

The Half Hour Lunch

"EMPLOYEES are urged to bring their lunch if possible" are the words in the Bulletin announcing that the Labs will adopt a 30-minute lunch period in order to conserve energy. Air Force and AEC offices on Base have taken similar steps. To many, if not most, Sandians the shorter lunch period means transition from chef's special to the brown bag. Let's see — there's peanut butter and jelly, peanut butter and banana slices . . . and peanut butter and peanut butter.

More Honors For Don Cotter



The nomination of Don Cotter, formerly of Sandia and more recently Special Assistant to the Director of Central Intelligence, to Assistant to the Secretary of Defense (Atomic Energy) has been confirmed by the Senate's Joint Committee on Atomic Energy. A second appointment — nomination by the President as Chairman of the Military Liaison Committee to the AEC — has also been confirmed.

Don held a number of positions at the Labs from 1948-1966 and 1968-1970, including Systems Planning Director and Advanced Systems Research Director. He has fulfilled various appointments in the Department of Defense and the Advanced Research Projects Agency. Don has received two Secretary of Defense Civilian Meritorious Service Medals — for contributions to military technology in Southeast Asia and for technical contributions to ARPA's strategic and tactical technology programs. In his new role, he visited the Labs on Nov. 29 for briefings.



LAB NEWS

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SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

USO Would Transmit Via Satellite

An advanced unmanned seismic observatory (USO) that would record and relay, via satellite, data on underground nuclear tests is being investigated at Sandia.

A feasibility study of the system, which would be capable of five years of unattended, tamper-protected operation, has been completed for the United States Arms Control and Disarmament Agency. The USO's would be considered for possible use in the event of a comprehensive test ban treaty and would be installed in countries party to the treaty.

Development of a data authentication system, key to the USO's tamper-protected operation, is continuing under funding from the Department of Defense's Advanced Research Projects Agency (ARPA).

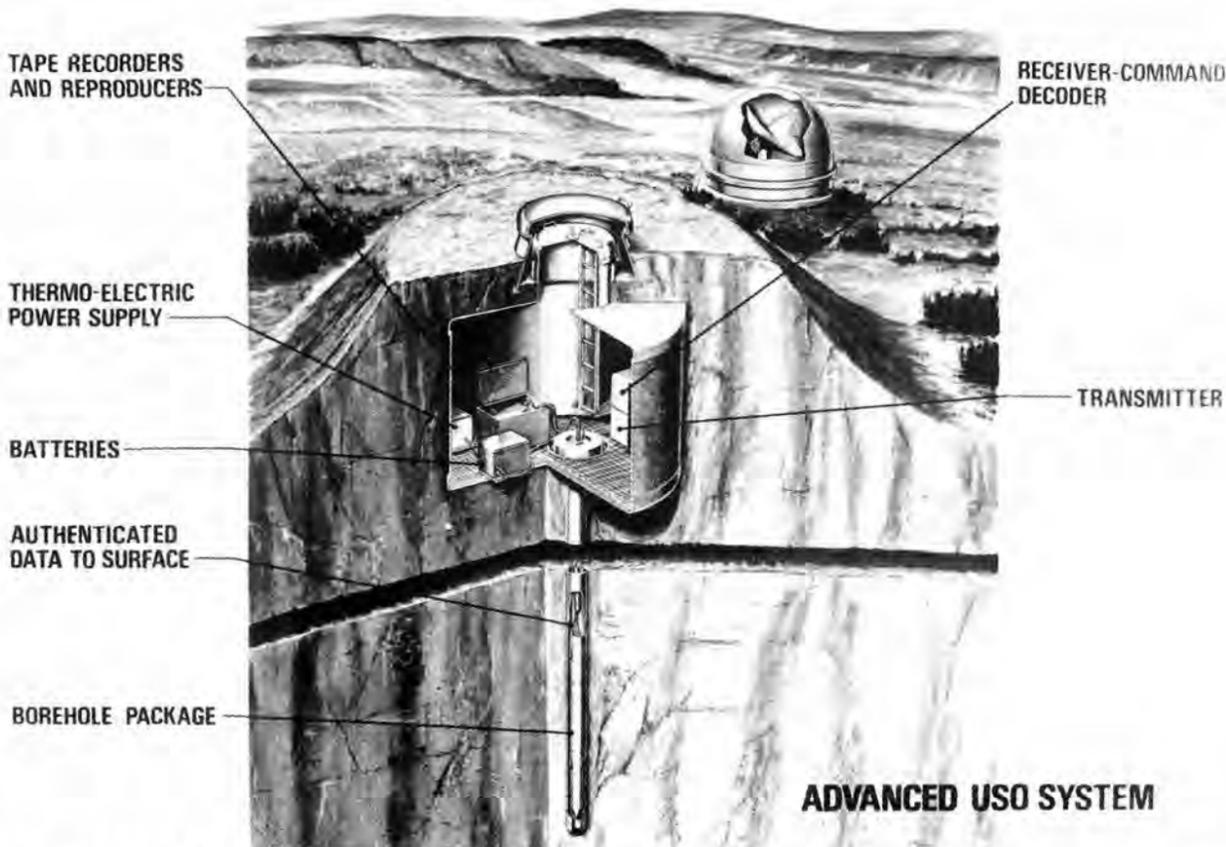
The advanced USO would be a successor to an earlier version developed by Sandia for ARPA in 1966. That unit was capable of unattended operation for 120 days, at which time the magnetic tapes on which seismic data

were stored were collected and new tapes installed.

The advanced USO would consist basically of a package emplaced at a depth of 1500 to 2000 feet in a six-inch-diameter borehole and connected by cable to a surface system which includes power supplies, data storage, and playback equipment, a data transmitter, command receiver, and antenna. The newly-developed seismic instruments — either force balance or quartz fiber torsional accelerometers — are small, permitting use of a small diameter borehole, and can detect earth motion waves with periods varying from 0.1 to more than 40 seconds.

Data from seismometers would be digitized for greater reliability and dynamic range, and would be fed into the authentication encoder within the borehole package. The authentication encoder is designed to prevent the substitution of false data without detection.

(Continued on Page Two)



BOREHOLE PACKAGE would be emplaced at depth of 1500 or 2000 feet in 6-inch diameter hole. Seismic detectors would be either force balance or quartz fiber torsional accelerometers.

Continued from Page One

Advanced USO

Authenticated data would be stored on magnetic tape, then transmitted at a later time. Data could be transmitted through regular commercial bands on satellite channels.

A 10- to 15-foot dish antenna located adjacent to the USO would be used for two-way communication via the satellite. This two-way link would permit remote control of such functions as leveling and calibration of the seismometers.

Nickel-cadmium batteries would be used to power the USO, which could use up to about 50 watts of electrical power, including once-a-day transmission of data. The batteries would probably be charged by a radioisotopic thermoelectric generator. The Labs has completed the preliminary study of the USO, and will complete the data authentication study in 1974. Systems Analysis Division 4735 under Paul Stokes has been chiefly involved in the device; backup work was done by the staffs of Applied Math Department 5120, Systems Evaluation Division 1251, and Organization 100.

Computer Colloquia

- Dec. 7 "Computer Output Microforms The Day Has Arrived" Bldg. 815, 10:15 a.m. to 12 noon. Tour of Micrographics Facility, Bldg. 802/B10, 8 to 10 a.m. Series of equipment demonstrations and individual consultations, 1:30 - 4 p.m.
- Dec. 11 "Use of Computers in Data Reduction," presented by E.K. Montoya (9424), Bldg. 815, 10 a.m. Video replay on Dec. 13, Bldg. 815, 10 a.m.

Division 3131 Will Assist Employees With T-VI Enrollment

The Technical Vocational Institute, 525 Buena Vista SE, has revised its enrollment procedures to include a pre-registration feature which might appeal to Sandians planning to enroll at T-VI next semester in the evening division. Sandia's out-of-hours educational program continues an arrangement with T-VI which enables employees to attend T-VI at no cost to them.

The pre-registration at T-VI is designed to screen applicants who have a greater need for a course. If accepted by T-VI, the applicant's space is reserved in class, and he receives an acceptance in the mail. If not accepted, he receives an explanation.

Pre-registration period for the winter trimester at T-VI is Dec. 3-21. Registration is Jan. 3-4 (12 to 9 p.m.) for those accepted into classes. Classes start Jan. 14, 1974.

Sandia out-of-hours forms, T-VI pre-registration forms and T-VI catalogs are available from Ruth Brooks (3131), Bldg. 632. Sandia assistance is limited to employees enrolling in courses which are job related or which support a job to which the employee may logically aspire.

Credit Union Reporter



By Karl Waibel (4143)
Member, Board of Directors

Today when everything is going up, we've found a bargain. After several months of careful consideration, your Board of Directors has decided to replace our present computer system with a more sophisticated on-line banking system developed by the El Paso National Bank. By sharing data processing, operating, maintenance and development costs with 16 other Credit Unions and Savings and Loan institutions, it is possible to increase the efficiency in our daily operations and provide for potential growth at less than current costs.

"On-Line" means that through the use of three Burroughs TC 700 Teller Consoles at the Credit Union we are able to communicate over direct telephone lines to a central computer located in El Paso. As transactions occur, a data base containing account balances and most of our other financial records will be updated instantaneously. It will be possible to query the data base at any time to determine the current status of a member's account. This will speed up services to the membership by simplifying processing of loans, cash withdrawals, share deposits, and inquiries into account status. Elimination of peak maintenance activities enables us to expand hours of business for all services from 8 a.m. to 3 p.m. Members should continue to fill out vouchers at the check stands before going to teller windows.

Unfortunately, since the system does not provide a consolidated statement for each member's account, it will be necessary to send individual statements for each loan. We consider this slight inconvenience to the membership to be more than offset by the numerous advantages offered by the system.

Installation of the system was begun Nov. 12. As with any new system there will be a period of debugging and familiarization. Please bear with us during this transitional period.

Events Calendar

- Dec. 1-2 — Original Jewelry and Indian Art Show presented by Bob Burgess (former Sandian) and three of his students, 10 a.m., Four Seasons.
- Dec. 3 — UNM Basketball: vs. Oregon State; Dec. 5 — vs. Cameron College; Dec. 8 — vs. North Dakota; Dec. 11 — vs. NMSU; Dec. 13 — vs. Houston Baptist, 7:30 p.m., UNM Arena.
- Dec. 3 — ASUNM Lecture Series: Masters and Johnson, 8 p.m., Popejoy Hall.
- Dec. 6-7 — Christmas Craft Fair, 10 a.m.-4 p.m., UNM, SUB Ballroom.
- Dec. 7 — Audubon Wildlife Films: "Hawaii-Paradise of the Pacific," natural life and scenic wonder on Oahu, Kauai, Maui and Hawaii, 7:30 p.m., Popejoy Hall.
- Dec. 11 — Our Lady of Guadalupe Candlelight Procession, Taos Pueblo; Dec. 12 — Guadalupe Fiesta, Matachines, Jemez Pueblo.

LAB NEWS

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&
Don Graham ass't. editor

Bruce Hawkinson writes
as does Norma Taylor while
Bill Laskar takes/makes pictures
&

in Livermore Lorena Schneider does all

Take Note

Alyce Loveless (8424) has been appointed to the Mental Health Advisory Board by the Alameda County Board of Supervisors for a two-year term. She is the first representative from the Livermore-Amador Valley to serve in this capacity. Composed of nine medical professionals plus five public members from throughout Alameda County, the Board's responsibilities involve advising the Board of Supervisors on the budgeting and spending of money for mental health.

Alyce also has been elected chairman for a one-year term of the local mental health association, Valley Counsel.

Previously, for a year and a half she served as director of Connection, a crisis and referral telephone line, and last year was chairman of the district mental health committee.



AEC CHAIRMAN VISITS LIVERMORE. President Morgan Sparks (left) and vice president Tom Cook (8000) met with AEC Chairman Dixy Lee Ray on her recent visit to LLL for technical discussions and tour of facilities. While in the Bay Area, Dr. Ray and several AEC Commissioners were featured speakers at four separate nuclear science society symposiums.

Congratulations

Mr. and Mrs. Al Yung (8413), a daughter, Heather Daidre, Nov. 4.

LIVERMORE NEWS

VOL. 25, NO. 24

LIVERMORE LABORATORIES

NOVEMBER 30, 1973



Livermore Retiree Reunion 1973

feed **libback**

To get a response to your comments and questions about Sandia Labs, complete a Feedback form (available near bulletin boards) and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

Q. (Ed. Note. A number of questions have related to the four-day work week and variable work hours. This reply addresses itself to both subjects.)

A. This reply is in answer to those Feedback questions relating to 1) a shorter workweek, i.e., a four-day work schedule or 2) flextime or variable work hours, i.e., allowing employees some freedom in selecting their daily or weekly work time.

Both the shorter workweek and flextime have received considerable publicity in the past few years as innovative measures claiming greater efficiency and higher employee morale. These ideas have received further impetus from the current concerns with the energy crisis and pollution problems. Sandia has been actively studying these concepts for some time. Based upon consideration of the unique commuting problems in flying between Las Vegas and Tonopah daily, a four-day week of 10 hours a day was introduced experimentally at the Tonopah Test Range in 1972. For the Tonopah situation, it proved advantageous to both the employees and the Laboratories so that the arrangement has now been adopted as the regular schedule for that location. Subsequently, the four-day week concept is now being tried at the Nevada Test Site where employees are forced to commute a long distance and the nature of the operation lends itself to the longer workday.

While these concepts seem to offer some promise, they are still experimental. Some companies have found them to be successful as we did at Tonopah and NTS while others have abandoned them after a trial period. There are a number of problems and considerations for Sandia which require resolution or accommodation before any major work schedule changes could be made. Some of these are:

1. Recognizing that not all operations or activities lend themselves to either a shorter workweek or flextime, consideration must be given to employee reaction if such changes were limited to special groups or organizations.

2. Coordination with the Military and AEC at Albuquerque, with LLL at Livermore and with various offices on the East Coast would be required since present work schedules have been established to maximize common work hours. Local, major traffic congestion problems must also be considered.

3. Current federal statutes require overtime payments to certain employee classifications working more than eight hours in a day or 40 hours in a week. A shortened workweek involving more than eight hours daily or any flextime arrangement permitting the number of hours to exceed eight per day or 40 per week could significantly increase our payroll costs unless these laws were changed.

4. Many employees, for appropriate personal reasons, would find a workday of more than eight hours completely unsatisfactory and, therefore, would be obligated to seek employment elsewhere.

5. Flextime presents questions of attendance control which some organizations, who are experimenting with flextime, have resolved through the use of various detailed time recording systems.

6. Whether these new concepts would reduce or increase the problems of the energy crisis and pollution is subject to both interpretations.

We will continue to examine the results of other companies, such as Hewlett-Packard, who are experimenting with some of these concepts and to evaluate their practicality for the Laboratories.

—D. S. Tarbox (4200)

* * * *

Q. (From SLL) How about buses for Livermore employees? Bus service would help conserve fuel, it would enhance safety for bike riders, and pollution would be reduced.

A. A bus survey conducted in 1971 indicated that 25 percent of respondents would take the bus if the fare was 75 cents round trip from Livermore and \$1.50 for west valley residents. Over one-half indicated they would use the bus if these fares were reduced by one-third. Survey results were reported to city governments in the valley but no action has been taken. We plan to contact Sierra Lines to see if that bus company is interested in providing service to Sandia and LLL from Dublin, Pleasanton, and Livermore.

— C.H. DeSelm (8200)

* * * *

Q. Why not use an employee's pay slip to update him or her on vacation credits, how much has to be taken, and so on? Sick leave credit could also be given. Secretaries now spend considerable time dispensing this information.

A. We think your suggestion has considerable merit, but the capacity of the IBM 7090 computer now used for payroll data is not sufficient to accommodate this additional information. Another problem is that payroll is computed as of the 15th of the month, and vacation and sick leave balances would thus not reflect the last 15 days of the month. We are, however, going to the larger capacity UNIVAC 1108 computer and will give serious consideration to your suggestion at that time.

— R.S. Kern (4100)

* * * *

Q. How about bus service to the Labs from the Juan Tabo/Candelaria area?

A. There is no question but that the far east area of Albuquerque deserves and could support commuter buses, probably three of them. As the Bus Notes column in the 11/2 LAB NEWS indicated, Sandia has been depending on the Albuquerque Transit Company for bus service within the city. If the Transit Company can supply the equipment soon, the far east part of the city will get bus service. If not, the feasibility of using a private bus company will be fully explored. The ad hoc Employee Transportation Committee is actively pursuing the matter.

—K. A. Smith (3100)

Retiring



Betty Van Gundy (4152)

Q. Any truth to the rumor of an impending cost of living increase for staff personnel?

A. Each year's salary increases reflect increments of money awarded for experience, for growth, and for merit; additionally, the increases take into account the rate of inflation. A variety of salary surveys shows that Labs salaries are at least equal to those offered by comparable industries, and no cost-of-living increase is planned.

—D. S. Tarbox (4200)

* * * *

Q. I recognize that personnel policies can't be cast in bronze, but is there some way that SLA vacation policy can be stabilized? For several years we have been zig-zagging between fiscal and calendar years, holdover vs. take-it-all, and to make matters worse the policy changes aren't announced 'till well into the year, and many of us suddenly discover we have to use up 16 more days in eight months. Intelligent planning becomes a little difficult under these circumstances.

A. Actions taken during the past three years to change the vacation practices were in accord with a plan of reaching a cycle of taking vacation when accrued. In the past, Sandia has had "sell back" and carry-over. Our intent is to bring the vacation plan back to the normal vacation year. Rationale: 1) sale of vacation days detracts from the basic aim of vacation and is costly, since each day sold costs a vacation day and a day of work, 2) work planning and vacation scheduling should be on an orderly basis, and 3) carry-over distorts the pattern of vacation usage and makes budgeting extremely difficult.

Sandia must accrue the cost of vacation when the liability for the vacation is incurred. Thus, vacation days not taken during the fiscal year in which they are earned have the effect of a double cost in that fiscal year. We recognized that vacation planning on a July to June schedule is at best difficult for a family and, while fiscal year vacations would be best for the Labs, we have placed vacation accrual and scheduling on a calendar-year basis. We anticipate that a pattern of use will develop and stabilize the accrual and use.

These changes were accelerated by the budget restrictions and sizing of the layoff in 1970. Provisions in the vacation plan permit carry-over and the borrowing of vacation on an individual basis when properly approved. We do not anticipate reinstatement of vacation "sell-back" or carry-over.

—D. S. Tarbox (4200)

Bill Allison Named Fellow of Safety Society



Bill Allison of Safety Standards Division 9542 was recently named a Fellow of the American Society of Safety Engineers. The rank of Fellow, highest ASSE can bestow, is for "members whose nationally and internationally important achievements have contributed substantially to the advancement of the safety profession."

Author of more than 25 articles and papers on safety subjects, Bill earned first prize in the Safety Professional Paper Awards judging co-sponsored by ASSE and Veterans of Safety in 1961-62. He is past president of the New Mexico Chapter of ASSE and has served on national committees for research and methodology. He has also served on the National Safety Council's aerospace executive committee.

Take Note

If balloons are your thing, then head out to Rio Rancho Estates on Saturday and Sunday mornings, Dec. 1 and 2, five miles west of the Standard station, and you'll get to see 26 or so of the wind bags blast off (or whatever it is that balloons do). Chairman of the 2nd Annual Balloon Ascension Between Thanksgiving and Christmas is Kate Young (3144), who occasionally flies very high. Time: 6:30, a.m. not p.m.

* * * *

Jack Tischhauser (2640) is newly elected VP of the Rio Grande Chapter of the Association for Computing Machines, a group primarily interested in the software aspects of computers. Jack's term runs for two years.

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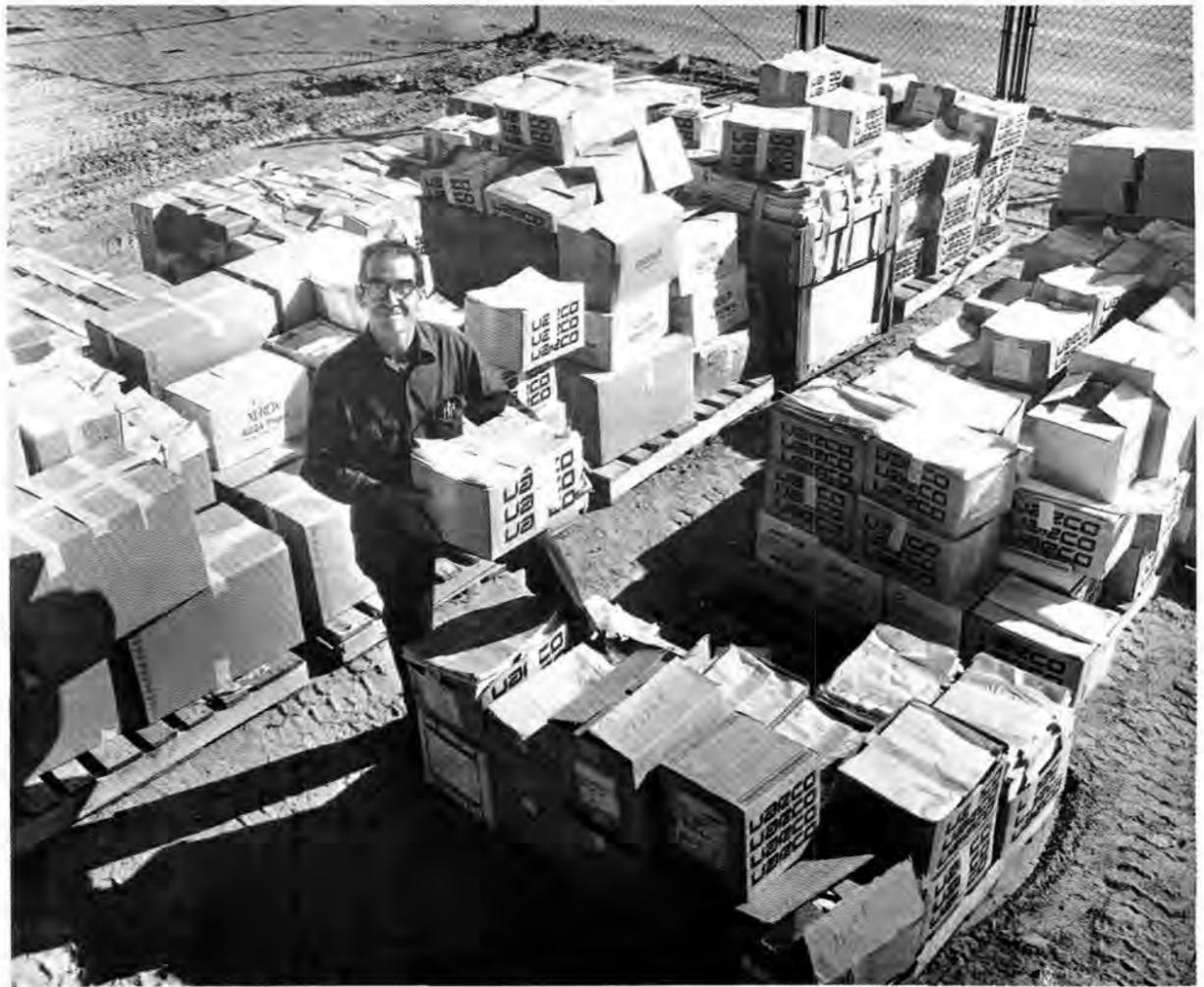
The Sandians, an organization of wives of employees, will meet Monday, Dec. 3, at the home of Barbara Guth, 9100 La Baranca NE, at 7:30 p.m. A flower arrangement and centerpiece building demonstration will be presented by June Ballog. The group is seeking new members, and anyone interested is invited to call Carol Hardesty, 294-3430.

* * * *

Hi Romnes died Nov. 19 in Sarasota, Florida, after a brief illness. He was 66. Mr. Romnes had been on Sandia's Board of Directors during his presidency of Western Electric.

* * * *

Information Department 3160 (né Public Relations) has moved from Bldg. 800 to the east end of Bldg. 832 (Personnel building). The move included the department's three divisions: Public Information 3161, Employee Information 3162, and Community Relations 3163. Phone numbers are unchanged.



A WEEK'S ACCUMULATION of used computer tab paper and cards is displayed in the salvage yard by Emilio Chavez (7222). Sandia's paper recycling program is gathering steam but needs a little help.

Mostly Volunteer Effort

Sandia's Paper Recycling Program

Sandia's paper recycling program — mostly computer tab paper and punched cards — is doing nicely, thank you, but could use a little more help. The program is one part of an overall program of paper conservation.

Initiated in mid-September by Redistribution and Marketing Division 7222, paper recycling is working successfully through the efforts of a number of volunteers in various buildings who have assumed responsibility for collection of the stuff and by the efforts of men of Transportation Division 7554 who have managed to work into a full schedule the extra effort of pickup and delivery of the used paper to the salvage yard. In Area III men of Explosives Services Section 7553-2 take care of pickup and delivery.

According to Andy Blaine, Division 7222 supervisor, more help is needed in Bldgs. 805, 806, 807, 832 and 892. These would be people who would set up a place to collect the paper and cards and call Transportation when enough accumulates to justify a trip.

"Without these volunteers," Andy says "and Frank Baczak and Stan Brooks of Transportation the program could not function. In these days of reduced manpower we are grateful to anyone who takes on a little extra work. Still, it's important to make the effort."

Some 1-1/2 tons of paper is currently being collected weekly along with a half-ton of cards. This will add up to just over 100 tons annually. A study, based on Sandia usage of the products, has shown that the Labs has a potential of 150 tons a year to go into salvage. There is a severe national shortage of paper so this recyclable paper becomes an important resource.

Division 7222 accumulates the paper at the salvage yard and sells it at about (the price fluctuates) \$50 per ton for the cards and \$15 per ton for the paper. A local firm then sells it to paper mills.

"We'll break even one of these days," Russ Leahy (7222) says, "over the cost of handling it." Russ is in charge of marketing the paper and recruiting volunteers. Call him (ext. 2746) if you can help.

Here are the current collection points for the paper and people responsible.

Bldg.	Rm. or Area	Contact
634	South End	Mina Carnicom
804	Rm. 5	John Stathis
836	Rm. 204	Jim McClure
836	Rm. 270	Herb Anderson
836	Rm. 272	Betty Frost
836	Rm. 224	Fred Schkade
880	Outside NE end	Chuck Clendenin Jack Westbrook Frank Lucero
802	Rm. 133	Mike Rex
Area III	Bldg. 6650	Ken Bauhs
Area III	Bldg. 6584	John Lyle
Area V	Bldg. 6588	John Halbeib

All Sandians are again urged to make an effort to conserve paper at the outset. Use both sides of a sheet when practical, minimize the number of Xerox copies made, and make your printing orders for the minimum number of copies that will serve the purpose — eliminate the "cushion."

Congratulations

Mr. and Mrs. Lee Ten Haken (2113), a daughter, Jennifer Sue, Nov. 9.

Mr. and Mrs. Doug McGovern (5721), a son, Robert Douglas, Oct. 18.

Mr. and Mrs. John Jewell (7121), twins, Thomas and Lisa, Oct. 21.

Sympathy

To Bill West (9443) on the death of his mother while en route to Las Vegas, Nev., Nov. 12.

Those Cars Just Keep on Coming

Decals, passes, waves, salutes, pressures and responsibilities. That's the world of KAFB gate guards. It's a vehicular world, and sometimes it seems as if all 40,000 base-registered cars are coming right at you, especially if you're the guard standing on the six-inch stripe dividing the incoming traffic lanes.

Each of the 40 or so guards draws a 7½ to 8½ hour shift five days a week. "We don't get time off to eat, so during slack periods we take turns grabbing a sandwich, wash it down with some milk, and then get back on duty," says Airman Mike Velsini.

Mike remembers pre-visitor control days at KAFB: "Boring. You'd stand there waving them in and saluting once in a while. Each shift just crawled by. Time goes faster now — it's a lot more interesting."

"That's because we've got some decisions to make," says Airman Pat Hatcher. "At least we can feel we're doing something about the Base's security."

Their immediate supervisor is TSgt. Robert Griffith, the NCO in charge of the Traffic and Gate Section. He echoes their feeling. "They've got a real responsibility, and they handle it well. Theft on the Base, especially auto theft, has dropped to almost nothing in the last few weeks. Oh, somebody gets stopped or refused access and we get complaints — but this usually means my people are doing what they're supposed to be doing. They take some abuse, though not a lot when you consider the 20,000 or so vehicles entering the Base each day. So far, all the abuse is verbal, but that hurts too. Our average guard is only 19 — that's pretty young to stand there and take it while some guy discusses your ancestry. I really think we've got the best of the Air Force here in our group.

"The women? Doing great. People just

don't lose their tempers so quickly when they're stopped by a woman. And, yes, they can handle that weapon if they have to."

* * * *

We spent some time just watching at the Wyoming gate. Cars with decals get waved in immediately; if there's a dark blue bar underneath the decal, it's an officer's car and the occupant (officer or not) gets saluted. People with any of a dozen or so types of identification, and people on the day's list of expected visitors, and people delivering things and able to prove it get directions and a pass for their dashboards.

The others? "Say, I'm supposed to see this guy at the bowling alley." "Any Base ID?" "No. But he's expecting me right away." "Yes sir, if you'll pull your car over there out of traffic, we'll make a quick phone call and you'll be on your way." If the line isn't busy and the person is there, it doesn't take long. It takes even less time when the visitor suddenly decides he doesn't really want to visit after all.

Sandians? "No problem at all," says Mike, "at least now that we've convinced a few of them it's easier to put a decal on the bumper than it is to get stopped at the gate."

"Morning traffic is moving pretty smoothly now," says Sgt. Gilbert Gonsalves. "It was pretty hectic out here during that first week of visitor control. We made some mistakes — memorizing all those ID's with Base access wasn't easy. But I think we're doing pretty well now."

We agree. It's been reported that some Sandians are perhaps less than enchanted with the military's new Base security measures. And the gate guards are the visible representatives of that military establishment. But don't take it out on the guards — they're good people. •bh



THE EYE spots a decal. The arm responds. Airman Mike Velsini owns both.

Authors

G.A. Samara (5130), "The Effects of Deuteration on the Static Ferroelectric Properties of KH_2PO_4 (KDP)," Vol. 5, Nos. 1-2, FERROELECTRICS.

L.F. Shampine (5122), "Some Singular Concentration Dependent Diffusion Problems," Vol. 53, No. 7, ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND MECHANIK.

N.J. DeLollis (5513), "The Use of Radio-Frequency Activated Gas Treatment to Improve Bondability," Vol. 46, No. 2, RUBBER CHEMISTRY AND TECHNOLOGY.

A.W. Johnson and J.B. Gerardo (both 5212), "De-excitation Rates for Excited Xenon Molecules," Vol. 59, No. 4, THE JOURNAL OF CHEMICAL PHYSICS.

H.R. Vaughn and G.E. Reis (both 5625), "A Magnus Theory," Vol. 11, No. 10, AIAA JOURNAL.

R.A. Gerber and J.B. Gerardo (both 5212), "He-Ar Mixtures: The Effect of Metastables on the Transition from Ambipolar to Free Diffusion," Vol. 8, No. 3, PHYSICAL REVIEW A.

M.J. Landry (2441), "Transmission Switching Characteristics of PLZT Shutters," and Landry with C.M. Wise (retired), "Automatic Data Reduction of Certain Holographic Interferograms," Vol. 12, No. 10, APPLIED OPTICS.

P.S. Peerey (5132) and G.A. Samara (5130), "Pressure and Temperature Dependence of the Dielectric Properties and Raman Spectra of RbH_2PO_4 ," Vol. 8, No. 5, PHYSICAL REVIEW B.

J.E. Schirber (5150), "Effect of Hydriding Pressure on the Superconducting Transition Temperature of Palladium Hydride and Palladium Rhodium Hydride," Vol. 45A, No. 2, PHYSICS LETTERS A.

G.S. Snow (2521), "Improvements in Atmosphere Sintering of Transparent PLZT Ceramics," Vol. 56, No. 9, JOURNAL OF THE AMERICAN CERAMIC SOCIETY.

W.J. Meyer (5151) et al, "Electric Field Nuclear Double Resonance in Ag^+ -Doped $NaCl$," Vol. 8, No. 5, PHYSICAL REVIEW B.

S.E. Benzley and S.W. Key (both 1541), "A Dynamic Shell Theory Coupling Thickness Stress Wave Effects With Gross Structural Response," Vol. 40, No. 3, JOURNAL OF APPLIED MECHANICS.

Recreation Notes

FUN & GAMES

Bowling Tournament

Today is the deadline for entering the 10th annual handicap tournament sponsored by the Sandia Labs Bowling Association. The team event will be Saturday, Dec. 1, and singles and doubles on Sunday, Dec. 2, at Fiesta Lanes. Squad times will be 1 p.m. each day. Send your entries in before 5 p.m. today to Bob James (2634) or Reba Garrison (5710).



"LET'S SEE, it says Sandia, Bldg. 887." Airman Pat Hatcher assists visitor at the Wyoming gate.

Variable Annuity Unit Value

December	1.750
November	1.749
Average 1972	1.737

Speakers

A. Narath (5000), "Magnetic Resonance of Local-Moment Nuclei in Metals," Stanford Solid State Seminar, Oct. 18, Stanford University.

G.E. Brandvold (5710), "Solar Total Energy Community," Univ. of Idaho, Moscow, Oct. 4.

A.C. Switendick (5151), "Hydrogen in Metals - A New Theoretical Understanding," Batelle Memorial Institute, Columbus, Ohio, Oct. 15, and Wright Patterson AFB, Dayton, Oct. 18.

A.W. Johnson and J.B. Gerardo (both 5212), "Model of the VUV Molecular-Xenon Laser," Gaseous Electronics Conference, Madison, Wis., Oct. 16-19.

F. Biggs (5223), "The Cleaning of America," Optimist Club, Albuquerque, Oct. 17.

L.C. Bartel (5151), "Properties of the Hubbard Hamiltonian Including the Resonance-Broadening Terms for an Arbitrarily Filled Band," Seminar, Iowa State Univ., Ames, Oct. 17.

G.R. Case (2114), "SALOGS (Sandia Logic Simulator)," Association for Computing Machinery Regional Conference, Las Cruces, Oct. 19.

J.M. Peek (5211), "Computer Oriented Techniques for Predicting Spectral Properties of Some One-Particle Schrodinger Hamiltonians," Meeting on Programming and Mathematical Methods for Solving Physical Problems, sponsored by USSR Joint Institute for Nuclear Research, Dubna, USSR, Oct. 23-27.

R.O. Work (2434) and H.A. Kearney (Bendix/ECD), "Automatic Blind Mating Connector"; C.K. Hoffman (1246) and D.W. MacAvoy (BECD), "Modularization of Electrical Connectors"; R.K. Traeger (2431), "Development of a Lightning Arrestor Connector," Annual Connector Symposium, Cherry Hill, NJ, Oct. 24-25.

R.C. Hughes (5514), invited paper, "Charge Transport by Photocarriers in Amorphous Polymers"; R.G. Kepler (5510), invited paper, "Piezoelectricity and Pyroelectricity in Polyvinylidene Fluoride," International Conference on Electrophotography, Washington, D.C., Oct. 24-27.

L.C. Beavis (2413), "Reactivity of Stainless Steel in the Presence of Hydrogen and Methods for the Passivation of Stainless Steel," The Florida Chapter of AVS, St. Petersburg, Oct. 25-26.

O. Milton (5514), "Vacuum Breakdown Induced by Anode Ions"; R.A. Anderson (5514), "Surface Flashover Hall Effect"; J.A. Panitz (5514), "Field Desorption and Preshower Mass Spectrometry"; J.P. Brainard (2413) and D. Jensen (2414), "Initiation of Electron Insulation and Dielectric Phenomena, Research Institute of the Hydro-Quebec Company, Varennes, Quebec, Canada, Oct. 29-31.

H.J. Sutherland (5163), "Dispersion of Acoustic



COMPUTER AIDED DESIGN WORKSHOP on Nov. 2-3 sponsored by Organization 7600 and UNM Industrial Education Department demonstrated Sandia's techniques and equipment to 48 educators and college students. George Urish (7624), workshop co-chairman, is at computer graphics console.

Waves by Fiber Reinforced Visoelastic Materials," Acoustical Society Fall Meeting, Los Angeles, Oct. 30-Nov. 2.

B. Granoff (5315), "Kinetics of Graphitization of Carbon-Felt/Carbon-Matrix Composites," American Ceramic Society Pacific Coast Regional Meeting, San Francisco, Oct. 30-Nov. 2.

V.L. Mautino (7652), "Tutorial Introductory Handbook for Sandia Artwork Language," Workshop: "Computer Aided Design Graphics in Industry and the Classroom," SLA, Nov. 2-3.

J.V. Walker (5220), J.G. Kelly, G.W. Kuswa, L.P. Mix (all 5242), and L.D. Posey (5226), "Measurements of Average Electron Energy vs Time in a Relativistic Diode Incorporating a Small Diameter Glass Rod Cathode"; T.P. Wright (5241), "Nonlinear High-Frequency Conductivity of a Fully-Ionized Plasma"; J.N. Olsen (5213), "Picosecond Holography of Laser Plasmas"; C.L. Olson (5241), "Theory of Ion Acceleration by Drifting Intense Relativistic Electron Beams"; G.W. Kuswa (5242), "Neutron Production Mechanisms in E-Beam Diodes"; M.M. Widner (5241), "Calculations Relating to Self-Generated Magnetic Field Measurements in Laser Plasmas"; G. Yonas (5240), "Electron Beam Initiation of a Pulsed Fusion Reaction"; M.J. Clauser (5241), A.J. Toepfer (5242), and J.R. Freeman (5241), "Behavior of Solid Targets

Irradiated by Focused Relativistic Electron Beams"; L.P. Mix, J.G. Kelly, A.J. Toepfer (all 5242), and F.C. Perry (5323), "Holographic Interferometric Diagnostics of Pulsed Relativistic Beam Phenomena"; P.A. Miller, J. Chang and G.W. Kuswa (all 5242), "Electron Beam Concentration Aided by Laser-Produced Plasmas"; A.J. Toepfer and J.W. Poukey (both 5241), "Theoretical Model for Superpinched Electron Beams"; J.W. Poukey, J.R. Freeman (both 5241), and G.T. Zorn (U. of Maryland), "Computational Studies of the Maryland ERA"; C.L. Olson and J.W. Poukey (both 5241), "Force-Neutral Beams and Limiting Currents"; D.W. Swain, J. Chang and L.P. Mix (all 5242), "The Acceleration of Plasma Electrons by the Beam-Plasma Interaction"; J.G. Kelly, L.P. Mix (both 5242), and A.J. Toepfer (5241), "Intense Relativistic Electron Beam Diode Plasma Properties as Revealed by Double Exposure Interference Holography"; J.F. Cuderman (5213), K.M. Glibert and J.J. Hohlfelder (both 1112), "Laser Plasma X-Ray Diagnostics"; D.P. Aeschliman and R.A. Hill (both 5642), "Stark-Broadening of HB at Electron Densities near 10^{15} cm^{-3} ," Annual Meeting of the APS Division of Plasma Physics, Philadelphia, Oct. 31-Nov. 3.

R.T. Meyer (5324), "High Temperature Laser Studies of Carbon," seminar at Rice University, Sept. 25.

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7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

AUTUMN haze mink stole, appraised at \$600, best offer. Roelle, 299-8478.
REMINGTON Quietriter port. typewriter, \$25; want Japanese sword or dagger. Smitha, 266-9977.
MEDITERRANEAN bdr. set, chest & dresser w/mirror, \$80. Parmley, 821-2006.
AMMO: .38 spec., 148 gr. w.c., match grade, \$4/bx (cost \$7); brass: .308, match, 2 cents ea. Ristine, 298-8383.
PEERLESS Jewelers lathe complete w/motor, \$250. Grant, 255-6105.
NAVAJO RUGS, small collection of rugs from the four-corners area. Fishburn, 299-7370.
UTILITY TRAILER, 4x6, 15" tires, \$45. Gallo, 296-0112.
GUITAR, elec.; 5-watt amplifier & cord, as a set, \$30; girl's 26"

bike, \$20; misc. bike parts, \$3. Martin, 821-0037.
23" B&W TV; stereo; fruitwood end tables; 24" Schwinn bike; boy's dress suits. Porter, 298-3623.
BABY CRIB; playpen; stroller; car crib; car seat; bunk bed; 2-piece couch; port. sewing machine; hand sweeper; towel pole. Moyer, 298-1778.
BUESCHER clarinet, '66 year, \$100. Plummer, 296-0806.
FREE: Malamute-Shepherd cross puppies, outside dog, will hold for Christmas. Mautino, 877-4346.
COSCO soft-sided playpen; potty seat; snowsuits, 3-piece girl's size 4 & 1-piece blue convertible. Miller, 299-6067.
FLUTE, open hole Gemeinhardt "C", appraised by Farleys, \$250. McIlroy, 8907 Los Arboles NE, 299-4977.
ASTRO ACOUSTIC GUITAR, classic size, w/case & capo, \$50. King, 299-8768 after 5:30.
COUCH, 2-piece sectional, \$40; 2 twin bed innersprings, \$10 ea. Roache, 268-4686.
26" GIRL'S bikes: \$12 ea. or \$20 for two; Magnus elec. chord organ, less than 1 yr. old, \$40; Samson Formette elec. belt massager, \$40. Farner, 299-6007.
'65 ROYAL Copenhagen Christmas plate. Olson, 298-

3795.
E.Z. BREATHER room air purifier, has extra filter, \$70; bumper motorcycle carrier Honda 90, \$15. Klecotka, 821-1466.
DOBERMAN puppies, AKC, ready for Christmas; early American bar & 2 stools, \$75. Martin, 877-7989.
TWO-DRAWER file, letter-size, steel, grey, 30" high, 14" deep, \$9. Sims, 293-6153.
LAMPS, glass bases, one amber, one avocado, 3-way light, matching shades, 39" tall. Stewart, 298-3332.
HEAD 360 skis, 205 cm. Miller bindings, \$40. Peterson, 298-1235.
19" B&W TV, port. w/roll-about stand. Gendreau, 268-3436.
ADULT rabbits w/wire cages; port. dishwasher; room humidifier; compact air compressor w/paint sprayer. Richardson, 865-9505.
SMALL Hammond chord organ, model S-6, \$300. Vance, 255-8032.
DISHWASHER, portable, 4 yrs. old, Kenmore, 2 temps., top opening, \$70. Longcope, 292-2141.
DACHSHUND puppy, tiny black & tan miniature, AKC reg., 8 mos. old, show quality, \$25. Hudson, 296-3484.
CHILD'S ride-on electric car, Sears, recharger, \$18; elec-

tronic flash, Honeywell Model C, \$45. McIntire, 299-5791.
WASHER & DRYER, Norge matched set, used very little, \$175 the pair. Bayer, 265-1687.
DIAMOND RING, lady's 14K yellow gold, 3 diamonds, large diamond .42 carat, appraised \$525, sell for \$360. Gregory, 268-2022.
MINIATURE Schnauzer puppies, 6 wks. old, AKC reg. Forsythe, 299-2785.
DINING set, Ethan Allen hardrock maple, round table, leaf, buffet, 4 captain's chairs. \$275. Newman, 256-3295.

WANTED

5-GAL. propane bottle. Bader, 299-9459.
GUITAR, folk or classic. Coleman, 299-2377.
SHOP or maintenance manual for '63 Chev. 1/2-ton pickup. Shipman, 255-2523.
AIR compressor, 1/3 or 1/2 hp. Klecotka, 821-1466.
BEGINNER'S ski equipment, 145 cm (boy's shoe 4 to 5) and 165 cm (man's 6 1/2 to 7 1/2). Wentz, 298-2630.
WOOD burning stove to heat home of old couple. Will pay. S. Highway 14 Village Project.

LAB NEWS, 264-1053.

TRANSPORTATION

TWO Bridgestone 350 motorcycles, '66 & '68, GTR, 6-spd., \$300 & \$350. Rex, 299-6264.
'73 NORTON 750 Commando, \$550 and take over payments; '60 T-Bird, loaded, \$300. Hal, 265-3531 before 5 p.m.
'66 HARLEY DAVIDSON Sprint 250cc. Carlson, 299-6610.
'60 BUICK Electra, 4-dr. sedan, all extras, low mileage, \$275. Van Domelen, 299-3674.
'69 CHEVROLET Suburban, 350 engine, AT, AC, AM-FM radio, PB, PS, radials, trailer hitch, \$1900 or make offer. Clark, 294-3112.
'64 DODGE pickup, 6-cyl., 119" w/b, Positraction, new paint, 51,000 miles. Peabody, 296-6239.
PORSCHE-VW, AM radio w/Porsche dash panel insert, \$20. Hollowwa, 255-6938.
'72 PONTIAC LeMans, PS, AT, AC, metallic brown, 19,000 miles, loaded, \$4200 sticker price for \$2550. Reynolds, 296-9370.
'59 FORD, \$75. Harstad, 298-6551.
'65 PONTIAC Starchief, everything: '73 Grand Prix, SJ, 7000 miles, original owner. Dickason, 299-8125.

Super Happy Hour Dec. 7

TONIGHT a holiday fashion show will be presented about 7 p.m. by Omar's Boutique. A French buffet is set, Sol Chavez and the mighty Duke City Brass will play for dancing, and later Denny Gallegos and guitar will entertain onstage in the dining area.

* * * *

A SUPER HAPPY HOUR is scheduled Friday, Dec. 7. The thing that makes it super is the buffet menu — steamboat roast beef, petite stuffed lobster tails, hickory smoked ham, assorted vegetables and a super salad bar. All this goes for \$2.50 per person. In the meantime the Rhythmairs will play for dancing, Yolanda Adent will entertain in the lounge and Happy Hour prices will prevail.

* * * *

"THE SIGN OF THE CROSS" is the classic movie to be screened Wednesday, Dec. 12, at 7:30 p.m. Remember this one? It stars Claudette Colbert in the famous milk bath scene, Frederick March is the protagonist and Charles Laughton as a mad Emperor Nero. Admission is free to members.

* * * *

HOLIDAY ORGANIZATION PARTIES start at the Club on Friday, Dec. 14, so regular Happy Hours will move to the main lounge and lobby area. No buffet but Happy Hour prices will prevail from right after work until 10 p.m. On Dec. 14, a singing duo Carl & Jerry will entertain.

* * * *

KIDS CHRISTMAS PARTY is set for Saturday, Dec. 15, starting at 9:30 a.m. with gifts for all the little ones from Santa Claus.



TONIGHT holiday fashions from Omar's will be presented during Happy Hour at the Club. Ken Bixler (3152) restored this fine '29 Model A pickup which serves as a prop for models (clockwise from left) Kay Gear, Dorella Padilla, Archie Pearlman, Rosie Jennings and Soila Candelaria.

Clowns will entertain and Ron and Mary Kay Day will present a brand new Christmas show with their famous puppets. Parents must accompany their youngsters.

* * * *

SANADO ARTISTS will hold a sale of miniature paintings at the Club Dec. 5-7. These small paintings — watercolors, oils and pastels — make fine Christmas gifts.

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TRAVEL NEWS — A few last minute

reservations (\$553 and up) for the Caribbean cruise may be available during the first week of December. If you or any of your friends are interested, please call the Club office (265-6791) to check on availability of cabins.

The Club office now has a supply of brochures on the Hong Kong trip scheduled April 7-17. The \$671 fee includes jet round trip, nine nights at the Hyatt Regency in Kowloon, daily American breakfast and dinner (at a choice of seven restaurants), baggage handling, arrival and departure parties and a 10-course Chinese banquet. Deposits of \$100 per person are being taken at the Club office. Final payment is due Jan. 3.

PRACTISE HOLIDAY SAFETY



Red are the roses,
Green grows the grass,
Join in a car pool
And save lots of gas.

Okay, let's face a few quasi-nasty facts: 1) We've got a gasoline crunch; it will likely get worse (prices going up, maybe rationing too); 2) We're on a half-hour lunch period; driving off-base for lunch or shopping or errands is more likely to produce ulcers and reprimands than relaxation and results.

So it would appear that true wisdom is to catch a bus and leave your car at home — you can't afford to drive it and you can't do anything exciting with it at noon anyway.

But there's a kicker: We can't get enough buses to serve all the areas that could support bus service.

Bleak, isn't it?

Unless . . . unless . . . that's it — the car pool! Elementary.

Car pools save energy. They could amount to a major saving of scarce fuel, far ahead of turning the heat down or the lights off. Roger Hagenruber's (4735) calculations indicate that reducing by 25% the on-the-job electrical consumption of Albuquerque Sandians for an entire year saves less energy than would be

Car Pool Notes

saved if each Sandian would car pool two weeks each year.

It's not surprising. Transportation (of people and goods) consumes a fourth of the total US energy budget each year. And urban automobiles, while they account for a major proportion of the people moved, are one of the most inefficient (in terms of energy expended per passenger mile) transportation mechanisms that anyone has yet invented.

* * * *

So let's car pool. The problem is to know who lives near enough that a car pool might be feasible. The Employee Transportation Committee's Phil Thacher (9532) is currently working with people from administrative systems, computing, and statistics to produce for each of us a list of our neighbor Sandians who may be promising poolers. And Security is establishing an improved (i.e., less easily abused) system for reserving preferential, individually assigned parking slots for car pools.

Get ready to come on in — the (pool) water's fine.

