

Thirteen-Year Production Phase Ends For MC2912 Arming, Fuzing, and Firing System

Is the MC2912 integrated arming, fuzing, and firing system ending its career, or just beginning it? That depends on which direction you're looking.

Gazing backward, there are 13 years of successful production of this Sandia design at the Allied Signal plant in Kansas City — and the last production unit was just delivered.

Looking forward, there may be as much as 40 years of life for this unit in the strategic stockpile, says John Souza (5154). John is the only Sandian who was on the MC2912 program in the beginning and was still with it at the end of its production. He was one of the electrical designers for the system and stayed with the program to see it through the production phase.

The MC2912 is, or will be, used on four different submarine ballistic-missile weapon systems:

Trident Flag Presented

In ceremonies Tuesday, Aug. 7, Rear Admiral Kenneth Malley, Director of the Navy's Strategic Systems Program Office, presented a Trident flag to Sandia for Trident II program accomplishments. President Al Narath accepted the flag on behalf of the Labs. Photo next issue.

Customer Satisfaction Is Main Goal

Quality Initiative Showing Results In Several Areas

As Sandia's quality initiative advances, the ultimate measure of success is how well the Labs satisfies its external customers. But those customers are the final link in a chain that includes a series of internal customers.

So says Gail Willette (3730), quality coordinator for Purchasing 3700 and a 15-year quality professional who joined Sandia last year. Purchasing is among the Sandia organizations working to continuously improve the quality of products and services that they provide internally. Another — with efforts smaller in scale and more informal in method, but no less determined — is Technical Publications Sec. 3152-1. The different approaches of these groups illustrate options open to Sandia organizations for upgrading the quality of their work.

Errors Cut in Half

In Purchasing, the approach is quality action teams. Two have been at work for several months and have firm data to demonstrate their success: the Document Production Team and the Receivables Team. Another, the Travel Service Team, was formed in June and is working to improve customer satisfaction with travel services. This is the first Purchasing team to include an outside supplier's representative among its members.

The Document Production Team had two goals: to improve the turnaround time of jobs and to reduce the number of contracts, amendments, and requests for proposal that had to be corrected by retyping. In June 1989, just over 40 percent of documents were produced within 24 hours. By March 1990, about 65 percent of documents were produced within the same turnaround time.

While speed was going up, errors were coming down. In June 1989, a bit more than four percent of documents produced by Document Production Sec. 3731-2 contained typing errors. The number has been halved, to about two percent. The team is now monitoring error rate and

(Continued on Page Six)

Poseidon, Trident I and II, and the United Kingdom's version of the Trident.

Football-Sized

The MC2912 itself weighs about 10-1/2 pounds and is about the size of a football, though conical in shape. It contains several main components: accelerator, decelerator, and G switches; radar; timer; firing set; trigger circuit; battery

power supplies; impact fuze; printed wiring boards; and the connectors for interfacing with the rest of the warhead.

Last month, a ceremony at Allied Signal marked the end of production. Speakers representing Allied Signal, Sandia, DOE, and the Navy at the ceremony noted the high quality and reliability of the MC2912 and said that the quality of the de-

(Continued on Page Five)



JOHN SOUZA (5154) is the only Sandian who was on the MC2912 arming, fuzing, and firing system program in the beginning and was still with it at the end. Here, he holds a "show-and-tell" display unit of the football-sized AF&F system; the transparent potting material encasing the unit allows various components to be viewed.

Sandia, Livermore Tiger Team Report — See Page 3

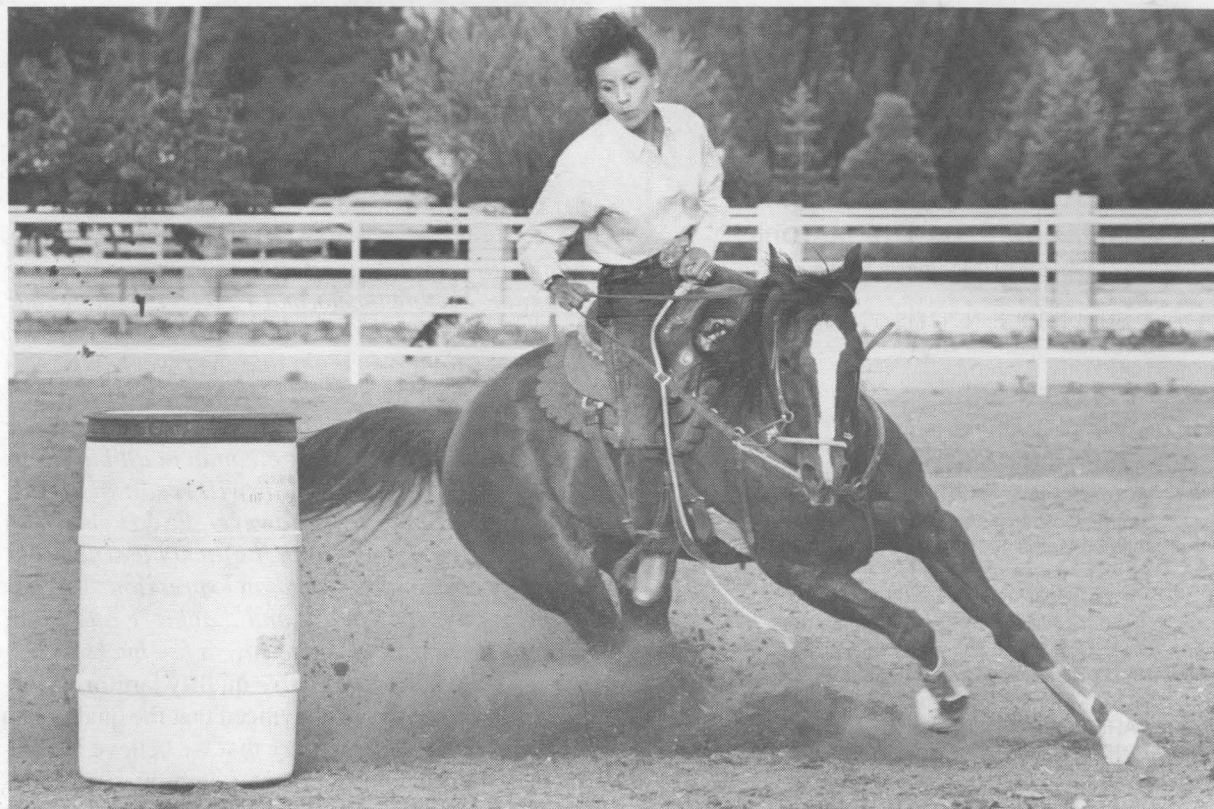


LAB NEWS

VOL. 42, NO. 16

SANDIA NATIONAL LABORATORIES

August 10, 1990



WORKING OUT at Albuquerque's Alameda Stables are Ruth Bitsui (3511) and her horse, Peaches. Ruth, her husband, and son were among a 51-member troupe that visited Scandinavia earlier this year to present the All American Rodeo and Wild West Show. See story on page ten. (Photo by Randy Montoya, 3162)

This & That

"Informal Friday" Trial on Aug. 17 - In the last issue, we asked for your opinions about "Informal Fridays" at the Labs - whether you think it a good idea.

Got a wide-ranging response - everything from "I think the idea is ridiculous" to "I think Informal Fridays is a wonderful idea." As of Monday of this week, we had received 21 responses - fifteen for the idea, four against it, and two that weren't definitely yea or nay. Some folks said that Sandia is already too informal, and one person even suggested that because of that, we have "Dress-Up Fridays" instead of Informal Fridays. Several others were concerned that some employees would go too far and make Informal Fridays into "Sloppy Fridays." A couple of folks said they already felt empowered to dress how they wanted every day. Someone else knew of a company that had Informal Fridays once a month in conjunction with a "Clean Up" day.

Since we had more yeas than nays, we'll uphold the democratic tradition. Let's try an "Informal Friday" a week from today, Aug. 17.

* * *

What's Appropriate to Wear, Larry? - I'm glad you asked, but keep in mind that - for good reason - I've never been mistaken for a fashion expert. So I won't attempt to spell out exactly what qualifies as appropriate dress for next Friday. However, a few guidelines are in order.

First, understand that wearing casual clothing next Friday is optional, but you gotta wear something. If you feel better in your white shirt and tie or that "power suit," that's what you should wear. But, if you'd like to wear your spiffy designer jeans, "flowerdy" Hawaiian shirt, and high-tech tennie runners, then it's OK.

Second, although Sandia does not have a dress code, our Code of Conduct states that we are expected to use "common sense and good taste" and that our attire "must not disrupt efficiency and productivity." If we casual types exercise that common sense and good taste next Friday, maybe Informal Fridays can become a regular thing - at least monthly and perhaps more often.

Finally, promoting the Aug. 17 experiment is about as empowered as this editor feels (this ground feels a bit squishy). After that, we'll get some guidance from the higher-ups.

* * *

Van Presentation Ceremony for Lights - Thanks to the generosity of Sandians and many other folks in and around Albuquerque, the Ron Light family will receive a specially equipped van on Saturday, Aug. 18. It will be presented to the Lights in a special ceremony at 4:30 p.m. at the Civic Plaza downtown. Ron's former boss, Doug Weaver (2130), says Mayor Louis Saavedra will present the keys to the van to Ron and his wife, Jane, along with a check for money left over in the fund after the van was purchased. The presentation, just east of the City/County Building, will precede German Night activities in the City's Summerfest series. Ron suffered severe head injuries when he and his family were run down by a motorist in May 1989. Ron recently returned to Albuquerque from Dallas where he underwent extended rehabilitation.

* * *

Editing After the Fact - Looking back at the July 13 issue, I probably should have reworded a statement in the story about "Parenting Skills for Drug-Free Children" that's sponsored by the TLC (Total Life Concept) program. The one that said the course includes two *joint sessions* between parents and children. . .

•LP

Native Americans To Get Help With Science Education

Native American elementary and secondary schools in New Mexico and Arizona will get help from Sandia through a new program to improve the teaching of science, mathematics, computer science, and other technical subjects.

The program is a cooperative effort of DOE and the Department of the Interior begun in January by Mike Wartell (9001), who watches over Educational Outreach programs. Under the program, both Sandia and Los Alamos national laboratories will provide scientific and technical staff who will serve as consultants and mentors to Bureau of Indian Affairs (BIA) schools.

The labs will also make loans of scientific equipment, offer career counseling, and arrange visits to the labs by students and teachers to give them hands-on exposure to scientific work.

"This is an incredible opportunity to support science education at rural schools, where it's been difficult to obtain that support," says Mike.

Jesus Martinez (2553) is project manager of the cooperative program for Sandia.

Interior Department employees, meanwhile, will serve as a liaison with the BIA, consulting with tribes, selecting pilot sites, and coordinating efforts at individual schools.

"This agreement enables our two departments to reach a special group of students and teachers, as we work to attain the national education goals established by President Bush," said Energy Secretary James Watkins, in signing a formal agreement with Interior Secretary Manuel Lujan, Jr.

"Historically, native Americans have been underrepresented in scientific and technical careers," said Lujan. "Under this agreement, we will encourage young people in this minority group to pursue those careers, and will provide them greatly broadened educational opportunities in cutting-edge science." •

Fun & Games

Volleyball - A Sandia Volleyball Association meeting is scheduled for Wednesday, Aug. 15, at the Coronado Club at 5 p.m. All volleyball captains (present & future) and anyone interested are invited to attend. For information, call Edwina Kiro (3510) on 266-7605.

LAB NEWS

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feed ~~back~~

Q. Emptying wastebaskets before lunchtime results in food wastes remaining in the baskets overnight and over weekends; this is unsanitary, unhealthy, and an invitation to vermin. Cleaning buildings before the normal 4:30 p.m. quitting time results in lots of combustible trash remaining in exit corridors overnight and over weekends; this both obstructs egress and creates a fire hazard.

The solution to both ES&H problems is for janitors to perform their cleanup in all buildings after 4:30. Obviously, this will result in higher janitorial labor costs; however, ES&H solutions are not free. In my youth, I quickly learned that quality costs more - and an expression: "Ya get wat ya pays for." Will Sandia achieve quality in janitorial service or opt to save a few bucks?

A. We believe we have quality janitorial service; likewise, we're convinced that the quality can be improved. Any measure that we believe has potential for providing continuous improvement is appreciated and will be considered. We are a little troubled, however, by your apparent dismissal of cost - though you did note it. Considering the

costs already encountered in our ES&H compliance efforts, we are reluctant to add to that burden unless the action clearly contributes to the solution.

Perhaps some of the burden should be placed on our customers; maybe there are ways they can minimize or eliminate the disposal of food wastes in office wastebaskets. For example, how about "packing it out" after "packing it in," vis-à-vis the US Forest Service and our national forests? Employees observing a fire hazard or obstruction of egress should immediately call a custodial supervisor, Security, or me to get a resolution.

Finally, there are also union contract/labor law implications with respect to hours of work. Custodial personnel have the same reluctance to work graveyard shifts as do most other employees. Nonetheless, we will be doing a program review of all facility support services during the next few months. If changes are required, we will make them.

Thanks for your interest and suggestion.

Jim Martin - 3400

ES&H Tiger Team Report for Sandia, Livermore Released by DOE

The Department of Energy made a public release of its Tiger Team Environment, Safety, and Health Assessment report for Sandia, Livermore on July 31. Following is the executive summary from that report, the text of a letter that Sandia President Al Narath sent to DOE Secretary Watkins several weeks after the draft report was given to Sandia (the letter also discusses the Strategic Plan and other related matters), and excerpts from Secretary Watkins' reply to Al.

The primary criticism in the report centers around the lack of formal procedures for tracking ES&H matters, inadequate leadership on the part of management, and insufficient ES&H training. The Tiger Team did not find any problems that posed immediate danger to the environment or to the safety or health of Sandia workers or the public. In his letter to Secretary Watkins, Al emphasizes that Sandia is committed not only to achieve compliance with ES&H laws and regulations, but to do that in a cost-effective manner that "will minimize any adverse impacts on our R&D mission deliverables."

The Tiger Team inspection of Sandia, Albuquerque is currently scheduled for early 1991. "Our management and staff will be studying the Livermore Tiger Team report carefully to learn some lessons and apply them to the way we're approaching ES&H matters throughout all of our facilities," says Al. "We all need to start thinking of ES&H compliance in the same way that we think about security matters — that it's an absolutely essential part of our business. It will be an integral part of our work lives. Nothing less will do."

SANDIA, LIVERMORE TIGER TEAM REPORT — EXECUTIVE SUMMARY

This report provides the results of the Tiger Team assessment of the Sandia National Laboratories, Livermore (SNL, Livermore), California, conducted from April 30 to May 18, 1990. The purpose of the assessment was to provide the Secretary of Energy with the status of Environment, Safety, and Health activities at SNL, Livermore. SNL, Livermore is a Department of Energy (DOE), government owned, contractor operated facility under the management of the DOE, Albuquerque Operations Office (AL), Sandia National Laboratories Area Office. The SNL Area Office is part of AL's Management Support Division (MSD).

The primary mission of SNL, Livermore is research, development, design, and evaluation of new and existing nuclear weapon systems. There are also significant activities in other areas, such as energy research and technology.

The assessment was conducted by a team consisting of three subteams of Federal and private sector specialists in the disciplines of environment, safety, and health, [including Occupational Safety and Health Act (OSHA) compliance], and management.

Onsite activities for the assessment included document reviews, observation of site operations, and discussions and interviews with DOE personnel, site contractor personnel, and regulators. Using these sources of information and data, the Tiger Team identified a significant number of environmental, safety, and health, and management findings and concerns, as well as concerns on non-compliance with OSHA standards. Although the Tiger Team concluded that none of the findings or concerns necessitated immediate cessation of any operations at SNL, Livermore, the Tiger Team believes that a sizeable number of findings and concerns in this report require prompt management attention.

A special area of concern for the near term health and safety of onsite personnel, which was identified by the Team, pertained to the onsite Trudell Hazardous Waste Site. Several significant OSHA concerns and environmental findings related to this waste

site prompted the Team Leader to immediately advise SNL, Livermore and AL management of the situation for their action. A case study was prepared by the Team, because the root causes for the problems associated with this waste site were believed to reflect the overall root causes for the areas of ES&H noncompliance at SNL, Livermore (see Appendix F for case study).

The Tiger Team also evaluated the quality of SNL, Livermore's efforts to implement a self-assessment program to identify, understand, and correct ES&H deficiencies. SNL, Livermore had conducted an ES&H self-assessment, which was extensive, in terms of the effort and resources dedicated to it, and comprehensive, in that it covered the majority of the site's activities. A number of the ES&H problems found by the Tiger Team assessment were previously identified by their self-assessment. However, for those deficiencies identified by both SNL, Livermore and the Tiger Team, the level of detail discovered and reported by the SNL, Livermore self-assessment was often substantially less than that reported by the Team. The Tiger Team concluded that the lack of depth and detail provided by SNL, Livermore in their descriptions of these deficiencies potentially indicated an insufficient understanding of the ES&H requirements. Furthermore, the Team found that SNL, Livermore had not, as yet, developed a comprehensive, prioritized corrective action program for correcting its recently identified deficiencies. The limitations of their self-assessment appeared to be due in large part to the facts that (1) ES&H self-assessments and major functional appraisals have not previously been a part of the operations at SNL, Livermore and (2) a comprehensive independent self-assessment program has not yet been formalized at SNL, Livermore.

The SNL Area Office also performed a self-as-

essment in which it recognized and identified a number of the ES&H management oversight issues and problems found by the Tiger Team, including a lack of staff and ES&H training. AL has stated its commitment to improving the level and quality of its ES&H management oversight. The recent Memorandum of Agreement with the San Francisco Operations Office (see Appendix J), to assist AL in carrying out onsite oversight responsibilities, is intended to help facilitate ES&H improvements.

Key Findings and Noteworthy Practices

A brief summary of the environmental, safety, and health, OSHA, and management key findings, noteworthy practices, and root causes follows. For more details on these and other findings, the reader is referred to Section 2.

Environment

The Environment Assessment Subteam identified a total of 41 findings. Three (3) findings were considered key, each of which are comprised of several findings/issues. None of the findings were of a nature that indicated undue risk to public health or to the environment with continued operations at the SNL, Livermore site. The environmental and waste management programs at SNL, Livermore are in general compliance with regulatory requirements. However, there are fundamental weaknesses in the program.

- There is a lack of formalized policy, Quality Assurance Program and procedures, and documentation requirements to effectively carry out an environmental compliance program at SNL, Livermore.

- There is a lack of an Environmental Monitoring Plan, which is considered key to an effective environmental monitoring program.

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SANDIA LIVERMORE NEWS

Employee Death



Shannon Houk of Computer Operations Div. 8236 died July 26 after a long illness.

She was 57 years old. She had been employed at Sandia since 1965.

Survivors include her husband, a brother, and two sisters.

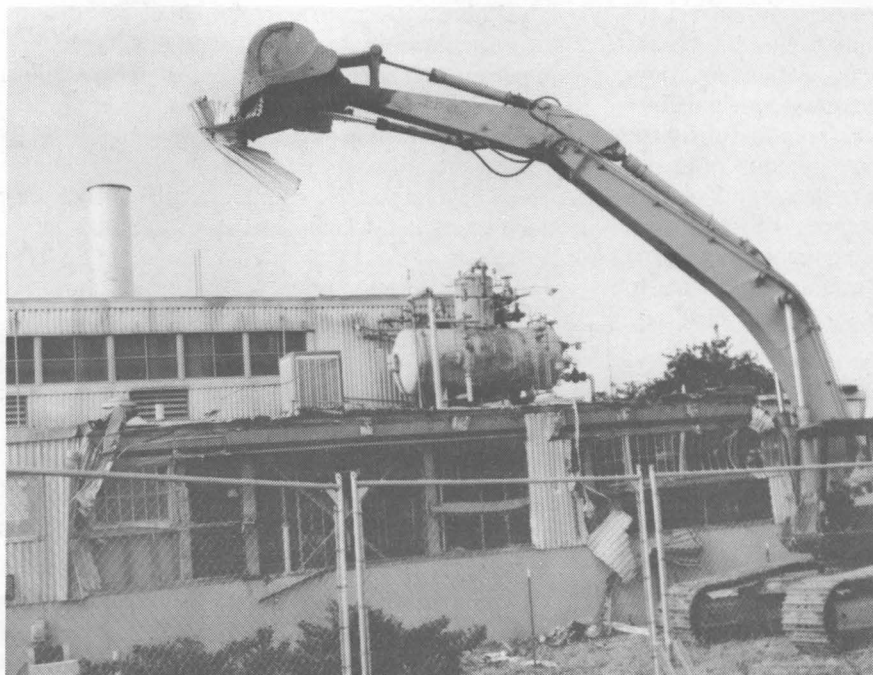
Welcome

Livermore — Michael Frisch (8513), Cheryl Lari (8156), Jeanne Ludwig (8541), Paul Sewald (8513), Zia Telfair (8524), Bill Wiscom (8441), Nancy Zehnder (8541); Other California — Jody Barnes (8272), Rita Carson (8524), Daryl Chrzan (8341), Deanna Dicker (8541), Russ Hanush (8353), Bill Hilburn (8272), Dick Judson (8233), Steve Rice (8364), Charles Steinhaus (8243), Patricia Turner (8452).

Elsewhere: New Mexico — Yvonne Mak (8525); Texas — Gary Hux (8362); Washington — Paul Spence (8245).

Congratulations

To Lee Bertram (DMTS, 8243) and Mary Beth Acuff, married in San Diego, July 14.



STEAM PLANT demolition was completed at Sandia, Livermore last month. Here, a crane operator peels off the building's aluminum siding. Built in the late '50s, the plant provided heat for the entire site — except for Area 8 and the Combustion Research Facility — until it was shut down last December. In its place will be a new parking lot and additional landscaping. New low-pressure water boilers installed in five separate buildings now furnish heat at Livermore.

(Continued from Page Three)

Livermore Tiger Team Report

• In the area of NEPA compliance, SNL, Livermore's program is considered to be inadequate.

• SNL, Livermore is not in compliance with DOE Order 5400.4, CERCLA requirements, and the California Regional Water Quality Control Board (RWQCB) Site Cleanup Order No. 89-184 for certain remedial response activities associated with inactive waste sites and releases at SNL, Livermore.

Safety and Health

The Safety and Health Program at SNL, Livermore has begun the transition from an informal system relying primarily on professional judgment to one focused on compliance. Despite the compliance

initiative, numerous failures to comply with DOE Orders and prescribed standards were noted both in the Safety and Health and OSHA Compliance Assessments. The Safety and Health Subteam identified 120 concerns; the following is a summary of the key concerns identified:

• There is a lack of specific sitewide policies issued by management which define and integrate the ES&H effort throughout the site.

• Management has not provided a clear definition of ES&H responsibilities and authorities.

• Management does not have a system to track or trend important safety data, and does not provide regular management assessments of ES&H onsite activities and progress.

Of the 120 concerns, 5 were identified as Category II (addresses a significant risk or substantial noncompliance with DOE Orders, but not a clear and present danger to workers or the public). These Category II concerns were in the areas of organization and administration, personnel protection, and opera-

tions. However, none of these Category II concerns involves situations where a clear and present danger to workers or to members of the public exists.

Occupational Safety and Health

The OSHA Compliance portion of the Safety and Health Subteam identified a total of 119 items of noncompliance with OSHA standards. Thirty (30) were considered serious, of which two were identified as "imminent danger." The imminent danger situations concerned (1) excavation safety at a hazardous waste remediation site and (2) an unattended forklift, loaded and in a raised position. SNL, Livermore and AL took immediate actions to remove the danger.

Management and Organization

The Management Assessment Subteam identified 14 findings in six major categories with respect to AL and SNL, Livermore management of ES&H

(Continued on Page Five)

Al Narath's Letter to DOE Secretary Watkins

July 3, 1990

Dear Admiral Watkins:

My staff and I appreciate your positive reaction to Sandia's Strategic Plan, and to its emphasis on customer satisfaction and continuous improvement. In keeping with this customer focus, one of the key objectives of our plan is to elevate the Laboratories' performance in the area of ES&H compliance. You may recall that we launched a laboratory-wide ES&H initiative last October. We have applied substantial overhead resources in support of this effort (approximately \$30M in FY90). To date, we have achieved significant progress in two areas: elimination of specific compliance deficiencies (especially in regard to OSHA requirements) and the development of a comprehensive self-assessment methodology. Progress in developing an adequately robust management approach to ES&H compliance has, however, been slower than I had hoped for initially. The Tiger Team findings at Sandia's Livermore location give clear evidence that some considerable distance still separates us from the ES&H goals that you have set for the Department of Energy. Although I had sound reasons to expect a more positive report card on balance, the findings of management deficiencies were not entirely surprising. Our self-assessment prior to the Livermore Tiger Team visit, influenced strongly by experiences at our PBFA-II facility in Albuquerque some weeks earlier, had already led to similar conclusions. Simply stated, the new standards are far more challenging than I had realized at the outset.

The principal purpose of this letter is to affirm my personal commitment to satisfying DOE's ES&H requirements in a timely manner. This commitment is articulated in unambiguous terms in our Strategic Plan. We are responding to the Tiger Team findings at our Livermore facility with an accelerated effort, and intend to apply the lessons learned at all of our locations in a consistent manner. In particular, I am holding my Livermore VP, John Crawford, accountable for instituting needed changes at that location, and my EVP, Lee Bray, for laboratory-wide direction and coordination. The ultimate responsibility for Sandia's performance, of course, remains mine entirely. A major effort went into defining Sandia's new strategic vision, and I do not take this vision lightly. It reflects a deep-rooted commitment on the part of AT&T and its Sandia management team to align the Laboratories' future with DOE's objectives.

It is also a commitment that is rapidly gaining acceptance throughout the Sandia work force.

In the course of describing Sandia's approach to ES&H management to the Tiger Team, I laid out two related themes that I fear may have raised unnecessary concerns about our ES&H commitment and prospects for future improvements in Sandia's ES&H performance. In order to assure you that there is no confusion in my mind about what is expected, I want to repeat and hopefully clarify these themes:

(1) The need to minimize the cost of ES&H compliance

In structuring our program, we have taken the position that ES&H compliance is a customer requirement that must be accepted by all employees as a necessary "price of admission," not unlike compliance with safeguards and security requirements. The view that compliance is not a laboratory mission *per se*, but rather an inviolate operating requirement, seems to me entirely consistent with assigning ES&H concerns top priority. At the same time, I feel a strong obligation to achieve and maintain compliance in a cost-effective manner. I worry that the imposition of rigid, unnecessarily standardized, and burdensome management systems could easily drive costs in an R&D environment beyond affordability limits and, consequently, impede progress toward the achievement of DOE's ES&H goals, as well as erode mission effectiveness. It is my intent to fully satisfy ES&H requirements in a manner that will minimize any adverse impacts on our R&D mission deliverables.

(2) The Quality approach to compliance management

To elevate laboratory performance across the board in the most cost-effective and timely manner, we are introducing Quality principles in all of our operations, as practiced by Motorola, Xerox, AT&T, and other institutions conducting world-class R&D programs. I am certain you agree that the growing prestige attached to the Malcolm Baldrige National Quality Award attests to the importance of this management concept. Incidentally, DOE's Albuquerque Operations Office has already realized substantial gains from its promotion of Quality techniques in weapon production (e.g., Allied Signal's Kansas City operation). It would be unfortunate if my intent to reach beyond ES&H compliance and enhance the effectiveness of all Sandia management processes were misconstrued as a lack of commitment to ES&H requirements as a top priority. I understand and support the need for increased formality of operations in

DOE. The necessary management discipline is, in fact, inherent in all modern Quality methodologies. Moreover, these methodologies provide a flexible approach to optimizing the management of nonrepetitive activities whose value depends, in large measure, on technical innovation and individual initiative and creativity.

In my view, what is still needed to assure broad applicability of Quality methods in DOE's R&D laboratory environment is agreement on a set of high-level, risk-based specifications to guide development of cost-effective ES&H management practices that fit the individual needs of particular laboratory activities. At a recent DOE/AL plant managers meeting, I suggested to Admiral Barr that DOE organize an effort, with laboratory participation, to develop such guidance. This suggestion is currently being implemented under the direction of DOE/AL. The principles set forth in the INPO 85-017 guidelines will serve as a starting point for this study.

I trust this letter has conveyed not only a sense of strong commitment on Sandia's part to accomplish the cultural changes you have called for, but also a sense of Sandia's commitment to enhance its effectiveness in supporting DOE's missions. I firmly believe that the national laboratories have the intellectual capacity to contribute significantly to the attainment of technically demanding objectives in defense, energy, environment, space, and other topics of national importance, and to pursue these efforts in such a way as to achieve maximum economic leverage for our country. Realization of this vision in today's increasingly competitive world will demand, however, a strong dedication to continuous improvement in meeting customer needs. You have raised DOE performance expectations to very high levels in an effort to ease public anxieties caused by past mistakes. As I have noted on earlier occasions, the direction you have set is understood and supported by a large majority of the Federal and GOCO employees who make up the DOE team. Nonetheless, in view of the severe financial stresses facing the nation, the Department's "stretch" goals will not be easy to achieve. I am confident we can succeed, however, by motivating our people to close ranks, to build on established strengths, and to make the necessary improvements as we move forward. Sandia is prepared to meet this challenge.

Sincerely,
Al Narath

Excerpts From Secretary Watkins' Reply

With regard to your concern . . . I agree that ES&H compliance should be achieved in a cost-effective manner, and that unnecessarily standardized management systems could impede such achievement. I expect that the solutions to the ES&H compliance problems at all the DOE sites will be optimal with regard to cost and effectiveness.

The leader for the Sandia National Laboratories,

Livermore Tiger Team Assessment, J. William Bennett, recently briefed me on the draft report. . . . In that briefing, I was assured of your personal commitment to ES&H compliance as the top priority. Mr. Bennett did, however, convey to me a Tiger Team concern that the general Sandia management commitment to the ES&H priority could be substantially improved from organization, documentation, and

implementation standpoints.

As you point out, I have raised DOE performance expectations very high. I do so not only to ease public anxieties, but also to restore the confidence of the public in DOE's stewardship of the environment, and improve its standing in the community as a good neighbor and a safe place of employment.

(Continued from Page One)

AF&F Production

sign and its production figured in the decision for the same team — a Sandia/Los Alamos design and Allied Signal production — to build an advanced AF&F system for the Mk5 (Trident II). The system meets current and expected future safety requirements — a factor in the projected 40-year lifetime. Among the speakers was Dan Hardin (5150), who congratulated Allied Signal on behalf of the Labs for a job well done.

Although it might seem that a production phase running from 1977 to 1990 would become routine after a few early bugs had been worked out, that is never the case, says John. "Of course there were problems to be overcome with some of the components during design, development, and production," he says. "There were a lot of hybrid circuits and integrated circuits, which were pretty much state of the art at the time. But things also happen during production. Often, problems associated with a reliable source of parts and materials need to be resolved."

In this program, as in most, supplies and piece parts were bought in time to stay two or three months ahead of the production schedule, instead of being stockpiled at the beginning. As an example of a materials problem, John mentions the epoxy foam in which components are potted after assembly. "The epoxy had been procured from G.E., which then discontinued manufacturing it," he says. "The epoxy resin then had to be bought from a German company, so a large supply of it was stored away in a limestone cave in the Kansas City area where items like computer records are stored. But the US company that supplied the surfactant used with the epoxy stopped manufacturing it, and Sandia had to come up with an alternate that would work as well. Many months of research and testing were necessary before the alternate material was approved."

Kansas City, Here I Come

Dealing with such matters — and a host more — kept John working just about full time and meant a lot of trips to Kansas City.

The impact of MC2912 production at Kansas City was mind-boggling, John says. Some

Sandia and the Poseidon/Trident Story

The Poseidon and Trident weapon systems are examples of Sandia's support of the Navy's Ship-Submersible-Ballistic-Nuclear Powered (SSBN) program.

About 25 years ago, at the request of the Navy, Sandia and Lockheed Missiles and Space Company (LMSC) developed and delivered the first fully integrated arming, fuzing, and firing (AF&F) assembly. It was incorporated into the W68/Mk3 Reentry Body (RB) and was deployed in 1971 on the Poseidon Missile.

Sandia, Livermore — in conjunction with Lawrence Livermore National Lab — developed the W68 warhead. The AF&F (MC2429) was developed at Sandia, Albuquerque. Additional components for the W68 warhead were provided by Albuquerque and Livermore.

The W68/Mk3 RB program was so successful that the Navy asked Sandia, Los Alamos National Laboratory (LANL), and LMSC to develop a follow-on to the W68 with enhanced military characteristics for use on the Trident system. This system became the W76/Mk4 RB, using the MC2912 AF&F (see main story). Initial use of this RB was on back-fitted Poseidon submarines (modified to accept the larger-diameter Trident missile). Production began in 1977

and the RB was deployed in 1979. RB production was completed in 1989. Again, Sandia was involved in designing and developing not only the AF&F, but other parts for the reentry body.

As production of the W76/Mk4 RB proceeded, the Navy launched the first Trident submarine, the *USS Ohio*. The W76/Mk4 RB — the Trident I system — was deployed on the *Ohio* and subsequent *Ohio*-class submarines.

As the Trident system continued, the Navy again requested that the Labs provide a further-enhanced, larger-diameter reentry body to be used on the Trident II system. The same team (Sandia, LANL, and LMSC) designed and developed the W88/Mk5 reentry body and warhead (Trident II), which uses the MC3810 AF&F. The W88 was deployed on the *USS Tennessee* in early 1990.

The United Kingdom has chosen the Trident II missile for its nuclear submarine program. Sandia, LANL, and LMSC have and will continue to provide engineering support to the UK in the development of its Trident program.

Sandia engineers continue to coordinate activities with DOE, the DOE production facilities, Allied Signal, the Navy and its facilities, and the UK.

\$900 million was spent for production. Every area of the Allied Signal (formerly Bendix KC) Division had either direct or indirect involvement. The KC Division not only assembled and tested the MC2912, but also produced and tested the radar, timer, impact fuze, battery actuator, G switch, and printed wiring boards.

The long life of the program — actually 18 years, if the beginning of development is included — meant that several Sandians now well known throughout the Labs were involved in it. Bob Peurifoy, now Vice-President of Technical Support 7000, was the department manager over the program in the early 1970s. The first division supervisor in charge was Gene Ives, now Director of Weapon Development at Livermore 8100. Other supervisors included Herman Mauney (7200), Bob Christopher (ret.), and now Bob Alvis (5154). Both Gene Ives and Herman

Mauney went on to become DMs, with the MC2912 among their responsibilities. Also DM for a while was George Hildebrandt (ret.). Dan Hardin, who has been managing MC2912 activities for both the US and UK, has had the responsibility since 1984.

Asked to make a rough guess at how many Sandians indirectly contributed to the design and development of the MC2912, John starts naming some of the areas of expertise that were required: Drafting, machine shop skills, computer programming, specification writing, manual writing, materials analysis, test-equipment design, quality, reliability, art, and photography would only begin a list. Finally, he guesses that approximately 1000 people's efforts were required — though some of them may not have known they were contributing to the MC2912. About a hundred people, he adds, were directly involved. ●CS/PW

(Continued from Preceding Page)

Tiger Team Report

activities. Most of these were identified to some degree by the SNL, Livermore and AL self-assessments. The following are the key Management Assessment findings:

- Roles, responsibilities, authorities, and inter-relationships are neither clearly understood, fully documented, nor systematically implemented throughout SNL, Livermore.

- Management does not exhibit an understanding of what constitutes an effective environment, safety, and health program, and how to implement it.

- Communication of the environment, safety, and health message from Sandia National Laboratories, Livermore management has been, and continues to be, ambiguous.

- No comprehensive resource plan has as yet been developed to permit the Sandia National Laboratories, Livermore environmental, safety, and health mission to be accomplished.

- SNL, Livermore does not have an effective comprehensive internal environment, safety, and health review and appraisal system.

- Oversight and follow-up of SNL, Livermore environmental, safety, and health activities are lacking.

Probable Root Causes

A root cause is the most basic reason for an effect, which, if corrected, will prevent recurrence. It is one of the most important aspects of the analysis of an event or the correction of appraisal findings. The

Management Subteam analyzed the results of all three subteams' findings and concerns and found that there were six root causes that meet the definition given above. These root causes are stated below. Conclusions derived from the root causes analysis follows:

- SNL, Livermore has not developed a management framework and process by which ES&H functions and requirements will be implemented in a consistent and sustainable manner.

- SNL, Livermore planning and implementation of the ES&H program is hampered by the lack of effective leadership.

- SNL, Livermore has not developed an implementation strategy incorporating goals, priorities, and feedback mechanisms.

- SNL, Livermore management does not obtain enough information reflecting actual ES&H performance and status to determine all the actions necessary to meet commitments and expectations.

- The SNL, Livermore Quality Assurance organization is not effective in fulfilling its independent oversight function.

- SNL, Livermore and AL are not providing sufficient training to their personnel in ES&H technical disciplines, specific expectations, supervisory management skills, and management policies, programs, and procedures.

Noteworthy Practices

Three Noteworthy Practices were identified at SNL, Livermore. One was in the management area. SNL, Livermore is initiating a program to train custodial personnel and security escorts to identify and report potential ES&H concerns observed during

the course of fulfilling their routine duties.

The other two Noteworthy Practices are in the safety and health area. SNL, Livermore performs medical surveillance of employees exposed to organometallic substances. Another practice is their Continuous Operation and Energy Permit System. This system requires documentation and approval for all equipment required to be energized while it is unattended. The permits list each specific piece of equipment and indicate cognizant individuals to call in case of an emergency.

Post-Assessment Activities

This draft assessment report was submitted to the DOE (AL and Headquarters), SNL, Livermore, and the participating regulatory agencies, for review of technical and factual accuracy. The review comments, where appropriate, will be incorporated into the final Sandia National Laboratories, Livermore Tiger Team Assessment Report.

The Office of the Assistant Secretary for Defense Programs will prepare a draft Action Plan that addresses the findings and concerns identified during the Tiger Team Assessment. When the final draft Action Plan is completed, it will be submitted to the Tiger Team Leader and the Assistant Secretary for Environment, Safety, and Health for review and comment. After the final coordination, the Assistant Secretary for Defense Programs will submit the Final Action Plan to the Secretary. If the Secretary accepts the plan, he will approve the Final Action Plan and direct its implementation.

[Note: Copies of the complete report are available for Sandians to examine at the Technical libraries in Livermore and Albuquerque.]

(Continued from Page One)

Quality Initiative Is Showing Results

turnaround time while the organization converts to MASS-11 word processing to be more compatible with customers.

The Receivals Team's goal was to decrease the time for processing and input of orders into the Integrated Procurement System data base. (When processing of an order lags receipt of the item, there are delays in delivering the item to the user and paying the supplier.) Last November, average input time for Accelerated Procurement Sys-

While speed of document production was going up, errors were coming down.

tem orders (those for less than \$25,000, about half of Sandia's orders) was not quite four days, but items arrived so quickly that each day some 100 items were waiting for information to be input. The number is now down to about 30 — a 70-percent improvement achieved mainly by cutting the processing time to two days.

"The teams focus on understanding the needs of the customer," says Gail, "then improving processes to meet those needs. Although measurable improvements in customer service justify the teams' existence, that's not the only benefit. When people can influence the process in which they work, they become more committed. Working on the teams lets them strengthen their skills and confidence. They understand better that they have both power and responsibility. As a group, each team chooses the metrics that it will use in assessing the results of its work. As individuals, the members understand their own jobs better and how each job fits into the larger process."

People-Oriented

Gail emphasizes that the 3700 quality improvement process is people-oriented and that involving people at several levels has improved quality. The same is true in Technical Publications Sec. 3152-1, says supervisor Angie Gurulé, whose group of compositors typesets a variety of Sandia documents.

The section meets as a quality circle when any member feels a need to discuss a quality-related issue. The meetings — normally lasting less than a half hour — range in frequency from two or three a week to one in two weeks. Topics can be narrow — perhaps a "style tag" used in the typesetting software to keep different compositors' work consistent — or broad, such as how the compositors work with writers and editors.

"When we started, about two years ago, our word was 'democracy,'" says Angie. "It was a way to promote job 'ownership' and responsibility for one's own work. What Al Narath said on Vision Day in April — about people and their commitment being his most important subject —

PACKAGES IN RECEIVING have a shorter wait for delivery, thanks to the work of the Receivals Quality Action Team. Members include (from left) Margaret Quintana (3741), Judy Hawn (154), Evan Ashcraft (155), and Yolanda Chavez (3731).



QUALITY CIRCLE meetings have helped improve quality and increased job "ownership" in Technical Publications Sec. 3152-1. Examining some of their organization's products are (from left) Lillian Pritchard, Angie Gurulé, and Maxine Norton.

Quality Groups Featured

These members of featured groups are working to improve quality in their respective organizations:

Document Production Team: Cynthia Schneeberger (3712), Tommie Thompson (3718), Anthony Sanchez (3722), Charlie Ray (3723), Barbara LaFleur (3724), Stephanie Herrera, Nancy Knight, Virginia Lujan, Laura McCarty, Sandy Pino, Julie Rhoden, Tanny Shaw, Lorraine Solanos, Dorothy Stronach (all 3731), Luther Rivera, and John Zepper (both 3734).

Receivals Team: Judy Hawn, Joanna Frumkin (both 154), Evan Ashcraft (155), Lydia Perez (3213), Frank Comiskey (3412), Aileen George (3428), Archie Stannish (3712), Barbara LaFleur (3724), Al Maes (3724), Rita Baca, Suzie Simpson, Cathy Benavidez, Yolanda Chavez, Mary Gallegos, Judy Galvan, Patty Jojola, Mona Plummer (all 3731), Nora Armijo, Julia Gallegos, and Margaret Quintana (all 3741).

Technical Publications Sec. 3152-1: Ruth Beck, Lynn Bonner, Cecilia Gutierrez, Emma Johnson, Hilda Mosley, Maxine Norton, Rose Omidvaran, Beverly Padilla, and Lillian Pritchard.

ties directly to what we've found." (The division's other section, Military Manuals Composition and Computer Support Sec. 3152-2, has recently begun quality-circle meetings.)

An early change in 3152-1 was to have only one compositor handle each job. "Up to then," says Angie, "different compositors might do the first input, revisions after the customer's first proofing, and further revisions after a second review. No one felt responsible for the whole job. Also, even within a generally standardized system, it could take time for one compositor to understand just what the previous one had done, and misunderstandings sometimes caused errors."

Now, one compositor takes care of each job, start to finish. "When they see the published docu-

ment," says Angie, "they feel proud. They see it as 'my report.' But more important to our customers, we have fewer iterations and shorter turnaround time, which lowers cost. So one change improved performance, cost, and schedule."

Angie's group has designed an easy-to-use customer feedback form that asks for key information such as the job's appearance, layout, and timeliness. Angie has just finished the first quarterly report compiled from the forms. "We enjoy compliments," she says, "but we look hardest at what customers liked least." The feedback forms have spurred contact across Technical Communications Dept. 3150. Although the form was intended for



DOCUMENT PRODUCTION got a boost in both speed and accuracy as a result of a quality action team's work. Three of the team members are (from left) Barbara LaFleur (3724), Tanny Shaw, and Julie Rhoden (both 3731).

assessing quality of typesetting, customers see the whole document, not just one aspect of its production. So comments have included photos and other graphics, printing, and so on.

"We don't ignore comments that aren't about typesetting," says Angie. "It's all connected with publishing. Our department manager, John Cantwell [3150], suggested that we work with the other divisions to respond to customers' comments."

"What makes the circle work," she continues, "is that our management lets it work. We don't overturn their decisions. If something that they've decided doesn't work out, they're capable of seeing that, and they make the necessary change."

Angie is also pleased with what the quality circle has done for the people in her section. At first, she says, some felt too timid to talk at a meeting. Those same people are now calling meetings themselves. "And not long ago," she sums up, "two of them said to me that our section is much healthier than before — 'healthier' is exactly the word they used — now that we have the quality circle. I agree with them. There's more teamwork, every opinion is respected, and the end result is quality."

•CS



Preferred Parts/WhiteStar Day: Aug. 29

Design Information Easily Accessible With WhiteStar Data Base

Designing high-quality, reliable, and manufacturable components, subsystems, and systems has been a long-standing objective of Sandia weapon and space-system designers.

To help Labs designers achieve that goal, Executive VP Orval Jones (20) established the Preferred Parts Oversight Board (PPOB) two years ago (see "First Priority"). The Board's primary responsibilities have been to put together a list of "preferred parts" — electronic, interconnection, and mechanical-fastener items — and to come up with requirements for performance models and data bases needed by parts users.

"The more you know about parts and how they work," notes PPOB chairman Bill Alzheimer (7400), "the less likely it will be that you'll have to 'swap out' parts late in the design process because something doesn't perform as expected. Not having to substitute parts at that stage makes the whole process much less expensive."

Engineering Design Tool

Hand in hand with the PPOB activity has been the development of Production WhiteStar, a component selection data base and engineering design tool containing information on electronic components, as well as simulation models and characterization data for semiconductors.

WhiteStar project leader Suzanne Rountree (2811) describes the data base as designed for the casual user: "If you have a PC that's connected to the Sandia-wide PBX [Public Branch Exchange] network, it's easy to log into WhiteStar," she says. "Users can get the information they need very quickly — in between 5 and 30 seconds — by simply specifying either a part identifier or desired device characteristics."

The WhiteStar data base contains all the active and passive electronic components, plus mechanical fasteners — some 8050 diodes, transistor ICs, capacitors, resistors, and fasteners — that have been identified as "preferred" by the PPOB as of the end of July. It also includes about 600 other engineer-requested parts, some of which have simulation models. Component engineers and other data suppliers in Semiconductor



WHITESTAR PROJECT LEADER Suzanne Rountree (2811) works on some of the equipment that will be demonstrated at the WhiteStar open house on Aug. 29. Shown on the computer screen is an electrical schematic, with WhiteStar information displayed in a window in the upper right corner.

Components 2100, Components 2500, Design Engineering 2800, and Radiation Effects and Testing 9300 have provided data-base input to the WhiteStar project team.

"The more you know about parts and how they work, the less likely it will be that you'll have to 'swap out' parts late in the design process."

Information available in WhiteStar includes:

- General part information, such as part identifiers, part type and subtype, manufacturer, responsible engineer, and radiation qualification level — and part cost and quantity if the part is available in the Allied Signal/Kansas City Division (AS/KCD) inventory;
- Technical parameters, including technology, material, package, polarity, maximum current, frequency range, reverse breakdown voltage, and others; and
- Additional information such as characterization (temperature and radiation) data, simulation model data, product specification, and input from other design engineers on their observations

of part behavior.

Some 90 designers at both Albuquerque and Livermore now have WhiteStar "accounts," according to Suzanne, with people in Organizations 2300, 2500, 5100, and 8100 being the most active users. Some customers access WhiteStar as many as 10 times a month, while others use the data base only occasionally.

Find Out More on Aug. 29

"We're sure that many other designers, once they see the advantages WhiteStar offers and learn how to use the system, will be eager to try it," Suzanne says. "That's why we've set aside a special day at the end of this month — Preferred Parts/WhiteStar Day on Aug. 29 — to acquaint people with the preferred-parts concept and WhiteStar."

Speakers at the Aug. 29 meeting, from 10 to 11 a.m. at the Technology Transfer Center (Bldg. 825), are Orval Jones (preferred-parts philosophy, quality, and cost advantages), Suzanne Rountree (WhiteStar content and access), and Dennis Cummings, Director of Engineering at AS/KCD (the tie-in between design and manufacturing).

Immediately after the TTC meeting, an open house at the CAE (Computer-Aided Engineering) Lab in Bldg. 859, Rm. 140, from 11 a.m. to 4:30 p.m. will include a demonstration about how to use WhiteStar and give visitors an opportunity for some hands-on experience. They'll also be shown interfaces to the data base, part graphics, delivery of part graphics in a workstation-specific format, and display of product specifications.

The afternoon open house will also demonstrate a futuristic concept — concurrent engineering — that would allow members of a design/manufacturing team, no matter where they are located, to simultaneously view and discuss design information.

"We're excited about WhiteStar's current production capabilities," notes Suzanne, "and welcome suggestions from designers on changes that would make the data base even more useful. We encourage everyone associated with the design process to join us on Aug. 29." ●PW

Ensuring the Best

First Priority: 'Preferred' Parts

The preferred-parts initiative at Sandia is part of an overall thrust toward continuing quality improvement. The Preferred Parts Oversight Board (PPOB), established in 1988, is responsible for developing and maintaining a list of preferred parts for use in Sandia designs, and to encourage Sandia designers to select from that list. The Board's diverse membership includes representatives from Sandia, Allied Signal/Kansas City Division, and General Electric Neutron Devices.

"Our goal," says PPOB chairman Bill Alzheimer (7400), "is to increase the quality and reliability of our parts supply by focusing on a reduced number of parts and vendors. Over time, we hope to reduce the overall cost of part qualification and procurement, and effect improved quality by more fully characterizing parts."

What makes a part "preferred"? According to Bill, the part must meet a set of requirements, including (but not limited to):

- Multiple-use potential;
- A stable, high-quality supply source;
- Operability in standard environments (-55°C to 125°C);
- Quality Engineering Review completion; and
- Availability of all part information in the

WhiteStar engineering component data base (see main story).

Besides Bill, Sandia members of the PPOB are Tom Fischer (2171), Ed Graham (2170), Kent Parsons (2310), John Stichman (2330), Chuck Gibbon (2530), Don Doak (2550), Gino Carli (2800A), Tom Cannon (2850), Lyle Whelchel (3710), Gary Beeler (5100 actg.), Bill Nickell (5140), George Merren (7250), Jay Gilson (8130), and Brick Dumas (9210). Allied Signal/Kansas City Division representatives are Homer Darbyshire, John DiMarco, and Chuck Gaynor. Roger Walton represents General Electric Neutron Devices.

"Whenever possible, parts designated as preferred will be selected from vendor standard parts — including packaging," says Bill. "And both Sandia and DOE policy require that components are acquired only from vendors with an established reputation for quality and timely delivery."

"To ensure the best manufacturability, performance, cost, and development schedule, Sandia designers are expected to give first priority to specifying parts from the preferred list. And the WhiteStar data base is undoubtedly their best source for preferred-parts information."

Welcome

Albuquerque — Milton Davis (1144), Janette Dirickson (21-1), Ann McCoy (21-1), Peter Stromberg (7484).

Elsewhere: *California* — Linda Cusimano (3141); *Connecticut* — Jeffrey Dohner (1524); *Georgia* — Daniel Gordon (1423); *Nevada* — James Cates (7231); *Texas* — John Parmeter (1126), Suzanne Peterson (2334).



Supervisory Appointments

THOMAS HESCH to Supervisor of Electronic Fabrication Sec. A 7412-1.

Tom joined Sandia in September 1979 as an apprentice in the Electronic Fabrication Section. In 1984, when he graduated from the apprenticeship program, he was assigned to Computing Directorate 2600.



TOM HESCH

Subsequently, he participated in the Mighty Oak project at NTS, geophone installation at TTR, and a security installation project at Seneca Falls Army Depot in New York. In November 1985, Tom transferred to the Coil Winding/Transformer Lab in Div. 7412 as project leader.

He has a certificate in electronics from the Cleveland Institute of Electronics and a certificate in electronics technology through Sandia's TIE program. He is currently pursuing a degree in business administration.

Before joining the Labs, he was a mainframe-computer timing technician for National Semiconductor in San Diego. He was a member of the Marine Corps from 1974 to 1978 and is a member of the Navy Reserve.

Tom is a volunteer CPR instructor for the American Heart Association and teaches a Sandia Out-of-Hours college-level trigonometry class. He's also a certified instructor of a soldering technology course offered by Sandia's Education and Training Department.

He enjoys running, hiking, woodworking, and water skiing. He has three children and lives in the NE Heights.

SARAH SHARPTON to Supervisor of Administrative Support Div. 6318.

Sarah joined Sandia's Purchasing organization in March 1983 as a buyer for the General Stores Division and a spot buyer for chemicals, gases, and heavy equipment.

In 1984, she was a member of the Sandia task force that designed and implemented the Just-In-Time system. In 1986, she transferred to Purchasing Div. 3718, where she placed contracts for Orgs. 1500 and 1800.



SARAH SHARPTON

Sarah transferred to Project Support Div. 6316 in 1987, where she performed various project management functions. She served on the task force to design and implement an Information Management System for project data.

She has a BA and MA in education and training from Western New Mexico University in Silver City and an MBA from Arizona State University. She has been designated a Certified Purchasing Manager (CPM) by the National Association of Purchasing Management. Before joining Sandia, Sarah was a science and math specialist and instructor for the Mesa, Ariz., Public Schools.

She enjoys gardening, travel, designing jewelry and other crafts, and participates in conservation organizations. She lives in Taylor Ranch.

ALTON ROMIG, JR., to Manager of Metallurgy Dept. 1830.

Al has been a member of the Metallurgy Department since he joined the Labs in November 1979. His work has been in diffusion-controlled microstructural evolution and advanced mi-

crostructural characterization for assessing weapon component reliability.

He has BS, MS, and PhD degrees in metallurgy and materials engineering from Lehigh University. Al is a member of the Microbeam Analysis Society, the Electron Microscopy Society of America (EMSA), the American Society for Metals (ASM), The Metallurgical Society, and the Materials Research Society. In 1988,



AL ROMIG

he received the EMSA Burton Medal for Outstanding Young Scientist. This year, Al was elected an ASM Fellow. He is a part-time professor at New Mexico Tech's Metallurgy of Materials Sciences Department and has been teaching for nine years.

Al enjoys working on cars and riding motorcycles. He and his wife Julie have one child and live in the NE Heights.

LEON KECK to Supervisor of Waste Management Instrumentation Div. 9325.

Leon joined the Labs in June 1956 as a member of the Data Reduction Division (now called Test Data Analysis). He designed data playback equipment and evaluated commercial equipment. He helped develop an oil and gas well fracture mapping system, and served as project leader during fielding of this system at US and Canadian locations. Leon worked



LEON KECK

in a variety of rocket and penetrator programs and participated in field experiments at Tonopah Test Range, White Sands Missile Range, Thule (Greenland), Wallops Island, and in Southeast Asia during the Vietnam War.

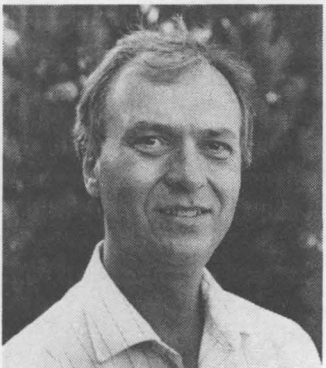
He transferred to NTS Test Planning and Fielding Div. 9323 eight years ago, and has been project leader on four underground nuclear-effects tests. Earlier this year, he was named project leader for WIPP instrumentation systems and operational support.

Leon has a BS in electrical engineering from Oklahoma State University and an MS in the same field from UNM through Sandia's Technical Development Program. He was a member of the Army from 1951 to 1953.

He enjoys golf, walking, jogging, and gardening. Leon and his wife Lois have three grown children and live in the NE Heights.

JOHN BOYES to Supervisor of Pulsed Power Engineering Div. 1239.

In May 1977, John joined Sandia's Systems Studies Division IV, where he did design and testing for the Forward Look study on the safety, security, and survivability of NATO weapons. In 1979, he transferred to the Pulsed Power Engineering Division. He did experimental-hardware mechanical designing on PBFA I and then mechanical design on the PBFA-II project, from concep-



JOHN BOYES

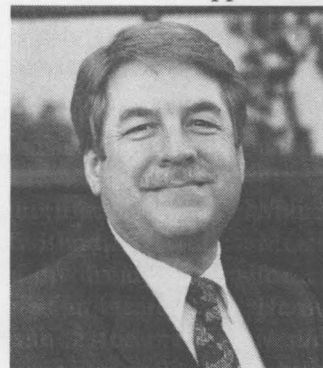
tual stage through assembly and test. John was appointed engineering project leader in 1985 for the Saturn project, a rebuild of PBFA I into an x-ray simulator. In December 1988, he was promoted to Supervisor of the Pulsed Power Engineering Section.

He has BS and MS degrees in mechanical engineering from New Mexico State University. Before joining Sandia, he was a co-op student from 1968 to 1971 at Ford Motor Co. in Dearborn, Mich., and a design engineer for Ford at Dearborn from 1972 to 1974. He is a member of the Rio Grande Chapter of the Project Management Institute.

John enjoys camping, skiing, hiking, and coaching youth soccer. He and his wife Susan have three children and live in the NE Heights.

GARY YEAGER to Supervisor of Hazardous Waste and Wastewater Div. 3221.

Gary joined Sandia in February 1981 as a member of the Applied Biology and Isotope Utilization Division, where he evaluated the effectiveness of gamma radiation from Cesium 137 in destroying pathogenic microorganisms in sewage sludge. He later transferred to the Nevada Nuclear Waste Storage Investigations (NNWSI) Technical Overview Division, and then to the NNWSI Project Repository Performance Assessment Division, where he prepared systems engineering integration documentation and conducted system integration for the proposed high-level radioactive waste repository at Yucca Mountain, Nev. He joined the Environmental Protection Division in 1988.



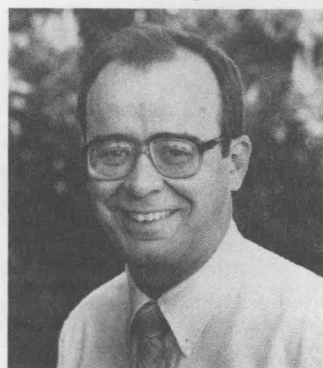
GARY YEAGER

He has a BS in biology from UNM and an MS and PhD in the same field from New Mexico State University. Before coming to the Labs, Gary was with the US Public Health Service, Centers for Disease Control. He served with the Air Force from 1967 to 1971. He is a member of the New Mexico Hazardous Waste Management Society.

Gary enjoys reading, hiking, and adobe construction. He and his wife Glenda have two children and live in Corrales.

JAMES GOSLER to Supervisor of Software Adversary Analysis Div. 7235.

Jim joined Sandia in November 1979 as a member of the Data Processing Systems Division, where he did performance measurement and capacity planning for Sandia's mainframe computers. In 1983, he transferred to the Safety Assessment Technology Division and developed methodology for performing an Independent Vulnerability Analysis of security critical systems. He went to Washington, D.C., in 1989 on temporary assignment to the DoD in a scientific advisory position, providing guidance on adversarial issues.



JIM GOSLER

He has a BS in mathematics and physics from Samford University and an MS in mathematics and computer science from Clemson University. He is a graduate of the National Senior Cryptologic Course. Before joining the Labs, Jim was an

(Continued on Next Page)

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instructor at the US Naval Nuclear Power School, and taught thermodynamics, fluid flow, mathematics, and mechanical theory. He is a member of the American Society of Naval Engineers, the Mathematical Association of America, the International Association for Cryptologic Research, and the US Naval Institute. He is a Commander in the Navy Reserve.

Jim enjoys table tennis and plays at the national level. He recently competed in his second US Open tournament. He also enjoys tennis, softball, and woodworking. Jim and his wife Cathy have one daughter and live in NE Albuquerque.

ROBERT RICHARDS to Supervisor of Quality Assurance Div. 6319.

Bob has been the quality assurance coordinator of the Nuclear Waste Repository Technology Department since he joined the Labs in May 1985. He has assisted in instructing the INTEC course, "QA for Research and Development," and has served additional duty as QA chief for Directorate 6300 and Org. 6000.



BOB RICHARDS

He has a BS in chemical engineering from Ohio State University and an MS in industrial engineering from the Georgia Institute of Technology. Before coming to Sandia, Bob worked for Westinghouse-Bettis Atomic Power Lab from 1977 to 1985, in Idaho and Pennsylvania. Before that, he served eight years with the US Army and is now a lieutenant colonel in the Army Reserve.

Bob is a member of the American Society for Quality Control, Albuquerque Section (past chairman and vice-chairman).

He enjoys family-oriented activities and reading. He and his wife Andrea have two children.

Sympathy

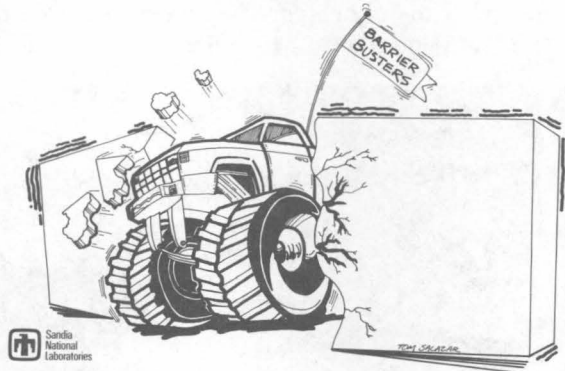
To Kent Biringer (9015) on the death of his mother-in-law in Albuquerque, July 22.

To Bernard Trujillo (3426) on the death of his sister in Albuquerque, July 25.



Barrier Buster Breakthroughs

Last spring, the Sandia Management Council established the Barrier Busters Quality Action Team to look at various processes at the Labs that might need improving — and to recommend and



take action to eliminate or modify unnecessary and inefficient policies, procedures, and rules (LAB NEWS, June 29). On a continuing basis, the LAB NEWS will publish a list of barriers resolved. Following are barriers that have been examined by the team and the actions that have been taken.

Despite the "computer age," there seems to be a profusion of paper crossing our desks. One paper barrier proved to be redundant. Barrier Buster Shirley Wallace (113) worked with Joe Ruggles (2629) to discontinue the "Quarterly Cost/Performance Review Report for Cost-Type Contracts \$1 Million and Over" (Report No. 535-364). Before its elimination in mid-June, this report (which contained information available in other documents) required management review and signa-

ture up through Vice-President level.

Some barriers prove to be misunderstandings. After checking into a complaint alleging that video tapes could not be sent through the mail, Barrier Buster Dick Shaw (9213) learned from Judy Hubbard (3154-4) that video cassettes could, in fact, be sent through the mail as long as they were not listed as blank.

A layer of bureaucracy was peeled back when Barrier Buster Paul Rosenkoetter (110) eliminated the need for Dept. 110 approval of special manpower charging reports. These reports are requested by organization and project managers for information about employees from other organizations who make charges to their projects. A legitimate need to know is still required, and salary privacy is still maintained. This change was effective June 22.

Investigating a suggestion for increased secretarial support, Barrier Buster Betty Mowery (7541) learned from Carol Kaemper (21-1) and Shirley Dean (22-2) that special word-processing support has recently been made available (effective June 20) through the Org. 20A Out-of-Hours WP Center. This center is located in MO-166/167 and provides on-site, unclassified word-processing support, including viewgraphs.

In addressing several queries regarding sign-outs through gates, Barrier Busters Dick Shaw and Estelle MacKenzie (5210) learned from Capt. William Wolf (3434) that in mid-May, the sign-out time was extended from 5:30 p.m. to 6 p.m. In addition, operational hours have been established on Saturdays. ●JW

Feed Back

Q. I recently purchased a new car. I notified my insurance company, located in San Antonio, Tex., of the purchase; however, because of the company's location, I did not receive the proof-of-insurance card for several days. In the meantime, I carried my policy in the car. The police recognize this as sufficient, since they are familiar with the insurance company (a leading one).

When attempting to obtain a temporary registration for the vehicle at Sandia, I was informed that proof of insurance and registration was necessary to register the car. I left the badge office, went to the USAF pass and ID office (I am a retired Army officer), and received my temporary registration in less than one minute, with only my signature. The same was true when I permanently

registered. Why must Sandia be more bureaucratic than DoD?

A. Good question. I suspect that much of the problem is our effort to comply with DoD regulations, which we are required to do per agreement with the USAF on the issuance of base decals. We do issue temporary registration forms for access to the Base; however, proof of registration and insurance must be presented. The procedure is the same for issuing permanent decals.

Be assured we do not want the process to be more bureaucratic than necessary. We will put this on our list of processes to receive a quality review. I'll bet we can (will) improve. Thanks for your comments.

Jim Martin — 3400



SANDIA'S SUMMER STUDENT employees got together recently for a workshop on success, led by Tom Cannon (2850), followed by a group photo. About 200 science, engineering, and business students from high schools and colleges got valuable work experience at Sandia this summer through a variety of training

programs, including Youth Opportunity Trainees, Summer Employment for Minority Youth, Historically Black Colleges and Universities, Science and Technology Alliance, Career Exploration Trainees, and Career Advancement Trainees. These programs are administered by several groups in Human Resources 3500.

Unusual Vacation**Taking the Wild West to Helsinki**

All the people came home, but most of the horses stayed in Finland.

That's what happened when a 51-member troupe — including Ruth Bitsui (3511) — visited Scandinavia earlier this year to present the All American Rodeo and Wild West Show.

For Ruth, who with two sisters used to do trick riding in Indian and professional rodeos to get spending money and college funds, it

"I had to spend a lot of time on horseback getting ready, since I don't trick-ride regularly any more."

wasn't the first time performing in a foreign country. She rode in Argentina about two years ago, when the organizers of a national festival wanted to include Native American cowboys and cowgirls.

This time, it was a family affair. Her husband, Edison, went as a bareback rider, and their 9-year-old son, Jeremiah, was a member of the dance team.

"It really started last summer when I was talking with a friend in Window Rock [Ariz.]," says Ruth. "She had been to Japan, and we were comparing our experiences in the countries we had visited. Then, last December, she called to tell me that I was being invited to go to Finland with a group of about seven trick riders."

At first, Ruth thought it a pretty unlikely idea. By the time the trip coordinator called, however, the possibility had sunk in. She already knew the coordinator, who with her husband has produced rodeos on the Navajo reservation.

Horse-Training in Oklahoma

Ruth had to get herself and a horse into shape for the trip. "I've always taken care of myself," she says, "but I had to spend a lot of time on horseback getting ready, since I don't trick-ride regularly any more."

The horses were furnished, and the riders worked on their individual tricks with them. "They were good, gentle horses," says Ruth,

"no buck in them at all, and already trained for trick riding. They worked hard and earned their keep." The only catch: They were in Oklahoma. So Ruth spent a lot of weekends in Oklahoma,



RUTH BITSUI (3511) and her horse, Peaches, take a breather after a workout at Alameda Stables, while Ruth's son, Jeremiah, 9, gives the horse an appreciative pat.

until finally she brought back the horse she would be riding in the performances.

The 50 horses — except for four belonging to individual performers — were sold to buyers in Finland even before they were put onto two planes to leave the US. "When the horses arrived," says Ruth, "they had jet lag just like the people. It was a day and a half before they recovered enough to start exercis-

ing. We used that time to get things ready for the performance."

Working out of makeshift dressing rooms, the troupe gave five performances, all at the Olympic stadium in Helsinki. Each performance drew about 15,000 people, who saw wagon races, cutting-horse exhibitions, Roman riders, sharpshooters, barrel racers, trick riding, horseback square dancing, and other "Wild West" spectacles.

"Most of the performers do this for a living," says Ruth. "I'm probably the only one with a 'real' job."

Fish for Breakfast

Between performances, there were sights to be seen and another culture to be sampled. "One of the highlights was eating," says Ruth. "There was always fresh fish, even for breakfast. And *maybe* it was good to go without chile for a while. The desserts were wonderful — things like white chocolate over raspberries. I didn't gain any weight, but I didn't lose any either, even with all that hard riding."

Jeremiah's presence gave the trip an added dimension, especially when he was invited to visit a group of children who were terminally ill with cancer. "At the ward," says Ruth, "he wanted to dance for them. It made me feel good that he's proud of that part of our heritage. But it was also a strange situation for him — a healthy child on a big trip, meeting with the sickest of sick children. He didn't realize until later what it really meant. We're not afraid to talk about death, but this gave us a special opportunity for talking about serious things."

Besides seeing some of Finland, the performers made a trip to Stockholm by boat. Everywhere they went, says Ruth, the people seemed reserved, yet received them cordially. "It was like when tourists visit the reservation. The Navajos usually leave them alone, as a matter of respect on both sides — but when there is a conversation, it's often warm and pleasant. That's what meeting the people in Finland reminded me of." ●CS

Take Note

The New Mexico sections of the Materials Research Society and the American Ceramics Society will jointly sponsor a one-day technical symposium on Ceramics and Advanced Materials on Friday, Oct. 5, at the Inn at Loretto in Santa Fe. Besides the general session on powder synthesis, thin-film preparation and properties, and composite materials, there will be a special symposium on optical, electronic, and optoelectronic materials. A short course, "Film and Coating Deposition Techniques," by Don Mattox (ret.) will also be offered. Abstracts are still being accepted for the poster session. Contact Alan Hurd (1153) on 4-7838 for further information.

UNM is again offering a course in "Entrepreneurial Engineering" (ME 456). Sandia staff members with engineering and science backgrounds have taken the course; with class assistance, some have developed business plans for companies they have contemplated starting. The class works in teams, usually planning four new businesses each semester. Staff members with technical or business backgrounds who are considering possible business developments are especially invited to enroll. The Labs' Technology Transfer and Patent organizations both cooperate with the class. The class meets on Tuesdays, beginning Aug. 21, from 6:30-9:30 p.m. at UNM. Enrollment must be completed in the Student

Services Building Registration Center (phone 277-5548) by Aug. 24. For more information, call Prof. Bill Gross on 277-6297. The New Mexico Beta chapter of Tau Beta Pi (national engineering honor society) at UNM will host the 85th National Convention of Tau Beta Pi Oct. 18-20 at the Albuquerque Hilton Hotel and the UNM campus. Approximately 60 candidates will be initiated during the convention. The host chapter's special project is to present the initiates with commemorative bents to remember this event. If you are an alumnus member of Tau Beta Pi and are interested in assisting the local chapter, call Sherisse Smelser on 873-0407.

Friends of the Indian Pueblo Cultural Center are holding a membership drive through Oct. 15. For additional information, phone the Membership Committee at the Friends office on 247-4907, Thursdays from 9 a.m. to 3 p.m.

"Seasons" is now showing at the New Mexico Museum of Natural History's Dynamax Theater. Produced and directed by Albuquerque resident Ben Shedd, the 33-minute film celebrates Earth's annual journey around the Sun with "stunning photography that captures the essence of each season — spring, summer, autumn, winter," accompanied by Vivaldi's violin concerto, "The Four Seasons." The 70-mm "Seasons" is the third

movie to be shown in the Dynamax Theatre, which opened in August 1989. Movies are shown every hour on the hour from 10 a.m. to 5 p.m. For information, contact the Museum on 841-8837.

Sol Buchsbaum, Senior Vice-President of Technology Systems at AT&T Bell Labs and a member of Sandia's Board of Directors since 1987, was recently selected to receive the Arthur M. Bueche Award from the National Academy of Engineering. He is being recognized "for his leadership in promoting mutual understanding concerning science and technology among leaders in universities, industry, and government and for rendering insightful technical advice to five US presidents." Sol was Vice-President of Research at Sandia from 1968 to 1971.

DOE will sponsor a technical conference Sept. 25-26 in Annapolis, Md., to promote transfer of advanced tritium-based, self-powered lighting technology to private industry. Participants will learn about recent advances in radioluminescent technology and discuss transferring the technology from government labs to US industry. This activity is part of a tech transfer program sponsored by the Office of Defense Programs' Office of Technology Policy. More information is available from The US Department of Energy, Radioluminescent Light Program, EM-35, Washington, DC.

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11. For active and retired Sandians and DOE employees.
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MISCELLANEOUS

'72 IDEAL TRAVEL TRAILER, 8' x 25', \$2800. Zamora, 881-9880.
 SCHWINN AIR DYNE, \$475 OBO. Weed, 823-2396.
 NIGHTSTAND, matching 3-drawer chest; steel desk; Camaro nose cover. Carson, 892-6490
 GULBRANSEN ORGAN, Theatrum spinet model, \$950. Hayes, 883-9276.
 CAMPER SHELL, for LWB, window boot, 8' x 6'2" x 2'2", \$100. Porter, 884-4577.
 CAB-OVER CAMPER, 10-1/2', Mobile Traveler, set up for winter use, \$2000 OBO. Cyrus, 898-4038.
 SEARS 10" TABLE SAW, \$250. DeLoach, 839-9284.
 HEATHKIT CURVE TRACER, Model IT-3121, kit, \$75; Chev. bed liner, \$90; dual-trace oscilloscope, Hitachi V-202-F, \$250. Matthews, 869-2370.
 PC/AT CLONE, 12-MHz, 80287 coprocessor, 20-MB hard disk, CGA-compatible monographics, w/Epson LX-80 printer, \$700. T-sao, 293-1176.
 TRANSMISSION, Warner T-10, from a '67 Camaro, \$150 OBO. Howard, 839-9203.
 STRATFORD SOFA SLEEPER, full-size, multi-colored floral pattern, \$300; white bamboo-style 3-drawer dresser, \$75. Cook, 888-2928.
 DOG RUN, you take apart, cost \$200, sell for \$50; doghouse, cost \$75, sell for \$15; 7601 Gisele NE. Schowers, 822-8494.
 FEMALE GERMAN SHEPHERD CROSS and female Saint Bernard, both are family pets, free to good home. Nusser, 281-9209.
 100' FIELD FENCE, 20 fence posts, all for \$75. Gustwiller, 268-4893.
 ANTIQUE PHONOGRAPH, Edison Model 30 Amberola cylinder machine, \$400 OBO; Kroy Model 80 manual lettering machine, w/11 type disks, \$500 OBO. Terry, 292-7456.
 DOUBLE-WEDDING-RING QUILT, 85" x 86", hand sewn, new, never used, \$150. Smith, 299-7151.
 TRAILER HITCH, Class B, for American Motors cars and some others; metronome, electric, volume control, \$25. Moss, 298-2643.
 PARAKEET, young, green, all accessories included, free to good home. Adams, 821-9079.
 BICYCLE HELMET, Bell Tourlite hardshell, w/tinted Lexan visor, quick-release straps, white w/blue reflective striping, size 6-3/4 to 7-1/8, \$30 firm. Schkade, 292-5126.
 CAMPER SHELL for El Camino, \$175 or trade. Chavez, 242-9074.
 MOVING SALE: 2-family house-hold, Aug. 11, 8:30 a.m., 6716 Baker NE (between Osuna and Montgomery west of Louisiana). Bland, 884-4241.

KENMORE MICROWAVE OVEN, .8 cu. ft., probe, \$140. Jones, 292-1581 call during week.
 ROUTER, Sears Craftsman, \$35; 3/4-acre bugwhacker, \$30 OBO. Vigil, 899-0046.
 HASSELBLAD, 500CM, w/80mm f2.8 planar lens, extras. Montoya, 296-4268.
 BATHROOM COUNTERTOPS, cultured marble, free; Delta antique-brass faucets, 2 yrs. old, \$20 OBO. Lott, 294-8071.
 RUNNING BOARDS, for Ford Ranger S-10, never used, \$30; 2 Michelin tires, MXV 195/60, R1485H, .12 tread, \$14/ea. Benton, 877-2473.
 WHIRLPOOL REFRIGERATOR, 21'; GE built-in range w/ two ovens, all coppertone. Wymer, 294-0605.
 UNITED AIRLINES TICKETS, from Albuquerque to Des Moines, Iowa, leaving Oct. 4, returning Oct. 9, \$198. West, 296-1235.
 GOLF BALLS, low mileage, one owner, brand names, \$10/2 doz. Luna, 821-9110.
 DINING SET, round table w/leaf, 4 captain's chairs, \$250; china, service for 12, \$195; willow love seat w/cushion, \$150. Trembl, 292-9219.
 GLOCK 17 PISTOL, 9mm Luger cal., 17-shot, w/box, papers, 2 mags, ammo, new, \$400. Roth, 344-7060.
 TIME SHARE, at the Jockey Club in Las Vegas, Nev., Sept. 2-9, \$400. Steinfort, 281-9893.
 REALISTIC PRO-2021 SCANNER, \$125; Thule bicycle carrier/ski rack, \$50. Hawthorne, 1-471-0448.
 VACATION PACKAGE, discounted, best offer. Roth, 881-3824.
 GARAGE SALE: maple table, 4 chairs, china cabinet, \$495; occasional tables, record player, mirror, recliner, 2717 Getta NE, Aug. 11-12. Joseph, 299-6989.
 ANTIQUE OAK ICEBOX, White Mountain Grand, \$500; teak dresser, \$175; full-power Toshiba microwave, \$75. Petersen, 275-7467.
 AC REFRIGERATION CONDENSING UNIT, Coldman, \$450; multi-purpose exercise unit, \$100. Barker, 831-5055.
 MOTORCYCLE HELMETS: 1 small Shoei, w/visor, \$25; 1 large, open face, \$15. Pendall, 265-3008.
 SOFA, full-size, Flexsteel, blue, \$135; child's rolltop desk, \$70. Landa, 821-4374.
 BEDROOM SUITE, couch, piano, clarinet, flute, punching bag, weight set, microwave, storm door, sewing machine, stereo. Carter, 293-6750 leave message.
 FOUR 15" WHEELS, 6-hole, white, tires included, for Chev./GMC pickup, \$10 each, \$35/all. Hawkinson, 281-1281.
 LIVING ROOM SET, 3-piece sectional, 2 matching chairs, \$250/ set or sell separately. Hughen, 296-2600.
 CAMPER SHELL for small pickup, \$100 OBO. Hammond, 294-2045.
 YARD SALE: sponsored by Uptown Garden Club, to benefit Joy Junction, 6512 Osuna Rd. NE (across from Arroyo Del Oso Golf Course), Aug. 18. Alls, 884-8127.
 REMINGTON 870 PUMP SHOTGUN, 20-ga., 26" barrel, modified choke, padded case, \$150. Parks, 884-7475.
 BORLAND QUATTRO SPREADSHEET, for IBM-compatible PC, never opened, \$10; Leading Edge PC, IBM-compatible, hard disk, floppy drive, software, more, \$600 OBO. McCord, 281-2146.
 DIAMOND RING, 1 carat, emerald cut, VS-1 clarity, H color, custom-designed, man's geometric, 14KY gold mounting, can separate stone from mounting. Davis, 263-5263.
 SEARS STROLLER, \$20; child carrier, \$10; Mountain Masters child-carrying backpack, \$75; portable crib, \$30; rolling TV stand, \$10. Maish, 898-8027.

PLAYPEN, Century stroller, \$25 each; 6 cases canning jars, \$9/all OBO. Vansalous, 877-6128.
 IBM-PC, 640K dual floppies, 30 MEGHD, co-processor, HERC display, tape backup, software, OKI93, \$2500; Kroy-80 lettering machine, w/11 disks, \$400. Terry, 292-7456.
 MADAME ALEXANDER DOLLS, MIB, Lady Hamilton, \$60; Robin Hood/Marian, \$70/pr., others; aluminum windows, two 3' x 4', one 4' x 4'. Van Deusen, 291-8196.
 AMATEUR RADIO MAGAZINES, QST and CQ, more than ten years' collection, free. Anderson, 294-8451.
 '72 WINNEBAGO SLIDE-IN CAMPER, 8.5', stove, icebox, toilet, sleeps 5, \$1500. Shortencarier, 293-4313.
 GARAGE SALE: new mountain bike, metal desk, books, adult clothing, mini-blinds, misc., Aug. 11, 7:30 a.m.-4 p.m., 4816 Galleta Rd. NW. Diltz, 899-0372.
 DINING/GAME ROOM SET, 4 cane-back chairs w/casters, one leaf for table, \$400. Garcia, 344-3406.
 VERTICAL BLINDS, w/valence, 48" x 84", yellow or pale green, \$40. Tyner, 294-5289.
 ROUTER, case, assorted bits, table, \$94.50; Sears automobile analyzer, 13 functions, \$83.90; rug shampooer, Powermate scrubber, \$145.50. Laffoon, 298-7282.
 KAYPRO-4 COMPUTER, washer, beds, sofa, other household items. Erickson, 296-0486.

TRANSPORTATION

'86-1/2 TOYOTA SUPRA, new body style, burgundy, 36K miles, AT, new tires, all power, \$11,200. Smith, 888-7928.
 '77 PLYMOUTH VOLARE SW, \$500. Vigil, 899-0046.
 '85 NISSAN SENTRA, 63K miles, \$3150. Romero, 821-3113 after 4.
 '83 DODGE CHALLENGER, 5-spd., AC, AM/FM cassette, PS, PB, PW, 2600cc 4-cyl., \$2200. Strait, 281-8975.
 '85 300ZX, 5-spd., tinted glass, T-top, car alarm, \$9800 OBO. Leal, 298-8661.
 KAWASAKI JET SKI, 300cc, cost \$2200, sell for \$1250. DeLoach, 839-9284.
 SKEETER BASS BOAT, w/cover, 150-hp Evinrude, trolling motor, depth/fish finder, flotation jackets, \$4500; '84 Ford F-250 pickup, AT, \$3500. Abeyta-Sinclair, 865-7152.
 '86 S-10 BLAZER, 4-WD, AC, stereo w/4 speakers, new Bridgestone tires, new shocks, \$7800. Kelly, 281-9774.
 '28 FORD MODEL A COUPE, fully restored, \$9800. Lippis, 898-8429.
 '84 FORD 250 XLT, 460, AT, PB, PS, AC, AM/FM cassette, custom topper shell/camper package. Taylor, 293-7053.
 '82 DODGE COLT, 4-spd., AM/FM cassette, PS, PB, leather interior, \$1500. Crump, 272-9304.
 '84 PLYMOUTH RELIANT SW, PS, PB, AC, 4-cyl., FWD, \$3400 OBO. Gustwiller, 268-4893.
 '76 PONTIAC VENTURA, AC, AT, PS, PB, V-8, 4-dr., AM/FM stereo cassette, 4 speakers, original owner, \$1000. Jackson, 888-4081.
 '80 KAWASAKI 750 LTD, Vetter fairing, AM/FM stereo cassette, lowers, trunk, 15K miles, \$1475. Gentry, 298-6508.
 '83 FIREBIRD, V-6, new clutch, new white paint, black louvers, new tires w/chrome wheels, new front end, \$3000. Sabre, 821-7841.
 '83 FORD MUSTANG GLX, 6-cyl., AM/FM cassette, PW, PB, PS, 47K miles. Dubois, 869-4410 leave message.
 FUJI GRAND TOUR 18-SPD. BIKE, \$150; '58 Edsel Bermuda SW, \$1600; '62 Buick Special Deluxe convertible, \$2200. Davis, 263-5263.

'89 PONTIAC SUNBIRD LE, 2-dr., 5-spd., 4-cyl., AC, AM/FM, 6K miles, assume loan at CU. Weatherbee, 869-2847.
 '80 MAZDA 626, 2-dr., 70K miles, new tires, \$1600. Burgett, 275-0229.
 '87 S-10 BLAZER, 45K miles, new tires, V-6, cruise, AT, AC, \$9000. Howard, 296-2890.
 16' CANOE, w/paddles, new life jackets, cushions, \$300 OBO. Gray, 268-0144.
 '85 SAAB, 3-dr., silver turbo, 5-spd., cruise, AC, new tires, 40K miles, \$6995. Patterson, 822-1196.
 '84 CHEV. S-10 BLAZER TOW DINGHY, 4-WD, winch, tow bar, Remco driveline decoupler, extras. Hansen, 344-2475 or 898-3173.
 '69 DODGE PICKUP, fiberglass shell, AC, AT, PB, PS, 3 gas tanks, one owner, 82K miles, \$1500. Robinson, 865-7787.
 '86 NISSAN 300ZX TURBO, T-tops, 35K miles, one owner, 60K-mile warranty transferable. Parnegg, 821-5105.
 '89 TOYOTA 4x4 PICKUP, 5-spd., cloth interior, chrome roll bar, Nerf bars, stereo, alarm system, \$12,500 OBO. Disch, 299-8171.
 '79 LINCOLN MARK V, white, new tires and battery, 74K miles, \$3500. Bazar, 898-1467.
 '73 DODGE MOBILE TRAVELER MINI MOTOR HOME, 19', 360 engine, PS, PB, AC, AM/FM, awning, 68K miles, \$4000. Schuster, 299-1072.
 '86 FORD RANGER XL, V-6, long bed, load package, 67K miles, 5-spd., AC, PS, PB, AM/FM cassette, upholstered fiberglass cap. Tennyson, 292-5844.
 INDY RACER, gas-powered go-cart, \$700 OBO. Tidmore, 296-1334.
 '83 FORD E250 VAN, 351 V-8, AT, cruise, finished interior, HD electrics, AC, 76K miles on chassis, 28K miles on engine, \$4100. Mendel, 265-3840.
 MAN'S SCHWINN VARSITY BIKE, 10-spd., new seat, book rack, \$75 OBO. Anastasio, 821-4245.
 '88 FORD BRONCO, full-size, XLT, fully loaded, new tires, 60K-mile extended warranty, \$13,800. Tindell, 299-2866.
 '85 CHEV. S-10 BLAZER, 4x4, 4-cyl., 5-spd., 67K miles. Beasley, 298-3398.
 '84 VW JETTA, AC, 5-spd., AM/FM stereo, 4-dr., sunroof, aluminum wheels. Garcia, 344-3406.
 '90 SEA RAY BOAT, fish/ski package, 18', 135-hp Mercury outboard w/high-altitude gearing, \$15,000 OBO. Smith, 266-1405.
 '78 TRANS AM 400, 4-spd., AC, PL, PW, PT, centerline wheels, \$4000 OBO. Carriaga, 877-2646.
 '79 CORVETTE, new engine, new brakes, white leather interior, AT, T-tops, PW, cruise, \$8200. Allen, 821-4193 or 275-5813.
 '80 SAAB, 4-dr., hatchback, sunroof, \$3250. Bayless, 296-7345.
 '89 SUBURBAN SILVERADO, 4x4, white, factory warranty, all records, extras. Laub, 898-6275.
 '87 BRONCO, full-size 4x4, 5L V-8, 4-spd., custom wheels, trailer hitch, CB, 30K miles, \$10,500. Terry, 292-7456.
 '66 VOLVO 122S, 4-dr. sedan, new tires, \$1200 OBO. Suber, 292-5619 leave message.
 '86 NISSAN 300ZX TURBO, 5-spd., AC, alarm, T-top, new tires & brakes, 225-hp, maintenance records, NADA avg. retail, \$11,650. Davis, 294-1048.
 SCHWINN BICYCLE, 18" girl's coaster model, puncture-resistant tubes, cost \$160, sell for \$75. Stephenson, 296-9330.
 '85 FORD F150 PICKUP, 300 cu. in. 6-cyl., AT, PB, AC, 46K miles, below book, \$5300. Stanley, 296-4333.
 '69 VW BUG, \$1500. Hawbaker, 292-5418.
 '84 PONTIAC 6000 LE, 4-dr., AT, AC, power everything, one owner, 51K miles, below book, \$4200 OBO. Pershall, 299-9682.

'85 MAZDA RX7, red, AT, AC, sunroof, quad sound system, 40K miles, extras. Crooks, 293-7008.
 '79 VW RABBIT, 2-dr., 4-spd., \$600 OBO. McCord, 281-2146.

REAL ESTATE

3-BDR. HOME, 1-3/4 baths, wood stove, fruit trees, \$70,000 assumable. Normann, 291-9909.
 2-BDR. MOBILE HOME, '74 Holiday Town & Country, 14' x 80', in Four Hills park, \$16,000 OBO. Leal, 298-8661.
 3-BDR. HOME, 1-1/2 baths, landscaping, fruit trees, covered back porch, remodeled, Taylor Ranch, \$68,500. Einerson, 897-3476.
 2-BDR. MOBILE HOME, '83 All American, 2 baths, 14'x70', all appliances, in Four Hills park. Lambert, 294-4188.
 1/2 ACRE, Bosque Farms, La Mancha Estates, fenced, utilities, well; 2-bdr. mobile home, Redman, 14' x 60'. Reed, 821-0815.
 2-BDR. MOBILE HOME, 1 bath, 14' x 66', all appliances, Four Hills, \$11,000 OBO. Boston, 298-9727.
 3-BDR. MOBILE HOME, 2 baths, LR, kitchen, pantry, washer/dryer, North Hills Park, Louisiana & Pino, \$15,500. Reed, 821-6315.
 2-BDR. HOME, 2 baths, 2-car garage, Wood Bros. patio home, landscaped, sprinklers, Morris/Spain area. Biringer, 821-8741.
 2-BDR. HOME, on 1/3 acre, 1-car garage, fully fenced w/5' chain link. Vansalous, 877-6128.
 2 VACANT LOTS, NE established area, all utilities, Constitution and Espejo. Beasley, 298-3398.

WANTED

TANDEM DOUBLE STROLLER. Prior, 281-5532.
 BABY CAR SEAT, for use Aug. 20 through Sept. 15. Robinson, 293-7231.
 HOUSING, employees on temporary assignment want to house-sit starting in November. Passman, 821-4999.
 END BRACKETS for Ames metal bookshelves. Mattox, 292-7763.
 ROOMMATE, female, share rent of private house, your own restroom & shower, use of washer & dryer, fenced backyard & front yard, FP. Marquez, 242-1603.
 EMPLOYEES helped by United Way willing to share their stories, for a LAB NEWS article. Walerow, 4-7841.
 HARD DISK DRIVE, 20MB, for AT computer. Skogmo, 292-9773.
 ROOMMATE, mature individual, share 3-bdr. house, NE Heights, \$300 mo., no utility costs. Smid, 299-5115 leave message.
 ROOMMATE, share 2-bdr., 2-bath apt., NE Heights, laundry, pool, Jacuzzi, clubhouse, \$195 mo., plus 1/2 electricity. Romero, 298-3882 after 5.
 VENTURE 17 SAILBOAT, any condition. Colp, 255-0228.
 HOUSEMATE, share NE Heights home, non-smoker, \$250 mo., plus 1/2 utilities. Levin, 299-0891.
 DRIVER, Academy HS student to drive 6th grade girl to/from Academy, Spain/Tramway area, pay negotiable. Ahrens, 294-8986.
 UPRIGHT FREEZER, 10 cu. ft., in good condition; RV storage pod. Garcia, 888-4735.

SHARE-A-RIDE

VANPOOL RIDERS NEEDED, full- & part-time seats immediately available from Santa Fe to KAFB and Sandia Labs. Hawthorne, 1-471-0448.



Coronado Club Activities**Tonight's Menu: Surf and/or Turf**

DINNER DELIGHTS tonight, Aug. 10, include some terrific choices for both beef buffs and fish aficionados. Entrees are albacore tuna, prime rib (both \$7.95), steak Neptune (filet mignon topped with crab meat for \$8.95), and poached flounder (\$6.95). Afterward, dance the night away from 8 to 11 p.m. as you enjoy the Big-Band sounds of the Roland De Rose orchestra. Better make that dinner reservation now (265-6791).

A REMINDER — August has been proclaimed "Brunch Month," so fans of the best brunch bargain in town have a reason to celebrate every Sunday (Aug. 12, 19, and 26). Mountains of mouth-watering menu selections are available each of those days from 10 a.m. to 1 p.m. for a most reasonable cost: \$5.95/adults, \$2.50/children ages 3 through 12, and free/ankle-biters under 3.

THOSE GOOD OLD POOR BOYS from Isleta return next Friday night, Aug. 17, to belt out their special sagebrush-stomp tunes from 8 p.m. to midnight. Beforehand, chow down on some spe-

cial trail fare: fried shrimp, prime rib (both \$7.95), chicken teriyaki (\$6.95), or a seafood combination plate (\$7.50). The Poor Boys usually attract an SRO crowd, so make that reservation early.

SET 'EM UP IN THE OTHER ALLEY — That's the motto of C-Club Junior Bowling League. The group's getting organized for next season at a session on Monday, Aug. 20, from 7 to 8 p.m. in the Eldorado Room. Come on out and learn about membership costs and the 1990-91 schedule — and enjoy some free refreshments. Members' children ages 6 through high school are eligible, and beginners are welcome, according to leader Ciss Kelly (ret.). For more info, call Ciss on 255-8011.

SNOW IN AUGUST? Well, let's call it *liquid* snow — and it's in a pool, so it won't be as cold as the real stuff. Coronado Ski Club members invite everyone interested in joining their fun-loving group to show up at a pool/patio party on Saturday, Aug. 25, from 4 to 8 p.m. Skiing isn't on the list of

activities, but swimming, volleyball, basketball, and tennis are — along with some pretty good grub and a chance to sign up for CSC membership. Advance reservations are required; it's \$1/person and free/children under 6. For reservations and more information, call Lee Walton on 293-0958.

A WORD TO THE WISE — The pool closes Labor Day, Sept. 3. The *good* news is that there's still plenty of time to enjoy that outstanding facility. Pool hours are 11:45 a.m. to 6 p.m. Monday, Tuesday, and Thursday; 11:45 a.m. to 8 p.m. Wednesday and Friday (with Family Swim Nights each Wednesday); 11 a.m. to 5 p.m. Saturday; and noon to 5 p.m. Sunday.

THEY AREN'T SHUFFLIN' OFF TO BUF-FALO, but they *are* shufflin' at the C-Club. "They," of course, are the T-Bird card sharks, who get together twice a month for convivial conversation and blockbuster bridge. This intrepid group's next fun-and-games session is Thursday, Aug. 23, starting at 10 a.m.

Events Calendar

Events Calendar items are gathered from various sources. Readers should confirm times and dates of interest whenever possible.

Aug. 10-12 — 10th Annual Cowboy Classic Western Art Show, free, \$1 parking, 12 noon-5 p.m., Fine Arts Gallery, NM State Fairgrounds, 265-1791, ext. 228.

Aug. 10-12 — Sunwest Bank/Charley Pride Senior Golf Classic, proceeds benefit St. Joseph Hospital & Health Care Foundation, Presbyterian Health Care Foundation, Lovelace Medical Foundation, and All Faiths Receiving Home; for information and tickets, call 247-GOLF.

Aug. 10-26 — "Servant of Two Masters," eighteenth century classic comedy by Carlo Goldoni set in the early twentieth century, mistaken identities, misled characters, sight gags; 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre, 247-8600.

Aug. 10-Sept. 14 — Exhibit: "Raymond Jonson: Geometric Form in the Pursuit of a Unifying Principle"; 9 a.m.-4 p.m. Tues.-Fri., 5-9 p.m. Tues. evening; UNM's Jonson Gallery, 277-4967.

Aug. 10-Oct. 14 — "Georgia O'Keeffe and the Stieglitz Circle," exhibition examining the group of artists (including O'Keeffe) who were affiliated with Alfred Stieglitz, the photographer, gallery owner, and champion of early twentieth century avant-garde art; 9 a.m.-4 p.m. Tues.-Fri. (5-9 p.m. Tues. evening), 1-4 p.m. Sun.; Upper Gallery, UNM Art Museum, 277-4001.

Aug. 10-Oct. 16 — "Birds/Portraits," exhibit of 40 oil portraits of birds seen in the Southwest by Austin, Tex., artist Benita Giller; 9 a.m.-5 p.m. daily, New Mexico Museum of Natural History, 841-8837.

Aug. 11 — New Mexico Clogging Association 5th Annual Convention: workshops at 9 a.m. & 1 p.m., dance at 7 p.m., clog dance exhibitions start at 7:30 p.m.; Youth Hall, New Mexico State Fairgrounds, spectators free, parking \$1, 268-6620.

Aug. 11 — Summerfest '90: Middle Eastern & Eastern Indian Night, ethnic food, arts & crafts, dances; 5-10 p.m., free, Civic Plaza, 768-3490.

Aug. 12 — Arts in the Parks: Inez Festival, featuring Mark Jenkins, "It's Magic," Bayou Seco, and Linda Cotton and Street Life, sponsored by City Parks and Recreation Dept.; call for time, Inez Park, free, 768-3490.

Aug. 12 — Santa Clara Feast Day: Buffalo, Comanche, or Corn dances; call for times, Santa Clara Pueblo, 843-7270.

Aug. 15 — Uptown Garden Club's Wildflower Meadow Dedication, meadow contains many species of wildflowers found in New Mexico, site to be made available for tours; 9 a.m., Albuquerque Garden Center (10120 Lomas NE), 299-6502 or 266-8498.

Aug. 15 — San Antonio Feast Day: Corn dances; call for times, Laguna and Zia pueblos, 843-7270.

Aug. 16-18 — Bernalillo County 4-H Fair and Rodeo: exhibits include livestock, handcrafts, baking, sewing, rocketry, welding; 8 a.m.-8 p.m. Thurs., 8 a.m.-

7 p.m. Fri., 8 a.m.-6 p.m. Sat.; Youth Hall; rodeo at 7 p.m. all three nights at Tingley Coliseum; NM State Fairgrounds, 243-1386.

Aug. 18 — "La Boda" Theatre Group (San Francisco), presented by Teatro Nuestro; La Boda introduces new hero Super Sanchez, inspired by wisdom of famous Mexican folk hero Super Barrio; 8 p.m., South Broadway Cultural Center, 848-1320.

Aug. 18 — Summerfest '90: German Night, ethnic food, arts & crafts, dances; 5-10 p.m., free, Civic Plaza, 768-3490.

Aug. 19 — Arts in the Parks: Jazzfest, featuring Desert Wind, Red Hot Peppers, Albuquerque Jazz Orchestra, sponsored by City Parks & Recreation Dept.; call for time, Tiguex Park (Old Town), free, 768-3490.

Aug. 24-25 — Opera performances, "The Miraculous Staircase" (set in Old Santa Fe) and "Another Accident" (English murder mystery), both by Albuquerque composer Alan Stringer; 8 p.m. (both operas on both evenings), First Congregational Church (Lomas & Girard NE), 296-9215.

Aug. 25 — Concert, Zimbabwe & Jazz Culture; 8 p.m., South Broadway Cultural Center, 848-1320.

**Congratulations**

To Joyce and John (9235) Wolfe, a son, Jonathan Paul, June 15.

To Sandra and Russell (2142) Mikawa, a son, Daniel Thornton, June 18.

To Luz and Rich (2115) Flores, a daughter, Cristina Arlene, June 25.

To Penny and Steve (2513) Harris, a son, Michael Arlen, June 28.

To Gloria Zamora (400) and Robert Shea, married in Albuquerque, June 30.

To Phyllis Padilla (3521) and Norm Owens, married in Albuquerque, July 7.

To Frances Katsoudas and Peter Stangas (9342), married in Charlotte, N.C., July 8.

To Mary and Steve (2513) Barnhart, a son, Michael Frank, July 9.

To Shirley and Joe (2615) Brenkosh, a son, Daniel Carl, July 9.

To Debbie and Tim (144) Knewitz, a daughter, Jessica Leann, July 15.

To Sharon (2545) and Charles (7231) Trauth, a son, Sean Alexander, July 16.

To Jayne (2131) and Tim (9223) Sobering, a son, Ian David, July 22.



SUMMERTIME, and the ridin' is easy for Dan Hughes (7482) as he crosses the Los Altos Park Overpass on his way to Sandia. "I ride my bike for exercise and convenience," he says. "I don't have to worry about a parking space." (Photo by Randy Montoya, 3162)