Sandia begins testing explosives portal at Albuquerque airport

Detector sniffs minute concentrations of 'explosives of interest'

By John German

Beginning next week, some airline passengers visiting the main security checkpoint at the Albuquerque International Sunport will be asked to try out tomorrow's technology for combating terrorism — Sandia's "explosives-detection portal" under development for the Federal Aviation Adminstration (FAA).

The explosives "sniffer" is intended to help prevent airliner hijackings and bombings by identifying passengers and airport employees and visitors who have recently been working with any of a wide variety of explosive chemicals.

"... we want to see what people think of this method of screening."

The portal has been in laboratory development at Sandia for three years. The purposes of the FAA-required field tests — scheduled to begin Monday — are to gauge passenger acceptance of the technology, identify any reliability issues that need to be addressed, and optimize the detector's performance with the ultimate goal of its widespread adoption at airports across the country.

"First we want to see what people think of this method of screening," says Kevin Linker of Entry Control/Systems Engineering Dept. 5848, lead researcher for the project.

During the two to four weeks the portal is in operation at the airport, the researchers hope to test more than 2,000 passengers having a range of body sizes and shapes.

Although specific information about the portal's capabilities (the types and quantities of explosives it can detect) cannot be disclosed for security reasons, it is capable of detecting very small concentrations of all "explosives of interest" to the FAA, he says.

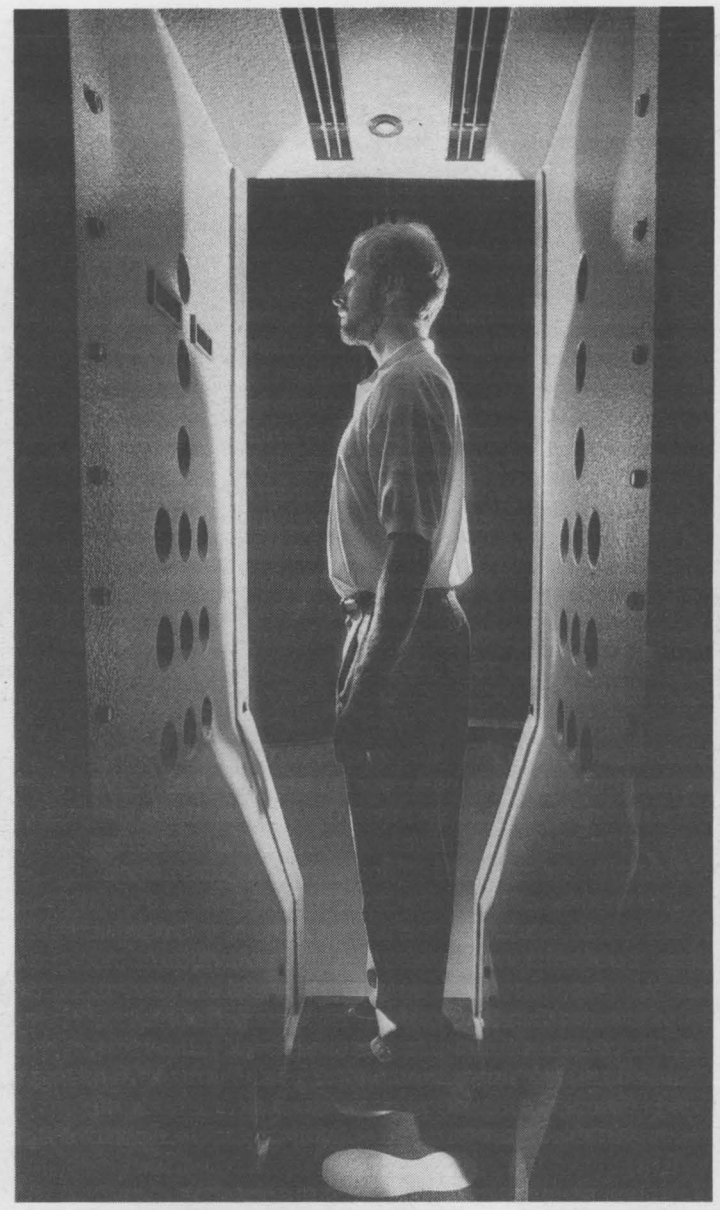
Looks like a metal detector

As usual, passengers and visitors to the airport terminals will be required to pass through metal detectors and the usual carry-on baggage check regimen. A uniformed security officer hired by Sandia then will ask some passengers to volunteer to pass through the explosives-detection portal. Participation is strictly voluntary, and volunteers can choose to stop participating at any time.

"We would hope someone running to catch a flight would choose not to participate," Kevin told reporters during a Sept. 4 media demonstration at Sandia.

The new portal looks like an airport metal detector with vents and nozzles on its inside walls and ceiling. Passengers who agree to participate will be asked to stand inside the portal for a few seconds as the detector blows a quiet, gentle "puff" of air over them. An air sample is collected and passed through a commercial ion mobility spectrometer. The system's software recognizes

(Continued on page 4)



PORTAL PRELIMINARIES — Chuck Rhykerd demonstrates use of Sandia's explosives-detection portal. (Photo by Randy Montoya)

FORTE first satellite to be controlled from Sandia

Each time the 468-pound FORTE satellite sweeps overhead, all eyes inside Sandia's satellite ground station look down.

What Sandia and Los Alamos national laboratories scientists are looking at are the reams of data being downloaded from the 7-foot-long satellite, orbiting 500 miles above the Earth. Four times a day the scene is repeated as FORTE passes within communicating distance of the Sandia ground station. Although Sandia has developed and monitored satellites in the past, this is the first time the Labs has actually controlled a satellite's operations.

FORTE (Fast On-orbit Recording of Transient

(Continued on page 4)

SQLC reorganizes into 'Laboratories Leadership Team' & three sub-councils

By Bill Murphy

The Sandia Quality Leadership Council — the SQLC — is no more. It is now the Laboratories Leadership Team, or LLT.

Although the membership of the LLT is the same as that of the SQLC, much more than the name has changed. This is no cosmetic facelift: The move to the LLT represents a fundamental restructuring of the way senior management interacts and conducts its business. Indeed, much of the business and discussion previously conducted by the SQLC will not be carried out in full LLT meetings, but in one of three new councils that report to the LLT: the Mission Council, the Capabilities and Capacities Council, and the Enabling Policy and Process Council.

It is hoped and expected, says Executive Staff

(Continued on page 5)

Sandia LabNews

Vol. 49, No. 18 September 12, 1997

Sandia National Laboratories

Largest-ever CRADA brings $200 million microelectronics investment

Three national labs team with chip makers on EUV project

By Nancy Garcia

A microelectronics industry consortium that includes the world's largest chip maker was expected this week to announce the largest-ever funds-in cooperative research and development agreement (CRADA) with Sandia, Lawrence Livermore, and Lawrence Berkeley national laboratories.

The industrial consortium will invest more than $200 million over the next three years to develop extreme ultraviolet (EUV) lithography toward commercial application.

EUV is an advanced version of optical lithography, projected to produce computer chips featuring critical line widths of less than 0.1 microns — about one-third the size of current chip features and 1/1000th the diameter of a human hair. These chips may be up to 100 times faster than current chips.

Lithography capabilities have historically defined and limited the size and complexity of semiconductor chip designs, and may account for up to 40 percent of a chip's manufacturing cost. From 1991 until 1996, DOE has invested approximately $30 million in underlying technology, together with "in-kind" industry participation, that is applicable to the development of EUV lithography.

The three labs have joined into a Virtual National Laboratory (VNL) to continue development of the technology under private funding with the industrial consortium. No government funds are included.

The partnership provides the laboratories with a better understanding of advanced electronics performance and reliability for defense purposes, and early access to products that help achieve an important DOE goal of developing faster computers to ensure, through simulations, that the nation's nuclear weapons are safe and reliable. The CRADA also enhances relationships

(Continued on page 4)

This & That

World *Weird* Web – Weird e-mail inquiries and offers coming to me via our External Webmaster link no longer surprise me.

Perhaps my most unusual inquiry came in July from a melon dealer in Honduras. He wanted to know who might be able to provide solar panels that could keep *3 million boxes* of melons at a temperature of 3-5 degrees C for 7 months. I know I have a warped mind, but all I could think about while forwarding the inquiry to our solar energy experts was how many flies and other nasty critters 3 million boxes of bad melons would attract. For his neighbors' sake, I hope the melon man found help.

The most common type of offbeat messages I get are offers of all kinds from other webmasters wanting Sandia to provide a link to their sites. Some are legitimate requests from scientific/technical groups, but some are offers of money to link commercial sites, including porno sites! (I considered agreeing to list one such site and putting the money in a special personal retirement fund if it would reciprocate by adding a link to "Sandia Science and Engineering Hunks," but the thought passed quickly. I think my recent ethics training kicked in!)

* * *

"Gimmees" no longer good? – Speaking of ethics training, I'm having some trouble determining just how far to carry it into my personal life. I wonder whether I should putt all of those three-foot-or-so "gimmees" that I regularly award myself. Come to think of it, putting them would probably raise my handicap index, thereby making me more competitive for prizes in handicapped tournaments and matches. Suddenly I feel *so much better* about taking the required course. Now what did I do with that handsome, suitable-for-framing certificate?

* * *

Another retiree reaches 100 – Sandia retiree and Albuquerque resident Arthur Russell turns 100 on Saturday, Sept. 13. Congratulations and happy birthday wishes to Arthur, and thanks to his wife Joan for letting us know about the big event. Arthur retired from the Labs in 1962 after working for several years on early pulsed-power projects. Joan says Arthur worked later at Sandia as a contractor and finally quit working only 11 years ago. He also founded the Coronado Technical Institute, which trained lots of Sandia drafters in the 1960s.

* * *

A sad day at the *Lab News* office – All of us here were shocked and saddened on Tuesday morning to learn that retired *Lab News* Editor John Shunny suffered a major stroke while in Arizona with his wife Paige last week. At the time of this writing early Wednesday, John's prognosis didn't sound good, and he was reportedly in a Tucson hospice, where Paige and two sons were watching over him. John edited the *Lab News* for about 15 years and retired in 1982. He's simply a wonderful human being, and we're pulling hard for him.

– Larry Perrine (845-8511, MS 0167, lgperri@sandia.gov)

Oct. 9 is 'Take Our Sons to Work Day'

"Take Our Sons to Work Day" at Sandia is scheduled for Thursday, Oct. 9. Sponsored by Human Resources Div. 3000 and Public Relations and Communications Center 12600, the event is intended to give boys ages 9-15 exposure to Sandia's diverse contributions to the nation's security, technological advancements, and energy programs.

Sandia, contractor, and DOE/KAO employees are invited to bring their sons or male relatives and friends from the ages of 9 to 15 to work on this day. Registration is at the Technology Transfer Center (Bldg. 825) between 7 a.m. and 1 p.m.

Forms can be obtained by fax at 284-INFO or through the Sept. 8 *Weekly Bulletin* on the Internal Web. Forms also will be available for pickup at the reception areas in Bldgs. 800 and 823. Bring the completed forms (manager approval needed) with you on Thursday, Oct. 9.

For additional information, contact Lisa Polito, Protocol Dept. 12670, at 845-0089.

Sandia LabNews

Sandia National Laboratories

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LOCKHEED MARTIN

Retiree deaths

Helen Pope (72)	7822	July 1
George Romero (82)	3417	July 4
Hildegarde Hennessee (68)	9230	July 5
Jon Thebert (53)	7556	July 16
John Dickinson (75)	7515	July 19
Frank Ridlon (82)	4518	July 21
Harold Catt (88)	4123	July 23
Wallis Cramond (62)	6412	July 24
Ruth Babcock (78)	4233	July 26
Joseph Placek (91)	2342	July 26
Horace Roberson (85)	4513	July 27
Dorris Tendall (73)	1111	July 28
Josephine Trujillo (83)	3613	July 30

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

Feedback

Q: What is Sandia's plan to hire able-bodied welfare recipients, which could help achieve President Clinton's goal of reducing the number of people dependent on welfare?

A: Sandia is committed to doing its part to address President Clinton's initiative to reduce the number of people on welfare. At this time, a team is looking at this issue to develop alternatives that will enable Sandia to successfully meet this challenge. A couple of initial ideas being discussed are in the area of training. We are looking at available resources to determine how we can best provide essential training that will allow these individuals the opportunity to become self-sufficient and productive members of the work community. We are also examining the possibility of partnering with other national laboratories to develop strategies to address this issue.

— Don Blanton (3500)

Q: Why can't some major conference rooms at Sandia be scheduled on the Web's Conference Room Scheduler application? I understand some centers are responsible for a particular conference room and may have "invested" considerable dollars into refurbishment. However, the statistics work against all of us not to have access to scheduling a major room. An example is Bldg. 822 Conf. Rm. A. For a major conference, facilities needed may include the Technology Transfer Center and lobby plus Bldg. 822 A&B. But being "unscheduleable" makes it very difficult to plan ahead. The stated policy is that "this room can be scheduled 30 days ahead of the event." A major conference may need to be established six months to a year prior to the event. Who makes the decision that a DOE/Sandia facility is unscheduleable?

A: The current Sandia practice is that the organization paying for the conference room space establishes the rules/regulations for the conference room. This includes scheduling only 30 days prior to an event or whether to make it "scheduleable" or "unscheduleable" on the Web. The conference room information on the Web gives the name of the responsible person to contact to make special arrangements for unusual circumstances. — Paul Merillat (4800)

Q: When the new accounting software is implemented, will Sandia go to a standard week; for example, weeks that start on Monday like the real world? Or will it still be Friday as the first day of the week?

A: Sandia's financial workweek will continue to be Friday through Thursday. No changes are contemplated for the 9/80 schedule, Financial Information System (FIS), Accounts Payable System (IPS), Accounts Receivable System, Treasury and Travel System (SRVS), or Payroll system.

— Ray Shaum (10502)

Q: We hear in the news of more and more cases of employees (and seemingly not the company) being liable for their actions. If, despite all of the proper safety reviews and procedures, the unforeseen happens and someone is hurt at Sandia or an air base, what are my liabilities for actions taken either directly or indirectly under my direction? As the design agency, a number of us are also required to sign off on Pantex operating procedures. What are my liabilities if an accident occurs there and I approved the procedures? Many of the employees I have spoken with in this department are very interested in the answers. I suggest that this be addressed either on the Internal Web or at least by posting this feedback with the proper response for all to see. Before an accident occurs, we would like to know — "How far is our neck sticking out?"

A: We all know that mistakes can be made and accidents can occur even when people are trying to follow all of the proper safety procedures. However, despite good intentions, mistakes or accidents can lead to legal liability.

Generally, civil (noncriminal) liabilities are assessed against Sandia Corporation, not against individual employees. However, if a third party (e.g., a relative or a government agency) brings a civil action directly against a Sandia employee, the Corporation will pay to defend the employee and pay any penalties assessed against the employee as long as the employee was acting within the scope of his or her employment, in good faith, and in the best interests of Sandia. If an employee acts outside the scope of his or her

(Continued on next page)

2020 Vision educational activity expands to more classrooms

Sandia brings scenario-building to students and teachers, posts activities on external Web

By Nancy Garcia

Tomorrow's decision-makers — today's teenagers — provided Sandia their views of the future recently as a part of 2020 Vision, a program sponsored by Sandia/California's Science & Technology Outreach Department and the Senior Advisor for National Security. More than 250 senior high school students participated in this second year of the program, and six of those students came to Sandia one day this summer to share their ideas with national security researchers.

"We want to give the students a framework for thinking critically about issues that can impact their future and their world."

"As part of our role to connect the science and technology of Sandia with education, we began two years ago to look at designing an activity around national security issues," says Karen Scott, Manager of Science & Technology Outreach Dept. 8818.

The effort draws on Sandia's experience beginning three years ago as part of the Tri-Lab Nonproliferation Council (with Los Alamos and Lawrence Livermore national labs). The Council was created to develop a shared vision of the future of national security by looking at potential trends in the next 10 to 20 years that would influence the proliferation of weapons of mass destruction and international security.

"The results of this process, while valuable to R&D planning, would be strengthened with input into visions of the future from those who most likely would be living in it," says Rob Rinne, Senior Advisor for National Security (8104), who helped fashion the school activity.

"We want to give the students a framework for thinking critically about issues that can impact their future and their world," says Karen. "Because they are from a younger generation, we want their perspective about what they consider might be national security threats in the next 10 to 20 years."

Interactive scenario-building process

Starting with the world as it is today, teams of students develop a series of stories about the future of the United States, considering how international developments will affect national security over the next 25 years. The 2020 Vision project engages students in an interactive process of creating scenarios relevant to DOE Defense Programs. Their views can then be incorporated into the work being done by planners in the national security community.

When first given the assignment, Josh Field, a 1997 graduate of San Ramon Valley High School, says, "You think, what can we do? But then you realize all these scenarios are really imagination — nobody knows what the future will be — and the more variations, the better."

Several pressing issues appeared in many of the scenario papers this year.

In general, the students were most concerned about terrorism, higher crime rates, nuclear weapons, AIDS and other deadly diseases, drugs, bankruptcy of Social Security, and the cloning of humans. Many of them also were concerned about certain "high risk" geographical regions, such as China and the Middle East.

Generally, they were least concerned about national defense and energy supplies — not because these issues are not important to them but because they largely assume that the United States will easily be able to defend its sovereignty and that alternative sources of energy will be developed in the next 25 years. The students varied in their responses to some issues, such as the role of technology in the future and the direction of education in this country; these issues were either a source of great concern or a source of positive influence on society.

Insightful, fun, stimulating

Overall, Rob says he finds this younger generation's viewpoint stimulating. "Being Cold Warriors," he says, "the scenarios help open our minds. One of the most difficult things is to think ahead. We normally react to the past. . . . The scenarios are insightful, and it's always fun and educational to hear the summaries."

"It was kind of a boot camp for the projection of past events onto future trends," Jim Poulos of San Ramon Valley High School says about the three weeks he spent on the project. "It was my first opportunity to be creatively unleashed on a project so high and mighty as world affairs and what they may be in the future."

"It made the point that small events really affect everyone," Josh Field notes.

This year, teacher participants said the biggest strength of the 2020 Vision project remains the high level of interest it generates among students, as well as the effect it has of raising their awareness of the world.

"Too many times as teenagers, we don't see the future very well," says Robyn Dunkly of Elk Grove High School. "We think either we're never going to grow up or everything's going to be perfect. A project like this is not just for points — we can see that events in the past can affect the future, now. This is a really important assignment."

"We want the students to learn by doing more than just regurgitating facts provided in textbooks and answering questions at the end of the chapter," says Judie Hurtz (8818), project leader for 2020 Vision, "We want them to discover new outlooks."

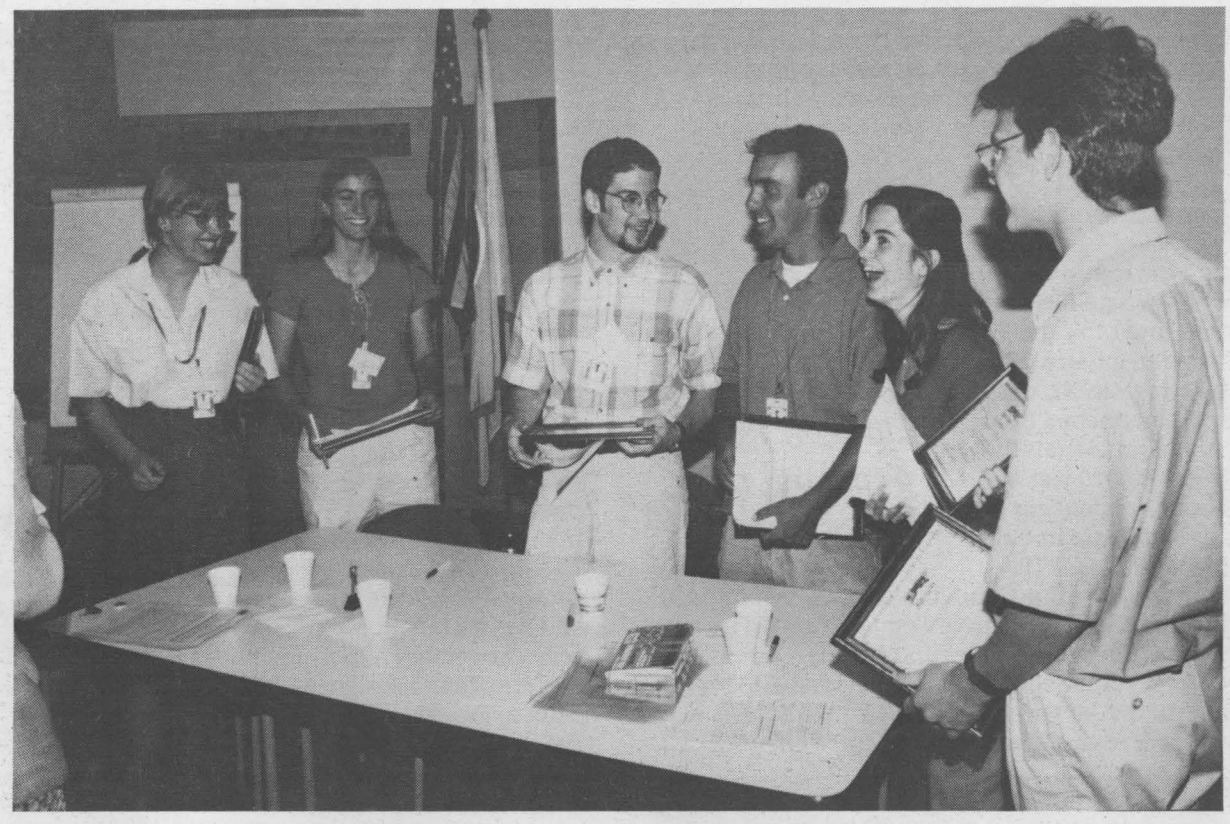
Kathryn Phillips of San Ramon Valley High says she experienced this sort of epiphany. "It made me have a broader viewpoint of other governments than our own. Even though we don't practice isolationism, I still feel isolated; maybe that's because of where I live. It really got me thinking about how we affect other countries, and how they affect us."

"Scenario-building is an effective curriculum tool that allows teachers to serve as facilitators rather than lecturers," says teacher Don Busboom of San Ramon Valley High School. Both the students and the teachers gain exposure to Sandia and current thinking among leading scientists, he says, which gives them an additional source of validation for their creative ideas and a sense of contribution to the national security community.

Expanding onto Web

With the help of Don Busboom; Ellen Vasta, a curriculum specialist from the Elk Grove Unified School District; and Bill Britton, a teacher at Mohr Elementary School in Pleasanton, the Science and Technology Outreach Department will be expanding the program in the coming school year (1997–98) to include Web-based support.

The eventual goal is to implement the program completely through Web-based applications — including registration, scheduling, program procedures, background information, research tools, communications (such as chat rooms, e-mail, and document sharing), and other resources. The plan is also to involve more diverse students from different geographic locations and socioeconomic conditions to broaden the range of viewpoints incorporated in the program.



VISIONARIES — From left to right, 2020 Vision participants included Dianna Karlicek, Robyn Dunkly, Jim Poulos, Josh Field, Kathryn Phillips, and Jeremy Tollefson. Tollefson and Dunkly are from Elk Grove High School; the others are from San Ramon Valley High School.

Sandia CaliforniaNews

(Continued from preceding page)

employment or knowingly or willfully violates a law, Sandia Corporation is not obligated to protect or defend that employee.

Sandia is not obligated to defend an employee in a criminal prosecution. Criminal prosecutions can be brought by a government entity against an individual for knowingly or willfully violating a law. Generally, to be found criminally liable, an individual must know that his or her act violates the law.

To respond to your specific example, you stated that your job sometimes requires you to serve as a representative of the design agency to approve operating procedures to be used at Pantex. If you signed the procedures as an employee of Sandia after appropriate review in your capacity as design agency representative, and an accident occurs at Pantex while the injured person was following those procedures, you should be protected as well as anyone can be from personal civil or criminal liability. The best protection is to do the best you can at all times. — Elizabeth Krauss (11300)

FORTE satellite

(Continued from page 1)

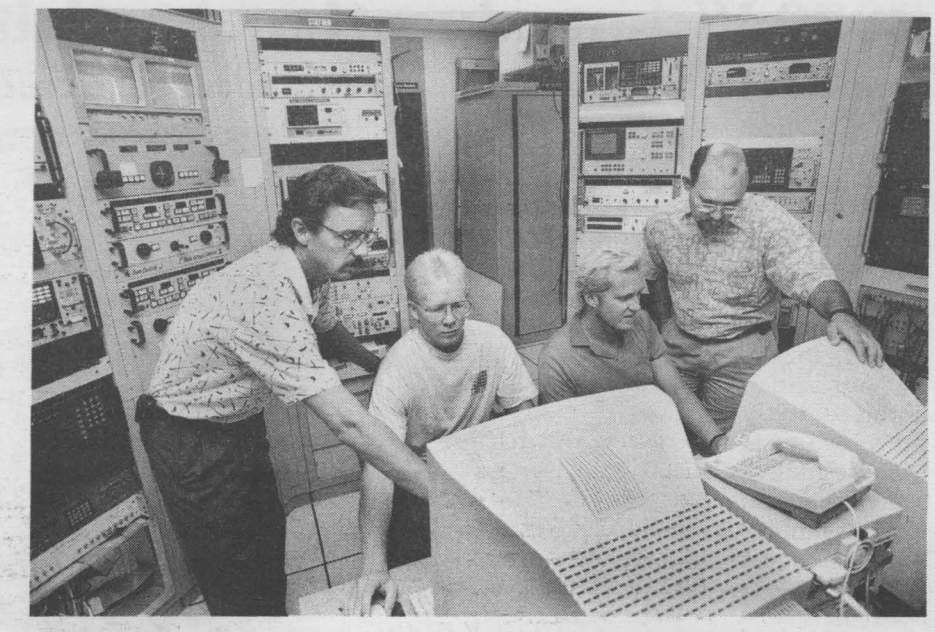
Events) was developed jointly by Sandia and Los Alamos national laboratories and sponsored by DOE's Office of Nonproliferation and International Security. It will test new ways of spotting secret nuclear weapons tests and gather data on the physics of lightning and the ionosphere.

FORTE will test new ways of spotting secret nuclear tests and gather data on lightning and the ionosphere.

The satellite was sent into orbit the morning of Aug. 29 by a Pegasus XL rocket launched from an L-1011 aircraft flying at 40,000 feet above Vandenberg Air Force Base in California. The FORTE launch vehicle and launch services were provided by the US Air Force Space Test Program (STP), an integral part of the Space and Missile Systems Center, Test and Evaluation Directorate (SMC/TE) at Kirtland Air Force Base.

FORTE carries a payload of three instruments: an advanced radio frequency impulse-detection system, an optical lightning-detection system, and an "event classifier."

The Los Alamos-designed radio frequency sensor system consists of a 35-foot antenna and three broad-bandwidth receivers that will detect, record, and analyze bursts of radio energy rising from the Earth's surface. The system will help researchers determine how the ionosphere affects the propagation of radio frequency signals. LANL also developed the satellite vehicle and has overall project management responsibility.



SANDIA AND LOS ALAMOS national laboratories scientists work quickly during 12-15 minute passovers monitoring the FORTE satellite's systems and downloading data. Pictured from left in Sandia's ground station in Bldg. 890 are Sandians Bryan Ingram (2663), Jim Snell (2663), Raivo Leeto (5716), and José Guillen (5722).

The Sandia-designed optical lightning system detects, locates, and characterizes lightning flashes. Such data will help global climatologists correlate lightning flash rates within thunderstorms to precipitation rates. This information combined with the radio frequency emission data can help explain the atmospheric breakdown mechanisms that lead to lightning discharges.

Sandia also developed an adaptive device that detects and filters out television and radio signals so the system can better detect bursts of radio energy.

The LANL event classifier is a set of adaptive processors that can distinguish lightning from man-made electromagnetic signals. It is a key technology in detecting secret nuclear weapons tests.

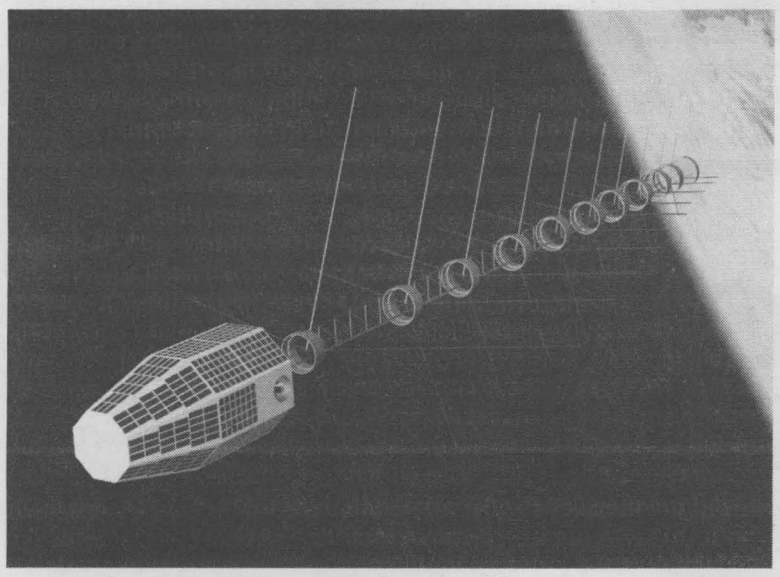
"You can calibrate these instruments in the lab, but it's really not until you get them out into real-world conditions that you can tell how they're going to operate," says José Guillen (5722), FORTE project manager for Sandia.

Throughout the one- to three-year life of the satellite, Sandia and Los Alamos scientists will download data at the Sandia ground station each of the four times a day it sweeps overhead. The satellite must be at least 10 degrees above the horizon for adequate communications. At an altitude of 500 miles, its communicating range actually extends from several hundred miles out in the Pacific Ocean to Ohio, and from Seattle to Mexico City. A typical pass lasts from 12 to 15 minutes.

José says the optical lightning system is functioning well, although it is still in the "tuning" phase to ensure every lightning event it picks up is valid. In one recent orbit the system detected 1,800 lightning events worldwide.

Sandia's role in FORTE began in June 1992 with the formation of the team to develop the optical lightning system. Among the Sandians now staffing the ground station besides José are Jim Snell (2663), Raivo Leeto (5716), and Bryan Ingram (2663), who all serve as ground station managers. From LANL's Nonproliferation and International Security Division are project leader Stephen Knox, mission operations manager Diane Roussel-Dupre, and project software engineer Phil Klingner.

—Chris Miller



FORTE (Fast On-orbit Recording of Transient Events) measures 7 feet long and weighs 468 pounds. The satellite was developed jointly by Sandia and Los Alamos national laboratories to test new ways of spotting secret nuclear weapons tests and to gather data on the physics of lightning and the ionosphere.

Airport portal

(Continued from page 1)

the chemical signatures of a variety of explosives.

If a passenger had even a minute concentration of explosives residue on his or her skin or clothing, the quantity and type of chemical would be displayed on an adjacent computer screen. If a participant in the airport tests showed up positive for explosives, that passenger would be further screened to see if there are any circumstances that might explain the reading. If suspicions remained following the additional screening, airport security would be notified.

The portal is fully automated. It gives instructions to participants — "enter the portal," "turn left," "exit the portal" — in a friendly male voice.

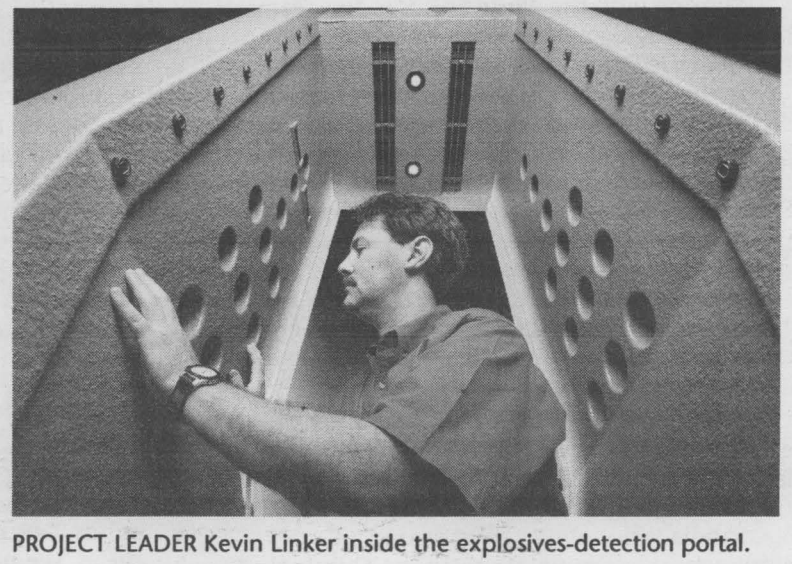
Public buildings, drug detection

Once the tests are complete, Sandia will submit its findings to the FAA, which will use the data to determine the feasibility of licensing and manufacturing the explosives-detection portal technology for use at airports across the country.

"Ultimately our explosives-detection technology would probably be incorporated into the airport metal detectors as a single walk-through unit," he says.

The explosives portal relies on chemical preconcentrator technology developed as part of Sandia's DOE mission to protect critical nuclear weapons facilities from would-be saboteurs, particularly insiders, adds Kevin. Sandia also is working to perfect the flow of air inside the portal to obtain the most reliable air sampling results.

Besides airports, he says, such portals could be useful at security checkpoints in public buildings, and the basic technology could be adapted for drug detection.



PROJECT LEADER Kevin Linker inside the explosives-detection portal.

The following people have contributed to the portal's development during the past three years: Jim Chapek, Frank Bouchier, Dave Hannum, John Parmeter, Chuck Rhykerd (all 5848), Joel Beer (contractor in 5848), Herman Molina (1481), Rick Mills (9321), Roy Hamil (9512), William Nelson, Mike Trahan (both contractors in 9512), Jim Puissant (contractor in 9539), Nathan Varley, Chad Custer, and Krista Madril (all student employees in 5848).

EUV project

(Continued from page 1)

with potential suppliers for Sandia's national security mission. Already, the labs' science-based stockpile stewardship programs are benefiting from applications of engineering and metrology advances developed in the lithography program.

Sandia/California VP Tom Hunter (8000) has called the effort a "defining project for the future of Sandia and how we work with industry."

Executive VP John Crawford added, "The VNL structure is more convenient and attractive to industry, and this level of customer focus should be a requirement from here on for how we do business. The more flexible and responsive we are, the more value we can contribute to our partnerships."

Extended coverage of this week's announcement (scheduled to occur after press time) is slated for the Sept. 26 issue of the *Lab News*.

Sympathy

To Roberta Malcomb (1231) on the death of her father, Richard Malcomb, in Massillon, Ohio, Aug. 21.

To Bill (1111) and Barbara (1315) Wampler on the deaths of his parents, Ray and Wilma Wampler, in Santa Fe, Aug. 21.

SQLC to LLT

(Continued from page 1)

Director Ron Detry (12100), that the new structure will improve the "crispness quotient" (Division 8000 VP Tom Hunter's phrase) of the Laboratories' decision-making process and reduce by up to 30 percent the time senior management now spends meeting with itself.

Change didn't come overnight

The transition from SQLC to LLT didn't happen overnight. Ron and his colleague Paul Shoemaker (12100) spent the last year and a half studying the institution of the SQLC — its structure, social dynamics, and decision-making processes. They were carrying out a directive from Labs President and Director C. Paul Robinson, who suggested to Ron when he assumed the Executive Staff Director job that he might focus his administrative savvy on improving the Labs' executive decision-making processes.

"In looking at the SQLC," Ron says, "both Paul Shoemaker and I had concluded that there were some fundamental issues that needed to be addressed. For example, the group is very large, even for a deliberative body. The SQLC, by the way, is not really intended to be a decision-making body — most decisions are made by Paul [Robinson] or John [Crawford, Executive VP]. But having 20 people deliberate on an issue is just difficult; there are just too many people who have a point of view.

"Also, if you look at the content of the discussions [in SQLC meetings], most of the time it was relevant only to a subset of the group."

Ron said the move away from the SQLC toward a new structure gained a major impetus in February. At that time, Ron and Paul Shoemaker participated in a meeting with the SQLC membership — without the presence of Paul Robinson and John Crawford — at which the membership was polled for its honest assessment of the SQLC processes.

SQLC knew things needed to change

"The universal answer," Ron says, "was 'We are not happy with this, for a variety of reasons. It's not crisp. It's difficult.' They understood that things had to change."

By that time, Paul Shoemaker — at Ron's direction — had already been studying alternatives to the SQLC model.

One of the biggest problems with the SQLC structure was its sheer size — too big, in almost everyone's mind, for crisp deliberation. Ron and Paul deemed that a structure built around three subgroups would expedite decision making.

While the Laboratories Leadership Team will continue to meet twice monthly, just as did the SQLC, its meetings will be limited to three hours each. (SQLC meetings generally ran all day.) The LLT meetings, Ron says, will serve primarily as a chance for top management to keep abreast of what everyone else is doing, and to express mutual support and peer-level guidance.

Councils take on much of SQLC's work

Much of the business of the old SQLC will be tackled at the council level. Here's a a brief description of the the three councils and areas of responsibility.

• The Mission Council, chaired by Executive VP John Crawford, will focus on Sandia's strategic posture and direction: How satisfied are our customers in existing programs/businesses and what new arenas should the Labs enter?

• The Capabilities and Capacities Council builds on the direction set by the Mission Council. That is, given the businesses the Labs has committed to be in, what does it take to meet customers' requirements in those arenas. The Council is chaired by Gary Beeler, VP of Production Division 14000.

• The Enabling Policy and Process Council, chaired by Laboratory Services Division 7000 VP Lynn Jones, seeks to enhance technical productivity through the most efficient and effective operation of the Labs.

Why this three-council structure? Ron explains: "When we looked at all the existing groups, bodies, forums, agglomerations, councils, and committees we could identify — and we weren't able to develop an exhaustive list — that the present members of SQLC had to serve on, we came up with this chart that we call the 'pickup sticks' chart (see below).

"If you look at the 20 people on SQLC and all the groups they're serving on, it's a mess," says Ron. "The classic example is poor Tom Hunter. If you track all these lines, he's on nine subgroups. And we said, 'Well, that's ridiculous, that can't go anywhere.' "

The new council-based structure places 10 LLT members on the Mission Council and eight members on each of the other two councils. Furthermore, no one serves on more than two councils, and each council's membership is aligned neatly with the Labs' strategic objectives.

"With this system," Ron says, "you get a far simpler structure and there's a hope that we can significantly reduce the amount of time upper management spends meeting with itself to discuss issues."

Improving the quality of staff work

Ron says another aspect of the move from the SQLC to LLT structure will be to "improve the quality of staff work" that goes into issues that come before these councils.

"With the new structure," he says, "the use of top management's time has to be terribly efficient. The mode in which we've operated in the past — 'Bring in the raw data and we'll analyze and debate it at the meeting' — isn't going to work terribly well here. There's just not enough time to do that. So part of this transition is going to be to move to an environment in which there is much better staff work done up front."

Here's what Ron envisions: the Executive Staff Director's office will get information to Council members well in advance of their monthly meetings. The information will be phrased in a "crisp decision paper format."

"If nobody disagrees with the arguments in the decision paper," Ron says, "there will be zero-to-limited discussion. End of issue."

Under the SQLC format, the discussion of alternatives and the weighing of alternatives and the pros and cons occurred during SQLC meetings.

"That's not a respectful or cost-effective use of the senior executive's time," Ron says. "They really ought to be presented with a well-thought-out decision paper. Their job is not to do the analysis, not to vet the data, but to make the decision. We need to move in that direction.

"This is a behavior problem that we have mutually arrived at over a long time. I don't want to cast stones on the people who have done the staff work in the past because they have responded to what's been expected. SQLC, in turn, has responded to what it has gotten.

"One of the things we're trying to do is complete more of the staff work, more of the analysis, outside the decision room and let the councils focus on the decision part of the process rather than the analysis part of the process. This will be tough; this is change in a behavior and culture that is long-standing within Sandia. We are full of analytics."

'New data points' nudged top management toward revamping SQLC

Paul Shoemaker, Ron Detry's associate in the Executive Staff Director's office, read the literature — management gurus Covey, Drucker, and others — studied other corporations' decision-making processes, and drew on his own expertise in public administration and with Sandia and its top management to develop a Sandia-specific structure for the Laboratories Leadership Team (LLT) and related councils.

He had other input for his model, as well.

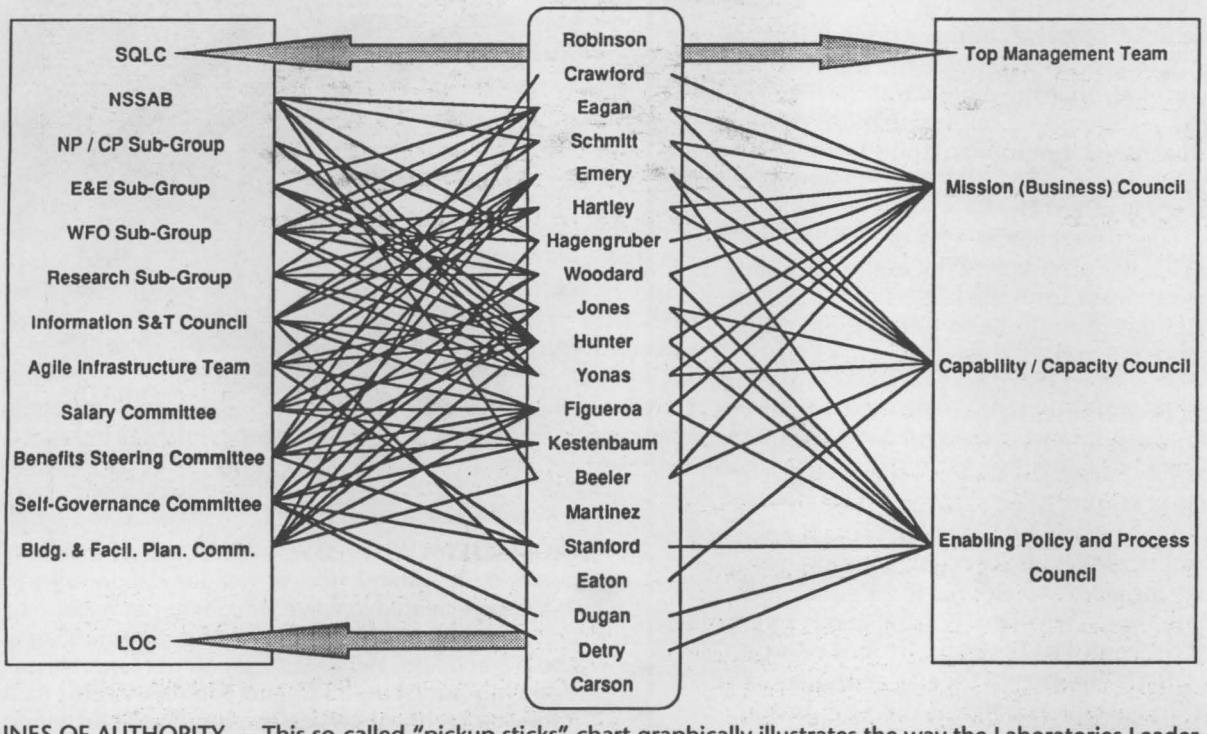
"We had, during the course of that year and a half of study and consideration, two very important data points," Paul says. "We had Don Carson [Director of Public Relations and Communications Center 12600] join us from Lockheed Martin in Baltimore and Frank Figueroa [Chief Financial Officer and VP, Division 10000] join us from Energy Systems in Oak Ridge. Both of them had come out of systems where they knew nothing about an SQLC. They had been exposed to other models throughout their professional careers. Their first exposure to SQLC generated reactions very similar to those expressed by their colleagues — that there was a much better way to do this.

"We had the benefit of those fresh eyes and the integrity with which they admitted their disaffection for the institutions of SQLC and LOC [Laboratories Operations Council], so we owe a lot to them for helping to propel us down this road toward, as Ron [Detry] puts it, experimenting with a different structure."

And the LLT/council-based structure is an experiment, ultimately.

"Is success a given?" Ron asks. "I don't think so. I think it's expected but it's not a given. Paul Robinson's observation on all this is that we are experimentalists. This is an experiment. If it doesn't work, we'll conceive of and try another experiment."

For more information, see the IRN. On the "President's Office Communications" page is the presentation made by Paul Robinson to what was then SQLC (on July 21) in which he announced the beginning of this improvement in executive decision-making.



LINES OF AUTHORITY — This so-called "pickup sticks" chart graphically illustrates the way the Laboratories Leadership Team/council arrangement streamlines the decision-making structure that existed under the SQLC framework.

Celebrating a dream: CNSAC ceremonies open center for waging peace, preventing international conflict

It is an 11-year dream finally come to fruition. It is a celebration of Sandia and its mission to "wage peace." It is a high-tech center and a home to what we see as "the greatest arms control program in the world."

The four-story, 85,000-square-foot Center for National Security and Arms Control (CNSAC), Bldg. 810 (*Lab News*, Aug. 29), was dedicated Aug. 28 in a morning-long celebration initiated with a low-level flyby of F-16s and a stirring vocal rendition of "The Star-Spangled Banner." It concluded with congratulatory live Internet video interchanges with the directors of the Arzamus and Chelyabinsk nuclear weapons laboratories in the former Soviet Union.

In between were abundant words of praise and congratulations from congressional spokespeople, DOE officials, Sandia President and Laboratory Director C. Paul Robinson, and VP for National Security Programs Roger Hagengruber (5000).

DOE Albuquerque Operations Manager Bruce Twining called the building "truly a state-of-the-art center." He said its "high-tech communications and security features" will be brought to bear on a whole range of new national security threats that have emerged since the demise of the Cold War. "It is a symbol that we are rededicating ourselves to whatever is required in the future."

DOE Secretary Federico Peña had visited CNSAC three days before the dedication, praising it as "revolutionary and visionary."

Most of the festivities and exhibits took place outdoors beneath three large tents occupying grounds that will be turned into a giant landscaped mall and gathering place for Sandians.

"This place is for all of us," said Roger, whose dream this was. He and his associates conceived of the Center in the mid-1980s. "I had no idea how long the birth would take," he said.

Paul said the event was an opportunity to celebrate Sandia, look to its future, and focus on the Labs' central mission of national security. He praised everyone involved, including Sandians, congressional leaders, contractors, and "the Department of Energy folks who requested, justified, and defended this facility. . . . There are many of you to thank over all these years," said Paul. "On behalf of everyone in the laboratory, thank you and congratulations for your role."

"We now dedicate the new CNSAC to a better and safer nation and a better world," said Paul as he cut a ribbon spanning the building's entrance.

DREAM COME TRUE — VP for National Security Programs Roger Hagengruber reacts to the National Anthem at ceremonies dedicating the new CNSAC building, an 11-year dream for Roger and his colleagues. (Photos by Randy Montoya)

With him were Twining, Roger, and former Sandia Presidents Morgan Sparks (1972-1981), George Dacey (1981-1986), and Irwin Welber (1986-1989). Roger praised the past Sandia presidents for having created the environment that allowed Sandia's arms control and nonproliferation programs to grow within a nuclear weapons lab.

Sen. Pete Domenici, R-N.M., in a message read at the ceremonies by his aide Lisa Breeden, congratulated Sandia and its sister labs for ending the Cold War and said the programs to be carried out in the new Center "will be essential in maintaining world peace and preventing regional conflict." CNSAC, he said, will be "a key forum for a set of national programs that will lead to a stable future." Messages were also read from Sen. Jeff Bingaman, D-N.M., and Rep. Steve Schiff, R-N.M.

Roger enumerated the types of programs that will be carried out in the new building — planning and management of the nuclear weapons program and the arms control and nonproliferation activities; on-site inspection programs and cooperative programs management to validate arms-control treaties; management coordination of programs with the former Soviet Union and China; and global and regional threat-assessment programs, making use of real-time secure communication links with the intelligence community in Washington.

"Who would have believed that you would ever have had such an eclectic mix of programs in one building by intent?" Roger said.

"From satellites to cooperative monitoring, the Labs has always sought out a natural balance — of nuclear confrontation and cooperation, of deterrence and arms control," said Roger. "Our commitment has been to the security of this country."

He noted that while Sandia's "singular accountability" remains nuclear weapons, "Today, on the other hand, the world is vastly different, filled with opportunities for peace, yet far from devoid of dangers. . . . Today we have new opportunities to reach out to our former enemies. . . to build, together, a new and safer world for our children."

"In the end CNSAC is only a building," Roger said. "It comes to life in our visions for Sandia service for national and global security. . . .

"The CNSAC vision is about our values applied to stewardship. It's about the humbling challenge of measuring up to 'Exceptional Service in the National Interest.' We were dedicated to ending the Cold War. Now we must enter the 21st century dedicated to winning the peace.

"We will have to wage that peace, as it will not come easily. It will be as great a challenge in some respects as those challenges facing us in the past.

"In dedicating this building, we are in a way dedicating ourselves to that next victory. And that is, after all, what dedication is all about."

— Ken Frazier

Make the next century 'safest in mankind's history'

Here are some additional comments made at the dedication of the Center for National Security and Arms Control:

Paul Robinson:

Today the world enjoys stability against major attack, as the threat of the holocaust was held at bay largely through the deterrence of nuclear weapons. Other threats, such as terrorist strikes, have now appeared on the scene as the dominant threat. Against these threats Sandia will again try to supply technology to try to outwit, prevent, or mitigate the threat of these acts of aggression.

I think no matter what the future holds, people of this nation who have depended on Sandia in the past to anticipate whatever threats might arise, and address them not just with superior technology but technology that will preserve the peace, would be very proud of the directions that we have set.

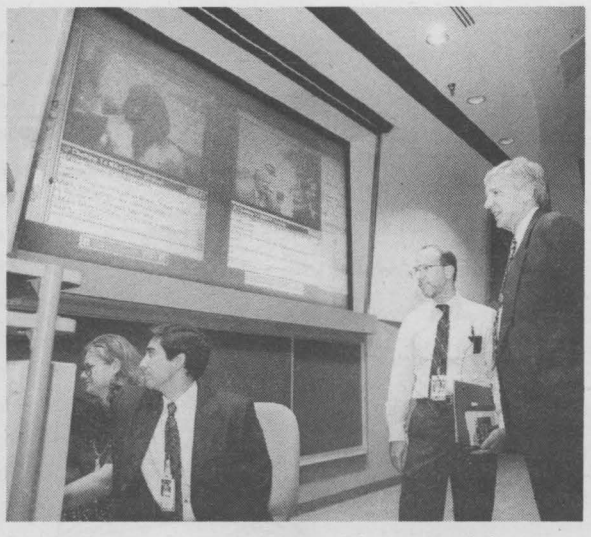
Today we not only dedicate a wonderful structure, but I hope all of us present will rededicate ourselves in this wonderful laboratory to continue to provide the leadership and technology that the nation and the world will need in the coming century to make the next century the safest in mankind's history.

Roger Hagengruber:

The conference area [in the CNSAC building] . . . is a place where the leaders of tomorrow can learn from the leaders of today, and yesterday, from inside Sandia to around the nation and around the world. . . .

Sen. Pete Domenici (statement):

Sandia and its sister national security laboratories deserve the nation's thanks for your roles in ending the Cold War. Through your efforts the world no longer faces a serious threat of global nuclear confrontation. However, the threat of regional instabilities and international terrorism is rising and is a very real concern. The programs in your new Center will be essential to the nation in maintaining the current global peace and minimizing the intensity and risks of regional issues.



FROM RUSSIA WITH LOVE — Directors of the Arzamus and Chelyabinsk nuclear weapons laboratories in Russia participated in a live video Internet hookup to conclude ceremonies dedicating Sandia's new CNSAC building. Here Alan Zelicoff of Nonproliferation Program Dept. 5335 and Sandia Director Paul Robinson (at right) await a message while Arthurine Breckenridge (9215) and contractor Joe Orona (4423) operate the communications console.

DOE oversight review finds need to improve Labs' safety management program; team cites positives, too

By Bill Murphy

Sandia's safety management program is in "overall need of improvement" according to a draft report of the DOE Office of Oversight (EH-2) issued in the wake of an evaluation of safety management at the Labs.

Mike Kilpatrick, leader of the EH-2 evaluation team, said bringing Sandia's safety management programs up to fully satisfactory levels will require "significantly increased management attention by both DOE and the Laboratories."

Kilpatrick's comments came during a wrap-up briefing in late August for affected parties from Sandia and local DOE offices.

Lynn Jones, VP for Laboratories Services Division 7000, said in response to Kilpatrick's comments that, "The timing for the evaluation has been perfect." With the pending rollout of integrated safety management throughout the Labs, "it is an excellent time to have a mirror held up to yourself." She said the evaluation team performed "a great service" for advancing safety awareness in the Labs.

Kilpatrick is deputy director of DOE HQ's Office of Environment, Safety, and Health Evaluations. He and his 25-member team examined the performance of the entire line management chain responsible for safety management at Sandia — Defense Programs, DOE/AL, DOE/KAO, and Sandia. The evaluation was conducted during three separate visits in June, July, and August.

The examiners focused on seven Sandia facilities and a number of Labs-wide ES&H programs.

"Overall, effective performance was identified in areas related to management responsibilities, areas such as leadership, commitment, balanced priorities, and technical competence — things that form the essential foundation for the implementation process," Kilpatrick said. "However, the team also found that the management implementation processes — things related to standards, hazard analysis, work control — those haven't adequately matured and are in need of improvement."

Kilpatrick highlighted a number of "strengths and positive attributes":

• A demonstrated commitment to safety by local DOE and Sandia senior management. "Sandia has built safety improvement prominently into the strategic vision and subordinate planning documents," he noted.

• Elevated visibility for safety issues among senior management.

• Well-established prototypes for integrated safety management in Divisions 1000 and 7000.

• The deployment of ES&H resources across the Labs is a "strong positive: it fosters line management acceptance of their responsibility for safety, better integrates safety with mission, and improves efficiency."

• The revamped KAO facility representative program, which "is recognized by Sandia facility managers and line managers as being beneficial, which wasn't always the case in the past."

SAFETY CHECK — DOE ES&H audit team members visiting Sandia's Hot Cell Facility hear Jeff Philbin (9365), center, explain the workings of a moly-99 target. DOE team members are, from left, Adrian Gardner, Paul Wu, and Kathy McCarty. The three, part of a 25-member audit team, visited a number of Labs facilities to evaluate safety programs.

• The upgrading of primary hazard screening to reanalyze all facilities and activities using more comprehensive approaches than were used in the past.

Among areas of "concern" cited by Kilpatrick were a need for:

• Better definition of the relationships and lines of responsibility and accountability along the entire line management chain.

• Updated roles and responsibilities in Sandia's various ES&H manuals and documentation. "Effective implementation of safety [at Sandia] hinges very strongly on key roles of program managers, line managers, and building managers; those relationships can be fairly complex and are often not well defined and not well understood."

• More effective use of accountability as a tool for promoting safer performance.

• An approach for tailoring safety requirements to work activity.

• Improved hazard analysis processes, some of which are too informal and thus not effective.

• Greater emphasis on the use of the occurrence-reporting process.

"We firmly believe," Kilpatrick concluded, "that Sandia can achieve effective safety management by expanding and building upon existing initiatives. We believe that means more than repackaging of current initiatives — success is going to require sustained emphasis by both DOE and Sandia senior managers."

Sandia VP Lynn Jones said she was "very proud" of the many areas where the audit team pointed out positive performance on the part of Sandians.

"In conjunction with our DOE/KAO and DOE/AL colleagues," she said, "we will carefully consider each of the 'opportunities for improvement' the team has listed for Sandia. Where appropriate, they will be incorporated into our overall approach to improving how we manage our work safely."

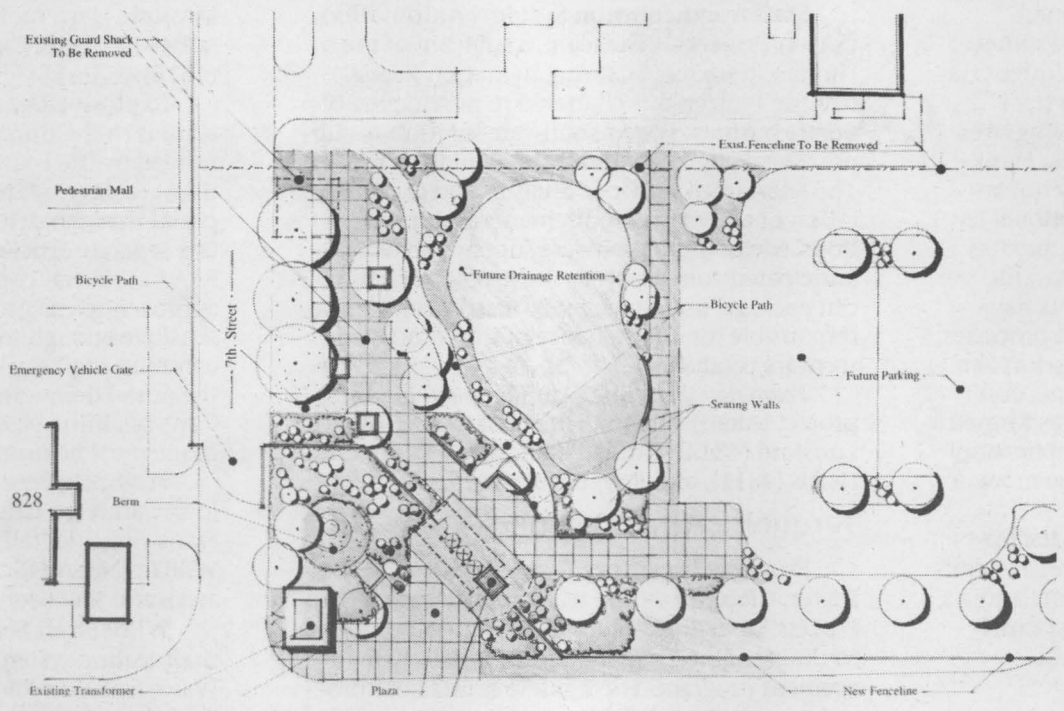
"You can count on us to pay attention," said DOE/AL manager Bruce Twining. "This was a very fair assessment."

Gate 4 area near Medical Clinic gets makeover

Automated entryways part of trend to present a softer appearance to Sandia/New Mexico visitors

Gate 4 near the Medical Clinic is not only getting a facelift, but is being changed to make entering Tech Area 1 there easier as part of an overall Labs project to automate more entryways and present a softer Sandia/New Mexico face to visitors.

When it opens sometime in mid October, the new Gate 4 will look very similar to Gate 14, which is at the southeast corner of Bldg. 870, the neutron generator facility, and just west of Bldg. 858, the Microelectronics Development Laboratory. It will include three turnstiles and two bypass gates — one that slides open and the other that swings open.



Gate 4 Site Plan

The one major difference in the two gates is that Gate 4 will include a swing-opening traffic gate across Seventh Street, about 120 feet south of the existing gate, which will give ambulances from the Medical Clinic quick access into Tech Area 1.

"The end result," says Jeff Everett, Manager of Sites Planning Dept. 7931, "will be that virtually everything north of G Avenue will become either a parking lot or be landscaped. Most of the landscaping will be around the gate — at the corner of Seventh and G, a block south of the current gate."

Another feature of the new entryway will be a flood-control pond — "right now a crater," says Jeff. He says G Avenue is in the so-called 100-year floodplain and storm sewers won't handle such a volume of water, so the pool is being added to collect water and allow it to drain back into the storm sewer on a controlled basis.

He says concrete sidewalks and the new gate configuration comprise the first phase of the project, with landscaping to be added later.

Meanwhile, the fence along the southern edge of the area referred to as "Fort Apache" — the brown, wood-sided complex of mobile offices across F Avenue from the Hardin Field Parade Ground — is being moved farther south.

Eventually all the mobile offices and old buildings north of that new fence line from east of the Communications Center (Bldg. 811) to the Cafeteria (Bldg. 861) parking lot will be removed and replaced with parking space.

— Howard Kercehval

Sixteen Sandia teams earn recognition in 1997 President's Quality Award program

In fifth year, PQA program recognizes progress in Labs' 'quality journey'

In the fifth annual Sandia President's Quality Award (PQA) process, three teams earned Silver Awards, nine earned Turquoise Awards, and four earned Special Recognition Awards.

The PQA is based on the Malcolm Baldrige National Quality Award criteria and principles. They promote quality excellence, awareness of quality as a crucial competitive element, and the sharing of quality information and strategies.

Labs President and Director C. Paul Robinson will present the awards to the winning 1997 PQA teams at 1:30 p.m. (MT) on Oct. 29, during a ceremony at the Technology Transfer Center Auditorium (Bldg. 825). The event will be simulcast to the California site.

In a memo launching the 1997 PQA process, Paul noted that many Sandia program managers and project leaders have adopted quality tools as a way of doing business and evaluating progress.

"This methodology, coupled with our outstanding technical excellence, can and has provided a competitive advantage for Sandia," he wrote.

"The ultimate aim is not winning awards, but continued improvement of customer satisfaction and performance excellence through our programs and our processes."

In the early years of the PQA process, Gold Award winners were not uncommon. For the past two years, though, there have been no Gold winners. That, says Frank Mason, Manager of Corporate Quality Dept. 4022, is not a reflection on the quality of work at Sandia but a result of a stricter adherence to the criteria for evaluating teams' quality performance.

"We had some very, very strong applications this year," he notes, "but we don't grade on a curve. To preserve the long-term integrity of the process, we measure each application side by side against the criteria. It's a rigorous process."

Sandia teams going for the gold are somewhat hampered by the fact that the Baldrige criteria place great weight on establishing a track record of excellent performance extending over several improvement cycles. Sometimes, Frank says, short-term projects at Sandia may not last long enough to demonstrate the exceptional level of improving trends in customer focus, process management, and results that a Gold Award would require — even when the projects have commendable fact-based improvement processes.

Also, Frank says, a lot of quality work at Sandia is not recognized because some teams don't choose to apply for the PQA. A team was formed recently to look at ways to make the application process "less burdensome" to encourage more applications.

Team member names and project descriptions listed below are those submitted with nominations. Organization numbers are from Sandia's Internal Web phone directory, the most timely source of organization data.

QUALITY TEAM — Members of the MC4380 X-ray process team, one of three Silver Award winners in the 1997 Sandia President's Quality Award program, are developing and implementing an X-ray inspection process for examining MC4368 neutron generator subassemblies. (Photo by Randy Montoya)

Silver Award winners

Manufacturing User Reports Project — The team was responsible for creating the capability to do efficient and effective reporting against manufacturing enterprise databases using the Internal Web. The project delivered three primary products: 1) a toolset for report development; 2) work processes to support ongoing report development; and 3) a system of official production reports.

Team members: Steve Evans (4622), Eric Grose (12323), Carol Jones (4817), Sue Swanback (4815, project leader), and Jeff White (4817).

MC4380 X-ray process team — The team has the responsibility of developing, implementing, and documenting an X-ray inspection process for examining MC4368 neutron generator subassemblies. The subassembly is made up of an epoxy-encapsulated power supply assembly and neutron tube. The X-ray inspection is a critical part of the acceptance/qualification process for neutron generators built at Sandia.

Team members: Ruth Bargman-Romero (14404), Keith Danielson, Bruce Hansche, Jean Sena (all 9742), Kyle Thompson (9742, project leader), Deanna Sevier (9752), Dave Sample (SW Engineering Associates), Bruce Kinchen (BK Science and Engineering), and Cecilia Colucci (Cecilia Colucci, consultant, M.S.E.).

Staff Augmentation Systems Automation (SASA) Project — The team, a subteam of the Human Resources Staff Augmentation Reengineering Project, was chartered to provide the corporate business systems software solution to support the reengineered staff augmentation process. The SASA team provided analysis and documentation of all system requirements and specifications, including: 1) software support needs; 2) anticipated conversion to the PeopleSoft commercial package; and 3) reference materials for those responsible for maintenance of the completed software product.

Team members: Sue Ann Lampson (4813, project leader), Glenna Hickman (3535), Gwen Lunsford (4813), Patricia Kaufmann (4823), Ruth Harris (4811), and Robyn Grazda (Ktech).

Turquoise Award winners

Property Inventory Reengineering: Better, Faster, Cheaper — The team applied the six-step Process Modeling and Innovation (PMI) process to the reengineering of the Labs' property management program. The result: a satisfactory program rating from DOE (up from a previous-year "unsatisfactory"), outstanding performance in property accountability, a significant increase in internal customer satisfaction, and a substantial corporate line effort reduction in millions of dollars. Trend data from the 1997 inventory cycle indicate continuous improvement and a "best in class" property system.

Team members: J.P. Martin (ret., project leader), Jim Raines (7000), Robert Eldredge, Terri Roseth, M. Helen Quintana (all 10267), Curtis Johnson, Dave De Polo (both 10262), Jeffrey Manchester (8532), Shirley Ramirez (7617), Lori Kozlowski (4813), L. Patrick Murphy (7934), Bob McCornack (4823), Larry Olson (10204), Gordon Smith (5822), Michael Maurer (9100), Robert Dana (5807), F. Von Kilgore (5807), Don Gatto (ret.), and Eva Wallace (2301).

Combustion Research Facility Phase II (CRF II) — The core project team was formed in May 1996. It released a 185-page baseline project plan in January 1997, consisting of a 392-activity schedule; ES&H documentation; quality, risk, communications, procurement, and configuration management plans; plus details on project charter, organization, scope, and customers/stakeholders. The strategy was to proceed with the office building construction while pursuing a parallel path to define the design of the laboratory infrastructure and establish a construction contractor for the labs.

Team members: Don Putz (8346, CRF II project manager), Howard Royer (8511), Jake McMichael (8305), Bob Gallagher (8366), Hal Norris (2211), Lee Gardizi (8418), John Beitia (8513), and Jamie Morris (8534).

Sandia/New Mexico Telephone Operations — This management team has agreed on the following mission: to deliver reliable, timely, cost-effective telecommunications services to its customers. The main service is delivering functional analog or ISDN telephone services. Specific tasks include moves, adds, and changes and the operation and maintenance of the supporting equipment, software, and cabling.

Team members: Paul Baca (Telephone Operations Group Leader), Lee Byers, Cliff Harris, Marjorie Herrera, Pat Rocchio, Elissa Thompson (all 4914), Dick Casey (4913), and John Eldridge (4616).

Explosive Detecting Personnel Portal — The team is in the third year of a three-year project funded by the Federal Aviation Administration (FAA) to develop, test, and field a walk-through portal that can detect high explosives on people (see separate article beginning on page 1). The FAA has several constraints directing Sandia's approach to the problem. In addition to being sensitive enough to detect, identify, and quantify common high explosives concealed on a terrorist, the portal design must accommodate the large flows of airline passengers and the detection technique must be noninvasive and safe.

Team members: Kevin Linker (project leader), John Parmeter, Chuck Rhykerd, Dave Hannum, Frank Bouchier (all 5848), Rick Mills (9321), William Nelson (Science & Engineering Associates), and Joel Beer (Joel Beer Consultants).

WIPP Shaft Sealing System Design — The shaft sealing system is a critical element in the Waste Isolation Pilot Project's (WIPP) ability to limit the entry of water into the repository and restrict the release of contaminants because the four WIPP shafts are the only direct pathways from the waste disposal area to the accessible environment. Thus, the completeness and technical adequacy of the shaft sealing system documentation is critical to the success of WIPP. The

(Continued on next page)

Sandia retiree publishes book on Chicago Day at the World's Columbian Exposition of 1893

The 1893 World's Columbian Exposition in Chicago celebrated the 400th anniversary of Columbus's arrival in the New World and symbolized the burgeoning economic and industrial strength of the United States. It featured first-class architecture. It introduced picture post cards, the largest building in the world, moving pictures of running horses and dogs, moving sidewalks, the first amusement midway, and a 265-foot-high human-carrying revolving wheel developed by engineer George W.G. Ferris. It created the Field Museum and the building that's now the home of the Museum of Science and Industry.

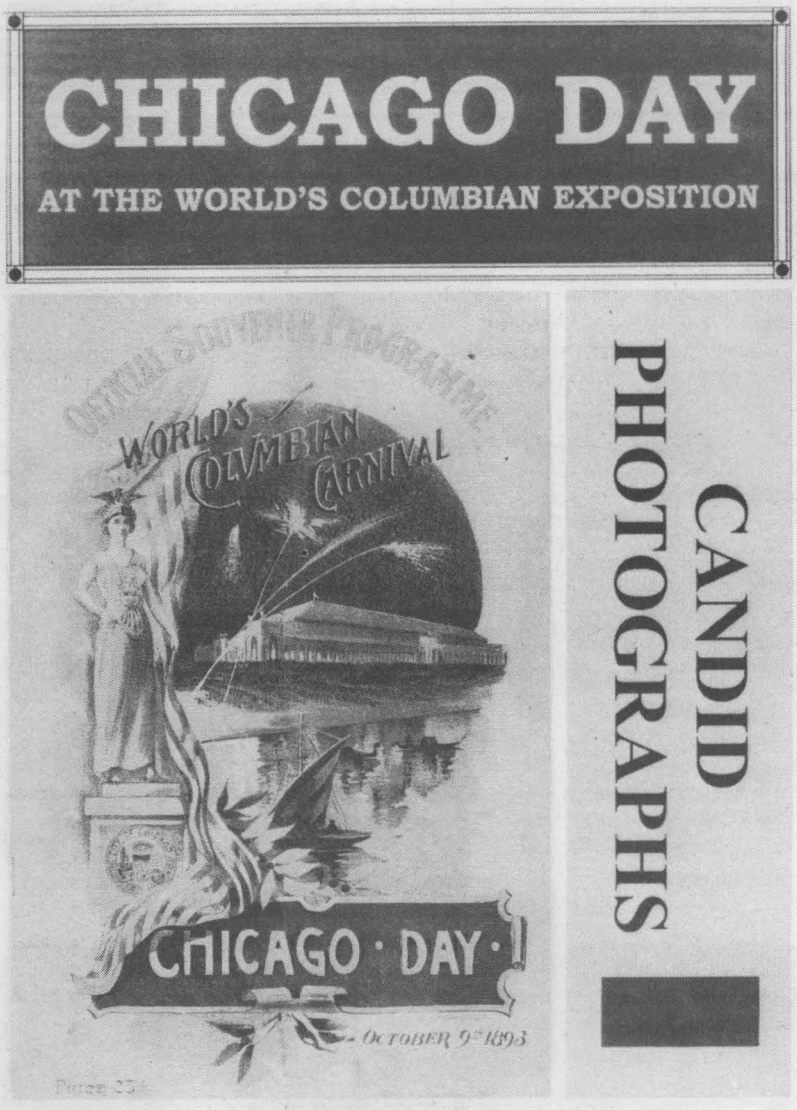
What turned out to be the greatest day of all at the Exposition was the one devoted specifically to the home city of Chicago, a city celebration and an exuberant national festival that marked the final reemergence to greatness of a rebuilt Chicago after the disastrous Chicago fire of 1871. The day featured fireworks, floats, and balloon ascensions and attracted 761,942 people to Jackson Park, site of the Exposition. In modern times, it was the biggest crowd ever paying to celebrate a single event.

Recently retired Sandia scientist Gay Dybwad and his wife Joy Bliss have now created and published a book of memorabilia and photography about that day, Oct. 9, 1893. Titled *Chicago Day at the World's Columbian Exposition* (The Book Stops Here, Publisher, Albuquerque, 1997), it includes their text, color reproductions of some of the posters that touted the day, newspaper clippings, and a variety of photos and line drawings. But what is really special is a selection of black-and-white "candid photographs" of the World's Exposition taken that day by a knowledgeable amateur photographer known to the authors only by the initials on them, "H.R.P. 2d."

Gay, a history buff, purchased the 58 photos from a Boston bookstore. They were printed on platinum paper, a then-new medium prized for tonal quality and stable images. They show a variety of populated scenes at the fair including the Electricity Building, the high-domed Illinois Building, the glass-domed Horticulture Building, the magnificent canal-fronted Manufactures & Liberal Arts Building, and fountains, bridges, boats, and railways. The book includes a large fold-out map of the Exposition with the photographer's vantage points and view angles marked in red.

The book is a natural outgrowth of the first book by Gay and Joy, a bibliography of the World's Columbian Exposition. That brought them in touch with the publications, people, problems, buildings, and events associated with what they call "this watershed of United States history." A second book was a collaboration with the writer James A. Michener, dealing with Michener's life as a teacher and the early books that influenced him (*Lab News*, Jan. 5, 1996).

— Ken Frazier



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ultimate product of this system design activity is a SAND report documenting the design and establishing its adequacy through analysis.

Team members: Joe Tillerson (core team leader), Ernst Ahrens, Al Dennis, Frank Hansen, Diane Hurtado (all 6121), Yolanda Smith (6802), Deborah Coffey (6811), Sheryl Vahle (5921), and Kathy Knowles (6849).

Metal Retardation in Soils — The goals of the project are to better understand and predict metal retardation characteristics in soils through an integrated suite of analytical, experimental, and theoretical research tasks. The team's customer, the US Nuclear Regulatory Commission, Office of Research, anticipates that improved mechanistic retardation models could be incorporated into geochemical transport codes, eventually being applied by the NRC and state regulators in performance assessment calculations of radionuclide-contaminated sites.

Team members: Hank Westrich (project leader), Howard Anderson, Pat Brady, Randy Cygan, Sara Gruenhagen, Kathy Nagy (all 6118), Barbara Hawkins (6414), and Ed O'Donnell (NRC).

¡SALUD! Health Promotion Program — The program provides information to increase Sandia employees' awareness of health issues, leading to healthy lifestyles and improved health. ¡SALUD! also provides worksite health promotion programming and program evaluation to local DOE employees and works with Sandia physicians and nurses to provide follow-up patient education and assess the Labs' health care. ¡SALUD! previously won PQA Silver Awards in 1993 and 1995.

Team members: Carlo Padilla (team leader), Linda Duffy (program manager), Anna Miller, Wendy Singer, Jennifer Middleton, Raquel Williams, and Debra Wolf (all 3335).

MC4300 Neutron Tube Product Realization Team (PRT) — The PRT team's goal is to develop a neutron tube design to meet the needs of the stockpile and future weapons systems and to issue an acceptable product qualification in accordance with nuclear weapons complex-wide guidelines stressing concurrent engineering and customer focus.

Team members: Carla Busick (project leader), John Brainard, Robert Koss (all 1564), Jeff Keck (1561), Don Knippel, Nancy Nesbitt (both 14403), Keith Meredith (14402), Greg Neugebauer (1567), Mike Neuman (2254), and Don South (9784).

Special Recognition awards

The following teams earned special recognition awards to call attention to the strides they have made toward meeting the PQA criteria.

Cleaning for adhesive bonding Laboratory Directed Research and Development (LDRD) project — This three-year LDRD seeks to establish a more fundamental understanding of the effect of known contaminants on the bond surface interface for both adhesives and encapsulants. The first year's work (the subject of the PQA application) is to establish a testing methodology to evaluate the effect of cleanliness. Capabilities developed have application in both the weapons complex and the semiconductor industry.

Team members: Carol Adkins (project manager), John Emerson, Tommy Guess (all 1472), John Curro (1870), Paul Lemke (1400), Edwin Lopez (1823), and David Reedy (9118).

Laser Wire Deposition LDRD — This two-year LDRD seeks to establish a capability to fabricate metal parts using the Laser Wire Deposition (3DWire) process. The first year's work (the subject of the PQA application) is to establish a fundamental understanding of the 3DWire process. Capabilities developed through the LDRD have applications in the weapons complex and industry.

Team members: Jon Munford (project manager), Michelle Griffith, Lane Harwell, Donald Greene (all 1484), Joseph Romero (1831), Tom Buchheit, Veena Tikare (both 1841), and Paul Lemke (1400).

PRE Employee Safety Program (ESP) — The Employee Safety Program was created as a subteam of the Division 14000 ES&H Committee. Its goal is to provide customers with a positive, interesting, and fun forum for increasing their ES&H knowledge and awareness while improving overall safety habits.

Team members: Eva Wilcox (14000, subteam leader), Brenda Wickham (14302), Carol Barfield (14405), Dianne Cavis (14400), Vieta Crain (2002), George Moore (14405), Leonard Martinez (14000), Pat Barthelmes (14404), Conrad Stayner (14713), Sean Knighton (14405), Barbara Wells (14404), Bob Welberry (14302), and Sylvia Saltzstein (7527, subteam leader).

Software Test and Assessment of Reliability (STAR) project — The Integrated Information Services deploys business software applications to about 8,000 users. These applications must go on-line successfully and continue to run within desired performance constraints. The STAR project's goal is to evaluate quality throughout the development process, minimizing the risk of users encountering errors and poor performance.

Team members: Ann Hodges (6531, 6500 project lead), Mary Lynn Clark (4815, 4000 project lead), Don Flores (10305, 10500 project lead), Eric Moss (4913), Marjorie McCornack (6531), Steve Romero, and Larry Claussen (both 6533).

Cost Per Copy team — Logistics Services formed the Cost Per Copy team in 1995 to examine alternative methods of supplying copier services to improve customer satisfaction with convenience copiers and reduce maintenance and acquisition costs. Aging copiers from a variety of different manufacturers were being maintained beyond their useful life. Meanwhile, the copier industry was evolving to offer many alternative purchase/maintenance packages, and DOE was pushing Sandia to reduce the number of copiers. As a result of the team's efforts, the Labs now has a single copier contract for both Sandia/New Mexico and Sandia/California that charges on a per-copy basis for the use and maintenance of the machines.

Team members: Eva Wallace (project leader), Ellen Evans (both 10262), Alicia Cloer (9000), Evelyn Serna (10503), Lynn Shackelfoot (8532), Lee Cunningham (12630), and Dan Salmen (10240).

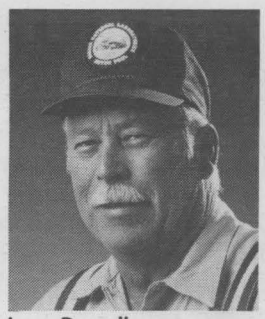
— Bill Murphy

Mileposts

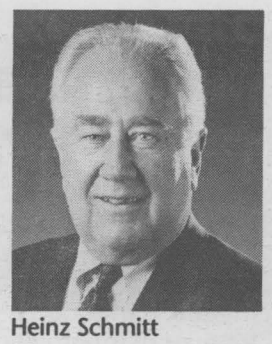
September 1997

Merri Lewis
20 7511

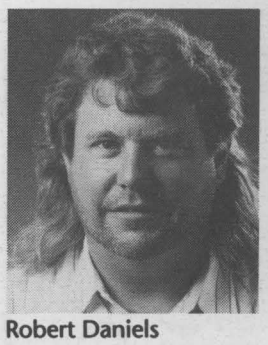
Jon Bedingfield
25 3535



Jerry Powell
20 7899

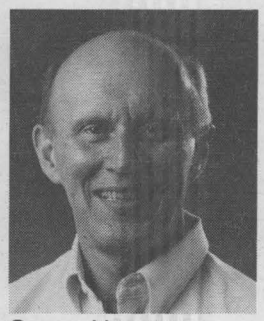


Heinz Schmitt
35 2000

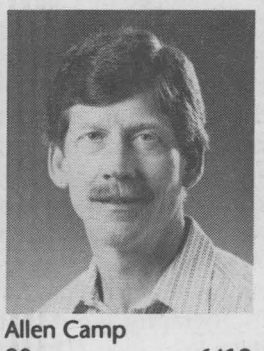


Robert Daniels
15 6521

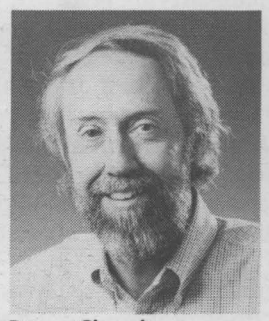
Cynthia Gregory
15 3526



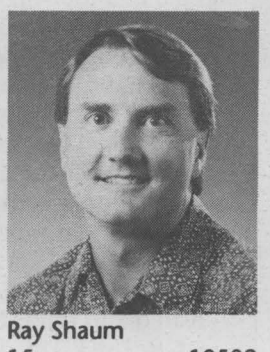
George Novotny
30 12334



Allen Camp
20 6412

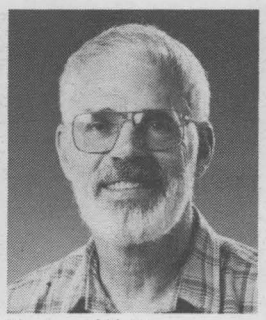


Roger Clough
20 1811



Ray Shaum
15 10502

Jerome Rejent
15 1833



Herman Watts
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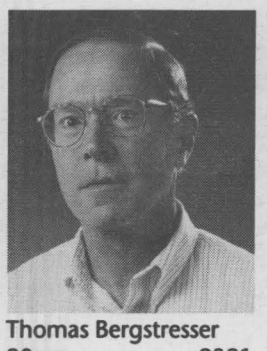
Phyllis Lusader
15 7833



Thomas Bergstresser
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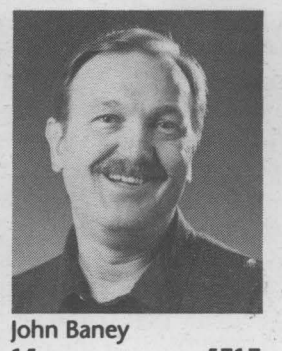

John Baney
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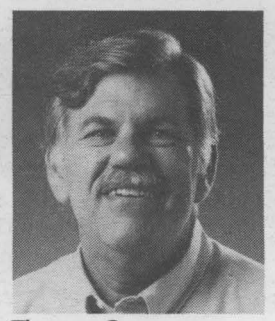
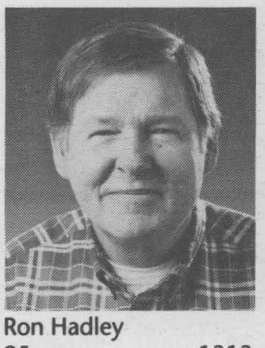


Thomas Carne
20 9741



Ron Hadley
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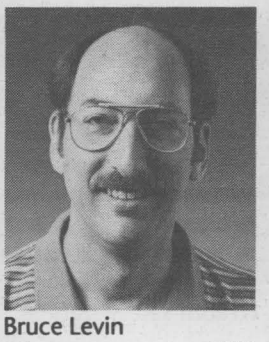
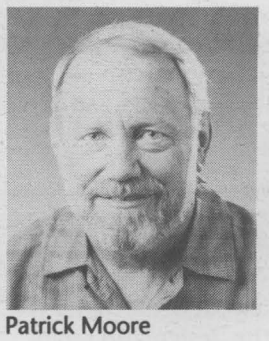


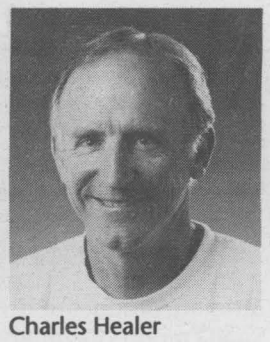
Bruce Levin
15 6113

Rita Shortman
15 10502

Carolyn King
15 10502



Patrick Moore
35 2413



Charles Healer
30 1486

New National Atomic Museum exhibit focuses on radiation's medical contributions

Radiation's got a bad reputation. But each year, radioactive substances are used to diagnose and treat hundreds of thousands of people who have cancer and other diseases.

This Friday, Sept. 12, the National Atomic Museum unveils its latest exhibit, "Nuclear Medicine: Seeing Is Healing." The exhibit explores the benefits of radiation and the rise of nuclear medicine in the 20th century.

In the US more than 40,000 medical procedures each day require the use of medical radioisotopes. Radioisotopes injected into a patient's blood stream can allow a doctor to "image" internal organs or cancerous tumors, for instance, and to target certain tissues, such as a grouping of cancer cells, for neutralization by chemotherapy. X-rays have for decades helped doctors "see" bones that need to be mended.

The new exhibit's focal point is a large gamma camera, the Picker PRISM 2000XP, used in hospitals to produce a variety of tomographic images that allow doctors to see more than skin deep. An adjacent computer monitor displays various images — including three-dimensional scans of internal organs such as the brain or lungs.

The exhibit also highlights DOE's project to produce molybdenum-99, one of nuclear medicine's most widely used radioisotopes, at Sandia's Annular Core Research Reactor and Hot Cell Facility. Currently an aging reactor in Canada produces the entire US supply of moly-99.

Other "Seeing Is Healing" displays track the history of nuclear medicine, from German physicist Wilhelm Roentgen's discovery of X-rays more than 100 years ago to the arsenal of medical imaging tools available today. *—John German*

Trinity Site tour Oct. 4

The National Atomic Museum is sponsoring a tour of the Trinity Site, where the world's first atomic bomb was detonated, on Saturday, Oct. 4.

Tour information:

Buses leave the National Atomic Museum at 6:30 a.m. and return by approximately 4 p.m. Travel time to White Sands Missile Range is about two hours. You are encouraged to bring your own lunch and a beverage. Museum historian Jim Wadell will lead the tour.

How to get tickets:

Cost of the tour is $25. Tickets are available at the Museum store or ordered by phone at 284-3242. Seats are limited.

Pre-tour presentation:

Los Alamos National Laboratory historian Roger Meade will give a pre-tour presentation about the Manhattan Project at the Museum on Friday evening, Oct. 3, at 7 p.m. Admission is free to tour ticket holders and $2 for others.

Fun & Games

Bicycling — Bicycling and chile meet at the ninth annual Spike's Ride and Chile Cook-Off to support a summer program, Young Explorers Camp, for kids at the New Mexico Museum of Natural History and Science in Albuquerque.

Beginning at 7:30 a.m. on Sunday, Sept. 21, "Spike's Ride" features routes of 10 miles, 25 miles, and 50 miles that start in front of REI Sports at the corner of 19th Street and Mountain Road, next to the museum in Old Town Albuquerque. Before Sept. 17, the entry fee is $17 for adults ($15 for museum members) and $12 for kids younger than 13 ($10 for museum members). All riders must wear helmets.

Cooks can enter their favorite red or green chile recipe and have a chance to win prizes and help feed the hungry cyclists. The Chile Cook-Off entry fee is $8 per entry. At least one gallon must be prepared on site. Spike's Ride provides scholarships to 26 youngsters for the 1997 camp, which provides hands-on experiences in a variety of natural history disciplines. For more information, call REI at 247-1191 or the Museum of Natural History and Science at 841-2822.

* * *

Tennis — Coronado Men's Senior Tennis Team overpowered High Point and Santa Fe recently to win the New Mexico State League Championships. Team members include Charlie Emery (3000), David Sealey (7437), Dave Wenger (9533), Fred Cericola, Mel Mefford, Joe Ruggles (all ret.), Gary Porter, Bob Scoffield, and Ron Short. To qualify for the Nationals to be held in Florida in October, the team was in Tucson, Ariz., Sept. 5-7 to compete in the Southwest Regionals.

Sandia Classified Ads

MISCELLANEOUS

LARGE DOG IGLOO, insulated & vented for winter & summer, paid $150, asking $50. Wilson, 275-8384, after 6 p.m.

FOUR-YEAR-OLD GELDING, very gentle, been packed on, $1,500; 18-month-old registered filly, full sister to national reigning futurity champion, $1,800. Schaub, 865-8807.

OFFICEMAX MERCHANDISE CREDIT for $88, will sell for $65. Wagner, 823-9323.

BABY SWING, battery-operated, w/cradle, $120 new, $50; Jolly Jumper seat, like new, $15. Cocain, 281-2282.

THREE ERGONOMIC CHAIRS, $20; rocking chair, $60; Weber charcoal grill, $15; lawn mower, $25. Langkopf, 293-4076.

FANTOM VACUUM CLEANER, 11-amp, w/Hepa filter, $200; Singer sewing machine, w/case, $50. McBrayer, 293-4076.

HONDA EX1000 GENERATOR, $600. McMurtrey, 881-0390, evenings.

AQUARIUM, 75-gal., complete, $250; chain saw, 16-in. Homelite; helmet, KBC full face, XS; dirt boots, kid's size 6. Clancy, 281-4469.

REFRIGERATOR, w/icemaker, GE, 22 cu. ft., almond, door water & ice dispenser, $295. Pitts, 293-5481.

PRINTER, Panasonic KX-P2023 dot-matrix, good shape, lots of paper, $75. Kovacic, 256-9867.

ANNUAL MULTI-FAMILY GARAGE SALE, Sat., Sept., 13, 9 a.m., clothing, household, furniture, corner of Ridgecrest & Kathryn SE. Cook, 266-6088.

DRUM SET, 11-piece CB700, Paiste cymbals, octabons, cow bell, navy blue, was $1,100, now $800. Rogers, 293-5726.

SWING SET, large, very good condition, galvanized/plastic, new swings, you remove/haul, $60. Lippert, 299-6594.

AMANA GAS DRYER, 1 yr. old, barely used, $300 OBO. Wolf, 872-1095.

KAYAK, beginner, w/paddle, $100; two domesticated bull snakes, w/terrarium/hot rocks. Rockwell, 884-4206.

WASHER/DRYER, Kenmore, all-in-one stackable apt. size, electric, less than 6 yrs., $125 OBO. Gonzales, 275-2616.

REFRIGERATOR, 17 cu. ft., White Westinghouse, almond, frost free, very good condition, $135. Cowen, 296-5980.

PONY, paint, 11 hands, for riding or harness; small horse, 14 hands; both gentle, older. Reynolds, 281-9431.

GARMENT BAG, durable, heavy cloth, many compartments, versatile, used twice, cost $150, asking $80. Freshour, 256-9168.

OKIDATA OL400 LASER PRINTER, works, needs cleaning, $75. Werner, 323-7228.

MIRROR, 5' x 6', $75; exercise bike, $50; 3-drawer chest, $50; '73 VW, runs well, $500. Katz, 821-8061.

SQUARE DANCE DRESSES, skirts and slips, sizes 8 & 10, great condition; square dance shoes, size 9. Stoever, 296-3717.

GOLDEN RETRIEVER, 1 yr. old, has papers, free to good home due to recent move. Givens, 833-0991.

TROMBONE, $75, great condition, music stand & case. Montoya, 299-0624.

CAREERTRACK SEMINARS ON TAPE, 12, 4-tapes & 6, 2-tapes, call for titles, $29.95-$59.95 original prices, $10-$20 ea. Furch, 345-1411.

TILLER, 5-hp, Craftsman model 247, little-used machine, w/instruction manual, $200 OBO. Kuswa, 856-1953.

TREADMILL, manual, good condition, can fold for storage, $50 OBO. Blaisdell, 875-0719.

CAMERA, Canon AF35M SureShot, auto-everything, flash, strap & case, manuals, original box, mint condition, $35. Filuk, 281-0078.

PIANO. Korbin, 299-9088.

EXERCISE BIKE, DP-AirDyne, w/timer-pacer, distance & heart-rate monitor, $100; Weber charcoal grill, $40. Plummer, 828-3028, leave message.

COMPUTER, AcerPower 486 VESA tower system, 3 yr. old, $200. Shyr, 821-7089.

COMPAC PC, multimedia CD-ROM, monitor w/speakers, 486/66MHz, 8MB RAM, 425MB disk, 9.6 modem, $300. Lagasse, 298-0977.

CRIB, w/linen, musical mobile, change table, $125; carrier, $10; bathtub chair, $10; large playpen, $50. Padilla, 294-3127.

LANE ROCKER/RECLINER, $150; metal patio table, 4 chairs, $250; trailer hitch, Class IV, w/Reese dual-cam sway bars, $200. Kidd, 899-9534.

WOOD-GRAIN TABLE, round, 42-in., w/18-in. leaf, 4 cane-back chairs, $100. McConahy, 884-5071.

JACUZZI, Quantum model, seats up to 8, $1,800 (will allow $500 toward moving & new skirting; will give you old one). Morales, 821-3352.

FLOWER-ARRANGING SUPPLIES, silk/dried materials, grapevine wreaths, baskets & containers; 2 vertical file cabinets, $75 ea. Sparks, 266-5060.

PIANO, Baldwin Acrosonic console, $1,200; 5-piece bdr. set, $550; Morse sewing machine, $65; Readers Digest music books, set ok, $30. Montoya, 896-4252.

FULL-BAND PUBLIC ADDRESS SYSTEM; solid maple dry bar, 2 stools; antique Pennsylvania Dutch hutch; 2 female kittens. Rhoden, 293-5301.

FRANCHI 20-GAUGE AUTOLOADER, 26-in. vent rib, improved cylinder, like new, $350; Ithaca M37RD, 12-gauge, 30-in. full & 28-in. improved cylinder, $375. Svensson, 898-3078.

THREE-PIECE LUGGAGE, Samsonite (hard), strawberry color, $80; brown swivel chair/rocker, $40. Greear, 839-4255.

NISSAN BLUE BENCH SEAT, 4x4, carpet, dash, electric wire harness, wiper motor, tires & rims, Chev. cabs, mid-'80s. Chavez, 861-0712.

BABY ITEMS, crib with new mattress, $80; Playskool monitor set, $20; walker, $5; books, toys, more. Lopez, 291-0010.

CARDIOGLIDE EXERCISER, excellent condition, $100. Myers, 294-1648, after 6 p.m.

NORDICTRACK SEQUOIA, Vitamaster rowing machine. Goens, 281-5419, after 7 p.m.

NIKON N8008AF, w/Nikon 28mm to 80mm lens; 50mm Nikon, SB20 Speedlight, less than half price, mint, $695. Bowland, 256-1861.

TWIN BEDS, mattress & box springs, maple headboards, clean. Simon, 299-8468, evenings.

PINBALL MACHINE, 1980's "Fire Power," all coin slots intact, works great, full display, $500. Dybwad, 296-9047.

MICROWAVE, white, like new, Amana, 1,000-watt, $200; refrigerator/freezer, brown, Signature, frostless, 17 cu. ft., $200. Lovato, 299-3293.

BACK ISSUES OF *New Mexico* magazine, from '77-'97, good condition, plus misc. *Arizona Hwy.* Constantineau, 298-6166.

GOLF CLUB, LH oversize driver; hedge trimmer, B&D; multiconductor cable, various lengths, 6-ft. to 100+. Spray, 884-8453.

REFRIGERATOR, top freezer, dishwasher; both work, $75/both OBO. Chavez, 842-6374, after 6 p.m.

MOVING SALE: queen-size waterbed, dresser w/mirror & nightstand, coffee & end table, sofa & chair. Simmons, 891-2475.

MALE CHOW, white, 4 months old, $100. Gutierrez, 247-1089.

GARAGE SALE, Sat., Sept. 13, 9 a.m.-1 p.m. only, antiques, exercise equipment, trombone, more, 1921 Kriss Pl, NE. McKay, 294-2935.

UTILITY TRAILER, 4-ft. by 8-ft. bed, w/3-ft.-high plywood box, 1,500 GVW, w/electric connectors, $385. Bray, 292-2410.

LIFESTYLER CARDIO-FIT PLUS, reversible handle, monitor, $50; bags of English yarn: Mohair, $25; wood blends, $20. Jones, 881-1918.

PRINTER FOR COMPUTER, Microprism Model 480, w/cable, handbook, paper, $17. Lenz, 884-4835.

BEAUTIFUL BABY/TODDLER ITEMS: cribs, stroller, car seats, toys, clothing; washing machine, excellent, $135. Reuter, 884-8347 or 889-2926.

COLOR TV, GE, 25-in., cable-ready, beautiful console. Gregory, 275-3855.

DAYBED, black frame, 2 mattresses, $600. VanLeeuwen, 293-3917.

YAMAHA CLARINET, $135; Gemeinhardt flute, $140. Aragon, 888-3473.

IGUANA, 5-ft. male, people friendly, litter-box trained, all accessories, to excellent home only, $250. Wilson, 286-8192.

PLYWOOD, finished, 4' x 6' x 1/2", $16; 2' x 8' x 3/4", $8. Campbell, 268-4925.

SEWER CONNECTION, for 20-ft. RV, heavy-duty, w/mountable container, never used, $20; toolbox, 16-in., metal felt-lined, $8; pair WD saw horses, $5. Freyermuth, 299-2053.

PONY, 12-yr. old, looking for good home, $800; 14-yr. old donkey, $400. Peters, 281-6373.

PRINTER, Epson 286, 9-pin, wide carriage, $25. Dietzel, 294-4702.

WEIGHT BENCH DP 350, 1-66", 1-55", 2-18" bars, 47-in. curl bar, 320 pounds weights, $150. Hanson, 299-6421.

COLT MUSTANG .380, stainless, extras: brass, ammo, 4 clips, dies, $625 value, asking $400 firm. Guthrie, 299-7182.

DEADLINE: Friday noon before week of publication unless changed by holiday. MAIL to Dept. 12640, MS 0165, FAX to 844-0645, or bring to Bldg. 811 lobby. You may also send ads by e-mail to Nancy Campanozzi (nrcampa@sandia.gov). Call Nancy at 844-7522 with questions. Because of space constraints, ads will be printed on a first-come basis.

Ad Rules

1. Limit 22 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. No phone-ins.
4. Use 8½- by 11-inch paper.
5. Type or print ad; use accepted abbreviations.
6. One ad per issue.
7. We will not run the same ad more than twice.
8. No "for rent" ads except for employees on temporary assignment.
9. No commercial ads.
10. For active and retired Sandians and DOE employees.
11. Housing listed for sale is available without regard to race, creed, color, or national origin.
12. "Work Wanted" ads limited to student-aged children of employees.

TRANSPORTATION

'88 TOYOTA 4-RUNNER, 4x4, 4-cyl., 5-spd., 2-dr., AC, AM/FM cassette, good condition, $7,900 OBO. Sorroche, 281-9116, leave message.

'80 CHEV. STEPSIDE PICKUP, original owner, runs great, everything under hood new, $2,700. Epperson, 268-8409, ask for Joyce.

'72 PORSCHE 911T, 2.7L 6-cyl., 5spd., rebuilt engine, new carbs, AM/FM cassette, 6-disk CD, $8,900. Bujewski, 298-2653.

'82 FORD CLUB WAGON, wheelchair lift, chair tie-downs, internal/external side door switches, dual tanks, 74,507 original miles, $5,000. Baker, 888-4220.

'89 CHEV. ASTRO CL VAN, light blue, new tires, excellent mechanical condition, $5,000. Campos, 890-4462.

'71 MALIBU CLASSIC 307, 2-dr., hardtop, AT, AC, PS, PB, 68K miles, original owner, looks/runs like new, $6,500 OBO. Frei, 281-2145.

'95 CUSTOM CHEV. TRUCK, 3/4-ton, many extras, 350 5-spd. manual, low miles, stretch cab, immaculate condition. Andrews, 505-894-6412.

'85 TOYOTA 4-RUNNER, 5-spd., AC, JVC AM/FM cassette, chrome wheels, towing pkg., no accidents/dents, 169K miles $7,800 OBO. Newman, 266-6928.

'87 LINCOLN TOWNCAR, 71,400 miles, 17,250 miles on new engine, well maintained; dark-blue interior & exterior, $4,750. Follis, 823-0970.

'93 DODGE DAKOTA CLUB CAB, 4WD, magnum V6 engine, 45K miles, extras, perfectly maintained, $13,300. Thorp, 292-0169.

'78 FERRARI 308GTS, red/tan, ABQ emissions, CD, recent major tune-up, $31,900. Salyer, 823-1342.

'94 CHRYSLER CONCORD, loaded, 48K miles, 3 yrs., 22K miles remaining on factory warranty, $11,900 OBO. Sena, 821-8898.

'94 TOYOTA PICKUP, w/camper shell, low miles, 1 owner, all maintenance records, $9,500 OBO. Kazmierczak, 275-9742.

'94 FORD TEMPO, 4-dr., mint condition, AT, AC, PL, PW, 53K miles, $6,700 (firm). Milliman, 286-0508.

'93 FORD EXPLORER XLT, under warranty, 4WD, all power, 1 owner, best offer. Bullock, 286-1910.

'85 OLDS CUTLASS SUPREME, green, power accessories, 108K miles, $1,400. Kawola, 298-5813.

'96 ACURA INTEGRA GSR, white, 2-dr., 5-spd., 9K miles, fully loaded, immaculate, below book, $17,500 OBO. Lewis, 237-8328.

'87 PONTIAC TRANS AM, red, bids through 9/17/97, right to refuse bids, sold as is. SLFCU, 237-7386, ask for Christine.

'90 MERCURY TOPAZ, 4-dr., 4-cyl., original owner, well-maintained, almost 67K miles, below book, new battery, tires. Clark, 869-2569.

'92 SUZUKI SIDEKICK, 4WD, 4-dr., bids through 9/17/97, right to refuse bids, sold as is. SLFCU, 237-7386, ask for Christine.

'94 MUSTANG COBRA, black, tan leather, CD, new tires, powerful, 1 owner, 42K miles, must sell, $17,200. Kercheval, 248-0409.

'95 SAAB TURBO, 39K miles, nearly mint, book value $23,000, asking $22,000 OBO; '79 Mercedes 240D, looks great, runs great, $1,800 OBO. Brooks, 255-7551.

'86 FORD F-350, 460 4-spd., AM/FM, AC, 48K miles, $9,000 OBO. Garcia, 861-2477.

'88 CHEV. NOVA HATCHBACK, AC, AM/FM, AT, wired for tow, $2,550 OBO. Ostensen, 296-4227.

'93 NISSAN, extended cab, 5-spd., tint, chrome, much more, brand-new condition, $10,000 or offer. Everett, 268-7475.

'56 FORD FAIRLANE, 4-dr. Town Sedan, T-Bird V8, AT, runs well, $2,600. Anderson, 296-3352.

'60 FIAT 1100 SEDAN, complete, original, 4-spd. column shift, suicide doors, not running, easy restore, $600 OBO. Roberts, 866-5422.

RECREATIONAL

'86 VIP OPEN-BOW BOAT, 18-ft., 190-hp I/O, canopy & travel cover, runs great. $6,200. Matz, 828-1936 or 831-9211.

SKI EQUIPMENT, 2 sets, including skis, bindings, poles; woman's boots, size 6-1/2; adjustable ski rack; best offer. Fromm-Lewis, 291-8181.

SAILBOAT, 17-ft., O'Day DaySailer, main, Swedish storm sails, Highlander trailer, many upgrades, Honda outboard, excellent shape, $3,100 OBO. Schaub, 821-7242, evenings.

RANDY TRAVIS CONCERT TICKETS, 2 great seats for Sat., Sept. 13, 7:30 p.m., State Fair, $26. Taylor, 792-4803.

'93 VACATION AIR TRAVEL TRAILER, Park model, 39 ft., tilt-out living room & bedroom, special built, w/many extras, $15,250. Jarrett, 254-1035.

ONE-YEAR CAMPING MEMBERSHIP to Red Arrow Edgewood-Sante Fe Park, good at other parks, make offer. Laderach, 888-0712.

'78 DIAMOND CLASS-C MOTOR HOME, 17.5-ft., self-contained, Ford chassis, dash air, rear door/porch, great for towing fishing boat, $4,800. Ludwick, 296-6447.

MOUNTAIN BIKE, Diamondback Racing Vertex, 18.5-in., Deore XT, White Bros. hubs, titanium spokes, Kevlar tires, Manitou front shock, grip shift, $700. Dwyer, 271-1328.

MOUNTAIN BIKE, Specialized Stump Jumper Comp, full Deore XT, SIS shifting, ground control off-road tires, Kevlar slicks, $325. Vigil, 271-1328.

GIRL'S BIKE, 16-in., w/training wheels, 2 yrs. old, $35. Meeks, 828-9825.

MOUNTAIN BIKE, Specialized Stump Jumper, XT/LX, Manitou SX, new Tioga tires, $550. Silva, 265-5523.

TITANIUM MOUNTAIN BIKE, 19-in., Marin Ultimate, XT/XTSR Gruppo, Manitou EFC, less than 300 miles, $1,500. Smith, 294-5472.

'86 BOUNDER CLASS-A MOTOR HOME, garaged most of its life, many extras, will consider trailer trades. French, 856-6126.

SEASON TICKETS, Lobo Women's Volleyball. Kiro, 881-2802.

MAN'S BICYCLE, 10-spd., Univega, $45. Smith, 898-8429.

TICKETS, Lobo Men's Basketball, 2 chairbacks, Sec. 2, Row 7, seats 5 & 6, $610. Easley, 884-5192.

'79 HARLEY DAVIDSON FAT-BOB, 74-cu., wide-glide front end, custom paint, 2 seats, extra chrome, $8,500. Woodard, 836-6045.

'78 STERNCRAFT OPEN-BOW BOAT, 17-ft., w/Mercruiser 140-hp I/O, $3,000 or trade for car or truck. Lenberg, 266-8988.

'82 KAWASAKI GPZ750, 17K miles, helmets, saddle/tank bags, Fiam horns & more, $1,200. Draper, 281-2663.

GLASTRON FIBERGLASS BOAT, 14-ft., w/6-hp Evinrude outboard, oars, trailer, $1,000 OBO. Burns, 81-3922, leave message.

REAL ESTATE

3-BDR. HOME, 2 master suites, Rio Rancho, immaculate, 2 full baths, 1,500 sq. ft., much storage space, large xeriscaped lot, $92,500. Kovarik, 897-2188.

3-BDR. CUSTOM HOME, east mountains, 2 baths, 2.1 acres, 1,985 sq. ft., great well, horse barn & corral, $160,000. Spring, 281-5688.

3-BDR. HOME, 2 baths, Near NE Heights, 1,650 sq. ft., lush backyard, beautiful hardwood floors, $125,000. Gentry, 254-9545.

3-BDR. HOME, near KAFB east, 1-3/4 baths, AC, new roof, new paint, carpet throughout, large yard. Jaramillo, 296-6810.

4-BDR. HOME, 1-3/4 baths, wood floors, 1,700 sq. ft., just outside Gibson gate, $99,900. Lovato, 265-7949.

3-BDR. HOME, spacious, 2-story, study, 3 full baths, mountain/city views, landscaped, security system, east of Tramway/Indian School, $159,900. Kaufmann, 292-9249.

2-BDR. MOBILE HOME, 1-3/4 baths, '84 Champion, 14' x 60', all appliances, book $10,600, asking $8,500. Gabel, 865-0481.

3-BDR. HOME, Edgewood, 1,408 sq. ft., easy commute, safe subdivision, LOPI wood stove, upgrades throughout, must sell, $133,950. Kunerth, 281-6689.

WANTED

OXY-ACETYLENE WELDING SET, need tanks, torches, will also consider MIG. Rodacy, 293-2668.

ACCIDENT WITNESSES: If you saw a hit and run accident in the parallel parking spots south of the cafeteria on Tues., Sept. 2, call. Davis, 284-3786.

HOUSE TO SIT OR FURNISHED RENTAL, for retired Sandian, 3 months or longer, for 3-person family, fall '97. Spalding, 299-3376.

PART-TIME CHILD CARE for children 2 yrs. & 6 yrs., my home near Wyoming & Academy. Tapia, 857-0475.

CASSETTE SERIES FOR "DOS MUNDOS" SPANISH COURSE (3rd edition), UNM Continuing Education, buy or borrow. Blanford, 292-6494.

WHEELBARROW for household use. Wyss, 821-9151.

MUSIC STANDS, innovative public elementary school requests donations of music stands for its new band program. Blake, 881-1663.

BACKPACK, to carry toddlers up to 40 lbs. Ormesher, 255-3614.

ADDITIONAL SINGERS, The Enchanters, contemporary choral group, auditions in early Sept. Piscotty, 296-2518.

WINDOW AIR CONDITIONER, at least 5,000-Btu refrigerated unit. Bridgers, 296-4218.

YOUR OLD BACKPACKING GEAR, needed by Scout troup, any age or condition, cheap price or donation. Bailey, 281-3265.

HOUSEMATE, female, to share 3-bdr./2-bath home, Academy/Burlison area, nonsmoker, $350/month w/utilities. Boyd, 821-7484.

ROLL-AWAY-BED, twin-size, good conditions, reasonably priced. Hill, 299-9416.

APPLE II-E COMPUTER, for use in elementary school Lego Logo Program, prefer donation. Ghanbari, 883-3819.

ELECTRIC LAWN MOWER, good condition, reasonable. Hayes, 299-1200.

MOTORCYCLE, off-road, dual-purpose, for beginner, must be in good running condition. Kureczko, 281-8206.

EARLY '80s TOYOTA LAND CRUISER FJ-40, like new condition. Mignardot, 254-9092.

HOUSEMATE, east mountain area, M/F, nonsmoker, dog negotiable, available Oct. 1, $300/month w/1/2 utilities. Konopka, 281-6108.

ELECTRIC CLOTHES DRYER, bunk beds. Essenmacher, 865-7066.

LOST & FOUND

FOUND: Mickey Mouse pen, by Gate 1. Gomez, 844-7003.

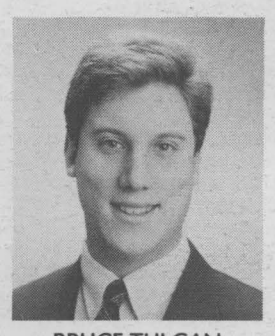
LOST: Dog, large white spayed female, chow/mix, East mountains, vicinity of Mountain Valley Road, forest green collar, no tags. Southward, 281-7858.

FOUND: Male dog, part Shar-pei, maybe part Pit Bull, near Menaul/Washington, no tags, young, friendly, gentle, good pet, needs home. German, 883-7002.

'Xpert' Bruce Tulgan: Real Generation X workers are flexible, adaptable, entrepreneurial

By John German

An unusually young Sandia crowd gathered at the Technology Transfer Center Aug. 28 to hear Generation "Xpert" Bruce Tulgan discuss how members of two generations — baby boomers and Xers — can find common ground in today's competitive, technological, volatile business environment.



BRUCE TULGAN

The presentation, "Managing Work in the Post-Jobs Era™," was videolinked to Sandia/California.

Tulgan, 30, says he spent 428 days as a Wall Street attorney, managed a few political campaigns, and then founded what the *Wall Street Journal* called "the funky think tank" Rainmaker Inc. He has since emerged as a national business consultant on generational differences in the workplace and is regarded as a leading spokesperson for the generation of Americans born roughly between 1963 and 1977.

His popular book, *Managing Generation X: How to Bring Out the Best in Young Talent*, has received wide acclaim from editors and business leaders.

He says Generation X is one of the most widely misunderstood phenomena facing US corporations today. "I want to turn the 'slacker' stereotype of Xers on its head," he said. "Real Generation X workers are flexible, adaptable, entrepreneurial value adders."

Real generational differences

About half of Tulgan's time is spent studying the working lives of Xers, he said — how they are managed, how they want to be managed, how they are managing their careers, and how they are balancing their work and personal lives. The other half is spent speaking to business leaders, managers, workers, and students across the country. His talks focus on how companies can attract, recruit, motivate, and retain young workers.

"The 1990s have witnessed the most profound changes in the economy since the industrial revolution," he said. "I'll use Generation X as a lens to see the future of the economy and the work force."

He said differences in backgrounds, work styles, and attitudes between boomers and Xers can get in the way of doing productive business.

Xers, he said, often are fiercely independent. They are entering a volatile labor market with little or no job security, which forces them to take responsibility for their own careers rather than rely on decreasingly paternalistic employers for their long-term employment and retirements. Six million (nearly one in nine) Xers are starting their own companies, he said, and 18 million Xers (one in three) change jobs every year.

"Before the typical Xer is 30, [he or she] will have one job they regard as pretty good, one they regard as pretty bad, drop out of the rat race, think about going back to school, and think about owning their own company," he said.

That contrasts with the generation that precedes them, the baby boomers, who entered the work force during a time when corporations were regarded more as destinations and sources of long-term income and less as stepping stones.

As a result, boomers often see Xers as lacking company loyalty, self-absorbed, nonpermanent. On top of that, Xers' comfort level with technology makes them increasingly marketable in today's economy, which can threaten boomer employees, some of whom have given their entire careers to a single company, he said.

Being the employer of choice

But Xers are 13 percent of the US work force today, and that number is growing, Tulgan said. To retain and motivate young workers, companies need to strike a new bargain with them, and become the "employer of choice" for young talent.

"Xers spend their time moving from experience to experience collecting proof of their abilities to add value," he said. "Once they add value, they are ready to cash out and renegotiate."

Companies that retain the talents of young workers have forsaken traditional job descriptions — "tidy little packages of day-to-day tasks" — and allow their young employees to "apply their abilities and skills to whatever needs to be done," he said.

That requires an adaptable workforce guided by flexible policies. "In today's highly competitive business environment, the company that succeeds at rapidly shifting its human resources to the task at hand is the company that will come out on top," he said.

Reengineering and restructuring, he contends, are simply companies' attempts to adapt to their rapidly changing, unpredictable staffing needs. It's also why employee leasing, outsourcing, temporary hiring, and small businesses are some of the fastest growing segments of the economy today.

He likened the economy of the future to Hollywood, where resources — movie stars, crews, equipment, and money — are gathered together for a period of time, then are disbanded when the project is finished. Highly skilled workers in many fields may someday have "talent agents" and be hired under limited-term contracts like professional athletes.

Before speaking at Sandia, Tulgan examined the results of phone interviews of a cross-section of Generation X Sandians carried out by Rainmaker Inc. representatives. He said two major concerns emerged.

One, Xers feel Sandia places too much value on old-fashioned paper credentials — seniority, on-the-job experience, degree level. "The comment that expressed it best was 'Until you've been at Sandia 5 years, nobody takes you seriously.' " he said. "But I've heard it's more like ten years. People need to realize that Xers often come to work from other jobs already highly skilled."

Two, many Xers regard Sandia's performance-review and compensation system as prohibitive. "A lot of Xers [nationally] express mystification about the annual performance appraisal process," he said. "They believe the process is intended to create a paper trail in case you have to fire people. . . . They don't see how their work affects their compensation."

Sandians' attitudes are not atypical of Xers' attitudes nationwide, he said.

For Sandia, he recommends young employees be brought up to speed faster through extensive training when they arrive. Xers also should be offered opportunities for training continuously throughout their employment at Sandia.

Labs organizations should shape roles for young workers that allow them to have meaningful influence on Sandia's work "in the first week, month, and year," he said.

And Sandia should capitalize on its extensive internal business network by encouraging young employees to cultivate their own business relationships and internal customers. "Many Xers already think entrepreneurially, so that comes naturally," he said.

He urges business leaders nationwide to adopt what he calls "FAST" feedback regarding young workers' job performances — frequent, accurate, specific, and timely — by rewarding employees more often and in ways other than annual pay increases.

Tulgan's appearance is the first in a series of awareness sessions to be offered by the Division Diversity Councils in the coming year.

While at Sandia Aug. 28 and 29, Tulgan also addressed managers during a breakfast lecture, focus groups in divisions 1000 and 4000, and the Corporate Diversity Team in a roundtable discussion.

Coronado Club

Sept. 18, 25 — Thursday bingo night. Card sales and buffet start at 5 p.m., early birds' bingo at 6:45 p.m.

Sept. 19 —Kids bingo. Buffet, 5-8 p.m.; cartoons, 5-7 p.m.; bingo, 7 p.m.

Sept. 21 — Sunday brunch buffet, 10 a.m.-2 p.m. $8.95 all-you-can-eat buffet; $9.95 for nonmembers; kids 3-12, $4.19; under 3 free. Music by Bob Weiler, 1-4 p.m.

Oct. 3 — Oktoberfest. Bavarian-style music and floor show, 7-11 p.m. Music by Die Polka Schlingels. Reservations at 265-6791.

RAW RECRUIT? — One-to-One Sandia Volunteer Mentorship Fair attendee Jerry Ward (right, 12630) examines a brochure about the Big Brothers/Big Sisters program with the program's volunteer recruitment coordinator, Lisa Bennett (left), and program coordinator Marissa Lindsay (center). The Mentorship Fair on Aug. 28 at the Coronado Club featured representatives of 22 agencies. Fifty-four of the approximately 300 attendees signed on to serve for a year as mentors to youths at risk, according to fair organizer Redd Eakin (12650). Fair attendees enjoyed hot dogs, watermelon, lemonade, and apple pie, in addition to entertainment by the Mountainside Jug Band, whose members include George Trever (5711) and retirees Harriet Goodness and Tom Moody. (Photo by Randy Montoya)