# Reflections

Los Alamos National Laboratory Vol. 1, No. 1 • November 1996

## Distinguished Performance Awards

They come from offices, labs, workshops and test facilities across the Laboratory. The impact of their achievements has been felt throughout the Laboratory, the region, the nation and the world.

They are the winners of the Distinguished Performance Awards — 16 individuals and members of six small teams and six large teams who were recognized last month for their outstanding contributions to the Laboratory in 1995.

*see Page 5*

## Inside this issue ...

***Cover by Fred Rick and Edwin Vigil***



**Reflections**

**Reflections, the Laboratory monthly publication for employees and retirees, is published by Public Information (PA-1). The staff is located at TA-3, Building 100, and can be reached by e-mail at *newsbulletin@lanl.gov*, by telephone at 7-6103, by fax at 5-5552, or by regular Lab mail at Mail Stop C318. The individual telephone numbers are listed below.**

**Editor:**
Jacqueline Paris-Chitanvis, 5-7779

**Production coordinator:**
Denise Bjarke, 7-6103

**Graphic designer:**
Edwin Vigil, 5-9205

**Photographer:**
Fred Rick, 5-9202

**Staff writers:**
Steve Sandoval, 5-9206
Ternel Martinez, 5-7778

**Editorial coordinator:**
John Webster, 7-5543

Los Alamos National Laboratory is an Affirmative Action/Equal Opportunity employer. It is operated by the University of California for the U.S. Department of Energy.

## editor's journal

# *Here's to change*

When discussions began last year in the Public Affairs Office about how to get information to employees in a more timely manner, while still providing feature and human-interest material, I was intrigued. When those discussions — coupled with research into employee communication trends — resulted in the weekly Newsbulletin changing to an electronic daily format and a monthly hard copy publication being commissioned, I was uneasy. Not that I didn't think the proposed changes would improve communication with employees. I did then, and I do now.

It's just that I was uneasy about changing a mainstay of the Lab. The weekly Newsbulletin had been around for 18 years, and I anticipated that many readers would not immediately embrace a format change. I've been in the communications business long enough to know that it doesn't matter who the audience is or what improvements a change will bring. People, myself included, don't like their constants or routines messed with. We tend to get attached to a particular communications vehicle, a newspaper, television program or whatever. Sometimes this attachment doesn't allow us to readily see or accept the advantages of something new or different.

I also was uneasy about a small staff — two writers, a graphic designer, a photographer, a production coordinator and an editor — putting out a weekly publication while planning for a daily and a monthly, and later putting out the daily while preparing the monthly publication.

I even was initially uneasy about what we'd put in a monthly publication. We knew it couldn't contain timely information — that was the role of the daily Newsbulletin. Yet, we wanted the monthly to be informative, interesting and entertaining. We also wanted it to help employees and retirees feel connected with the Laboratory.

Having worked on a monthly magazine, I was *real* uneasy about deadlines for monthlies. Producing a monthly publication does not give you nearly as much time as many would think. Normally, you have about two weeks each month to prepare the publication for shipping to the printer, and unless you can afford to pay for a quick turnaround (which we can't), the printer usually needs about 10 to 15 days to deliver a finished product.

Still, we forged ahead. With the help of contractor John Webster, who lent his considerable editorial talents to the project, the monthly began to take shape. We settled on the name "Reflections," and by the time we were getting the publication ready for the printer, my uneasiness had subsided somewhat.

So here we are with the first issue of "Reflections." The staff is proud of this issue, but we know we can and will do better. A better product is what we'll strive for each month. In doing so, we'll make some mistakes, try some different things and opt for some changes. We even made a last minute change for this first issue.

We had announced that the director's Inside Story would move from the Newsbulletin to the monthly. But after giving that plan more thought, we decided to keep the Inside Story in the electronic Newsbulletin, which can be accessed from the Lab's home page on the Web. The Inside Story will continue to focus on timely issues and will appear at least once a month. The director also will contribute occasionally to "Reflections."

I'll be sharing a thought or two of my own with you each month and hope you'll make "Reflections" a regular part of your reading.

# Only in America

*by Sig Hecker*

Several weeks ago when I announced my decision to step down as director of the Laboratory effective Oct. 1, 1997, I received numerous inquiries about my early life as an immigrant to the United States. People are typically confused by the fact that I was born in Poland, lived in Bosnia but grew up in Austria before immigrating to Cleveland, Ohio, in 1956 at the age of 13.

This kind of family history was not very surprising to people familiar with war-ravaged Europe after World War II. My parents were born in the Austro-Hungarian Empire before it was dissolved after World War I, in what now is Bosnia. They were raised in small towns during the years between the wars, winding up in Sarajevo. However, in 1943, they were relocated to Poland, where my father worked in a German-run factory. My family followed and Tomaszow, Poland, became my birthplace.

***A 13-year-old Sig Hecker, left, stands with his family on the dock before departing for the United States from Bremerhafen, Germany, in December 1956. With Hecker, from left to right, are his step-father, Robert Mayerhofer; one of his sisters, Anne; and his mother, Maria Mayerhofer.*** *Photo courtesy of Hecker*

Within six months, my father was drafted into the German army to fight on the Russian front. The rest of the family was sent back to Bosnia. However, our previous home, as well as those of our relatives, had fallen into Serbian hands, and so, my mother and family (her parents, sisters, my older brother and me) fled to other parts of Bosnia and to Slovenia — constantly on the run to avoid being captured. In August 1945, my mother gave birth to a daughter and then successfully led the family back to Austria proper. My father was declared missing on the Russian front, never to return.

Home became the small alpine town of Rottermann, southeast of Salzburg. That's where I acquired my love for mountains and for skiing. When I was 13, my mother, who had remarried by that time and had another daughter, convinced the family to follow several of her siblings and my older brother who had immigrated to Cleveland. Speaking no English, we came across the Atlantic on a refurbished warship, the USS General Langfitt, with everything we owned packed into one small wooden crate and a couple of suitcases.

Attending eighth grade on Cleveland's East Side was quite a cultural shock. No more small town, no more soccer, no more skiing — instead, learning English and assimilating into American life became top priority. That seemed to work out all right, although there were bumps and bruises along the way. I graduated from East High School as class president and valedictorian, and went on to attend Case Institute of Technology (now Case Western Reserve University) in Cleveland.

This period marked the beginning of two other great loves of my life. A few days after graduating with my bachelor's degree in metallurgy in June, 1965, I married my wife, Nina — the girl next door. Nina's parents, who were Polish, had a similarly difficult time during and after the war. Nina was born in Germany and immigrated to this country when she was four. The day after our wedding, we packed our VW bug and headed for Los Alamos, where I began my long association with the Laboratory I love, as a summer graduate student. I was amazed that I could get a job at a place such as Los Alamos. I was even able to get a Q-clearance in time (within three months) to be able to get into the CMR Building that summer to start my job. I marveled then what a remarkable country this was.

That same thought was reinforced again last year. The scene was the impressive Pentagon office of the chairman of the Joint Chiefs of Staff. My laboratory-director colleagues (Al Narath from Sandia and Bruce Tarter from Livermore) and I accompanied Department of Energy Deputy Secretary Charles Curtis and Assistant Secretary for DOE Defense Programs Victor Reis to visit Gen. Shalikashvili to discuss how we would provide the stewardship of the nation's nuclear arsenal without nuclear testing. Gen. Shalikashvili asked sharp, penetrating questions in a heavy European accent. He also was born in Poland. His father, originally from the Soviet Republic of Georgia, served as an officer in the Polish army. Collectively, it was our job to advise the president of the United States on matters of stockpile stewardship and the comprehensive test ban.

It occurred to me then, that only in America can you find the head of state being advised on matters of utmost national security by the top military officer, who immigrated to the United States and who, in turn, was being advised by the directors of the nation's nuclear defense laboratories, two of whom (Al Narath and I) also were born outside the United States. All three of us are naturalized citizens of this country.

I am sure that my colleagues would echo my feelings of this being the land of opportunity. And, as I stated in a previous Inside Story column, paraphrasing Motorola's Bob Galvin, "This nation treated me to the most demanding discipline. It trusted me!" I have tried to live up to that trust, both as a citizen of my adopted country and as the director of our great Laboratory.

I look forward to continuing to share some of my thoughts with you in this new monthly publication.

university of california report

# UC in Northern New Mexico

*by Christina Armijo*

## *Educational Outreach Task Force*

The University of California has convened the "New Mexico Educational Outreach Task Force" to share its resources within the state.

The task force is headed by Carl H. Poppe, associate vice provost for research and laboratory programs in the UC Office of the President. It is a cooperative effort of the university and the Laboratory with participation from leaders in government, education and business in Northern New Mexico. All task force members are from New Mexico except Poppe.

The task force wants to provide assistance to the educational system in Northern New Mexico to meet present and future community workforce needs. It will study local educational requirements and identify resources that can sustain new efforts to meet these needs. The Laboratory will remain a local participant, with additional UC support if needed.


## 'Are you recruiting?'

***For the first time, the University of California and the Laboratory sponsored an informational booth this year at the Santa Fe Fiesta. A frequently asked question by fiesta-goers who stopped by was "Are you recruiting?" That question and many others about UC, the Laboratory and their relationship were answered by staff from the UC Office of the President and the Lab's Community Involvement and Outreach (CIO) Office.*** *Photo by Christina Armijo of the UC Northern New Mexico Office*

## *New Hours, New Faces*

The UC Northern New Mexico Office in downtown Los Alamos is now open during the lunch hour. The office, located adjacent to the Bradbury Science Museum and co-located with the Laboratory's Outreach Center/Reading Room, is open from 9 a.m. to 5 p.m. The decision to keep it open during the noon hour was made in response to community and employee suggestions.

Also new at the UC office are three volunteers from the Laboratory Retiree Group. Glenn Lockhart, Bernie Storm and Dale Thompson are spending their own time to answer telephones and take down requests for information. They are also helping organize Reading Room documents. Volunteering at the UC office was the brainchild of LRG members.

Consideration is under way to expand UC office and Reading Room hours further by opening the facility some evenings and weekends.

## *Fiesta Frolics*

Members of the UCOP staff have increased their presence in Northern New Mexico in several ways, including participation in traditional community fiestas. This year, they staffed information booths at festivals in Los Alamos, Española and Santa Fe. The booths attracted a lot of people — there were nearly 650 entries in a raffle in six hours at the Los Alamos Summerfest — and they were curious. The most frequently asked question: "Why does the University of California have a booth here?" While the Laboratory is recognized as a major player in the region, UC is not. Festivals and trade shows are a positive component of community outreach, and UCOP will be back in force next summer.

## *Web-wise*

Take time to cruise the UC Northern New Mexico Office's new web site, and offer your feedback. The site highlights regional information relevant to UC and Laboratory corporate citizenship responsibilities. UC and Laboratory news also are highlighted. The site can be accessed at http://www.lanl.gov/ucop/. Comments are welcome and appreciated, and they may be sent to *ucop@lanl.gov* or *rwangen@lanl.gov.*

## *On further reflection …*

If you have something for Reflections, let us know about it.

In addition to information from the University of California (see above), we plan to make room for reports from Laboratory organizations, and we invite submissions.

We have a list of guidelines that we will provide on request. In general, we want information that is relevant to as broad a spectrum of the workforce as possible, reasonably timely, and brief. As always, the decision of the editor is final. For information, call the editor, Jacqueline Paris-Chitanvis, at 5-7779 or John Webster at 7-5543.

# 1995 Distinguished Performers

*continued from cover*

The individual and small team award winners were cited for major contributions to the Lab's programmatic efforts or its status in the scientific community. Large teams were honored for performing at levels far above normal job assignments, completing projects that resolved problems with broad impacts or that resulted in the Lab being recognized for its expertise, working on projects involving innovative thinking and demonstrating levels of skill and teamwork far above expectations.

## *Individual awards*

### *Michelle L. Bonner*

Michelle L. Bonner, office administrator for Advanced Chemical Diagnostic Instrument (CST-1) since May 1989, has overseen all of that group's administrative activities during a time when the group has tripled in size.

In addition to her usual secretarial duties, Bonner functions essentially as an administrative deputy group leader, tracks the CST-1 budget, assigns and tracks space and serves on the CST Administrative Focus Group. She also steps in whenever a need arises, no matter what the task. In 1995, when the CST's point of contact for the Laboratory-Directed Research and Development (LDRD) Program was hospitalized a week before the division's 100-plus LDRD proposals were due, Bonner voluntarily took charge, processed the proposals and met the deadline.

Bonner's constant hard work frees other CST-1 personnel for programmatic scientific research. As a result, she has a direct, positive impact on the group's morale, productivity and ability to attract funding.

### *Michael J. Burns*

Michael J. Burns of the Dynamic Experimentation Division Office (DDDX), project leader for the Dual-Axis Radiographic Hydrotest (DARHT) facility, successfully guided that project through a period of unprecedented challenge.

When a court injunction halted DARHT construction, Burns brought the required environmental impact statement to completion in record time (nine months instead of two to three years), thus holding the disruption to a minimum. Burns also found the funding to keep the core DARHT team together and productively refocused the team's efforts on advanced radiography development during the hiatus.

Simultaneously, he worked with the other DOE defense laboratories to establish DARHT as a national program that will provide the next-generation radiographic capability for science-based stockpile stewardship and will serve as the test bed for Lawrence Livermore's Advanced Hydrotest facility.

Because of Burns's persistence, the DARHT project not only survived but grew in scope. As a result, Los Alamos has emerged as the national leader in X-ray radiography.

### *Mark S. Dinehart*

Mark S. Dinehart of Advanced Technology (NMT-6) has played a vital part in DOE's effort to establish a stabilization program for plutonium-bearing residues. The Defense Nuclear Facilities Safety Board requested the program in 1994 with its recommendation 94-1 and, in 1995, further recommended that Los Alamos assist DOE in the effort.

As the Laboratory's representative, Dinehart became the stabilization program's principal architect, first by taking the lead during planning and then, at DOE's request, by implementing the finished plan throughout the DOE complex. He successfully balanced the interests of all the affected DOE sites while simultaneously articulating and defending the Laboratory's capabilities and programs.

Dinehart's work has placed the 94-1 stabilization effort on a sound technical footing and, in doing so, has greatly enhanced the Laboratory's visibility and credibility. In addition, his efforts have brought Los Alamos $15 million in annual funding for diverse plutonium research, which will enable the

***Michelle L. Bonner***

***Michael J. Burns***

***Mark S. Dinehart***

## 1995 Distinguished Performers

*Karen S. (Sue) Fenimore*

*Beverly J. Gonzales*

*James K. Hoffer*

### *Karen S. (Sue) Fenimore*

Sue Fenimore of Industrial Partnership Programs (IP) has been recognized for her commitment, creativity and vision as the project leader for the DOE Defense Programs Small Business Initiative at Los Alamos. Through her leadership, the Los Alamos SBI program has become the model other DOE/DP laboratories strive to emulate.

Fenimore expanded outreach efforts to make Los Alamos researchers and small businesses more aware of partnering opportunities and the mutual benefits of working together. In addition, she streamlined the process by which those partnerships are formed.

She has worked extensively to identify technical problems faced by small businesses and to match them with Laboratory resources. Furthermore, she pioneered a staff-exchange program, which enables small business researchers to work side-by-side with Los Alamos scientists, and a short-term loan program that allows New Mexico companies to borrow unused scientific equipment and shift their time and money from purchasing equipment to solving real problems. Her efforts to involve regional small businesses in partnerships with the Laboratory have contributed to regional economic development.

Fenimore's efforts to make small companies throughout the nation aware of Los Alamos partnership opportunities demonstrate her dedication to making Los Alamos a truly national laboratory, accessible and valuable to everyone.

### *Beverly J. Gonzales*

Beverly J. Gonzales, group secretary of Detonation Theory and Application (T-14), personally took on the challenge of improving workforce productivity. By re-engineering and streamlining work formerly done by three employees and incorporating it into one manageable effort, Gonzales saved her division the cost of one FTE without compromising the characteristic excellence and timeliness of her work or off-loading work onto staff members.

Gonzales also has a flawless record as the classified document custodian for the Theoretical (T) Division, a division that breaks from the Laboratorywide trend of fewer classified documents by handling ever-increasing numbers. In addition, she serves as editorial assistant of Physics Letters A: Nonlinear Science, a weekly international scientific journal. Managing approximately 300 manuscripts a year, Gonzales has shown complete mastery of the accuracy, diplomacy, confidentiality, timeliness and prompt decision-making this high-profile position requires.

By eliminating processes that did not add value without affecting the quality of the end products, taking full advantage of her computer's capabilities, and working overtime when necessary, Gonzales has demonstrated an exceptional degree of professionalism, competency and flexibility.

### *James K. Hoffer*

James K. Hoffer of Condensed Matter and Thermal Physics (MST-10) has made a critical contribution to the Inertial Confinement Fusion Program and, through that, to one of DOE's most important initiatives, the National Ignition Facility. All credible ignition designs for ICF facilities such as the NIF require a target capsule with a frozen (cryogenic) deuterium-tritium layer. The uniformity of that layer is critical, so critical in fact that ensuring it has been a focus of concern for years.

Hoffer believed that beta layering, a technique he pioneered and advanced during years of research, would produce cryogenic DT layers smooth enough to meet the NIF's needs. Most of the ICF community disagreed with him, but Hoffer and his team persisted and last fall obtained the precise optical measurements to demonstrate success. The DT layers produced through beta layering not only met but exceeded NIF's specifications. As a result, Hoffer's work in the Los Alamos ICF Program has helped to secure NIF's future.

### *Joseph H. Kleczka*

Joseph H. Kleczka, a system administrator in Desktop (CIC-2), uses his 27 years of experience as a Laboratory computer technician to support the local area networks, UNIX

servers, Macintoshes, PCs, printers and related hardware in 10 CIC Division groups.

The job is enormous but less complicated than it used to be, thanks to Kleczka's initiative. The computing environment he serves had consisted of eight interdependent UNIX servers. If one failed, they all did, leaving CIC personnel facing more than 400 inoperable computers. Kleczka replaced the eight servers with a single one of greater capability and reliability. He took full responsibility, from justification to delivery, and completed the changeover in two months, with minimal impact to users.

Kleczka applies the same energy to every day's activities. He always goes the extra mile, often tackling problems outside his job description and outside normal working hours. With his dedication and intimate knowledge of almost every desktop platform available, Kleczka always provides unprecedented customer service.

## Richard E. Luce

Richard E. Luce, Research Library (CIC-14) group leader, has transformed the library into a model for the technological future.

Two years ago, he began the Library Without Walls project to make all unclassified LA-series technical reports, beginning with 1943, available online to Laboratory staff. Through the Internet, the same reports are accessible to researchers around the world. Soon all appropriate LAUR and LALP documents will be added. Through the same project the Research Library became the first in the world to offer its users databases, such as SciSearch and the DOE Energy Database, through a World Wide Web interface.

Such innovations have brought outside recognition and interest. Other libraries have requested partnerships in developing and testing new technologies, private companies have provided software and database support, and scientific publishers have asked to pilot on-line electronic journals at Los Alamos.

Most important, Luce's efforts have enhanced services for Laboratory staff, winning the Research Library the highest satisfaction rating and the second highest importance rating of all CIC services.

## Pat W. Mendius

Pat W. Mendius of Communications Arts and Services (CIC-1), a writer-editor assigned to the Applied Theoretical and Computational Physics Division (X) Division, is a communications specialist whose skill with the English language is matched by her in-depth understanding of the division's programmatic efforts.

Besides editing technical reports and other division communications, Mendius produces the award-winning newsletter, X Windows, for which she writes and revises articles and oversees the photography, illustration, design and final printing.

She also attends and documents each meeting of the Nuclear Weapons Technology (NWT) Program's Weapons Working Group (WWG), a monthly forum focused on current weapons-related issues and achievements. Mendius creates a classified report of each month's proceedings. These reports, always of refereed-journal quality, represent a true archiving of NWT work and serve as technical references. They have become the largest single contribution to the record on which science-based stockpile stewardship is based.

In recognition of Mendius's skill and subject-matter expertise, the WWG has made her a charter member, a remarkable accomplishment for a member of a support organization.

## Cecilia L. Olivas

Cecilia L. Olivas, assistant to Director Sig Hecker, consistently models exceptional leadership and ambassadorial skills in her challenging position. She demonstrates superior professionalism in her smooth maintenance of the Director's office and schedule, interaction with government officials at all levels, mentoring of other Laboratory administrators and secretaries, and fostering of diplomatic relationships with the other UC laboratories. The executive secretary to the director of Lawrence Berkeley National Laboratory says of Olivas, "In her role as Dr. Hecker's assistant, she has brought a better understanding of how the directors' offices can work in greater synergy to the benefit of all three sister labs."

Olivas formed the first Laboratory Leadership Council of Administrators to organize and streamline the tasks of

## 1995 Distinguished Performers

*Joseph H. Kleczka*

*Richard E. Luce*

*Pat W. Mendius*

## 1995 Distinguished Performers

*Cecilia L. Olivas*

*Don M. Parkin*

*LeRoy N. Sanchez*

executive office administrators and to improve the Laboratory's business practices and communications. She assists group office administrators and secretaries as well, organizing focus group meetings for brainstorming and exchanging ideas with the director and providing participation opportunities for support personnel in a Human Resources training course, "One Step Up." Sharing her knowledge and experience graciously and modeling her own role with distinction, Olivas continuously unlocks the hidden potential in other employees, empowering others in support of the Laboratory's mission.

### *Don M. Parkin*

Don M. Parkin of the Center for Materials Science serves as center leader, program manager and principal investigator. Under his impressive leadership Los Alamos has been awarded the nation's first pulsed-magnetic-field user facility, the National High Magnetic Field Laboratory, whose responsibilities will be shared with Florida State University and the University of Florida.

Parkin shows an exemplary ability to assemble and lead effective teams and to work with his sponsors in the DOE Office of Basic Energy Science. His OBES programs support the research of eight Laboratory Fellows and have produced two major CRADAs in the past two years. He has convinced DOE/OBES to form a first-ever partnership with the National Science Foundation to develop a unique 100-tesla, nondestructive pulsed magnet at Los Alamos.

Under his initiative, world-class facilities — the Electron Microscopy Facility, the new Materials Science Laboratory, and the Ion Beam Materials Laboratory — have been established for Los Alamos users. His co-workers and sponsors alike have recognized Parkin for his outstanding leadership and dedication, which have set a standard for Laboratory program managers.

### *LeRoy N. Sanchez*

LeRoy N. Sanchez of Plans, Issues and Programs (PA-3) has honored the Laboratory with his initiative and creativity as an outstanding public information specialist and photographer.

Sanchez has produced a five-part poster series that skillfully showcases a cross section of Laboratory science (ALEXIS, ocean modeling, galaxy cluster, neutrinos, and superconductivity) for a broad audience. He coordinated and marketed the posters for a nationwide audience, and they now appear in classrooms from New Mexico to Maryland. They also can be seen in such distinguished places as the Presidential Science and Technical Policy Office, the National Science Foundation, New Mexico's Democratic and Republican representatives' offices, and New Mexico universities. At the Laboratory, Sanchez's posters are on exhibit outside the Director's Office, the Public Affairs Office, the Study Center and Otowi Cafeteria.

Sanchez has received the highly regarded Crystal Communicator Award for communicating science through photography. He recently served as a photographer for both President Bill Clinton and Vice President Al Gore, working out of the White House Photo Office.

### *Wayne D. Smyth*

Wayne D. Smyth of Actinide Process Chemistry (NMT-2), a mechanical technician at the Plutonium Facility, has had a major impact on day-to-day operations and on several crucial large projects. His knowledge of process and facility systems makes him the primary contact for the installation and upgrade of key components. He has designed and fabricated plutonium processing equipment that is in use throughout the facility and the DOE complex.

Smyth has made vital contributions to the Experimental Chloride Extraction line, the Chloride Extraction and Acid Recycle line, the Radiation Source Recovery project and the Nitric Acid Recycle pilot plant. His custom-built equipment for these projects includes a hydrochloric acid recycle unit, constructed of chemically inert materials to be operated in the confined and corrosive glove box environment; moveable neutron shielding, designed to reduce personnel radiation exposure; and a special glass distillation column and associated ventilation enclosure.

The column and enclosure have been featured during the tours of state and national agencies, a Congressional oversight committee, and local and national news media. The interest of these groups illustrates how Smyth

contributes to the Laboratory's reputation as an outstanding research and engineering center.

## Esther A. Trujillo

Esther A. Trujillo, group secretary for Energy and Environmental Analysis (TSA-4) since 1993, has expanded her role far beyond her job description to provide critical programmatic support.

Trujillo serves as the group's financial analyst while simultaneously performing the administrative duties normally assigned to two full-time secretaries. In 1995 her organizational skills facilitated the move of 25 group members to the Administration Building, an operation she planned and supervised so smoothly that no one lost time or productivity. Even phone service was available immediately.

Trujillo has been an invaluable asset to her group's work with foreign institutions. She focuses her creativity on solving any problems that arise for staff members during foreign travel and uses her Spanish language skills as an interpreter and translator, easing communications with Latin American offices.

TSA-4 personnel attribute their group's success directly to Trujillo's exemplary performance, describing her as the glue that holds a diverse collection of people together.

## Cristella Trujillo-Neal

Cristella Trujillo-Neal of Science and Technology Base Programs (STB/P&A) coordinates and reviews all Laboratory requests for foreign travel. The job is complex because foreign travel requires detailed justification and approvals from the Los Alamos Area Office (LAAO) and various offices at DOE Headquarters.

In the past, the Laboratory-DOE interactions regarding foreign travel were problematic at best. Trujillo-Neal's efforts have reversed that situation. Out of more than 1,100 foreign travel requests submitted in 1995, only two were disapproved, a fact that is fully attributable to Trujillo-Neal's extensive job knowledge. She has become a resource and facilitator for both LAAO and the Laboratory traveler.

Easing procedures is always Trujillo-Neal's concern. With her counterparts in the Travel Office in Accounting (BUS-1), she has streamlined the foreign travel request forms and made them available online and has worked to simplify the security form needed for trips to sensitive countries. Her efforts have improved the Laboratory's reputation with DOE regarding foreign travel. As the manager of the foreign travel management system for DOE Headquarters stated, "I commend the Laboratory and Cris and note her direct involvement in further enhancing the Laboratory's image."

## Scott A. Watson

Scott A. Watson of Machine Science Technology (DX-6) led upgrades to the Pulsed High-Energy Radiographic Machine Emitting X-rays (PHERMEX). Because of those upgrades, PHERMEX is once again the world's most intense radiographic machine, a remarkable milestone for a 33-year-old machine.

PHERMEX, long a mainstay for radiographic hydrotesting, had been achieving an average output of 130 roentgens at one meter from the target and never exceeded 170 roentgens. Since the completion of the upgrades, the average output is 350 roentgens, with a peak of more than 400 roentgens.

Watson's understanding of accelerator theory, coupled with his superb management skills as team leader for the project, supplied the force behind the upgrades. Among the improvements was the multiamplifier drive technology required to increase the accelerator's field gradient.

The renewed PHERMEX now equals the much newer Lawrence Livermore Flash X-ray Facility for single-shot experiments and exceeds FXR's performance in double-pulse mode. With completion of the Dual-Access Radiographic Hydrotest Facility still years away, PHERMEX continues to supply the nuclear weapons program with vital data.

# Small team awards

## Bradbury Science Museum Exhibits Team

In support of the Nuclear Materials and Stockpile Management (NMSM) Program, the Exhibits Team of the Bradbury Science Museum created a major educational, interactive exhibit

**1995 Distinguished Performers**

***Wayne D. Smyth***

***Esther A. Trujillo***

*Text by Eileen Patterson of Communication, Arts and Services (CIC-1)*

## 1995 Distinguished Performers

*Cristella Trujillo-Neal*

*Scott A. Watson*

*Photos by LeRoy N. Sanchez*

— "The Plutonium Legacy" — that serves as NMSM's primary public-education effort about plutonium disposal issues and is used by other components of the DOE.

Besides creating the permanent museum exhibit, the Museum Exhibits Team, under tight deadlines, also created a complete traveling version for the Savannah River Site. Additional versions are being used at the Amarillo National Resource Center for Plutonium and by DOE Washington at public meetings. The impact of the resulting exhibit has therefore been felt at both the local and national levels.

The final product was the result of months of testing, planning, experimentation and validation. The Museum Exhibits Team collaborated with researchers from several Laboratory divisions and from other national laboratories. In addition, the team networked with outside museum colleagues who recently had completed a three-year study on the development of exhibits about controversial issues. The team also conducted visitor polls and surveys to gauge the public's understanding of plutonium issues and built full-scale prototypes of the exhibit.

Members of the team are Judy Machen, Omar A. Juveland and Robert T. Naranjo of the Bradbury Science Museum (CIO-2) and Joan D. Farnum and Kelly G. Parker of Communication Arts and Services (CIC-1).

## *Comprehensive Test Ban Treaty Negotiations Technical Support Team*

Negotiating international test ban treaties requires a breadth and diversity of technical expertise and extreme sensitivity to interagency and international issues. The Los Alamos Comprehensive Test Ban Treaty Team supplies such expertise to DOE and the U.S. Delegation to the Conference on Disarmament in an environment in which the consequences of an error or misstatement are significant. Team members must respond to requests for technical information on a moment's notice and travel to Washington or Geneva literally on a few hours' notice.

The team members' expertise includes weapon design, nuclear testing, the U.S. Stockpile Stewardship Program, fissile materials, large-scale computing, radiochemistry, and seismic and infrasound monitoring. The director of DOE's Office of Nonproliferation and National Security says about the team members, "Their work reflects superbly on their professionalism, further elevates the stature of Los Alamos as an important, versatile national treasure and continues to help DOE play a leading role ... in the negotiations."

Team members are David W. Watkins, Jay H. Norman and Mary Anne Yates of Nonproliferation and International Security's Nonproliferation and Arms Control Program (NIS/NAC), Richard K. Wallace of Safeguards Systems (NIS-7), Timothy C. Murphy of Space and Atmospheric Sciences (NIS-1) and Brian W. Stump of Geophysics (EES-3).

## *CST Vulnerability Assessment Team*

Tamper-indicating security devices, or "seals," are used on everything from buildings to briefcases to indicate unauthorized entry. The CST Vulnerability Assessment Team has demonstrated 131 successful attacks on 95 different commercial and government seals. As a result, they have developed several hundred suggested modifications to the seals, their installation or their inspection. The team has been asked to consult by the U.S. Navy, the International Atomic Energy Agency, DOE and DOE contractors and many others. These clients often have been left surprised and dismayed by the information they have gained.

Endorsing the team's nomination for a Distinguished Performeance Award, a U.S. Navy client said the team is doing "perhaps the most important and innovative vulnerability assessment on work on seals anywhere ... I have asked team members to assist in setting national standards ..." An internal sponsor adds that the team demonstrates the Laboratory is a leader not only in solving problems, but in recognizing which problems need to be solved.

Team members are Roger G. Johnston, W. Kevin Grace and Anthony R. E. Garcia, all of Advanced Chemical Diagnostic Instrument (CST-1).

## STB/LDRD Team

The Laboratory-Directed Research and Development (LDRD) Program Office oversees the distribution of approximately $60 million to about 350 research projects at the Laboratory and is critical to its science and technology mission. The Science and Technology Base (STB)/LDRD Team has streamlined the process of applying for, distributing and accounting for these funds. In doing so, the team involves stakeholders: DOE and the Laboratory divisions and program offices.

Stakeholders say, "They have created a more open review process ... and are viewed by everybody involved in the LDRD process as being even-handed in all dealings and consequently enjoy widespread trust ... The improvements we see are dramatic: a much improved mechanism for getting strategic input from our program offices into the directions for our LDRD investment ... The LDRD team has worked ... to make LDRD a more effective strategic investment toward long-term success and intellectual competitiveness in our core programmatic missions." DOE stakeholders add, "The team is going the 'extra mile' to assist in making LDRD a strong and vital element of LANL's excellent scientific and technical achievements."

The team is composed of Edward A. Heighway, John C. Vigil, and Shelly L. Cross of STB/LDRD; Audrey L. Archuleta, now of the Accelerator Operations and Technology (AOT) Division Office; and Leonard Salazar of STB/Business Planning and Analysis (BUS-3).

## Laser-Beam Deflection by Plasma Flow Experiment Team

In 1995 the Laser-Beam Deflection by Plasma Flow Experiment Team completed an experimental series vital to the Inertial Confinement Fusion program and the effort to demonstrate nuclear fusion in the National Ignition Facility. In the current main-line ICF approach, laser beams enter a cavity called a hohlraum, hitting the walls and creating a symmetrical bath of X-rays that compresses and heats a deuterium- and tritium-filled capsule. The result should be nuclear fusion, the ultimate goal of ICF.

Recently, in the latest target designs most closely resembling NIF targets, the X-ray illumination was proving asymmetrical. The laser beams appeared to be bending from their predicted trajectories.

The Los Alamos team members suspected that the plasma flow caused by the extreme laser and X-ray intensities inside the hohlraum was creating the phenomenon. Detailed theory showed that a laser beam could be deflected by transverse plasma flow, a previously unknown effect. Through experiments at the Los Alamos Trident Laboratory, the team verified the effect and gave ICF researchers the knowledge they needed to control it. The team's work helps to clear the way for ontinued progress on NIF, a cornerstone in the Science-Based Stockpile Stewardship Program.

Members of this team are Bruno S. Bauer, Randall P. Johnson and Thomas R. Hurry of Plasma Physics (P-24) and Harvey A. Rose of Complex Systems (T-13).

## Milagro Site Preparation Team

When completed, Milagro will be the only telescope on Earth (or in space) capable of an all-sky survey of high-energy gamma rays from astronomical sources.

The Milagro Site Preparation Team's assignment was to make a home for Milagro in a pond on remote Fenton Hill — a pond contaminated with arsenic-tainted water and sludge. In the spring of 1995, the team faced a host of daunting tasks: (1) Dispose of the water and sludge while satisfying overlapping jurisdictions. (2) Convert the pond into a clean, covered enclosure for Milagro's photomultiplier modules. (3) Design and construct the inflatable pond cover and utility building. (4) Bring in utilities, including "clean" power. (5) Secure the PMTs in the reservoir. (6) Install a water purification and recirculation system. (7) Complete the work in six months, before the onset of winter.

The team had to apply not only its technical abilities but also extraordinary imagination, tenacity and organizational skill. It persevered and met the deadline. As a result, the Milagro prototype was installed in October 1995, and the Laboratory now has an important project to enhance its research stature.

Team members are Todd J. Haines and Gus Sinnis of Neutron Science and Technology (P-23) and Camilo J. Espinoza and Matthew M. Murray of Subatomic Physics (P-25).

# Large team awards

## CALIOPE Project Team

The CALIOPE Project develops novel LIDAR techniques for detecting and identifying effluents from nuclear, chemical, and biological weapons manufacturing and testing activities. The Los Alamos portion of the five-laboratory CALIOPE (chemical analysis by laser interrogation of proliferation effluents) Program concentrates on carbon dioxide laser-based differential absorption LIDAR ($CO^2$ DIAL) systems.

The Los Alamos CALIOPE project is recognized for fundamental advances in the capabilities of $CO^2$ DIAL systems that are of major practical importance, as demonstrated in extensive field experiments at the Nevada Test Site and at a Los Alamos LIDAR test range. These advances have been accomplished through consistently exceptional levels of scientific and technological innovation, coupled with outstanding multidivisional teamwork and dedication, often under grueling field conditions.

Externally, the team's successes have been recognized through provision of funding for two series of airborne $CO^2$ DIAL validation experiments during a period of contraction in the multilaboratory CALIOPE Program as a whole. In addition, the operational utility of LIDAR sensors is now under serious consideration by the entire nonproliferation community, which is a significant Los Alamos contribution to global security.

## Detonator Production Team

DOE's Nonnuclear Reconfiguration Project has moved high-power detonator production from Ohio's Mound Plant to Los Alamos. This change adds manufacturing stockpile components to the

## 1995 Distinguished Performers

traditional research and development mission of Detonation Science and Technology (DX-1).

In completing the transfer, the DX-1 Detonator Production Team installed 12 truckloads of equipment and established bonded storage for 750 containers of explosive powder and thousands of detonators, an effort that required reconfiguration of the physical plant. To meet DOE's rigorous quality assurance demands for war reserve components, the team also developed a new set of procedures and policies in a paperless tracking system that will not only document all the steps of production but also will increase the formality of R&D processes. With this work still in progress, DX-1 received an order to produce a specific component. The team met the order within a month.

The Detonator Production Team has demonstrated the plausibility of integrating manufacturing with R&D, thus breaking new ground for the Lab. This successful integration makes Los Alamos a viable competitor for future DOE manufacturing assignments.

### *Human Genome Project Team*

The Human Genome Project Team, drawn from six Laboratory divisions, has made Los Alamos a recognized world leader in genome research. The team has pioneered new methods for DNA mapping and sequencing that are now central to the international genome mapping project. It has created a relational database and computer programs for storing and analyzing genome-mapping data and has developed custom robotics to automate many of the tedious steps involved.

During the past year, the team completed the physical map of human chromosome 16, a map with 100 times greater resolution than other chromosomal maps. An additional physical map of chromosome 5 is now complete. Team members have also made important discoveries about the characteristics of human chromosomes and about the genes underlying human disease. Their work that has led to the first diagnostic tests for Batten disease and polycystic kidney disease.

The international genome project has enormous implications for human health and risk assessment and for commercial applications of biological knowledge. The Los Alamos team's accomplishments have had a dramatic positive effect on the project.

### *Pit Surveillance Project Team*

This team of 75 people, representing six divisions, was tasked with disassembling nuclear weapon pits and evaluating the effects of aging on them, thus providing crucial information on the reliability of the nation's stockpile. In the three years from 1992 to 1994, the Laboratory had evaluated a total of 18 pits. In one year, 1995, this team evaluated 19 pits and nearly eliminated the backlog of pits left by the 1989 closure of Rocky Flats without the addition of significantly more money or other resources.

The team's success was a result of aggressive scheduling, dedicated teamwork and innovative technical improvements such as laser sampling of pit gases, improvements in other evaluation technologies. Two of its techniques won R&D 100 Awards.

To better communicate results, the team changed from paper reports to a multimedia CD-ROM, saving time and money and producing a superior product in the process. Digital video and photos on the CD-ROM illustrate the team's accomplishments in affirming the Laboratory's ability to ensure the safety and reliability of the stockpile.

### *Polymer Filtration Project Team*

The Laboratory's multidisciplinary Polymer Filtration Team developed one of the most promising new waste-management and pollution-prevention technologies in record time.

Polymer filtration uses water-soluble chelating polymers and ultrafiltration to remove hazardous metal ions from water-based waste streams. The idea had existed in the literature for several years without ever becoming a reality. The Polymer Filtration team took the idea from research status to an engineered prototype in just six years. The electroplating application gained an industrial partner and an R&D 100 Award in 1995.

Upcoming applications for photofinishing, mining and nuclear power aqueous waste streams are drawing continued national and international interest. The interest is understandable. Polymer filtration not only eliminates hazardous sludge but also saves energy by recovering materials for use as reagents. The team is now working to extend these benefits to the treatment of contaminated soil and solid surfaces.

The Polymer Filtration Team's scientific expertise is complemented by a talent for technological transfer. It has proactively pursued university research collaborators and industrial commercialization partners, enhancing the climate for further scientific interactions between the Laboratory, academic institutions and industry.

### *TRU-Waste Characterization Project Team*

The TRU-Waste Characterization Project Team was formed to complete a rush project to deliver quality-assured data on the hazardous constituents of the Laboratory's "mixed" (hazardous and radioactive) transuranic waste. DOE's Carlsbad Area Office had requested the report to support a petition to the New Mexico Environment Department to allow the storage of mixed waste at the Waste Isolation Pilot Plant, an important step in opening the facility. For some seven months, team members accepted double their usual amount of work and overtime was the norm. They established a records management system, training plans, and quality assurance procedures and completed coring, sampling and analyzing several drums of waste within the glove box systems.

Thanks to this team, the Laboratory was able to submit, on time, the needed data for the petition. The Laboratory's transuranic waste is now several steps closer than anticipated to being certified for shipment to WIPP. What made it possible was long hours and tremendous teamwork, in which sometimes engineers became fabricators, technicians became quality managers, chemists became technicians and project managers became machinists.


# The right words also speak loudly

*by Ternel Martinez*

"Actions speak louder than words" may be an age-old truth, but a team in Communication Arts and Services (CIC-1) might argue that you sometimes need words presented in just the right way to set actions in motion. Judging by the results of its assistance to Northern New Mexico communities, the team would be right.

The Proposal Services Team has helped communities trying to gain funding from various agencies and foundations for several projects, either by writing proposals on behalf of the regional customers or by giving the customers the needed tools through proposal-writing workshops.

The effort, which began in May, already has reaped benefits for some. For example, the team wrote a proposal with Northern New Mexico Community College to fund a Class 100 "clean room," where semiconductor training can take place. The project received $200,000 from the Northern New Mexico Defense Adjustment Task Force.

The college, again with the Proposal Services Team's help, also recently learned it was granted $500,000 from the Department of Commerce to deploy a Lab-developed telemedicine system called TeleMed. The system will enable health-care providers throughout Northern New Mexico to access patients' complete medical records via the Internet.

Susan Herrera, head of the college's Northern Development Office, credited the CIC-1 team with keeping the various organizations and individuals involved in the telemedicine project on track. "Dawn [Hipsh] and Linda [Lewis] were wonderful," she said.

Several other proposals written by the team are pending on behalf of such entities as the Rio Arriba Land Authority and the University of New Mexico.

Regarding the workshops, the team so far has held three, two at NNMCC and one in the library at Santa Clara Pueblo. All of them were free of charge. Another workshop is scheduled for Nov. 20 at the college.

"The presentations were very informative and beneficial. They gave me a different perspective and a better understanding of how proposals are put together," said Gino Brazil of the Public Affairs Office at Northern New Mexico Community College.

Teresa Naranjo of the library at Santa Clara Pueblo also was impressed with the amount of information covered during the workshop. "They gave instructions to the 't' and emphasized that proposal writing is most effective when it's done as a team effort," she said.

Team leader Linda Lewis said the workshops focus on how to find funding sources as well as on how to write an effective funding proposal. She noted that while the team's main focus always will be internal (CIC-1 is a recharge organization), the team tries to help the communities whenever it can as a goodwill gesture.

"Rather than encouraging dependence on the Lab, our team's writing and editing assistance and participation in grant-writing workshops help communities help themselves," said team member Dawn Hipsh. "It's like the old story of whether you give a man a fish or teach him how to fish."

Hipsh said the team's outreach activities sometimes are coordinated and paid for through the Industrial Partnership (IP) and Community Involvement and Outreach (CIO) offices. For the most part, though, the team's services are advertised by word-of-mouth.

Lewis and Hipsh both expressed hope that the team will be able to perform more community-based activities in the near future.

***"Science at Home" is a publication developed by the Science Education and Outreach Group (HR-SEO) to interest children, particularly those in grades four through eight, in science through hands-on activities. We are reprinting experiments from the book, along with other scientific activities, for employees to share with their families, or just to enjoy themselves.***

# Air Car

(Science at Home Experiment No. 17)

If you've ever tried to push a heavy box or piece of furniture across a floor, you have experienced inertia. Anything that has weight (mass) has inertia. In the late 1600s, Sir Isaac Newton used the term inertia to explain why things move or don't move when you push them. Simply stated, inertia is a measure of how much an object resists a change in motion. Generally, the heavier something is, the more inertia it has. It's much easier to push a compact car than a pickup truck loaded with bricks, and you can stop a kid on a tricycle faster than a loaded freight train.

Inertia isn't the only force affecting the motion of objects. Other forces like gravity, friction and air resistance all play a role in controlling the way things move. By learning how to adjust these forces and balance one against the other, engineers can design super efficient cars, planes that glide longer and boats that actually hover over water.

In this activity, you will construct a vehicle you can use to demonstrate how it is possible to manipulate some forces.

### *Stuff you'll need*

9 inch or larger diameter round balloon, a 3 inch (7.5 centimeter) square of cardboard, an empty thread spool, masking tape, a large nail, a hammer, an old wooden board, a drinking straw and a flat surface

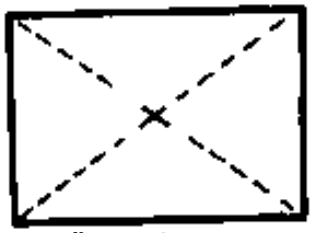

diagram 1

### *Here's the plan*

1) Use the ruler to find the center of the 3 inch (7.5 centimeter) square by measuring across from corner to corner (diagram 1).

2) To prevent making holes in the work surface, place the 3 inch (7.5 centimeter) square onto the old wooden board. Use the hammer and nail to make a hole through the square at the center point.

3) Lay the square on the work surface and insert the straw into the hole. Slip the thread spool over the straw so that the hole in the spool is directly lined up with the hole in the square. Tape the spool tightly onto the cardboard, making sure the holes stay lined up. Remove the straw. If the spool has holes around its edge, tape them closed, leaving only the center hole open (diagram 2).

4) Place the air car on a flat surface. Push the car with your fingers. Did the car move very far or fast? What force gets the car going? What force makes it stop?

5) Blow up the balloon. Pinch the neck so no air escapes. Carefully stretch the opening over the top of the spool (diagram 3).

6) Release the balloon and quickly flick your finger against the back of the car. What happens to the car as it moves across the floor? How is it different from the first set of trials? What made the car start and stop this time?

7) How did the distance in the second trail compare to the first? What force did the balloon overcome to help get the car going?

### *Wrap-up*

In both trials the car started moving because of the force of push you put on it. In the first trial it came to a stop because of the friction or rubbing that was happening between the surface and the bottom of the car. In the second trial, the air from the balloon lifted the car slightly and reduced the contact between the car and the surface. Less contact means less friction, so the car should have gone farther.

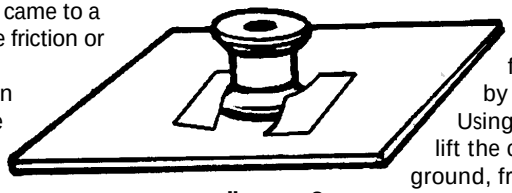

diagram 2

### *What's going on here?*

Whenever an object moves, some type of force is acting on it. Newton's first law of motion, often called the law of inertia, says that every object either stays at rest or continues in a straight line unless it is made to change by another force acting on it. In the first trial, your air car stayed put until you pushed it with your finger. Your finger supplied a force to the car to make it move. As soon as it started to move, other forces came into action. Air resistance helped to slow it down, but the main force working to stop the car was friction caused by the bottom of the board sliding against the surface. Friction was affecting the car because the force of gravity was pulling it down against the tabletop.

In the second trial, you eliminated much of the friction by inflating the balloon and letting it go. Here, the force of air pushing out through the bottom of the cardboard actually countered the force of gravity, allowing the car to hover above the table slightly. Since it wasn't touching the table, there was no friction between the board and the tabletop and the car traveled much further without stopping. Because the inflated balloon gave the car much more surface area, the amount of air resistance increased, but this increase was much less than the decrease in friction at the base of the car, so the car moved further.

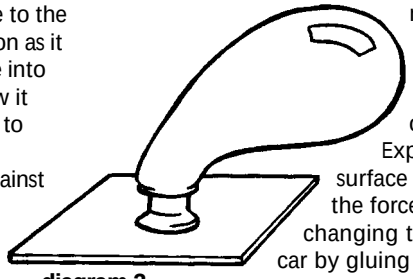

diagram 3

### *Where does this happen in real life?*

In outer space, where there is no friction from either the ground surface or air, satellites move on their initial inertia. With nothing to slow them down but Earth's gravity, they can continue in orbit for many years before crashing back down.

Engineers have tried many approaches to reduce the amount of friction between vehicles and the ground. One of the first successful inventions was the Hovercraft, first patented in 1955 by Christopher England. Using air pressure to actually lift the craft several feet off the ground, friction with the surface is virtually eliminated. Large propellers are used to move the craft. The original prototype was tested in 1959 and weighed 7 tons. Even with so much mass, the craft was able to achieve speeds of almost 60 miles per hour. Today, Hovercraft routinely carry passengers and cars across the English Channel. Recently, engineers have shifted from compressed air to magnetism to help get the lift they need. An experimental train called the Maglev works by gliding through the air over magnetized tracks instead of riding directly on the rails. Since the friction is reduced to almost nothing, the train moves much faster with a much smoother ride.

### *Now try this*

See how your air car reacts to different surfaces. Try running it over carpet, concrete or a wet floor. Explore how the surface roughness effects the force of friction. Try changing the mass of your car by gluing pennies or metal washers on the top surface. Does added mass help or hinder the performance? Does the size of the balloon affect the performance? Check it out and see.

# This month in history

## *November*

**1895 —** Alfred Nobel establishes the Nobel Prize.

**1942 —** Gen. Leslie R. Groves, J. Robert Oppenheimer, Edwin M. McMillan and Col. W.H. Dudley visit Jemez Springs and Los Alamos to select a site for the new laboratory; Los Alamos is chosen, and Oppenheimer is named director.

**1945 —** The Association of Los Alamos Scientists sponsors a large meeting of the nontechnical staff on-site to explain the workings of the atomic bomb.

**1946 —** President Truman appoints five people, including Manhattan Project pioneer Dr. Robert F. Bacher of Cornell University, to the Atomic Energy Commission.

**1947 —** The "Hill" changes from manual to dial telephones.

**1952 —** The first thermonuclear explosion, the Mike shot, is detonated at Eniwetok in the Pacific.

**1958 —** The visit of Queen Frederika of Greece to the Laboratory includes a parade along Central Avenue, a tour of the Health Research Laboratory and a discussion of Project Sherwood.

**1959 —** Nine visiting scientists on a nationwide tour are the first Soviet citizens to enter Laboratory technical areas, where they are briefed on nonclassified programs.

**1965 —** Diamond Drive is re-opened in town after work to widen it to four lanes.

**1994 —** Director Sig Hecker and the governors of San Ildefonso, Cochiti and Jemez pueblos sign Cooperative Agreements to provide an avenue for improved interactions.

***This information comes from several sources, including the Newsbulletin and its predecessor publications. Suggestions and submissions are welcome.***

**Syndicated material removed at the request of the syndicate**

spotlight

# Dedicated humans + trained canines = MC$^2$

*by Joseph Craig Romero*

Canine search and rescue can be rewarding and tragic, as Marshall and Debbie Maez know firsthand.

The husband-and-wife team is a key part of the Mountain Canine Corps, known as MC$^2$. The Maezs have three dogs and spend hours each week training one of them, Duke, for different types of rescues that can happen at any time of year, night or day.

Being part of MC$^2$ has been a very rich part of Marshall's and Debbie's lives since they were recruited by a friend "to watch and experience" the group five years ago. They were so enthused, they immediately began training to become search-and-rescuers. Half of the search-and-rescuers are husband and wife teams.

The Maezs promote the use of canine search and rescue throughout the state. They say any dog can be taught for search and rescue, but there are qualities some dogs have more than others. Duke, their brown and white Brittany spaniel, has all the qualities needed for search and rescue, they say. He is people-friendly and affectionate, has the desire and, most importantly, has the willingness. Each of these qualities is very important to a rescue dog. A dog can cover more ground than a human and can discriminate one human scent from another, including that of a cadaver. Dogs have a sense of smell that is roughly 300 times better than that of humans.

Marshall, a senior quality assessment specialist in Quality Management (ESH-14) who has worked with the Lab for 20 years, is an active member of the MC$^2$ team. He serves as a field coordinator, more commonly known as an incident commander. When an incident occurs, it is the field coordinator's job to manage the search, both strategically and tactically, with the sole purpose being to find the lost party. It also is the field coordinator's responsibility to have medical and evacuation plans ready for the victim at all times.

He says many of the skills used in his job at the Lab, such as planning, methodology and proper management, are applicable to his duties as a search-and-rescue field coordinator and link his career with his hobby.

But working with dogs in search and rescue has become more than just a hobby for the Maezs. It has become an exciting way of life. The training and the hard work have afforded them more than just companionship with each dog.

"The dogs have added greatly to our lives, " says Marshall. "They're like having kids."

Their oldest "kid" is Hannah, a four-year-old Brittany, just two weeks older than their middle child, Duke. Although the others have done search-and-rescue training as well, Duke is the main search-and-rescue canine. The youngest in the canine trio, ironically, was rescued by the couple. The dog was swimming downstream as the Maezs were rafting the same waters. He appropriately was named Rio. A Labrador mix, Rio is assumed to be four years old.

"There's a special bond between us and the dogs," says Debbie, a seven-year Lab veteran who works in the Facilities, Safeguards and Security (FSS) Division. "Like teammates on a sports team or the people you work with, you're just around them so much of the time."

***Debbie Maez of Facilities, Safeguards and Security (FSS) and Marshall Maez of Quality Management (ESH-14) along with their dog Duke.***

When MC$^2$'s help is needed, Duke is the search-and-rescue dog who usually gets the call because of his experience and rapport with Debbie. She has become his trainer, handler and mentor. Emotions run high between a dog and handler, and these emotions are strongly tested during a search. As Marshall puts it, "There is a high level of anxiety and stress, not only for you and the dog to get to victims, but for the victims themselves."

Great joy abounds when an individual is found alive. Marshall said the search group has an emotional time together because they have saved a life; members of search and rescue often become a close-knit group of friends. The flip side to the coin is that there is great sorrow when an individual is found dead. Such a tragedy is emotionally hard on a dog handler. Consequently, handlers are required to attend critical-stress debriefing after locating a body, many of which are unintended deaths or suicides.

For the Maezs, being members of MC$^2$ has become an addiction, with new experiences each time out. Search and rescue is so rewarding to the couple, they can't see giving it up. "I want to continue doing it," Marshall said of his future plans. "I feel committed to stay in it ... for the dogs' sake."

**Reflections**
Mail Stop C318
Los Alamos, NM 87545

Nonprofit Organization
U.S. Postage Paid
Los Alamos, NM
Permit No. 107

LALP-96-116