

McKinley County: Home to Gallup, a hub city that anchors New Mexico's Navajo and Zuni reservations and once boasted its visitor's bureau slogan, "The Heart of Indian Country," on every billboard within 200 interstate miles. Not many INJNEERs hail from Indian Country — yet — with emphasis provided by an exception, Sandra Begay-Campbell, a structural engineer by training who now works as an operational planner in Laboratory Planning and Evaluation Dept. 4512.

Sandra, a Navajo, grew up in McKinley County and watched as many of her Native American friends fell by the science and engineering wayside. "I was good at math and science, and I always enjoyed it," she says. "There were a lot of other kids like me at my mission school, but people encouraged me — that was the big difference."

The first, but not the last

These days, Sandra is finishing up a three-year term as chairperson of the American Indian Science and Engineering Society (AISES), a national group dedicated to the education and professional development of Native American scientists and engineers. She was named to the society's board in 1993 and elected chairperson in 1994.

Sandra helped found the University of New Mexico's AISES student chapter while she was a second-year undergraduate student in 1983. She's the first former AISES student and the first woman to chair AISES.

Her 13-year involvement with the society has put Sandra in a position to make sure other young Native Americans don't misplace their science and math talents along their educational journeys. At speaking engagements throughout the country, she tells kids she's living proof that young Native Americans can, indeed, grow up to become scientists, or anything else they set their minds to.

"We lose them in junior high," she says. "There are too many bad influences at that age. That's when they get the idea from other people that they can't do it."

Typically, students first want to know how much money she makes and what kind of car she drives. "That's their reality," she adds. "I tell them, but I also tell them what it takes to get there, that it's not easy, that decisions they make every day dictate whether they can or can't do it, that they have to work hard and be exceptional students, that they have to keep their noses clean and not abuse drugs — and that's just to get a Q clearance.

"They need encouragement," she adds, "but they also need to know how hard it is to get into school and how hard school is. I don't give them false hopes."

She encourages students to use a mental technique known as "visioning" that she says has been instrumental in helping her reach her educational and professional goals.

"You decide what job you want someday, and then you imagine yourself in an office, at a desk, in front of a computer, doing the work you want to do," she says. "It helps them focus on their goals."

It worked for her. Sandra first heard of Sandia in the late 1970s while she was a high school student attending a minority introduc-



SANDRA BEGAY-CAMPBELL

tion to engineering program. As part of the program, she spent two weeks at UNM in Albuquerque and went on a tour of Sandia.

"It intrigued me that there were national laboratories in New Mexico," she says.

It wasn't until 1983 that Sandra's thoughts of becoming a Sandian turned to hopes. As an undergraduate, she attended the first AISES conference in Albuquerque, which was sponsored by Sandia. "That's when I met Native American people who were scientists and engineers at Sandia," she says. "I got the impression that Sandia was the best place for me to work, and I decided I wanted to work here someday."

After completing her BS in civil engineering in 1987, she worked for both Lawrence Livermore and Los Alamos national laboratories. Sandia hired her in 1992 as a structural engineer. Now she is involved in Sandia's strategic planning efforts, helping produce the Labs' annual operating plan.

She says it was her role models along the way — her parents, her high school counselors, and Native American professionals — who inspired her to give back to the community.

"It's difficult to keep Native American traditions and values while also becoming an engineer or scientist," she says. "Young people need role models who have managed to balance fitting in with maintaining their individualities. The way I see it, Native American spirituality is not a religion or culture, but a way of life."

But, she adds, "I tell my story not as a for-

mula but as an example."

As AISES chairperson, Sandra says one of her goals is to increase the number of states that have AISES professional chapters. "As former AISES student members move from colleges to companies all over the country," she says, "they'll need the support that an AISES professional chapter can provide."

More students in the pipeline

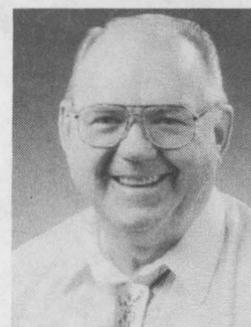
That support includes mentoring of new Native American employees by experienced AISES members and providing a "network of other Native Americans who understand the issues they're dealing with," says Sandra. "They can get lost during any transition in life, whether it be from high school to college or from college to the professional world."

She says the AISES founders were a group of professionals who set out to create a network of scientists and engineers. "They found out that there were very few Native American science and engineering professionals," she says. "Getting more Native American students into the science and engineering pipeline and getting them through school is probably my primary goal."

In support of that goal, Sandra is involved in various projects aimed at changing the way science and math is taught in the schools, most notably a project with tribal colleges in Montana to train teachers in how to teach math and science. Another project is aimed at improving the engineering education programs at seven major universities.

Sandra's doing her part in small ways as well. "I've got all of my little relatives in the pipeline," she says. "I brought my cousin to Take Our Daughters to Work Day. She loved it. She wants my job." — John German

Recent Retirees



Joe Deveney 39
9414



Arnold Elsbernd 11
6421

Around the corporation **LOCKHEED MARTIN**

Lockheed Martin, Samsung team to develop aircraft

Lockheed Martin and Samsung Aerospace have signed an agreement to team in developing the new KTX-II, an advanced tandem-seat trainer/light combat aircraft for the South Korean Air Force. If the agreement is approved by both governments, the \$1.5 billion program will get under way next year, with the first prototype to be flown in 2000 and delivery of the first production aircraft following in 2003. Lockheed Martin's share of the project — said by defense sources to be "in the range of 30 percent" — will focus on the wing and selected subsystems; Samsung will be responsible for the center fuselage, overall integration, and final assembly.

FAA conflict leads to sale of Lockheed Martin subsidiary

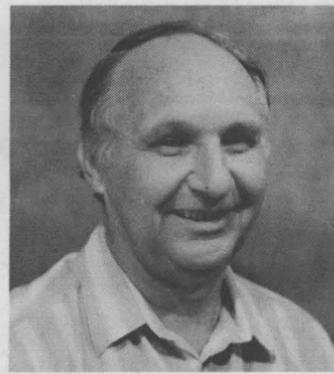
Lockheed Martin has asked the Federal Trade Commission (FTC) to approve the sale of its SETA Services Operations to Washington Supply Group, a Bethesda, Md.-based company that provides technical consulting services to federal agencies, including the Federal Aviation Administration (FAA). The FTC sought the divestiture as a condition of Lockheed Martin's \$9.1 billion purchase of Loral Corp., because SETA assesses bidders for the FAA's air traffic control systems and Loral is a major supplier of such systems. The SETA sale price was not disclosed.

Mileposts

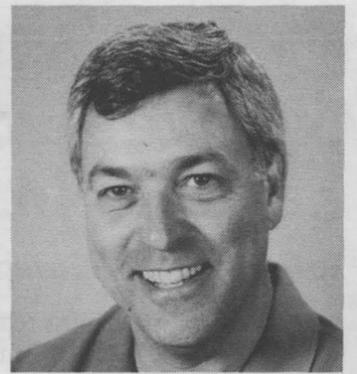
August 1996



Ruth Llamas 15
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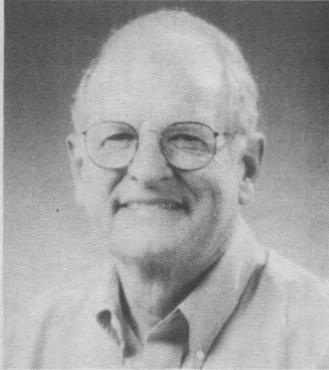
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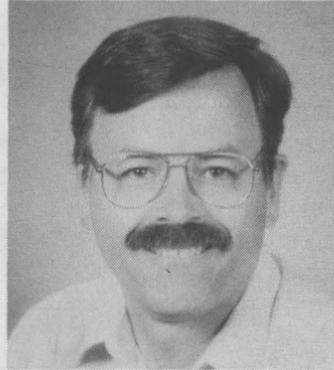
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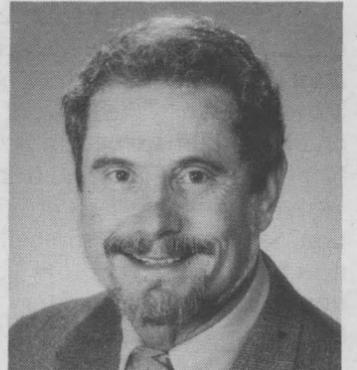
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Chuck Gibbon 30
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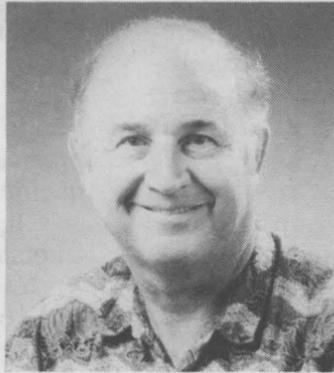
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Paul Brewer 30
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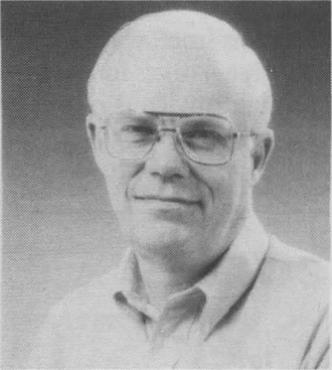
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Ted Wolff 15
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Steve Margolis 20
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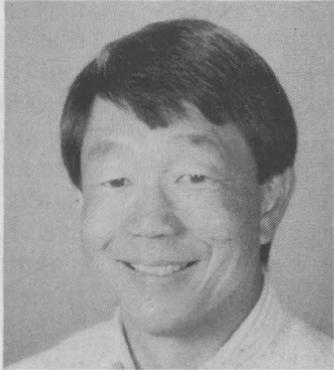
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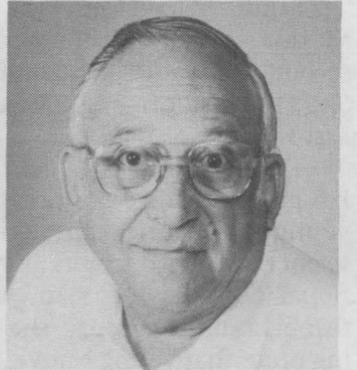
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Dona Crawford 20
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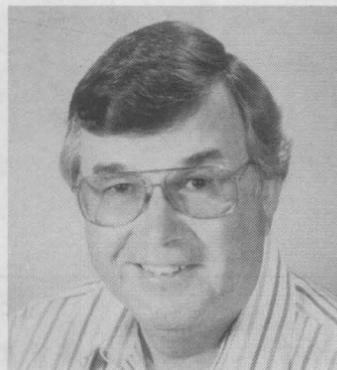
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Ron Ludolph 20
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Bruce Koopmann 20
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Al Reichmuth 30
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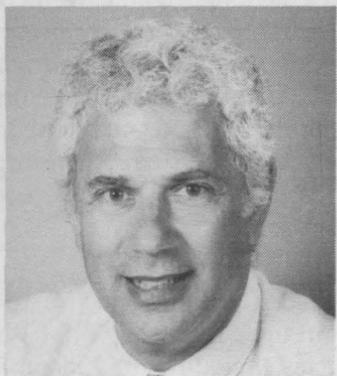
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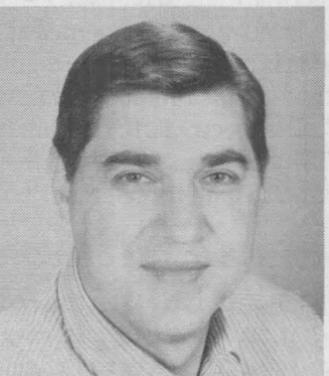
George Kolesar 35
5717



Bob Pilkey 20
8220



Rich Palmer 25
8901



Karl Wally 20
8120

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

MISCELLANEOUS

ACOUSTIC/ELECTRIC GUITAR, vintage '78 Ovation, 12-string, case, new strings & battery, superb condition, \$700 OBO. Schuster, 293-4792.

VHF TRANSCIVER, Relm LMV2548B, accessories, \$200; IBM Selectric II typewriter, \$100; MREs, 4 cases, \$40 ea. Olson, 296-1918.

OAK BUTCHER-BLOCK DINING TABLE, 36" x 60", w/trestle base, \$75 OBO; Broyhill country-pine end table, \$75 OBO. Kesti, 821-9208.

COUCH & LOVESEAT, beige, good condition, \$125; miniblinds; Rainbird sprinkler controller; electric can opener. Claassen, 271-8274.

KING-SIZE HEADBOARD, black/brass, \$85; end table, \$10; pink lamp, \$15; SW lamp, \$15; Star printer, \$30. Kelly, 237-9709.

DINING TABLE, natural wood top, white legs, sturdy, \$85. Middleton, 260-4644, ask for Jennifer.

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

SLOT MACHINE, like new, w/owners manual, \$1,500 OBO; Motorola flip phone, w/batteries, charger, cords, \$130. Anderson, 292-8432.

PENTIUM PROCESSOR, Intel 75-MHz, upgrading, \$100. Ennis, 836-0504.

FREE CATS, 5 months old, 1 black female, 1 gray/white male, siblings raised together. Owen, 293-8143.

WROUGHT-IRON PATIO FURNITURE, dark green, 4 chairs/pads, \$80 ea.; glider, \$150; 2 end tables, \$40 ea. Thompson, 292-2877.

DRUM SET, 7-piece, w/cymbals & high-hat, stool, music book, great beginner's set, \$450. Orand, 833-2060.

ELECTRIC BLANKET, Fieldcrest, queen-size, cream color, \$15. Moya, 856-1245.

STERLING SILVERWARE, 8 place settings plus serving pieces, Gadroon pattern, \$1,000. Daniel, 260-0461.

LOW-FLUSH TOILET, 6 months old, \$50; Ward's stationary bicycle, 1,000 miles, \$20. Coleman, 299-8321.

SOLOFLEX, w/butterfly & leg attachments, weight bands, laminated poster-size exercise guide, \$500 OBO. Zaffery, 294-6768 or 329-0076 (pager).

PAIR OF BURIAL LOTS, Sandia Memorial Gardens, make offer. Burke, 719-275-6362, call collect.

HEAVY-DUTY TRUCK BUMPER, w/trailer hitch, great deal, \$100. Avila, 275-9572.

PLAYSTATION GAMES: Resident Evil, ESPN Extreme, Return Fire, Destruction Derby, The Need for Speed, \$15-\$30/ea. Akins, 867-3967.

COMPUTER, DECstation 3100, 1024 x 864, 16-in., 24MB RAM, 666MB HD, Unix O/S, tape, 32-bit HD, FPU, \$600. Key, 856-1588.

WHITE-WATER RAFT, \$150; three BMW alloy wheels, \$75/ea.; one cord of well-seasoned firewood, \$75. Gough, 822-0090.

CONSOLE TV, 21-in., cable-ready, stereo, self-adjusting color; 13-in. aluminum rims. Ortega, 323-7244, leave message.

SCIENTIFIC CALCULATOR, HP 32S, \$30. Dwyer, 271-1328.

COMPUTER, 486DX33, 4MB RAM, 2MB EMM, 165MB HD, software; Epson 1500 laser printer; HP plotter; all \$1,000. Fitch, 898-4475.

DRUM PRACTICE KIT, 3 tom pads, kick pad, pedal, rack, quiet, \$100. Bieber, 898-3826, 10 a.m.-10 p.m. only.

RUGER, 22-cal. six-shooter, \$245; ski package woman's size 8, \$200; Aerobic Glide, \$150; Wonder Horse, \$35. Pullen, 858-1500.

LUDWIG DRUM SET, 7-piece, w/Tama cymbal stands, DW 5000 pedal, no cymbals, no stool, \$700. Erme, 299-0565.

PRINTER, non-operating Juki Model 6100, letter-quality, free, you pick up. Leeman, 281-7949.

RADIAL ARM SAW, Craftsman, 10-in., w/stand, \$200; Leisure Walk 5000 treadmill, \$65; 6.8-ft. solid-core door, \$20. Hayes, 299-5832.

SINGLE-SIZE WATERBED, rainbow motif, complete w/heater, liner, and headboard; matching chest of drawers. Hawkinson, 281-1281.

WEDDING SET, white gold, leaf setting, resized to little finger (4-1/2), \$550; full-length rabbit-fur coat, \$150. Clavey, 292-7667.

CHICKENS, young bantams, free to good home. Bauer, 266-8480.

SUPER JOGGER RACING STROLLER, all-terrain baby jogger, blue w/maroon sun canopy, excellent condition, \$350 OBO. Wing, 899-1315.

SHOP MANUALS, for '84 Ford Tempo, five inches thick, \$15. Smiel, 865-9081.

HEALTHRIDER, less than 1 yr. old, excellent condition, \$300. Beck, 296-8632.

B&W TV, 12-in., \$35; 12V DC voltage adapter, \$4; 5-in. TV/AM/FM, 110/12V/battery, \$100+ new, asking \$45. Hayes, 299-1200.

JEWELRY WORK BENCHES, burnout oven, centrifugal caster, polishing machine, flexible shaft tool, vacuum pump. Henry, 266-6467.

TWO PLOTS & TWO VAULTS, Sandia Memory Gardens, Garden of Mercy, bronze double marker, \$2,895, compare. Haycraft, 299-3220.

TUNTURI E603 AIRCYCLE, for upper & lower body workouts, w/electronics module for mileage and calories, \$200. Armijo, 839-0223.

THE CLUB, for truck, new, \$15; pair of tire covers, \$15; jumper cables, heavy-duty, 12' long, \$15. Freymuth, 299-2053.

CUSTOM WOOD STOVE, large, w/top oven, 1/4-in. plate construction, can heat whole house, \$400. Jones, 281-1186.

REMODELING LEFTOVERS, dark wood kitchen cabinets, 6-ft. insulated patio door, windows (36" x 60", 36" x 36"). Morales, 296-0928.

TRUMPET, good for beginning student, \$50 OBO. Dean, 281-3489.

BOW HUNT, either sex, Unit 4 Brazos River Ranch, two at \$300/ea. Marron, 345-4006 or 281-6146.

YAMAHA CLASSICAL GUITAR, w/case, \$165; Crate 20-watt amp dist., chorus, reverb, almost new, \$135. Harris, 822-0236.

CHINA, service for 12, 62 pieces, Style House, platinum ring, \$75; twin bed headboard & ruffle, \$100. Sublett, 884-4426.

INEXPENSIVE PRINTER, Epson FX-85 dot matrix, w/printer stand, manuals, 4-in. stack of paper, \$35. Lagasse, 298-0977.

FLOKATI WOOL RUGS: 4 x 6, \$50; 9 x 12, \$100; \$125 for both; like-new exercise cycle, \$125 OBO. Baca, 294-2387, leave message.

TABBY CAT, 2-year-old female, short hair, declawed & neutered, a nice cat that needs a home, free. Brion, 298-1761.

ROUND-TOP TRUNK, \$125; 5-shelf etagere, \$200; several knife rests, starting at \$40. King, 294-3125.

BOY'S BICYCLE, 20-in., \$35; miscellaneous boy's clothes, size 7, good condition. Mayer, 299-8524.

EASY RIDE TOW DOLLY, like new, 3,500-pound gross weight, 2-in. ball, \$600. Nelson, 881-0148.

HEALTHRIDER, less than a year old, all the extras, \$350 OBO. Young, 296-1138.

RED STEPPING STONES, 25, round, 12-in., \$20. Hoover, 821-0341.

SWIVEL CONSOLE TV, 27-in., oak, remote, \$375; 18-spd. Nishiki bicycle, \$80; mower w/rear bagger, \$125. Cline, 839-9621.

GERMAN SHEPHERD PUPPIES, 4 male, 1 female, 10 weeks old, had all shots, \$200/ea. Camillo, 896-6650.

CONSOLE COLOR TV, \$100; Noritake china for 8, \$100; round dinette, \$100; refrigerator. Nielson, 873-9235.

FISHER-PRICE POOL TABLE, table tennis, and hockey game, \$100. Randour, 821-8523.

WOOD-BURNING CAST-IRON STOVE, chimney unit, tools, screen, \$185. Randolph, 299-2057.

GARMENT BAG, brown, excellent condition, used once, \$15; Supreme Pizza telephone, works, just plug in, \$5. Greear, 839-4255.

SECTIONAL SOFA, BenchCraft, 5-piece, w/sleeper & 2 recliners, Southwest pattern, \$825. Asbury, 293-9358.

PACKING BOXES & PAPER, you pick up, 2333 Hoffman NE. Beeler, 822-9463.

CRIB, \$110; playpen, \$30; high chair, \$30; car seats, \$30; lots of toys. Trever, 294-7364.

SEGA GENESIS, 2 controllers, 1 game, \$100 OBO. Martinez, 888-3067.

HIDE-A-BED & LOVESEAT, great for cabin, bed excellent, couches slightly frayed, \$175/both. Strascina, 294-0305.

STORM DOOR, 36-in., decorative, w/screen, brown, \$35; Voit exercise bike, excellent condition, flywheel type, \$35. Biffle, 293-0330.

FUTON FRAME, \$50; waterbed, \$100; rowing machine, \$50; keyboard, \$200; woodstove, \$25; XT computer, \$100; doghouse, \$25. Klarer, 344-0612.

BRASS TRUMPET, \$200; silver/brass comet, \$200; old flute, new pads, \$75; lateral file cabinet, \$80. Crow, 821-0956.

SMALL REFRIGERATOR, 2.5 cu. ft., \$90; ping-pong table plus equipment, \$60; 20-gal. aquarium, all supplies, \$50. Doughty, 296-4142.

DEADLINE: Friday noon before week of publication unless changed by holiday. MAIL to Dept. 12640, 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.

HALF-SIZE CELLO, German-made, excellent tone, \$400. Leisher, 281-5258.

TOSHIBA MICROWAVE, large, excellent condition, \$75 OBO. Rebarchik, 299-1385.

MAGELLAN GPS 2000, global positioning system, brand new, \$200. Miller, 299-0785.

HOTPOINT ELECTRIC DRYER, \$100; 2 Goodyear tires, 245/45ZR17, \$65/ea.; Century car seat, like new, \$30. Levan, 293-0079.

ELAN SKIS, 170cm, w/Salomon bindings; Barrecafter gutter-mounted ski rack; nylon ski pants, medium. Kiro, 881-2802.

CAR RADIO, '93 Ford Mustang, AM/FM, cassette, \$125 OBO. Jeliner, 898-4997.

ABANDONED PUPPIES, 2 male, 2 female, approx. 8 wks. old, free to good home. Harrison, 865-0123.

TWO MATCHING CLUB CHAIRS, \$75/ea.; two twin-bed frames, \$15/ea. Traeger, 294-2564.

BUNDY OBOE, student model, excellent condition, \$750; dresser and desk set, \$500; large china cabinet, \$650. Cordeiro, 821-1702.

PET PORTER DOG CAGE, \$20; girl's 24-in. 18-spd. bike, \$40; portable adjustable ballet barre, \$40. Biringier, 821-8741.

MAPLE BED, single, \$80; matching pair, \$150; girl's 20-in. bicycle, \$15; Tiara punchbowl, \$30; barbecue, \$5. Blackledge, 294-6030.

GARDEN POND KIT, 8-ft. x 13-ft. liner, submersible pump, fountain waterfall, book, original package, \$175 OBO. Chavez, 898-4475.

GARAGE SALE, moving, items priced to sell, Aug. 30, 9 a.m.-6 p.m., 6408 Monte Serrano NE (Eubank & Academy). Kinney, 823-1246.

AUSTRALIAN/SHEPHERD MIX, adult female, spayed, good watchdog, loves children, free to good home. Kohler, 275-2573.

ENTERTAINMENT CENTER, O'Sullivan, 49" x 19" x 48"; walnut veneer bookcase, 36" x 12" x 48"; \$50; acoustic guitar, w/case, \$40. Eisenhour, 293-1542.

ANTIQUE REPRODUCER PIANO, Fisher/Ampico baby grand, w/rolls & bench. Bagley, 821-8247.

SALTWATER AQUARIUM, 30-gal., w/light, pump, & filter, \$100. Biggs, 265-3036.

TRANSPORTATION

'91 CHEV. CAPRICE CLASSIC, V8, FI, AT, PB, PW, very clean, \$6,100. Dayton, 343-9719.

'86 NISSAN STANZA WAGON, AT, sunroof, dual sliding doors, good condition, \$2,500. Hatley, 822-8577.

'85 DODGE 1/2-TON PICKUP, 4x4, AC, 4-spd., many new parts, runs great, \$2,800. Cushner, 899-9270.

'82 FORD F-250, 4x4, regular cab, rebuilt 6, 4-spd., AC, PS, PB, 86K miles, \$3,000. Jones, 505-887-1805, Carlsbad.

'86 PLYMOUTH VOYAGER LE, AC, AM/FM cassette/equalizer, cruise, power everything, 7-passenger, good condition, runs great, \$3,500. Johnson, 823-1689.

'50 CHEV. PICKUP, street rod, hooks hard, tricky, yellow with flames, over \$12,000 invested, sacrifice \$7,000. Pierson, 831-2645.

'92 SATURN TWINCAM, 4-dr., teal, AC, AT, excellent condition, below book value, \$9,500, must sell, moving. Padilla, 266-3161.

'94 TOYOTA CAMRY LE, 2-dr. coupe, like new, 30K miles, AT, PS, PW, \$14,850; '92 Suzuki Sidekick, 4WD, soft-top, CD player, 31K miles, \$8,650. Werner, 292-5520.

'87 MAZDA 323 HATCHBACK, silver, 5-spd., AM/FM cassette, sunroof, runs/looks good, 1 owner, 128K miles, \$2,000. Stermer, 255-1083.

'94 CHEV. SILVERADO Z71, 4x4, short wide, PS, PB, AC, cruise, AM/FM cassette, CD changer w/remote, 42K miles, \$17,000 OBO. Ortiz, 831-5657.

'95 MITSUBISHI MONTERO, 5-spd., 4WD, loaded, beautiful, must see to appreciate, must sell, \$22,000 OBO. Gonzales, 897-9920.

'79 MERCURY MARQUIS 302, loaded, all electric, nice interior, straight body, bad engine, good parts car, \$100. Trentham, 255-7145.

'86 CHEV. CELEBRITY, 4-dr., one owner, 33K miles, new tires, excellent condition, below book, \$2,995. Sparks, 266-5060.

'90 FORD TAURUS LX, 4-dr., AT, V-6, AM/FM cassette, AC, power doors & windows, cruise, \$3,800 OBO. Cruz, 833-5802.

'91 AUDI 100, white, excellent condition, 42K miles, loaded, \$11,000. Royer, 293-2350.

'82 BMW 320i, lots of miles, needs some work but still reliable transportation, \$1,800 OBO. Mervini, 899-9754.

'87 HONDA ACCORD LXi, 4-dr., power everything, sunroof, professional tint, AC, spotless interior, must see, \$5,800 OBO. Matlock, 292-7997.

'76 MG MIDGET, convertible, light yellow, excellent condition, low mileage, best offer over \$4,000. Deller, 298-5705.

'88 FORD LTD CROWN VICTORIA, 4-dr., midnight blue, 66K miles, AC, PS, PB, excellent condition, \$5,500. Wagner, 823-9323.

'94 TRANS AM, 25th anniversary edition, only one in N.M., \$26,500; '95 Explorer, Eddie Bauer, \$25,500. Bassett, 505-873-0313.

'86 VOLKSWAGEN VANAGON GL, good condition, PS, AT, interior excellent condition, \$3,850. Nichols, 281-1968.

'87 TOYOTA CAMRY LE, 4-dr., AC, AT, well maintained, excellent condition, 140K miles, \$3,000. Bacon, 344-8315.

'92 MAZDA MPV, 2WD, white, front & rear AC, power windows & locks, tinted glass, cruise control, 73K miles. Conway, 271-0770.

'90 TOYOTA 4RUNNER SR5, V6, 5-spd., loaded, CD, tow package, max extras, extra clean, \$15,000. Mignardot, 266-0622.

'80 TOWN CAR, runs well, excellent ride, all power, 130K miles, \$1,500. Maxwell, 299-2027.

'89 DODGE OMNI, 5-spd., gray, 5-dr., very reliable, 103K miles, good tires (+ 2 extra tires), \$1,600. Schmidt, 275-7254.

'85 CHEV. SUBURBAN, 4x4, AT, Silverado package, towing package, great condition, Pullen, 858-1500.

'70 FIAT SPYDER CONVERTIBLE, w/parts car, \$950 OBO; '86 Toyota 4Runner, new engine, \$7,500 OBO. Roybal, 296-8493.

'90 HONDA CIVIC, blue, 4-spd., AM/FM cassette, 81K miles, 2-dr. hatchback, \$3,650 OBO. Doyeto, 291-9691.

'85 BMW 325e, candy apple red, black leather interior, excellent condition, \$5,500. Blanton, 856-2076.

RECREATIONAL

'91 YAMAHA VIRAGO 750, 4K miles, excellent condition, \$4,000. Aubert, 286-9173.

TIMESHARE, Fairfield Ocean Ridge, Edisto Island, S.C., Sept. 8-15, 2-bdr., sleeps 6, golf, 7 nights, \$450. Stang, 256-7793.

'94 SUNBIRD FISH/SKI BOAT, by OMC, 40-mph, 115-hp Johnson, 150 hours, Shorlander trailer, extras, \$1,500 below NADA, \$6,945. Holmes, 292-0898.

OUTBOARD PROPS, fit OMC, stainless-steel 19-pitch, \$240; aluminum 21-pitch, \$60. Krause, 858-1289.

FULL-SIZE CAMPER, fits Ford/Chev./Dodge long wheel base, great condition, heater, bathroom, \$800 OBO. Gonzales, 344-5582.

'88 KAWASAKI KLR 250, water-cooled, 2,350 miles, for dirt/street use, garaged, \$1,850. Shunny, 265-1620, mornings best.

YAMAHA WAVERUNNERS (2) & Shoreline trailer, '89 500cc & '91 650cc, excellent condition, \$4,700 OBO. Voccio, 293-7807.

'95 HARLEY-DAVIDSON XL-1200, aqua blue/silver, lots of chrome, in excellent condition, first \$9,400. Nick, 896-1092.

'93 FOUR WINDS MOTORHOME, 23-ft., Class A, loaded, like new, 8,400 miles, microwave, color TV, 4,000kW generator. Cole, 293-6122.

SKI/FISH BOAT, tri-hull, jet drive, double-axle trailer, \$4,000; '71 Ford truck, 11-1/2-ft. camper, \$2,500. Lloyd, 299-4475.

'94 HONDA XR650L, always garaged, no wrecks, modified, 3,336 miles, excellent condition, \$3,900 firm. LeGalley, 822-0676.

BOAT, MOTOR, & TRAILER, 14-ft. Grumman, 9.9 hp, Suzuki oil-injected, Cox tilt-trailer, trolling motor, anchormate, swivel seats, more, \$1,800. Adams, 821-0899.

REAL ESTATE

3-BDR. HOME, views, new carpet, Spain/Tramway, \$53,000 down, 6% interest, \$1,800/per month, only \$353,000, cash offers considered. Gallegos, 294-0233.

LAND, two 1-acre lots and one 1-1/2-acre lot in Millstone Acres on the Brazos River near Chama. Jones, 805-650-9058.

4-BDR. HOME, 2-1/2 baths, 2,740 sq. ft. plus 3,000 sq. ft. redwood decks/patios, jacuzzi, alarm system. Rea, 286-0286.

2-BDR. TOWNHOUSE, 1-1/2 baths, 1,020 sq. ft., front/back landscaped, FP, garage w/opener, quiet neighborhood, 7 miles from base, \$94,000. Terrazas, 291-0905.

WANTED

UNPUBLISHED CIVIL WAR/WWII MEMOIRS, for inclusion in an anthology. Hunter, 294-2877.

BABY JOGGER STROLLER. Sisneros, 292-1854.

LIVE-IN COMPANION, for Sandia retiree, female, w/car, will furnish room, board, salary negotiable, let's talk. Matlack, 256-7371.

RIFLES, Winchester M1 Garand, Browning lever-action 45-70. Mattox, 856-6810.

CAMPING "PORT-A-POTTY," to use with pop-up tent camper. Green, 281-4533.

DOCUMENTATION for Talaris T610 laser printer: operator's manual, technical reference manual, programming guide, etc., to borrow. Schkade, 292-5126.

HOUSESITTER: reliable, responsible student wanted for live-in house/pet/yard sitting the first week in September, near UNM. Powell, 268-8607.

COLLEGE STUDENT, female w/reliable transportation to keep an 11-yr.-old girl company and do occasional light housework, Mon.-Fri., 3:30-6 p.m. Fraley, 858-1822.

GIRL'S SCHOOL UNIFORMS, for St. Mary's School, navy, green plaid. Sanchez, 898-9598.

SQUARE DANCERS, lessons start in September for beginners, plus, or advanced students. Lane, 884-4566.

HOUSEMATE, nonsmoker, 3-bdr./2-bath, beautiful NE Heights home, near Spain/JuanTabo, \$500/month + utilities. Dunn, 299-9059.

HOUSEMATE, townhome (Spain/Moon), sunroom, 2 large bedrooms, 2 baths, double garage, \$350/mo., utilities included. Spear, 822-8982.

LOST & FOUND

LOST: FRANKLIN PLANNER (Daytimer), brown leather notebook, 8" x 9", lost in Bldg. 800/802. Inlow, 845-4173.

LOST: NECKLACE, unusual silver design, one large pinkish stone, one small dangling turquoise stone, lost near Gate 1. Sheldon, 888-5971.

FOUND: ROSARY BEADS & CHAIN, in parking lot west of Bldg. 800. Plummer, 845-8356.

Sandia News Briefs

Margaret Carroll appointed new NACOSH member

Sandian Margaret Carroll, Manager of Safety Engineering Dept. 7732, has been appointed to an initial two-year term as a member of the National Advisory Committee for Occupational Safety and Health (NACOSH). Secretary of Labor Robert Reich reappointed three members and named two new members, including Margaret, who will serve as one of the committee's two safety representatives. NACOSH was established by the Occupational Safety and Health Act of 1970 to advise the secretaries of Labor and Health and Human Services about occupational safety and health programs and policies.

Dan Vortolomei named to ADDA board of directors

Dan Vortolomei, senior mechanical designer, Design Services Dept. 9783, has been elected to the Board of Directors of the American Design Drafting Association. His one-year term began June 21. Dan is involved in computer-aided mechanical design definition, systems modeling, and robotics mechanical design in medical technology. He has served as a science adviser with the Albuquerque Public Schools and is an instructor with the American National Standards Institute Y14.5 Geometric Dimensioning and Tolerancing Standard. ADDA is a membership organization dedicated to the professional designer and drafter in all disciplines including manufacturing, utilities, construction, engineering, government, and education.

Deborah Coffey wins statewide EMS 'Rookie of the Year' award

Deborah Coffey of Quality Assurance Dept. 6811, and her husband Michael Schlx, have been presented the "Rookie of the Year" award by the Statewide Emergency Medical Services (EMS) Advisory Committee and the EMS Bureau of the New Mexico Department of Health's Community Health Systems Division. The award came during the 16th annual EMS convention in Albuquerque. The "Rookie of the Year" award honors the two for their work with the Placitas Volunteer Fire Department. Their nomination for the award by their Placitas colleagues noted that "they exemplify the word 'team.'" The two are licensed Emergency Medical Technicians.

Child care update — survey results

Sandia parents continue to express a desire to have their own child care center. A comprehensive survey was conducted recently based upon similar surveys used within the child care industry and input from the Sandia Child Care Task Force and staff from Choices for Families, Inc., Sandia's child care resource and referral service. The survey included information about State of New Mexico regulations about child/adult ratios and about existing child care facilities in the Kirtland Air Force Base area and their rates.

Approximately 8,500 surveys were delivered by internal mail to all Sandia employees and contractors at KAFB, and 659 surveys were returned. Thirty-four percent of surveyed parents (209) indicated they preferred to have their children attend a center located at Research Park. Another 35 percent (213) were satisfied with their current child care arrangements but would consider relocating their children if a center were made available at Research Park. (About 100 of those 213 are included in the 209 who preferred to have their children attend a center in Research Park.)

A child care task force was created after the March 1995 Large Staff Conference on Diversity (*Lab News*, Dec. 1, 1995). The task force's first survey of Sandians' views on child care issues confirmed that there is a high level of interest in a Sandia-sponsored child care facility. Then the task force considered several options for creating a child care facility. The group looked at the pros and cons of building a new on-site facility, remodeling an existing on-site facility, building a new facility near-site on DOE land, and building a new near-site facility on private land in cooperation with private sector partners. The last option was determined to be the most cost-effective.

After child care opportunities opened up at KAFB and DOE facilities (*Lab News*, May 24, 1996) the task force resurveyed Sandia parents to determine if there was still interest in and need for a Sandia facility. The survey results were given to KinderCare, which expressed interest in building a child care center at Research Park. KinderCare planned to send its real estate adviser to Albuquerque at the end of August to view the proposed site and the general area.

Fun & Games

Tennis — The Coronado Club Men's 3.5 Tennis Team won the Southwestern United States Sectional held Aug. 2-4. This qualifies the team to play in the nationals Oct. 3-6 in Tucson. Team captains are Joe Ruggles (4622) and John Wolfe. Members include Mark Allen (4211), Fred Cericola, Charlie Emery (3000), Barry Schwartz (7500), Ron Short, Jim Van Nest, David Wenger (9577), David Sealey (7437), Rocky Stone, and Gary Porter.

More tennis — The Coronado Club Tennis

Coronado Club

Aug. 30 — Big Band dinner/dance. A la carte buffet 5-8 p.m. Pool open until 9 p.m. Music and dancing on the patio. Music by Westside Sound, 7-11 p.m.

Sept. 2 — Labor Day Patio Celebration. A la carte buffet 2-6 p.m. Pool open 11 a.m.-6 p.m. Music by Coyote Moon.

Sept. 5, 12, 19, 26 — Thursday bingo night. Card sales and buffet start at 5 p.m., early birds' bingo at 6:45 p.m.

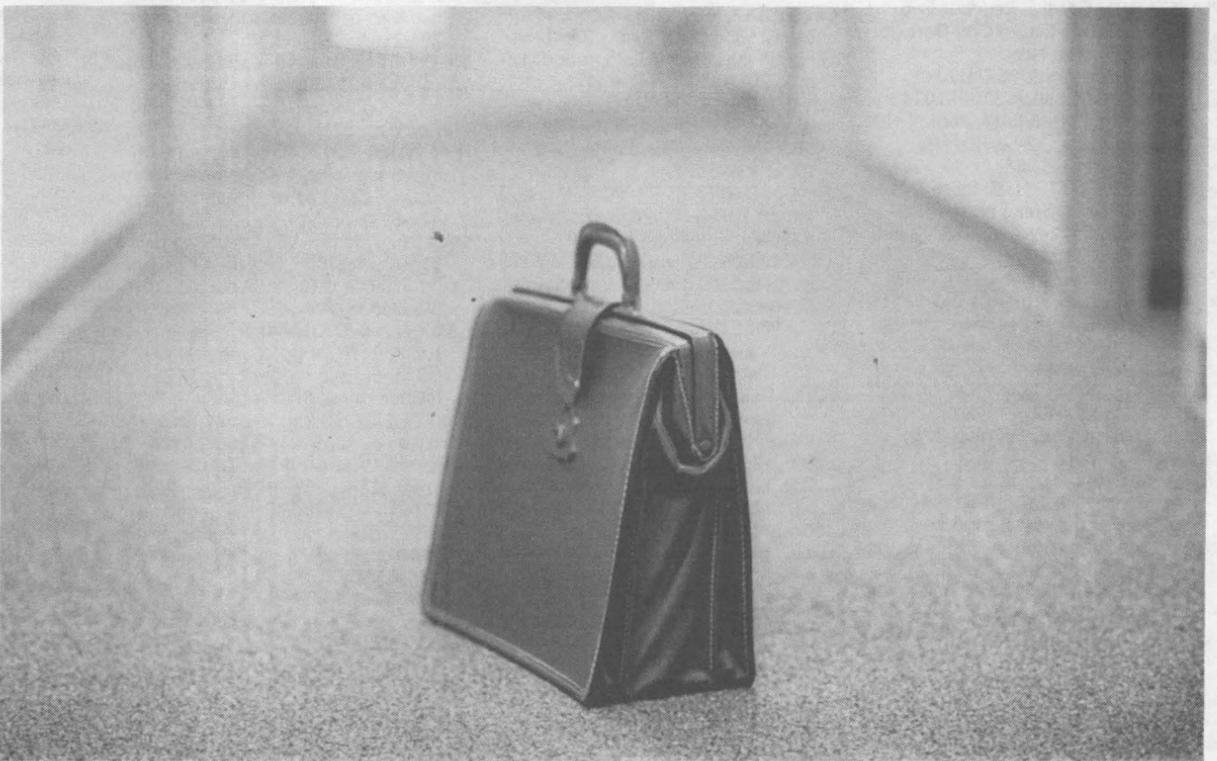
Sept. 6 — "Western Night" dinner/dance. \$7.95 all-you-can-eat buffet, 6-9 p.m. Music by Isleta Poorboys, 7-11 p.m.

Sept. 8 — Sunday brunch buffet, 10 a.m.-2 p.m. \$6.95 all-you-can-eat buffet. Kids 3-12, \$1, under 3 free. Music by Bob Weiler, 1-4 p.m.

Sept. 13 — Mexican Celebration. \$8.95 a la carte buffet 6-9 p.m. Floor show with Miguel Caro Mexican Dancers, 8-8:30 p.m. Music by Lumbre 7-11 p.m.



New Mexico — Julio Marchiondo (1252)



AN UNATTENDED briefcase can cause problems. An unclaimed bike bag in Bldg. 880 on Aug. 6 provoked the suspicions of a passerby who called Sandia's nonemergency hot line to report it. Because the owner couldn't be located, Sandia's Incident Commander treated the package as a possible bomb. Some 45 Sandia and Kirtland Air Force Base officials responded, and more than 1,500 people were evacuated from five Sandia buildings for an hour and a half. The contents of the bag proved to be harmless, and the owner showed up just in time to rescue the bag from being destroyed. Although this was a severe case, says Incident Commander Willie Vonderheide (7311), Sandia this year has responded to an average of one suspicious package call a month, with three so far in August. Paul Yourick, Manager of Emergency Management and Operations Evaluations Dept. 7311, says recent bombings in the US and abroad have "increased people's sensitivities about unattended bags and packages. The Incident Commanders are going to treat any suspicious object as if it were a bomb." Adds Willie, "Please don't leave your bag, briefcase, lunchbox, or similar items unattended in a public place, put your name on the outside of your bag somewhere so we can locate you, never be afraid to call in a suspicious package, and when we're evacuating an area, we're not playing games — please cooperate."