Reflections

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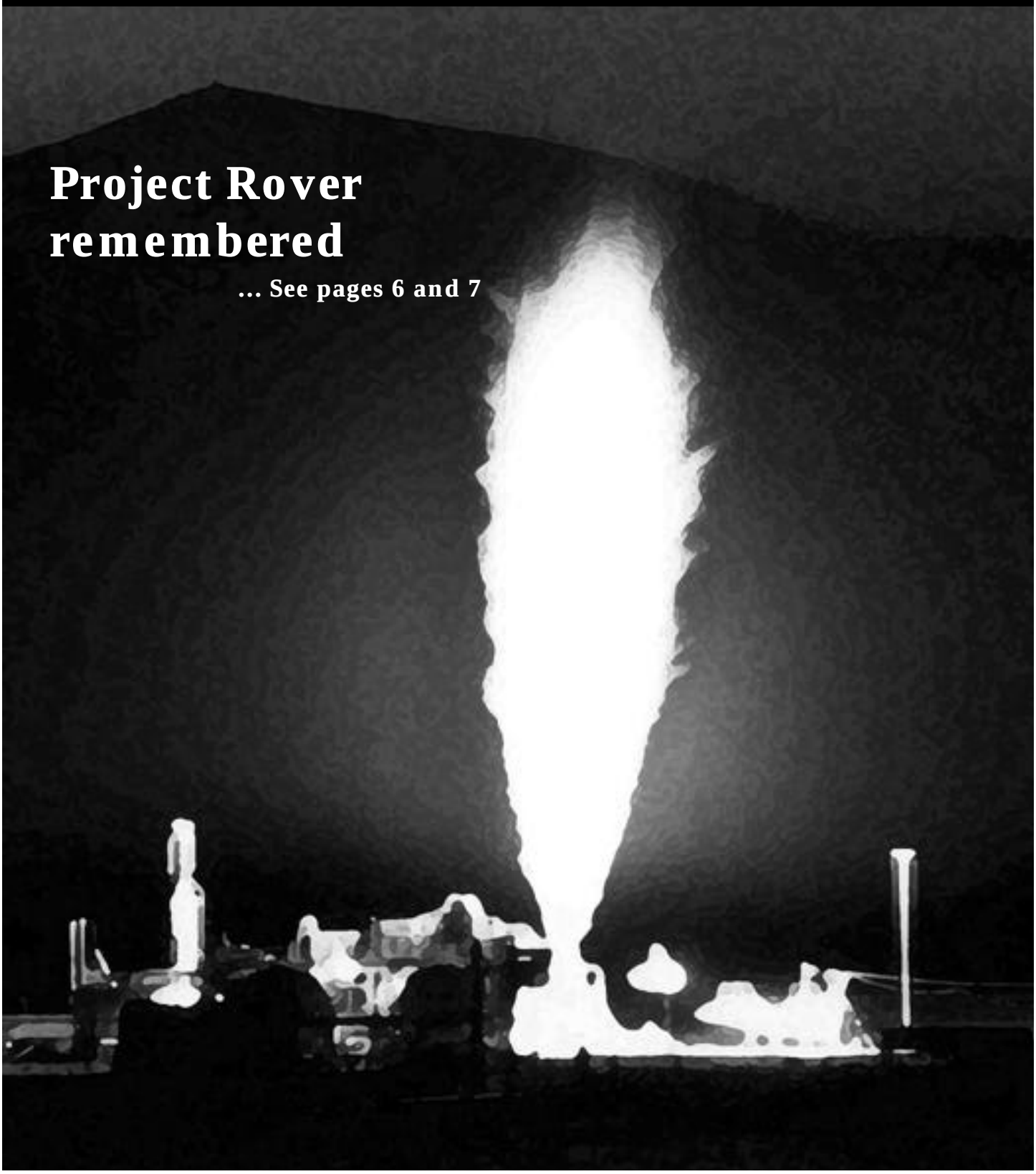

Project Rover remembered

... See pages 6 and 7

About the cover ...

The Rover Project to design a nuclear reactor to power space vehicles was a major Lab effort in the late 1950s and 1960s. This 1963 photo shows a nighttime test of Kiwi reactor at the Nuclear Rocket Development Station in Nevada. Photo illustration by Ed Vigil.

Inside this issue ...

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.

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editor's journal

A one-year-birthday wish

Lately, I've been feeling like the proud parent of two toddlers. You know, one who understands that her "kids" still have some growing to do, but who cares deeply for them, thinks they've got what it takes to be something special and has faith that with time others will come to recognize and appreciate their virtues. The toddlers to which I refer are "Reflections" and the electronic Daily Newsbulletin, both of which recently observed the end of their inaugural year.

The Daily Newsbulletin, the Lab's electronic news vehicle, debuted Oct. 1, 1996, and currently is averaging over 15,000 hits, or accesses, per week — a number that has doubled over the past year and continues to grow. In its first year, the Daily Newsbulletin has caught the eye of those outside and within the Lab. Author and computer columnist Robin Williams wrote in the Sept. 21 New Mexican about the Lab's "rich and beautifully designed" Web site, making special note of the Daily Newsbulletin. The Daily Newsbulletin also was recognized as the University of California's hot web page of the week earlier this year.

While it's nice to get accolades from those outside the Lab, the comments I value the most come from employees who regularly read the Newsbulletin and who have expressed appreciation for having a vehicle for getting news out to them in a timely manner. Understandably, some individuals who don't like the idea of having to use a computer to get Lab news don't yet share my enthusiasm, or that of others, for the online Newsbulletin. But like a proud parent, I hope with time and trial, they too will see the Daily Newsbulletin's virtues.

"Reflections" marked the end of its first year this month, and I'm equally proud of the role it plays as a companion publication to the Daily Newsbulletin. The staff and I have been challenged to come up with articles that are interesting and enlightening and that allow employees to share and enjoy the accomplishments of their institution, colleagues and friends. We also have tried to provide features that employees will look forward to reading each month, such as "Spotlight," "This Month in History" and the puzzles and work-related comic strips (Who can't use a laugh on the job now and then?). We continue to work to improve the publication and welcome constructive comments and ideas.

We especially hope readers will enjoy this month's feature story on the Rover Project, the effort to build a nuclear reactor to power a rocket in space that was a major program at the Lab beginning in the mid-1950s and ending in 1972 (see pages 6 and 7).

So in making a one-year-birthday wish for my "toddlers," I desire for them continued growth, a receptive audience and the opportunity to help serve the communication needs of the Lab for years to come.

And speaking of serving the Laboratory, the "Reflections" staff welcomes the Lab's new director, John Browne, former director of the Los Alamos Neutron Science Center (LANSCE). As the November "Reflections" went to press, Browne was set to assume the directorship this month. We hope to share some of the new director's thoughts with you in a future issue.

New office to nurture entrepreneurism

by Ternel Martinez

"Commercialization of Laboratory technologies is to be promoted nationally and within Northern New Mexico ..."
—Appendix M, Laboratory Prime Contract

Technology transfer recently has been getting considerable attention by the media, the most recent example being Los Alamos-based Coyote Mining and Environmental Instruments Inc. Coyote Mining is marketing a Lab technology designed to find minerals, detect pollution and even possibly help analyze other planets' geology.

The Laboratory has been involved in technology transfer for quite a few years now, as have Phillips and Sandia national laboratories and other sites nationwide. Technology commercialization, however, now has taken on even more importance for the Lab. A new Appendix M emphasis program, designed to stimulate regional economic development through technology commercialization, has been added to the recently signed prime contract between the University of California and the Department of Energy.

Appendix M authorizes and funds a new Technology Commercialization Office within the Civilian and Industrial Technology (CIT) Program Office, headed by Charryl Berger. TCO Leader Dave Foster said the new office's goal is to nurture entrepreneurism and the commercialization of selective, Lab-developed technologies through spin-offs and small business partnerships, with a strong emphasis on the Northern New Mexico region. The office has identified computing technologies, bioscience, materials science and the process sciences as four priority areas ripe for entrepreneurial spin-offs.

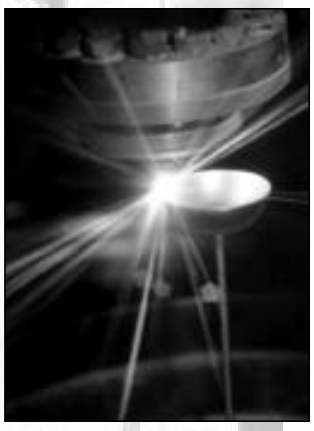
Specifically, the TCO will oversee implementation of the Appendix M initiatives, which include direct business-formation assistance to entrepreneurs inside and outside the Lab; entrepreneurial-training workshops; a new Lab entrepreneurial-leave program; the creation of a formal advisory board, making Lab facilities more affordable so more New Mexico businesses, schools and government agencies can access them; expanding the Small Business Initiative Regional Impact Program; and many other initiatives. The SBI alone funds 10 to 15 small-business technology maturation and cooperative research and development agreement projects annually.

Annual calls for SBI proposals have resulted in more than 20 funded projects over the past two years. These projects span the Northern New Mexico region and have included companies such as Raton Technologies, Acoma Optical, Chama Valley Manufacturing, Scintilla Artworks, Energy Related Devices and SyntheMet. Approximately 10 new projects will be launched in fiscal year 1998, with total SBI funding set at about $1.5 million.

The SBI initiative, funded by DOE Defense Programs, helps new and existing businesses in several other ways, said SBI project leader Sue Fenimore of TCO. One way is through what's called technical assistance, in which a company receives Lab-funded assistance to solve a technical problem, said Fenimore.

"We seek out a principal investigator to work on the problem, and he or she provides up to 40 hours of research to the company free of charge," she added. This program is available on a national basis, and about 40 businesses take advantage of the free assistance annually. Additional aspects of the SBI program include loaning excess equipment to companies and personnel exchanges.

Foster pointed out that the Lab does not perform all this business outreach alone. "We network extensively and share information with other entities on a regional and national level," said Foster. The Lab works closely with organizations such as the Coronado Ventures Forum, UC Santa Barbara "CONNECT," Technology Ventures Corp. and other DOE lab technology commercialization facilitators.



Laser technology at SyntheMet

Foster further noted the three entrepreneurial workshops that the office already has held for those interested in starting a new business based on Lab technology. A "Business Basics for High-tech Ventures" workshop also is scheduled for December. DOE now allows interested Lab employees to attend these workshops during normal working hours, said Foster.

He noted, however, that several challenges remain. "For one thing, there is a lack of investment capital and seasonal entrepreneurial management on a local level," said Foster, "and the infrastructure and resources needed to support businesses in the Northern New Mexico region need to be improved." TCO actively is working to fill these voids, he added.

Also, while many Lab employees would like to start up their own businesses, they are reluctant to do so because of the risk involved, he added. Starting up a new business is a high-risk venture, and it's very difficult for many to consider leaving the comfort and security associated with working at the Lab, Foster explained.

To help reduce that risk, the new UC/DOE contract now contains an entrepreneurial-leave provision, which includes partial continuation of benefits and rehiring preferences.

Additional information is online at CIT's new Web site, located at http://www.lanl.gov/Internal/projects/IPO/welcome.html.

Excellent R&D produces excellent R&D 100 results

—Adapted from an article in Dateline: Los Alamos by Diane Banegas, Meredith Coonley and Kelly Stoddard of Plans, Issues and Programs (PA-3)

The Laboratory received six R&D 100 awards in 1997, bringing its total number of awards since 1988 to 52, more than any other national laboratory during the same period.

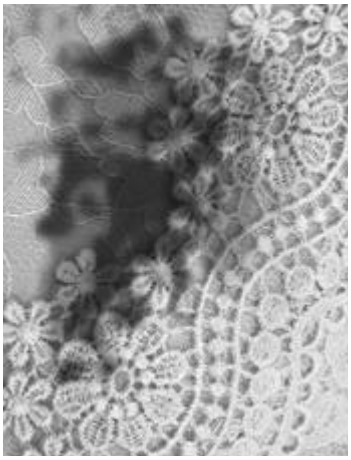
The awards, sponsored by R&D Magazine, honor the most technologically significant products, materials, processes, software or systems with commercial promise. The recipients were honored at a ceremony Sept. 25 at the Museum of Science and Technology in Chicago.

The Laboratory's awards — one of which was shared with Oak Ridge, Lawrence Livermore and Sandia national laboratories — were presented for technology ranging from a computer program that helps scientists predict the movement of oil and gas through underground reservoirs to an environmentally friendly method of dry-cleaning clothing with carbon dioxide.

Here are summaries of the Laboratory's winning entries.

DryWash

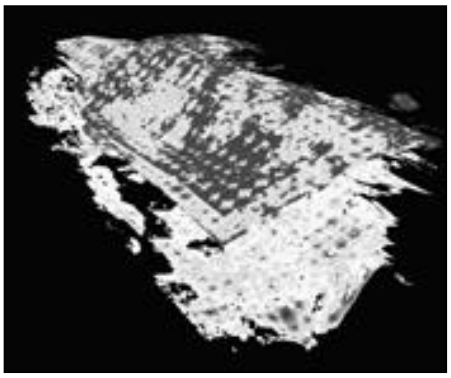
DryWash is a fast, nontoxic dry-cleaning process that uses liquid carbon dioxide as the cleaning solvent. It removes oils, sweat and dirt from a wide variety of fabrics, including specialty items such as fur, leather, suede and garments with sequins.



This food stain might send anyone scurrying to a dry cleaner. But rather than cleaning this swatch in perchloroethylene, the hazardous solvent that dry cleaners typically use, the stain was removed with dense-phase carbon dioxide.

The process — developed by Los Alamos, Global Technologies LLC and Hughes Environmental System Inc., both of El Segundo, Calif. — can be used by neighborhood dry cleaners, hotels, military installations, corporate facilities, nursing homes and hospitals. Future applications may include dishwashing, nuclear laundry and decontaminating machined parts.

DryWash was developed at the Lab by Craig Taylor of Organic Chemistry (CST-12) and former staff member Dale Spall. The project is supported by the Department of Energy's Office of Industrial Technologies and the Environmental Protection Agency's Design for the Environmental Program in the Pollution Prevention and Toxics Branch.



This computer simulation shows oil saturation of a 100-square-mile reservoir field after 25 years of operation. The grid used for this simulation contains 2.3 million cells.

Falcon

Major oil and gas companies use computer simulations to predict the flow of oil and gas in underground reservoirs. Such predictions enable companies to determine the best recovery strategies; however, current production simulations are limited because they run on small, slow, single-processor computer systems.

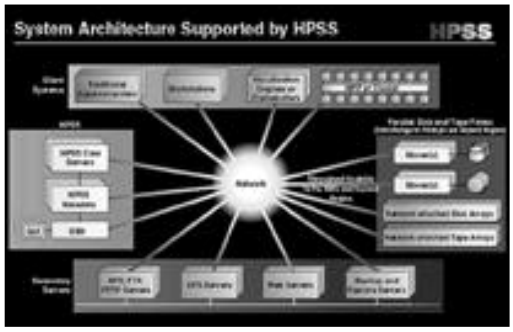
Worldwide, reservoirs produce 70 million barrels of crude oil per day. Of this production, 40 million barrels are from huge fields that cannot be modeled with present-day computer simulation software.

Falcon software — developed by Los Alamos, Amoco of Tulsa, Okla., Cray Research (a Silicon Graphics company) of Eagan, Minn., and PGS Tigress Ltd. of the United Kingdom — makes it possible to model large, economically important oil fields in their entirety.

The Laboratory developers of the Falcon software are Wayne Joubert and Olaf Lubeck, both of Scientific Computing (CIC-19), and Ken Koch of Code Integration (XCI).

High Performance Storage System

The High Performance Storage System, developed by Los Alamos researchers and their partners in government and industry, uncorks existing data-storage bottlenecks for a myriad of government and commercial applications.



HPSS increases both the performance and capacity of storage systems for large-scale computation and other applications.

Today's computer models and simulations, digitized information libraries and high-energy physics data require a large amount of storage space. Unfortunately, system bottlenecks frequently develop that interfere with users' ability to retrieve data quickly.

The primary objective of the HPSS is to move very large data sets very quickly — at least 100 times faster than what is available with today's software systems. This speed is possible because unlike traditional data-storage systems, the HPSS is distributed on a network, not on a centralized storage computer.

The project, developed at the Laboratory by John Blaylock of Data Storage Systems (CIC-11), is a cooperative effort by Los Alamos, Lawrence Livermore, Oak Ridge, and Sandia national laboratories.

Plasma Source Ion Implantation

Inside the PSII process chamber aluminum automotive pistons are treated to improve their wear properties. The glow is from the argon gas ionized inside the chamber by radio-frequency fields.

Instead of simply coating or covering automobile, aircraft and machine tool pieces, Laboratory researchers have been instrumental in the development and initial commercialization of a new way to chemically change their surfaces for improved performance. Previous methods such as electroplating produce hazardous waste byproducts. The Plasma Source Ion Implantation method is safe, versatile and potentially more economical.

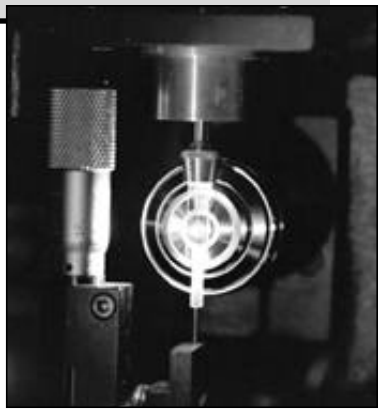
The PSII process implants nitrogen or carbon ions into appropriate metallic surfaces to harden their surfaces and make them wear longer. The technique is not a coating process, but a way to transform the component material surface into a protective "armor."

To date, Los Alamos researchers and their partners — Empire Hard Chrome, General Motors, North Star Research, and the University of Wisconsin — have successfully treated pistons and other automotive components and tools, such as drill bits and dies, at the world's largest PSII facility in Los Alamos.

The Lab researchers involved in the development of the process are Carter Munson, Jay Scheuer, Blake Wood, Ivars Henins, William Reass, Jose Garcia and Darrell Roybal, all of Plasma Physics (P-24); Mike Nastasi and Kevin Walter, both of Ceramic Science and Technology (MST-4); Don Rej of the Physics Division (P-DO); and Ricky Faehl of Plasma Physics Applications (XPA).

Rapid Size Analysis of DNA Fragments

A Lab technology that counts and sorts cells, chromosomes and molecules is the foundation for a new biomedical technique that rapidly and accurately measures the size of individual DNA fragments. The technique has the potential to speed up genetics research, along with the diagnosis and treatment of infectious diseases.



A microscope lens behind the flow cell collects fluorescence emitted by individual stained DNA fragments as they pass through an argon-ion laser beam.

Researchers developed the technique — known as "Rapid Size Analysis of Individual DNA Fragments" — from flow cytometry technology pioneered at Los Alamos nearly a quarter century ago.

Molecular biologists routinely analyze large fragments of DNA to identify their sources, detect mutations and provide a quality-control check for the recombinant DNA libraries used in genetics research. The distribution of fragment sizes is characteristic of the bacteria strain or the individual and can be an indication of a genetic disease.

The principal developers of the technology are Laboratory Fellows Richard Keller of Advanced Chemical Diagnostics and Instrumentation (CST-1) and James Jett of Cytometry (LS-5).

ASR Detect

Many of the nation's bridges, dams, runways, roads and culverts are cracking up. In 1993, the Federal Highway Administration reported that more than 230,000 miles of U.S. roads needed immediate repair or repair within five years. The cost of fixing this problem is projected to be at least $210 billion. One of the principal culprits: alkali-silica reaction, or ASR, which can prematurely degrade and weaken concrete structures. A new technique developed by Lab researchers can detect ASR deterioration quickly, inexpensively and safely.

Concrete is a mixture of cement, aggregate and water. ASR occurs when alkali in the cement attacks silica-rich components of the aggregate, causing the concrete to fracture. Diagnosing the presence of ASR before fractures occur has always been difficult and time-consuming. The new technology, called ASR Detect, reveals the presence of this destructive reaction in less than five minutes.

George Guthrie, one of the developers of ASR Detect, stains a concrete sample with a nontoxic solution that will detect the presence of the alkali-silica reaction (ASR) that degrades concrete.

An important future application will be to evaluate the ASR potential of a particular concrete mix before it is used in a construction project.

The technology was developed by George Guthrie and William Carey, both of Geology and Geochemistry (EES-1).

Memories of Project Rover come alive at reunion

by Steve Sandoval

The work days were long — sometimes extending through the night — and unwelcome native critters were part of the routine. But Laboratory employees who worked on Project Rover recall it as a special time when they achieved success on an important national project.

Project Rover, the effort to build a nuclear reactor to power a rocket in space, was a major program at the Lab beginning in the mid 1950s. And though it ended in 1972, the basic idea was sound, according to retirees and employees who worked on the project, many of whom recently gathered in Las Vegas, Nev., for a reunion.

Project Rover jointly involved the Laboratory, the former Atomic Energy Commission and the National Aeronautics and Space Administration's Space Nuclear Propulsion Office.

The Lab was largely responsible for the scientific and technical aspects of the program. Nuclear reactors were built at the Lab's critical assemblies laboratory at Technical Area 18, also known as Pajarito Site, and tested at very low power before being disassembled, shipped to Nevada and put back together in the Reactor Maintenance, Assembly and Dissassembly Building (R-MAD) there.

Much of the work developing and testing the fuel elements for Project Rover was done at TA-46. Testing of Rover reactors was done at the Nuclear Rocket Development Station located at Jackass Flats in Nevada.

Phase one of Project Rover was called Kiwi and entailed building and testing eight reactors between 1959 and 1964.

Phase two, known as Phoebus, involved advanced nuclear reactors. Phoebus A-1 was tested July 25,1965, at Nevada. A second Phoebus test occurred three years later.

"I think if there's ever a manned Mars mission it would be nuclear," proclaims Laboratory retiree and now affiliate Richard Malenfant. "I think the concept is great."

Malenfant worked on Project Rover in the old Nuclear (N) Division. Staff from the former Test (J) and Chemical Metallurgy Baker (CMB) divisions also worked on Project Rover extensively.

Malenfant didn't attend the Las Vegas reunion, but retiree Frank Durham did.

"Everyone who worked in the program thought it was a wonderful program. Technically it was very successful," said Durham, who was a deputy division leader in N Division and worked at the Lab from 1957 to 1985. Durham oversaw mechanical design activities on Project Rover.

A nuclear rocket had advantages over conventional chemical rockets, said Malenfant. More pounds of thrust could be generated, for one.

'A nuclear rocket is three times as efficient as a chemical rocket," Malenfant said. Chemical rockets require three times the mass in Earth orbit than does a nuclear rocket, he said.

Another plus for nuclear rockets is that the rocket's hydrogen tank can be used to shield passengers and equipment from radiation in space, he said.

Malenfant recalled the 1968 Phoebus test at Nevada validated that the concept was sound. "There were many of us who believe the Phoebus test was a success in demonstrating the feasibility of a nuclear rocket," he said. "It could run successfully and you could shut it down and start it again successfully."

However, Malenfant acknowledges that a nuclear-powered rocket would have a hard time gaining acceptance today, politically and environmentally speaking. The exhaust generated went into air; it would be cost prohibitive to build scrubbers to capture the exhaust, he said.

Durham also concedes a nuclear powered rocket might be a tough sell today. "The main problem is of course the environmental concern and how to keep the fission products from getting into the environment," said Durham. "It would depend on now badly people wanted to do it. It certainly would be very expensive, the development and testing."

Barbara Aamodt worked on Project Rover from 1964 to 1970. Now in the Director's Office, Aamodt was a visitor liaison on test days at the Nuclear Rocket Development Station control point at Nevada and a secretary in the J Division group that handled test operations at the Lab.

"It was exciting because you were right there in the midst of all the action," she said. Aamodt recalled when Werner von Braun, considered to be the "father of space travel," visited the Nevada site. "I met him at the Control Point," Aamodt said. "That was one of the highlights of my work experience there."

Harry Otway of the Environment, Safety and Health (ESH) Division Office joined N Division in 1958 and transfered to J Division in 1961, where he was chief test operator in Nevada. He recalled that when President Kennedy announced his goal to send a man to the moon, it was believed that only a nuclear rocket could accomplish the mission. "Part of the impetus for the nuclear rocket program is that people didn't know what chemical rockets could do," said Otway. "Chemical rockets turned out to be able to do more than people thought."

Otway remembered that during Project Rover's heyday, Lab employees in J Division worked standard 54-hour work weeks. On one occasion, he said, scientists discovered some hydraulic valves were installed incorrectly on high-pressure vessels that held gas used to cool a reactor. Rather than wait for technicians to return to work the next day, Keith Boyer, the Project Rover test director, and other scientific staff members worked all night until 7:30 the following morning to fix the valves.

Ralph Montoya of Personnel and Information Security (FSS-15) worked on Project Rover in J Division. Montoya was the classified mail carrier between the rocket development station and Mercury, the central base camp for employees working on Project Rover.

Montoya recalled when President Kennedy visited the rocket development station in Nevada in 1962. "His caravan stopped, he got out of his car, he walked over to a fence to shake hands with people standing along the fence," he said. "He just shook our hands … I couldn't recall what I said . … it was an experience that I will never forget."

Gene and Gail Diedrich also attended the Las Vegas reunion. They first met at the coffee pot in the hall across from a J Division group office in Nevada. "They've had four [reunions] now. This was the third in Las Vegas," said Gail Diedrich, who was an executive secretary from 1965 to 1970 in the old J Division in Nevada and now works in the Lab's Science and Technology Base (STB) Programs Office. There was a Project Rover reunion in Los Alamos in 1987.

"It was neat seeing and catching up with people we worked with," she said. "There was a special camaraderie with the folks at the Nevada Test Site.

"There was a lot of work to be done, and we had good people. Everyone recognized that everyone's contributions were required to do the job, whether you were a secretary or a test director or in the control room," she said.

Gail Diedrich recalled the 180-mile round trip from Las Vegas to the Nevada Test Site. "We'd have to get on buses at 6 in the morning. And we wouldn't get back until 6 in the evening . … in the wintertime it was dark when you got on the bus and dark when you got off the bus, so you really felt like life was passing you by."

She also recalled occasional run-ins with creepy crawlies. "It was very hot in the summer; you'd have to look under your desk when you came in in the morning because there were sometimes scorpions, tarantulas or sidewinder rattlesnakes," she said.

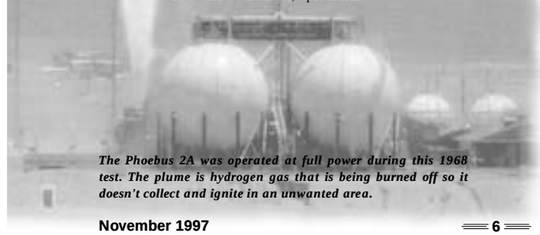
During Project Rover, Gene Diedrich, who retired in 1993, was a mechanical engineer in J Division; he now works part-time as a contract employee in Plasma Physics (P-24). He was at Nevada from 1962 to 1971 working part of that time on a team that installed and maintained the turbo pumps used to supply liquid hydrogen to reactors.

He also recalled that during testing on some valves in an equipment test lab at the test site, a contract employee raised a cover on an instrumentation cable trench in the floor and found a nest of baby sidewinders.

Malenfant said nuclear power would fit into the country's challenge of future space missions. "I think there will be a challenge to the next generation for a space program. Certainly a manned

The Phoebus 1B reactor is parked at the test cell at the Nevada site. The reactor, which is surrounded by shielding, is the cylinder in the center of the assembly.

The Project Rover control room was a busy place during tests. This photo was taken in 1959 or 1960 during the test of a Kiwi reactor.



The Phoebus 2A was operated at full power during this 1968 test. The plume is hydrogen gas that is being burned off so it doesn't collect and ignite in an unwanted area.

Project Rover mailing list

Laboratory retirees and other personnel, or their spouses, who worked on Project Rover and are interested in having their names added to a mailing list for future Project Rover reunions can call the following individuals:

— Roger Noyse, (702) 658-0038
— Bill Endow, (702) 341-8091
— Hayden Hoyle, (702) 243-9992

exploration of the planets could be one of those," he said.

"I've worked with nuclear in one way or another for nearly 50 years. You never lose respect, and you don't become complacent," said Malenfant. "But you develop an appreciation for the fact that it can be controlled and that it is safe."

people

Four receive awards for graphic-design works

Four Laboratory employees from Communication Arts and Services (CIC-1) recently received awards for their graphic-design works in the 1997 American Graphic Design Awards. Their winning entries will be featured in the special December issue of Graphic Design:usa magazine.

Donald Montoya received two awards, both in the Logos, Trademarks and Symbols category. One was for the logo now used by the Mobile Packaging Van Team in Materials Management (BUS-4); the other was for the logo he created for Distributed Computing (CIC-8). Montoya also was recognized in 1995 for the logo he created for Media (CIC-17).

Donald Montoya

In the Publication Cover Design and Overall Design category, **Ruth Holt** and **Eileen Patterson** were recognized for the "Waste Not: Advances in Waste Minimization" brochure they created for the Environmental Restoration (EM/ER) Office.

Ruth Holt

Zizi Kolshorn, currently on a one-year leave of absence, also won an award in the Publication Cover Design and Overall Design category for the "Institutional Plan: FY 1997-FY 2002" report she designed for the Quality and Planning (QP) Program Office.

The competition, now in its 21st year, attracted more than 10,000 entries. Fewer than 7 percent of them received awards. Entries were judged by representatives from the publishing, marketing, advertising and graphic design industries. All winners received certificates.

Eileen Patterson

The December issue of Graphic Design:usa will be mailed to more than 30,000 graphic industry leaders and decision-makers nationwide and distributed throughout 1998 in graphic-design trade shows and events.

Obituaries

Helen Anna Burke

Laboratory retiree Helen Anna Burke died Sept. 1 in Alamosa, Colo. She was 83.

Burke worked at the Lab as a secretary in Personnel (A-2) and Machine Shops (ENG-3) for short periods of time in 1948 and 1949. She returned to the Lab full-time in 1964, working in Procurement (SP-1). Burke also worked in Field Recruiting (PER-2) and Employment Recruiting Personnel Services (PER-1). She retired in 1976.

Burke is survived by two daughters, Gwendolyn Colin Bauer of Alamosa and Charlotte of Odessa, Texas; a sister, Bessie Neal of Kansas; three grandsons; a niece; and a nephew.

Leon Leventhal

Former Manhattan Project chemical engineer and noted nuclear chemist and radiation expert Leon Leventhal died Aug. 26 after a yearlong battle with pancreatic cancer. He was 75.

Leventhal earned his bachelor's degree in chemistry from the University of California, Berkeley, in 1942. He served briefly in the U.S. Army and had worked as a research chemist and chemical engineer at Oak Ridge National Laboratory in Tennessee and the University of Chicago, respectively, when he was recruited in 1944 by Glenn Seaborg, co-discoverer of plutonium, to come to Los Alamos. While here, Leventhal also earned a bachelor's degree in chemical engineering from Virginia Tech University.

As a chemical engineer, Leventhal's work included casting and alloying plutonium and researching the chemical properties of the element. He left the Lab in 1946; throughout the rest of his professional career with various other laboratories and in industry, Leventhal became renowned as an expert on the health effects of nuclear radiation and on toxic and radioactive wastes.

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Open enrollment month

November is open enrollment month for University of California employees and retirees, who can make changes in their benefits coverage through Nov. 21. This year, there are new health-care options from which to choose.

To help employees understand the new health-care program, Compensation and Benefits (HR-1) is sponsoring a Benefits Fair from 9 a.m. to 4 p.m. Nov. 5 on the second floor of the J. Robert Oppenheimer Study Center.

HR-1 also will present information and answer questions at four meetings designed for retirees. The first meeting is from 9 to 11 a.m. Nov. 12 at the Northern New Mexico Community College in Española. The same afternoon, from 3 to 5 p.m., the presentation will be given at the Immaculate Heart of Mary Parish Hall, 3600 Canyon Road, in Los Alamos.

The other retiree meetings will be from 9 to 11 a.m. Nov. 13 at the Marriott Hotel, 2102 Louisiana NE, in Albuquerque, and from 9 to 11 a.m. Nov. 14 in the Sweeney Convention Center, 201 W. Marcy St., in Santa Fe.

The new health-care program, which goes into effect Jan. 1, 1998, includes the Core major medical plan administered by Prudential, plus the new HMO and Point-of-Service plans administered by Blue Cross/Blue Shield of New Mexico.

For more information about the new health care service, call the Lab's Benefits Office at 505-667-1806 or send electronic mail to *health@lanl.gov.*

September and October service anniversaries

September

35 years
Ronald Brock, BUS-5

30 years
Jerry Atencio, ESH-5
Laurence Campbell, MST-10
Robert Krakowski, TSA-3
John Lucero, ESH-4
Walter Matuska, X-PA
Howard Menlove, NIS-5
Martin Milder, APT-TPO
Cheryl Rofer, EES-1
John Smith, LANSCE-5

25 years
Isabell Archuleta, MST-5
Dean Carstens, ESA-WMM
James Cohen, T-4
Bruce Erdal, EM-TD
Robert Hollen, ESA-EPE
Mikkel Johnson, P-25
John Montoya, NIS-4
Alan Perelson, T-10
C.E. Ragan III, X-TM
Robert Romero, CST-26
Galen Straub, T-1
John Straw, ESA-WE
Leonard Trujillo, DX-7

20 years
Rudy Abeyta Jr., NIS-1
Kemp Beebe, CIC-1
Stephen Bolivar, EES-13
Margaret Cox, ESH-13
Mary Darling, FSS-20
Christina Davis, NWT-PO
Richard Ebelacker, BUS-8
Michael Fazio, LANSCE-9
Ruth Gibson, HR-5
William Honeycutt, MST-6
Leah Koska, NMT-4
Pearl Lucero, X-HM
M. Rose Martinez, ESA-DE
Doris Megariz, ESA-DO
Kelly Oyenque, TSA-11
John Parker, NMT-8
William Parkingson, ESA-EPE
Janeen Robertson, ESH-5
Floyd Rodriguez, NMT-6
Patricia Rose, DX-7
Donald Shirk, X-TM
Willard Wadt, DIR
Sally Wilkins, CIC-12

15 years
Larry Avens, NMT-6
John Balog, MST-6
William Blumenthal, MST-5
Donald Casillas, ESA-WMM
Gary Christoph, CIC-3
Raymond Dixon, MST-6
Vicki Durnal, CIT-PO
Richard Eddleman, ESH-3
Gary Glatzmaier, EES-IGPP
Lawrence Hull, DX-3
Robert Janssen, X-NH
Mary Martinez, FSS-9
Tyce McLarty, CIC-7
Robert Mier, CST-25
Robert Montoya, ESA-WMM
Michael Palmer, NMT-2
Roy Rockage, MST-10
Richard Ronquillo, NMT-5
Gregory Spriggs, X-TM
Joseph Valdez, ESA-MT
Leonard Valerio, CIC-4
Harvey Wasserman, CIC-19

10 years
Sheila Brown, LC-GL
Donna Carter, BUS-8
Tebols Casados, CIC-14
Patrick Garrity, GR
Barbara Hemberger, CST-1
Mary Ann Hill, MST-6
Daniel Holden, NIS-1
Melissa Lewis, MST-6
Kelly McLenithan, X-PA
Dean Sanzo, TSA-11
Hugh Smith, ESH-2
Paula Sundby, AA-IEO
J. Patrick Trujillo, HR-2
Fatima Woody, TSA-5
Frederick Wysocki, P-24

5 years
Linda Anderman, CIO
Alan Berry, NMT-5
Barbara Carmichael, BUS-2
Keeley Costigan, EES-8
Justin Doak, CIC-8
Maryana Eames, HR-6
Mary Erwin, BUS-1
Terry Fogle, ESH-5
David Horrell, NMT-4
Lisa Iverson, ESH-5
Wayne Joubert, CIC-19
Chad Kieffer, CIC-1
Eileen Patterson, CIC-1
Thomas Prettyman, NIS-5
Gregory Rowell, TSA-9
Benno Schoenborn, LS-DO
John Schultz, CST-1
Yolanda Serna, BUS-5
Patrick Soran, X-CI
Blair Stephenson, HR-6
James Tingey, ESH-3
Gary Whitney, ESH-5

October

35 years
James Baca, DX-5
James Nix, T-2

30 years
John Bolstad, X-NH
Gordon Brewer, DX-2
Kenneth Lee, X-CM
Thomas Lopez, LANSCE-9
Elgin Martin, NIS-6
George Ortiz, ESA-TSE
Phillip Roybal, LANSCE-1
Adelaido Sandoval, CIC-11

25 years
Charles Fite, NIS-3
Lawrence Cox, NMT-5
Thomas Hill, X-CI
Janie Kelly, NWT-PO
Eldon Linnebur, X-CI
Lorenzo Martinez, EES-1
Fred Mortensen, X-TA
Richard Peters, CST-9
David Salazar, EM-RLW
Edward Serna, CIC-5
Kurt Shoenberg, P-24
Carlo Trujillo, BUS-4

20 years
Thomas Adams, NWT-PO
James Amann, P-25
Michael Barbe, MST-6
David Barsness, BUS-2
Jose Brito, ESA-WMM
Paula Cisneros, CST-9
Merlyn Krick, NIS-5
Sandra Lopez, CIC-9
William Oakes Jr., TSA-7
William Olsen, ESH-17
James Painter, X-CI
Dixie Paternoster, HR-6
Gregory Pollak, X-TA
Manjit Sahota, T-3
Roberta Simpson, NMT-4
David Watkins, MST-11

15 years
Robert Alcon, DX-1
Larry Austin, MST-6
Joseph Baca, BUS-2
K.B. Butterfield, NIS-6
Jeffrey Dunning, CIC-13
Sally Eres, FSS-DO
Timothy Gill, ESA-WMM
Gregory Helland, ESH-5
Loren Jacobson, MST-6
Emily Johnson, ESH-2
George Kolb, CIO
Doreen Martinez, X-CM
Thomas Moxley Jr., ESH-9
Gregg Obbink, NIS-4
David Post, NMT-DO
Albert Stadelmaier, ESA-FM-ESH

10 years
John Bingert, MST-6
Anne Maria Brown, ESH-2
James Dalton, BUS-DO
John Foley, HR-2
Anthony Garcia, BUS-4
Diane Gonzales, CIC-15
Faith Harp, CIC-1
Paul Henriksen, CIC-1
Dennis Hjeresen, EM-PD
Joel Kress, T-12
William Kubic Jr., TSA-10
Elizabeth Macy, CIC-2
Barbara Maydew, X-CM
Mark Miller, NMT-5
Marta Oakley, AA-1
Geraldine Purdy, NMT-6
William Sailor, TSA-3
John Schlesser, ESH-6
Marjorie Snow, EES-1
Danna Stokes, BUS-5
Laurie Tomlinson, NMT-9

5 years
Angela Coop, ESH-13
Roger Crandell, CIC-5
Carl Gilbert, CST-3
Emanuel Knill, CIC-3
Diana Kottmann, CST-11
Nanette Mayfield, AA-IEO
George Rodriguez, MST-11
Coleman Smith, NMT-6
Darrin Stafford, ESH-10

Obituaries

continued from Page 8

He was a fellow of the American Nuclear Society and the Health Physics Society, a life fellow of the American Institute of Chemists and member of the California Society of Professional Engineers.

Leventhal is survived by two sons, Harald and Daniel; two daughters, Jeanne and Margret; a brother, Melvin of Los Angeles; and two grandchildren.

Donald L. Wilson

Lab retiree Donald L. Wilson died Sept. 8 in his home town of Cañon City, Colo. He was 63.

The former U.S. Army radar operator came to Los Alamos in 1957, working as a Laboratory aide. In a career spanning 36 years, Wilson worked in such groups as Detonators, Firing and Cables (GMX-7), Physical Chemistry and Metallurgy (CMB-8), Detonators and Detonating Systems (WX-7), Detonation Systems Fabrication (M-7) and Reaction Science (M-9). He also was a physics lab assistant and mechanic/technician during his career.

Wilson is survived by his wife, Donna; a son, Dan of Littleton, Colo.; a daughter, Susan Ramsay of Los Alamos; a brother, Harry of Nampa, Idaho; and five grandchildren.

The value of volunteerism

Mudundi Raju described his work helping the rural poor in his native India at a colloquium at the Lab a year ago. *Photo by Fred Rick*

by John A. Webster

Volunteer work is not always easy, but it is nearly always rewarding, says a Lab retiree who spends most of his time helping the poor in his native India.

"Genuine voluntary work is one of the ways to find meaning in one's life," says Mudundi Raju, a Lab fellow whose research focuses on the use of nuclear particles to treat cancer. "In modern times, professional work, including science, has become highly competitive, leaving no time to ask some of the important questions of life, such as: 'What am I here for? What should I do?'

"Technology is becoming more and more complex," he said. "There is a gulf between modern medical research, where there is a lot of effort to develop new ways of improving treatment, and the needs of most of the world's people, who can be helped enormously with relatively simple medical measures.

"This means there is a tremendous opportunity for scientists, engineers and other professionals to play an important role in bridging this gulf by setting an example by direct participation."

For Raju, direct participation means working to improve the quality of life in rural India. The work is facilitated by the Mahatma Gandhi Memorial Medical Trust, which was set up by Raju's wife, Devi, nearly 20 years ago. The trust is named for Gandhi "with a sincere view to try to put into practice some of his ideas in serving the needs of the poor," Raju said.

The trust, which is located on a five-acre site in the Indian state of Andhra Pradesh, focuses on providing a variety of health-care services to residents of the area and teaching pre-school age children.

A major health thrust has been the removal of cataracts that cause blindness. So far, about 3,000 people have been successfully treated.

Other projects include a door-to-door regional cancer survey of about 100,000 people. The survey, which included information about socioeconomic conditions, was conducted under the auspices of the Indian Atomic Energy Regulatory Board. Raju said it showed that government programs in health care and literacy aren't working very well.

The trust conducts a cancer-awareness program in the local language that emphasizes prevention and early detection. It also provides special prosthetic devices for polio victims at no cost. These devices are provided to the trust by Indian scientists through the Society for Biomedical Technology, which also has given the trust a cancer-screening device.

The work of the trust is supported by a Los Alamos group called Services and Aid to the Relief of the Poor, or SARP. Raju and his family have provided major support.

Raju says the kind of help provided by the trust is desperately needed in many parts of the world. "Fulfilling basic needs in the United States is not a fulltime job," he said. "For most of the rest of the people in the world, it is."

Material success has allowed the United States to be a world leader in productive volunteerism. "Materialism is not bad," Raju said. "Fulfilling material needs allows for spiritual growth," which in turn can lead toward useful volunteer efforts. In addition, he said, the United States has a "culture of plain living and high thinking and of volunteerism" that helps make it sensitive to the needs of much of the rest of the world.

Raju, who took voluntary retirement in 1993, said he received "more than my share of recognition professionally" during his career. "I feel I got more than I deserve, but I also feel there is a good reason," he said. "I earned respect, and I'm putting it to good use now."

He presently spends about two-thirds of his time in India working with the trust. The rest of the time he works in his professional field, often at the Laboratory and generally writing review articles in the field of particle radiotherapy.

"Understanding and experience are different," Raju said. "I have been preoccupied with understanding (in my professional career). Now I'm experiencing what it takes to really be useful. My aspiration is set up a small example ... to see if we can improve the quality of life through appropriate science and technology."

Children at the preschool initiated and partly funded by the Mahatma Ghandi Memorial Medical Trust wear clothing of handloomed cloth, as advocated by Ghandi. The preschool, which started three years ago, serves primarily children of illiterate parents. *Photo courtesy of Art Freed of Services and Aid to the Relief of the Poor*

This month in history

November

1895 — Wilhelm Roentgen discovers X-rays

1918 — Robert Goddard demonstrates tube-launched, solid-propellant rockets

1943 — The Sundt Co. completes construction of the Lab's main technical area, plus 332 apartments, 12 civilian dormitories, 12 military barracks and other facilities

1955 — The Soviet Union tests its first fusion device

1965 — The first sale of a private home in Los Alamos is made to William Overton, who buys a house on Manhattan Loop

1971 — "D.B. Cooper" parachutes from an airliner with $200,000, passing out of history and into legend

1982 — Donald Hodel is sworn in as secretary of energy

1990 — President Bush declares the end of the Cold War

1991 — The Lab-developed HIPPI is accepted as the first national standard for gigabit-per-second data transmission

1992 — Members of the Lab and Russian nuclear weapons programs meet at the Lab and agree to conduct collaborative research

1995 — Reporters visit the Plutonium Facility at TA-55 for the first time

1996 — An explosion and fire occur at the CMR Building

October crossword puzzle answers

E	R	A	S	■	H	A	W	■	G	I	G	I
L	U	M	P	■	O	V	A	■	Y	V	E	S
A	L	I	A	■	R	E	N	■	P	E	R	I
L	E	A	R	N	S	■	T	O	S	S	E	S
■	■	■	T	O	E	■	E	M	U	■	■	■
D	R	E	A	M	S	■	D	A	M	S	E	L
E	A	R	■	■	■	■	■	■	■	R	O	E
E	N	S	I	G	N	■	A	G	H	A	S	T
■	■	■	N	E	E	■	M	A	E	■	■	■
S	H	O	V	E	S	■	O	P	A	Q	U	E
T	O	T	E	■	T	A	U	■	R	U	C	K
E	R	I	N	■	L	E	N	■	T	I	L	E
P	A	S	T	■	E	S	T	■	S	P	A	D

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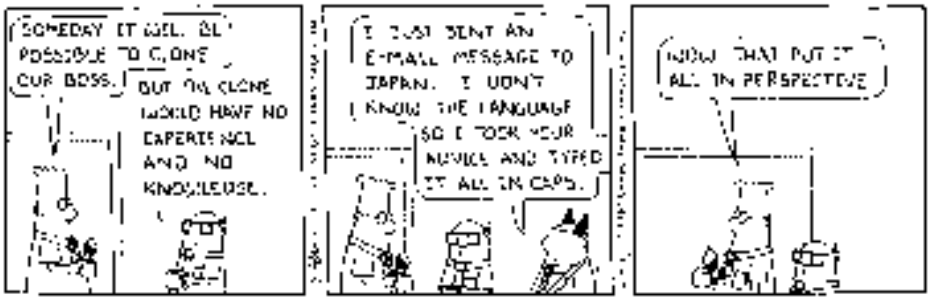

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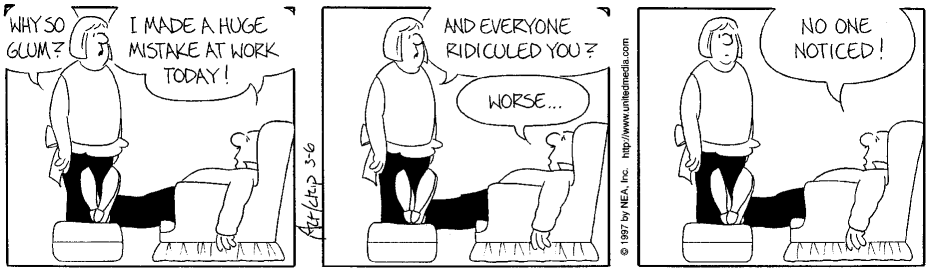

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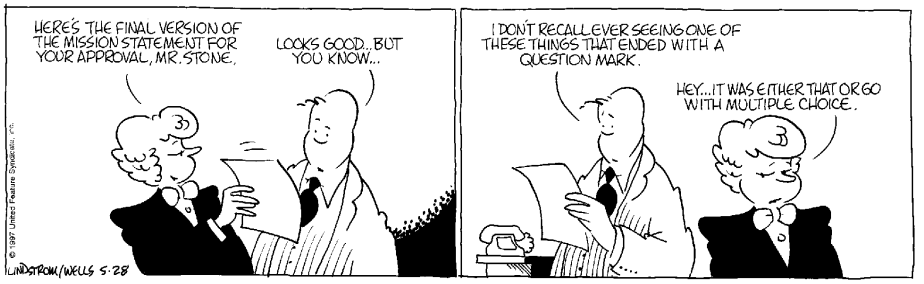
EXECUTIVE SUITE® by William Wells and Jack Lindstrom



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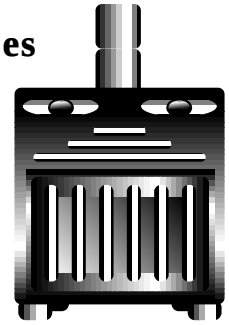
Did you know...

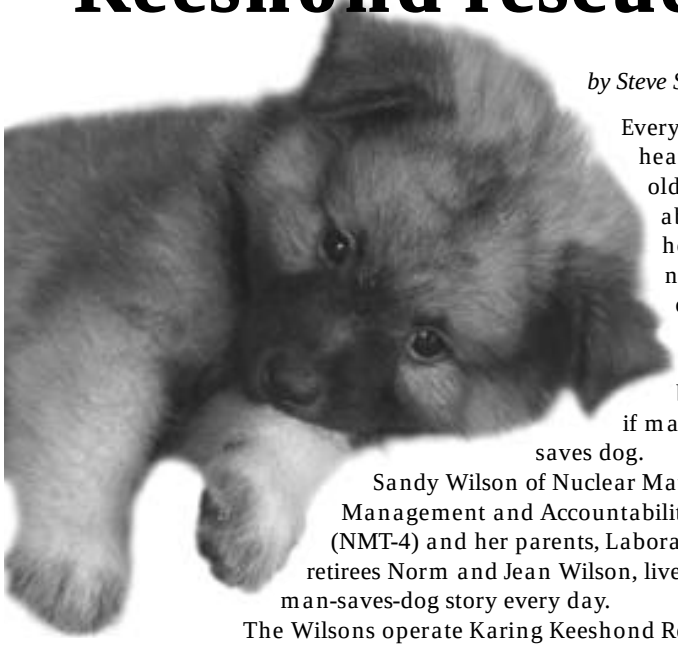
There are 2,269 heaters and furnaces at the Laboratory.



There are 13,500 detectors on fire alarm systems at the Lab.

spotlight

Keeshond rescuers



by Steve Sandoval

Everyone's heard the old adage about how it's news if dog saves man, but not if man saves dog.

Sandy Wilson of Nuclear Materials Management and Accountability (NMT-4) and her parents, Laboratory retirees Norm and Jean Wilson, live the man-saves-dog story every day.

The Wilsons operate Karing Keeshond Rescue out of their homes in Los Alamos. They find and "rescue" keeshond dogs that are abandoned, injured and/or placed in animal shelters around the country. Sandy Wilson and her parents have been rehabilitating keeshond dogs in New Mexico since May 1991.

All told, 43 keeshond dogs have been rescued by the Wilsons, rehabilitated and placed in homes around the country, Sandy Wilson said. Thirty of the 43 were claimed from shelters; 13 came from keeshond owners who for whatever reason couldn't keep their dogs, she said.

"They're adorable, cute puppies. They shed their undercoat as they grow … I think people just don't know how to take care of the coats," she said of why they are often abandoned. Wilson noted that a keeshond dog also can be a barker if continuously left alone or not given proper attention.

"They are very protective; they're good watch dogs, but they're not at all aggressive," Wilson continued. "I wouldn't say they're rare; they're relatively popular, but you don't see a lot of them."

Keeshond is a Dutch word for the hound belonging to Kees; it is a nickname for Cornelius de Gyzalaar, according to Wilson. Keeshonden were the dog of choice with former Dutch patriots during the rule of the House of Orange in Holland in the late 1700s, Wilson explained. When those leaders fell out of power, keeshonden lost their standing and nearly became extinct, she said.

As a result of her home being robbed, Sandy Wilson got her first keeshond when she was a child living in California. The Wilsons had their first keeshond almost 15 years, Sandy Wilson recalled.

Keeshonden are primarily indoor dogs that don't grow very large, about 17 inches at the shoulders for females, 18 inches for males. An adult keeshond grows to be all of 40 pounds and lives an average of 12 to 13 years. The dogs have a distinctive fox-like face with "spectacles" around their eyes, cream-colored paws, pantaloons on their hind legs and white tails curling over their backs.

Since the Wilsons started Karing Keeshond Rescue in Los Alamos, only two keeshonden were returned, and not through any fault of the dog, Wilson said.

Sandy Wilson

"We love the breed," Wilson said. "They're too nice a dog to be thrown away when people get tired of caring for them. And they give us and their new owners a lot of pleasure. They're so warm and giving."

When Sandy Wilson and her folks find out about a keeshond that has been impounded or abandoned, they will go get the dog — even if it means traveling out of town. They've traveled as far as Kansas to claim a keeshond from an animal shelter. Ten of the 43 keeshonden they've rehabilitated and placed in homes are in Los Alamos.

When someone contacts Wilson or her parents wanting a keeshond, they will make a home visit to visually inspect the fence line to ensure that the keeshond won't run free and possibly end up being injured or impounded. At a minimum, Wilson said, the potential keeshond owner must have a fenced yard, commit to taking the dog for regular checkups, assure that the dog be collared and tagged and not allow it to ride in the back of pickup trucks. The potential pet owners also can't tie or stake the dogs in their yard.

Wilson said the keeshond usually develops a "chemistry" with potential new owners. "It's a very quick response from the dog," she said.

Wilson or her parents ask for a small donation for their work, which Wilson said doesn't begin to cover their costs for rehabilitating a keeshond, some of which may require spaying or neutering. Wilson added that a keeshond won't be placed that isn't spayed or neutered.

Kilo, a 7-year-old male keeshond

"We work really hard to make sure when we place the dog it will be with a lasting committment from the new owners," she said. "We're taking these dogs out of a bad situation, and we don't want to put them back into a bad situation. All we're asking for is humane treatment."

Last October, the New Mexico Veterinary Association gave the Wilsons its Humanitarian of the Year Award for their work.

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