Los Alamos NATIONAL LABORATORY
NewsLetter
Week of March 15, 2004
Vol. 5, No. 6

## *What is life?*

# Assembling and understanding the building blocks

*by Nancy Ambrosiano*

In an era when NASA is spending billions to examine Mars and possibly the moons of Jupiter in a search for life, seemly philosophical questions such as "How simple can life be?" and "Can we recognize it if we see it?" become practical questions. Steen Rasmussen of Hydrology, Geochemistry and Geology (EES-6) currently is heading an international team of collaborators working to address such issues.

The research is funded by the Center for Space Science and Exploration (in alignment with NASA's emerging Astrobiology program), the U.S. Air Force and the European Commission's Future and Emerging Technologies 6th Framework.

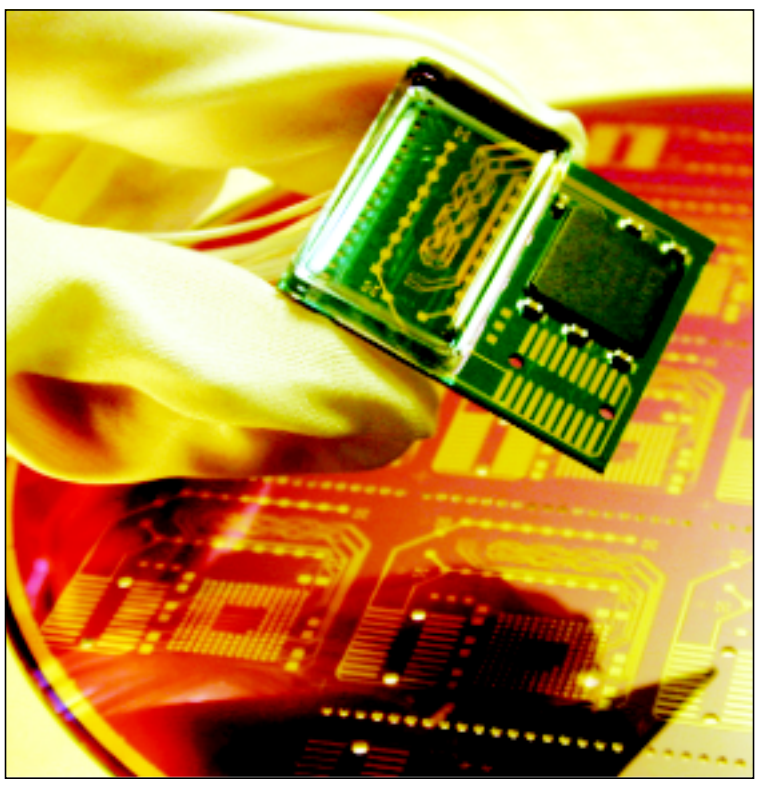
Life is notoriously difficult to define. "If life is something that can harvest resources from the environment, evolve, and reproduce itself, what do you say about a mule, which cannot reproduce?" said Rasmussen. However there is consensus in the research community that a self-replicating and evolving molecular system, one that has a metabolism and genes kept together by a container, satisfies the definition of a minimal life form.

"Our team has made two recent contributions to this research area. We have redefined what a container is, and we have discovered a new way to couple the genes, the metabolism, and the container," Rasmussen noted. "Think about a container as a piece of used chewing gum. You can then stick the genes and the metabolic molecules directly onto the surface of the gum as long as these molecules are also sticky – or hydrophobic." The team's sticky genes are not made out of DNA or RNA, but rather lipophilic, peptide nucleic acid or PNA. The 'chewing gum' is an aggregate mainly of simple carboxyl acids and the metabolic molecules are aminopinacol photosensitizes, which can capture light energy, Ramussen said.

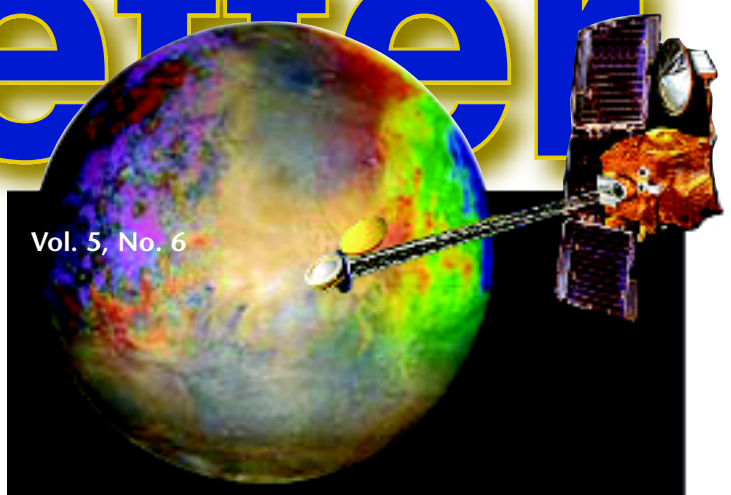
Liaohai Chen, a partner from Argonne National Laboratory, said about the coupling, "We recently discovered that the gene molecules actually can be an integral part of the metabolism, if they are used as electron donors and charge-transfer devices. Since the gene's charge-transfer properties depend on its sequence, we can directly 'encode' the metabolic efficiency into the genes. Some sequences make for a poor metabolism and others make for good metabolism efficiency."

The team has designed the simplest, and so far only, complete design of a small, living, aggregate, about 100 million times smaller than the smallest bacterium. It is a living system designed from scratch, and even though the pieces work separately, the team stresses that they still have a big challenge ahead, since the pieces have to be integrated experimentally. "We have all the pieces, and we have demonstrated that our metabolism can produce the container molecules," said Argonne's Chen.

*continued on Page 3*



***The biomodule shown may be used for adaptive screening of flow conditions to evolve artificially compartmentalized cells. This module is based on microfluidic technology with online monitoring and fine-grained computer feedback control of fluxes (via electrodes in fluidic channels driven by reconfigurable logic). Such a computational biomodule interface also could be used to program the chemistry of artificial cells so that they could conduct useful tasks.***
*Photo courtesy of P. Wagler, Fraunhofer Gesellschaft Biomip*



# *Scientists, technology focused closely on Mars water findings*

***by Nancy Ambrosiano***

The recent NASA announcement of water on Mars came as no surprise to the Laboratory teams who have worked this issue from instruments on the Mars Odyssey spacecraft.

The announcement of clear evidence that Mars once supported a wet, habitable environment, one that would have been suitable for life, coordinates well with the claims the Lab team has made of concentrations of water-equivalent hydrogen, likely bound up in mineral concentrations and no longer liquid.

The Mars Exploration rovers are approaching the water question from a different perspective than that of the Odyssey spectrometer, seeking instead to determine from visual evidence whether liquid water ever flowed on the planet. The rovers do not measure hydrogen or water bound in rock, which is what the Los Alamos spectrometers were doing from aboard Odyssey.

Los Alamos' planetary science and water-on-Mars teams include Laboratory Fellow Bill Feldman, Rick Elphic, David Lawrence and Tom Prettyman of Space and Atmospheric Sciences (ISR-1) and David Vaniman of Hydrology, Geochemistry and Geology (EES-6).

Maps of Mars developed by the Lab show relatively high concentrations of hydrogen (up to 10 percent by weight of water-equivalent hydrogen) distributed over large areas at low latitudes. The Mars Opportunity rover landing site is within a hydrogen-rich region that spans more than 3,000 kilometers, said Prettyman.

The key link between the Los Alamos results and the current Opportunity data has to do with the chemical form of water-equivalent hydrogen on the surface. The neutron spectrometer results have led to considerable debate in the Mars science community about the chemical form of the hydrogen in the surface, said Prettyman. "The presence of high concentrations of hydrogen was unexpected, because water ice is not stable at the surface at low latitudes given the present climate," he said. Instead, the Los Alamos team is investigating the possibility that the regions contain hydrated minerals, which could be stable under present conditions.

This theory was strengthened by the Mars Exploration rover team's announcement that they had found evidence of high concentrations of hydrated magnesium sulfate at the Opportunity landing site. This is fortuitous

*continued on Page 5*

# Inside this issue …

**Ashworth talk recalls Lab's legacy, tie-in to future**
From too much kerosene in a Los Alamos plywood box house to not enough gasoline in the aircraft from which he dropped the bomb on Nagasaki nine months later, Retired Vice Admiral Frederick Ashworth recounted his wartime experiences to a standing-room-only audience at the Laboratory. . . . . **Page 4**

**Trace amounts of perchlorate found in Mortandad Canyon monitoring well**
As part of ongoing monitoring efforts, trace amounts of perchlorate have been found in aquifer samples taken from a monitoring well in Mortandad Canyon. . . . . **Page 5**

**A kidney recipient's triumphant games**

The 2004 U.S. Transplant Games at the University of Minnesota this summer will celebrate 50 years of organ transplantation. The National Kidney Foundation organizes the games to demonstrate to the public that transplantation works and to illustrate the tremendous need for more organ donors. . . . . Page 8

## Correction:

The start date at the Laboratory and the education credentials for Robert Little of Diagnostics Methods (X-5) were incorrect in the week of March 1 issue of the newsletter. Little joined the Lab in 1980, having received his bachelor's, master's and doctoral degrees in nuclear engineering from Rensselaer Polytechnic Institute in Troy, N.Y.


Los Alamos NEWSLETTER

**The *Los Alamos NewsLetter*, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at *newsbulletin@lanl.gov*, by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below. For change of address, call 7-3565. To adjust the number of copies received, call the mailroom at 7-4166.**

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

**Associate editor:**
Steve Sandoval, 5-9206

**Production editor:**
Denise Bjarke, 7-3565

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

**Staff photographer:**
LeRoy N. Sanchez, 5-5009

Los Alamos National Laboratory is operated by the University of California for the National Nuclear Security Administration (NNSA) of the U.S. Department of Energy and works in partnership with NNSA's Sandia and Lawrence Livermore national laboratories to support NNSA in its mission.

Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.

NNSA National Nuclear Security Administration

**Printed on recycled paper. Please recycle.**


FROM THE TOP

# National Academies of Science Study Committee visits Los Alamos

***Manuel Trujillo of Deployed Services (PM-DS) was one of several members of the public who presented testimony to the National Academies of Science Study Committee on Criteria for laboratory management March 2 in Fuller Lodge downtown. Trujillo said he provided input to the committee as president of the University Professional and Technical Employees/Communication Workers of America, Local No. 1663. While at Los Alamos, committee members broke into focus groups to take comments from Laboratory technical staff members, technicians, postdoctoral associates and Laboratory Fellows, among others. Several of the committee members also toured Laboratory facilities.*** *Photo by LeRoy N. Sanchez*

*by Todd Hanson*

A study committee from the National Academies of Science visited Los Alamos during the first week of March for meetings with Laboratory managers, technical staff and the general public. In meetings at Fuller Lodge, the National Academies of Science Study Committee on Criteria for laboratory management gathered input on how best to preserve and promote science at Los Alamos during the Laboratory's upcoming contract bidding process. The committee will provide the National Nuclear Security Administration with information relevant to the anticipated Request For Proposals to manage the Laboratory.

"Our charge from the NNSA is to develop a set of criteria for evaluating the capabilities of bidders for the [Los Alamos] management contract to ensure the continuation of world-class science and technology at the Lab," said Richard Rowberg, associate executive director of the National Academies' Division on Engineering and Physical Sciences.

At a public meeting, members of the Los Alamos community had an opportunity to provide comments to the committee, who wanted to hear, in particular, thoughts on what characteristics to look for in a high-quality science and engineering contract manager, how those characteristics can be turned into evaluation criteria, and how they might be measured.

Early on, State Representative Jeanette Wallace (R-Los Alamos, Sandoval) and James Anderson, the Los Alamos superintendent of schools, provided important perspectives on the Laboratory's role in the county and region. Anderson discussed the role that the current high-quality school system has traditionally played in recruiting scientists and urged any new contactor to be given the responsibility to continue that tradition.

A number of Lab employees also provided testimony to the Committee. For example, Greg Wilson of Statistical Sciences (D-1) defined the Laboratory as a "meta-socio-technical system," which is a system whose complexities involve aspects beyond the physical, mechanical components of a device, or that involve vast and multifaceted interdisciplinary communities, political pressures, schedule and budget risk and non-traditional data sources. "Managing the 'meta-socio-technical system' that is the Laboratory," said Wilson, "requires a bidder with a sweep of expertise and resources."

While Wilson and several other Laboratory employees spoke on their own behalf, a few spoke on behalf of local organizations with a stake in the contract bidding process. Theresa Connaughton of Information and Records Management (IM-5), for example, spoke thoughtfully from her perspective as the former president of the local chapter of the University Professional and Technical Employees organization. Bill Wadt of the Quality Improvement Office (QIO) spoke in his capacity as president of the Board of Directors of the Los Alamos National Laboratory Foundation on the need for any potential bidders to adequately support the foundation.

Diane Albert of the Materials Science and Technology (MST) Division spoke on behalf of the Los Alamos County Council, noting "the new primary Laboratory contractor must have the ability to both recruit and retain world-class early-career scientists and engineers to maintain the public trust in the work performed here." Albert suggested that there are a number of quality of life issues that should be considered in selecting a new Laboratory contract manager.

In the end, the NAS Study Committee left Los Alamos with much to consider and, no doubt, with the sure and certain knowledge that the greater Laboratory community will be watching carefully as the management contract bidding process unfolds.

***Laboratory Director G. Peter Nanos presents …***

## State of the Laboratory

**March 22 • 10 a.m. to noon**
Administration Building Auditorium
Open to badgeholders
Broadcast live on LABNET Channel 9

# Go solar racer go

*by Edwin Vigil*

Students from Aspen Elementary School did some hands-on pit crewing recently at the Bradbury Science Museum, building their own solar-powered racers. Aspen fifth and sixth graders attended the robotics workshop lead by Joseph Vigil of the Laboratory's Education Program (STB/EPO) Office, along with his assistant, Afsheen Banisadr, an eighth grader at Los Alamos Middle School.

Solar speeders kits provided by the Laboratory were given to each of the students. After a safety briefing by Vigil, students were given the opportunity to use a variety of equipment, including safety glasses, soldering irons, pliers and a glue gun.

In observance of National Engineering Week, the workshop was an opportunity for students to gain the confidence and experience needed for building more sophisticated robotics. Pat Berger of the Laboratory's Bradbury Science Museum put together the workshop to help the students try their hand at building simple robotics.

***Above: Afsheen Banisadr, left, an eighth grade student at Los Alamos Middle School and assistant workshop instructor, helps Aspen Elementary student Miles Freeland install a solar powered motor on his project.***

***Left: Using a fixture to hold their project, a student solders components onto a printed circuit board that came in the solar speeders kit donated by the Laboratory to workshop attendees.***
*Photos by Edwin Vigil*

## Assembling ...

*continued from Page 1*

### *Applications of living technology*

John McCaskill at the University of Bochum in Germany leads a large European information technology project, of which Los Alamos and Argonne are also a part. The project aims to program molecular systems that don't understand computer languages.

"Evolution already is a key technology in both public and private sectors for generating molecular functionality. We now also have the technology in hand to use computerized microfluidics to do systems chemistry evolution and bridge the gap to protocells," McCaskill said. Startup companies like ProtoLife will be pursuing commercial advantages of this technology, he noted, claiming that "the starting points for the physical system will be Rasmussen's integration scheme, linking in world leaders in component chemistry. The initial target will be a hybrid programmable life-form, with twin, evolved environment and chemicals."

Rasmussen continued, "When you combine self-replicating materials with an ability to program their underlying chemistry to conduct useful tasks, you should be able to grow such micro machines as biosensors, self-repairing ship coatings, systems to sequester carbon dioxide, digest toxins, or bind radionuclides to the soil matrix and more."

"Think about a scratch in your skin and compare that with a malfunctioning component in a computer." "The skin heals itself while the computer has to be fixed by somebody else. Technology based on the principles of life will become possible once we understand how to make minimal self-replicating materials."

Rasmussen stressed that we cannot do this today "but the science we're doing now is the last obstacle to make a living technology possible. This has incredible mission applications for the Laboratory, and industry sees this as an emerging billion-dollar enterprise." For more information, see the article in the March 11 Daily Newsbulletin at *www.lanl.gov/orgs/pa/newsbulletin/2004/03/11/life.html* online.

## For Your Safety

# Check your tire pressure

With all the media coverage tires have been getting lately, it's a safe bet more people are taking a good look at their vehicles' tires before hitting the highway.

That's a good thing, because tires have traditionally received far too little attention. Some people don't give tires any thought until they're forced to deal with one that's gone flat.

One study showed 70 per cent of tires on motor vehicles are underinflated. A tire is said to be dangerously underinflated with just four pounds per square inch (28 kPa) less pressure than recommended.

Too little air causes a tire's sidewalls to flex, which in turn causes heat to build up. When that happens, tires can blow out, sometimes with fatal results.

The moral of this story is that tire pressure should be checked at least monthly with a good tire-pressure gauge available at any automotive parts outlet.

Recommended tire pressures can be found in a vehicle's owners' manual, or inside the driver's side door or glove box. Remember that carrying more weight in a vehicle than it's designed to handle also can cause tire failure due to heat build up.

Driving on underinflated tires will cause a car's or a truck's engine to work harder and consume more fuel.

Tire pressures should be checked "cold" before the vehicle moves an inch. Tires should also be rotated every 6,000 to 8,000 miles (10,000 to 13,000 kilometers) to maximize their life span.

*Heritage Lecture series presentation*

# Ashworth talk recalls Lab's legacy, tie-in to future

*by Jim Danneskiold*

From too much kerosene in a Los Alamos plywood box house to not enough gasoline in the aircraft from which he dropped the bomb on Nagasaki nine months later, Retired Vice Admiral Frederick Ashworth recounted his wartime experiences recently to a standing-room-only audience at the Laboratory.

Calling himself an "old-timer" of the Manhattan Project at 92 years of age, Ashworth said he wanted to set the record straight about his colleagues' contributions and give Laboratory staff a first-hand sense of what he called the most significant event of the 20th century. Ashworth delivered the second in the Laboratory's Heritage Lecture Series, recalling his role in the second atomic bombing mission against Japan as the weaponeer responsible for arming the Fat Man bomb.

A U.S. Navy commander at the time, Admiral Ashworth came to Los Alamos on Thanksgiving Day, 1944, with his wife and two young children. His role was managing field testing of components for the first atomic bombs. He recalled living in a two-bedroom box made of plywood that reeked of kerosene from a poorly working stove for heat and cooking.

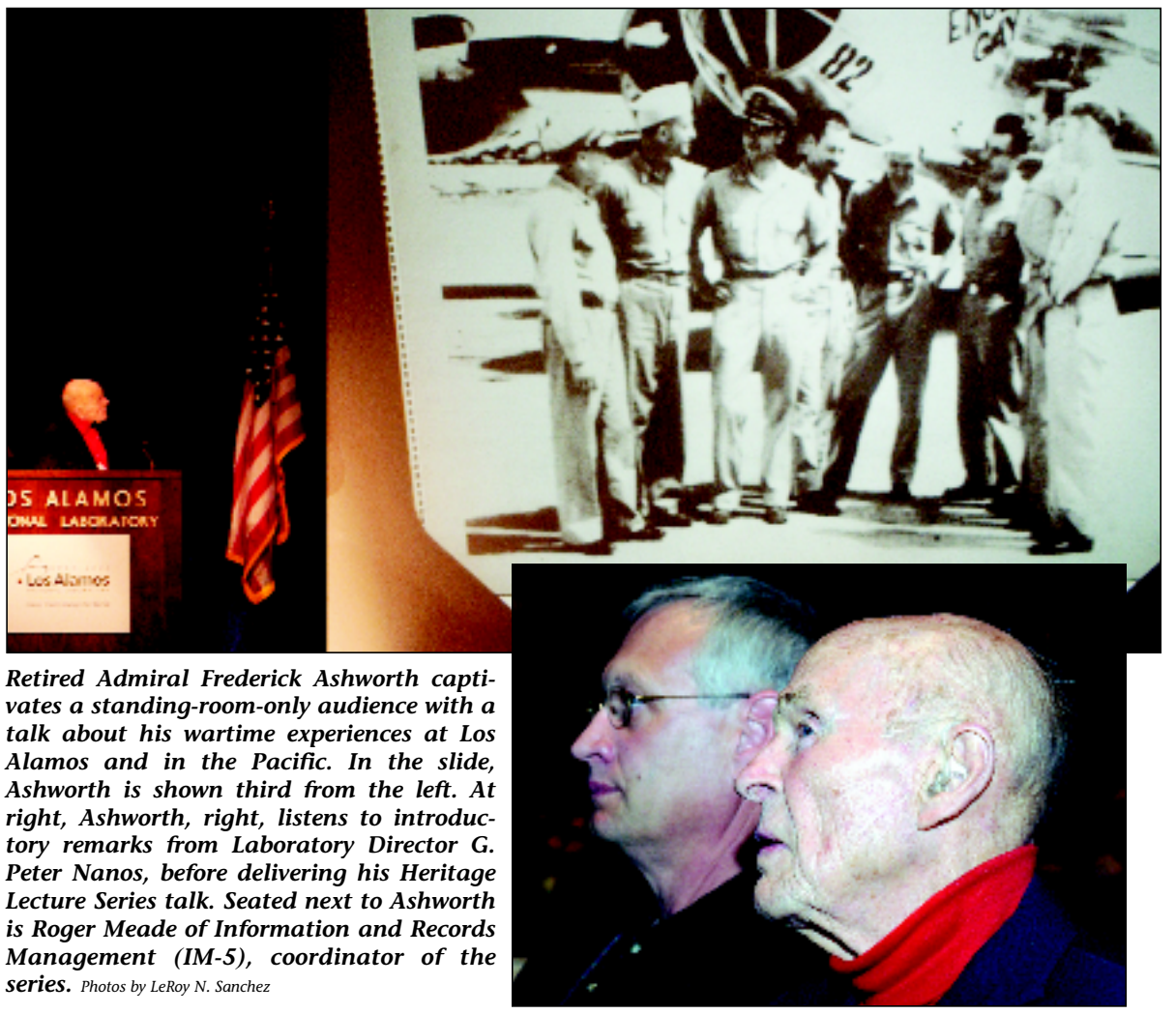
In February 1945, Gen. Leslie Groves sent Ashworth to Guam. In a money belt, he carried the classified letter that informed Admiral Chester Nimitz that the bomb would be deployed to Nimitz's area of the Pacific by Aug. 2. After a 48-hour journey, he delivered the "rather disheveled" letter, and was shocked to learn that he was supposed to be able to answer any questions that Nimitz might have about the letter.

Ashworth recalled the rapid pace of events in the days leading up to the use of the first atomic bombs to end World War Two.

The second atomic bomb mission was anything but smooth, Ashworth said.

Patchy clouds forced the crew of Bockscar to fly past its primary target, a long wait for an observation plane that never showed up for a rendezvous wasted precious fuel, and electronics malfunctions led the crew to think the bomb was armed too early, Ashworth recalled.

Because the crew couldn't transfer fuel from one tank to another, Sweeney flew Bockscar back to Okinawa after the mission on fumes; in fact, the two inboard engines quit as the plane taxied down the runway.




***Retired Admiral Frederick Ashworth captivates a standing-room-only audience with a talk about his wartime experiences at Los Alamos and in the Pacific. In the slide, Ashworth is shown third from the left. At right, Ashworth, right, listens to introductory remarks from Laboratory Director G. Peter Nanos, before delivering his Heritage Lecture Series talk. Seated next to Ashworth is Roger Meade of Information and Records Management (IM-5), coordinator of the series.*** *Photos by LeRoy N. Sanchez*

Calling bombardier Kermit Beahan "the unsung hero of the operation," Ashworth said the fuel shortage meant Sweeney would have only one pass over Nagasaki, and Beahan's orders stipulated that he had to have a clear line of sight between the clouds before Ashworth could give the order to release the bomb.

"It was obvious from what we saw that the bomb had gone off technically OK," Ashworth said.

He also praised Capt. William "Deke" Parsons, who headed the Ordnance Division at Los Alamos and flew as weaponeer on the Hiroshima run.

"Captain Parsons was more responsible for getting the bomb out of the Laboratory and into the war than any other individual," Ashworth said.

Before the talk, Director G. Peter Nanos introduced Ashworth as "someone who will take us back to our roots."

Ashworth concluded his talk by reading the words the Laboratory's first director, J. Robert Oppenheimer, delivered when he accepted a certificate of appreciation from the Secretary of War on Oct. 16, 1945:

The peoples of this world must unite, or they will perish. This war, that has ravaged so much of the earth, has written these words. The atomic bomb has spelled them out for all men to understand. … By our works we are committed, committed to a world united, before this common peril, in law and in humanity.

After reading the quote, Ashworth looked at the audience and concluded, "This is your challenge — meet it boldly and meet it with courage."

## Integrated Work Management team moves forward

***Paul Hoover, left of the Health, Safety, and Radiation Protection Division Office (HSR-DO) leads an Integrated Work Management workshop as Jo Irwin, center, of Facility and Waste Operations Division Office (FWO-DO) and Stacey Castro of Communication Arts and Services (IM-1) listen in. Tasked with defining and documenting a single process by which work at the Laboratory is done, the IWM workshop was made up of representatives from several organizations across the Laboratory. The goal of the IWM is to have the right process and requirements in place with regards to defining work, analyzing hazards and threats and identifying and evaluating controls for all Lab activities in the areas of facilities, programmatic initiatives, laboratory processes, work by crafts and decommissioning and demolition. Employees from KSL Services, FWO, HSR, Security and Safeguards (S) and Risk Reduction and Environmental Stewardship (RRES) divisions as well as field representatives from Physics (P), Engineering Sciences and Applications (ESA), Bioscience (B) divisions and several others, and an NNSA representative participated in the workshop.*** *Photo by Ed Vigil*

# The wonders of science


***Nine-year-old Nicholas Hill, left, uses marshmallows and toothpicks to build his own crystal structure at a material sciences and engineering workshop at Los Alamos High School. The budding scientists used the crystal structure model of sodium chloride, table salt, as a guide in constructing their own structure. The event was cosponsored by the Community Relations Office (CRO) as part of National Engineers Week 2004. Below: Alexander Swart, left, learned about automotive engines with the assistance of volunteer Quinn Fatherley, right, of Engineering Stockpile Assurance (ESA-ESA) at the workshop and demonstrations. Alexander's father, Pieter Swart, of Mathematical Modeling and Analysis (T-7) looks on. The Los Alamos Chapter of the American Society for Metals, ASME International, University of New Mexico-Los Alamos' Materials Technician Apprentice Program and the Sangre de Cristo Girl Scout Troop 123 also sponsored the workshop. More than 200 kindergarten through 12th grade boys and girls from Los Alamos, Española and Santa Fe, their parents and several local teachers attended the event, participating in hands-on demonstrations and experiments. More than 40 volunteers helped with the 32 different demonstrations and experiments.*** *Photos by Mike Kolb, CRO*

## *Scientists …*

*continued from Page 1*

because over the past year the Laboratory team has been experimenting with the stability of these minerals and the role they may play on Mars. While the chemical form of the hydrogen still is unknown, Lab scientists are hopeful that the Mars Exploration rover results will help them understand how hydrated minerals are formed under Martian conditions and whether such deposits can explain the observations made by the neutron spectrometer.

The Lab-built neutron spectrometer on Odyssey measures fast neutrons indicative of a major component of the lava — iron. By looking for a drop in epithermal neutron flux, scientists were able to locate hydrogen, most commonly in the form of water molecules, at or below the Martian surface. Hydrogen in the soil efficiently absorbs the energy from neutrons, preventing them from escaping the surface and being detected by the spectrometer.

Last year, the Lab released new maps of hydrogen distribution identified by instruments on Mars Odyssey. To see the Lab's Mars water maps, go to *http://www.lanl.gov/worldview/news/photos/mars.shtml* online.

For more information on Mars research by Laboratory scientists, go to

*http://www.lanl.gov/worldview/news/releases/archive/03-019.shtml*

*http://www.lanl.gov/worldview/news/releases/archive/02-134.shtml*

*http://www.lanl.gov/worldview/news/releases/archive/02-057.shtml*

*http://int.lanl.gov/quarterly/q_fall02/dateline/* online.

# Trace amounts of perchlorate found in Mortandad Canyon monitoring well

*by Linn Tytler*

As part of ongoing monitoring efforts, trace amounts of perchlorate have been found in aquifer samples taken from a monitoring well in Mortandad Canyon, Laboratory officials announced recently. The well, R-15, does not supply drinking water.

Samples showed a perchlorate concentration of 4.8 parts per billion (ppb); the Laboratory reported similar concentrations of perchlorate in the R-15 well in 2001. While the U.S. Environmental Protection Agency has not set a drinking water standard for perchlorate, it has provided a preliminary goal range of 4-18 parts per billion.

"The Laboratory will pursue the most recent detection at R-15 with increased action, including additional sampling for perchlorate and construction of approximately 20 new wells in Mortandad Canyon this year, as approved by the New Mexico Environment Department," said Charles Nylander, manager for the Laboratory's Groundwater Protection (RRES-GP) Program. "This additional work will better define the nature and extent of groundwater contamination in Mortandad Canyon and provide the foundation for any remediation that may be needed."

Perchlorate is the name given to a chemical compound that contains a chlorine atom bound to four oxygen atoms. Perchlorate is used in a variety of industrial processes. At Los Alamos, perchloric acid is used in nuclear chemistry research. Industrial perchlorate uses include leather tanning, as a solid fuel for rockets, high explosives and fireworks, as a component of air-bag inflators, in electroplating and rubber manufacturing.

Perchlorate, which migrates easily with water, has been used for decades at Los Alamos.

This latest finding follows other detections of perchlorate in groundwater in recent years as reported by the Laboratory, NMED and the EPA, including trace levels of perchlorate in drinking water systems in various locations around New Mexico. Those results appeared to indicate that low levels of perchlorate, approximately one-quarter of a part per billion, might exist widely in the state's groundwater systems. The sources for such widespread perchlorate are not fully known.

The source of the Mortandad Canyon perchlorate is believed to be from infiltration and percolation of historic effluent discharges from a permitted, industrial wastewater treatment facility located at Technical Area 50. In 2002, the Laboratory installed a new treatment system designed specifically to remove perchlorate from the effluent discharges; since that time, perchlorate has not been detected in those discharges.

During the late 1990s, the EPA identified perchlorate as a contaminant of concern, although the chemical is not regulated under the federal Safe Drinking Water Act or New Mexico drinking-water regulations.

## Haertling/Martz new deputy leaders in X Division

*Mike Haertling*

Two veterans of the Laboratory's nuclear weapons program, **Mike Haertling** and **Joe Martz**, are the new deputy leaders for the Applied Physics (X) Division.

"Mike and Joe have complementary strengths and bring extensive experience in the weapons program and a successful record of leading programs and organizations," X Division Leader Paul Hommert said. "I'm confident they will make outstanding additions to our leadership team and will be effective contributors to our continuing journey of organizational improvement."

Haertling most recently served as program manager for the W88/MK5 Warhead in the Weapons Engineering and Manufacturing Directorate (ADWEM). In his 19 years at the Laboratory, he has worked with X Division in phase-development studies and pit certification and has extensive experience working closely with the National Nuclear Security Administration and the Department of Defense. Haertling holds a bachelor's degree in mechanical engineering from the University of New Mexico.

Martz has worked at Los Alamos for more than 20 years in the weapons program and in research. For the past six years, he was program manager for Enhanced Surveillance and Weapon Materials. Before that assignment, he was group leader for Weapon Component Technology (NMT-5). Martz holds a doctorate in chemical engineering from the University of California, Berkeley, and conducted his dissertation research at Los Alamos on plutonium and chemical plasma interactions.

Hommert said Martz will lead efforts to strengthen the division's science agenda and the integration of science across the Laboratory into mission applications. Haertling will focus on certification methodology and work on improving the rigor of division management processes.

*Joe Martz*

Hommert added his appreciation to former X Division deputies Bill Krauser and Len Margolin. "I have come to value their judgment and appreciate their contributions. They will continue to be important contributors to the organization as they transition to new roles," he said.

## IM-1 communicators win big in STC competitions

**IM-1 staff** received 40 awards at a Jan. 17 luncheon honoring New Mexico winners in the 2003 Southwest Regional PAO Competitions. The publications, art and online competitions were sponsored by the Southern Arizona chapter of the Society for Technical Communication (STC), in conjunction with the Phoenix, Oklahoma and New Mexico Kachina chapters. The Kachina chapter hosted the luncheon for New Mexico winners.

Three levels of STC awards are given. In descending order, they are Award of Distinguished Technical Communication, Award of Excellence and Award of Merit. IM-1 communicators won 11 DTC, 12 Excellence, and 16 Merit awards. In addition, Jay Tracy, an IM-1 graphic designer, won Best of Show in the Technical Art Competition for his four-panel exhibit on the Lab's stockpile stewardship mission. The exhibit currently is on display at the Bradbury Science Museum.

The Lab's 11 DTC awards is more than twice the number of DTCs won by IM-1 communicators in any single STC competition over the last 10 years. Ten of those awards came in the art competition and one in the publications competition. No DTC awards were given in the online competition. Winning any level of award is peer recognition for having developed effective technical communication products. A list of all IM-1 award-winning entries is posted on the IM Division Web site at *int.lanl.gov/orgs/im/ index-do.shtml* online.

The Southwest Regional competitions received 129 entries from California, Arizona, New Mexico and Oklahoma. Fifty-one judges from the four STC chapters evaluated the entries, working in teams of three to reach consensus on awards. The Southern Arizona chapter conducted Best of Show judging. Entries that won DTC awards will go on to compete in the STC's international competitions. Judging at this level occurs this month, with the winners announced at the society's annual conference in May.


***Dawn Giuliano, left, of Philadelphia, and her nephew, 5-year-old Ryan Mielke of Los Alamos, look at the "Mission: Stockpile Stewardship" exhibit in the Bradbury Science Museum. The four panels, designed by Jay Tracy of Communication Arts and Services (IM-1) won a Best of Show in Technical Art award in a recent Society for Technical Communicators competition. It was one of 40 STC awards the Lab received in the competition.*** *Photo by LeRoy N. Sanchez*

## In Memoriam

### *Lynn Byers*

Laboratory employee Lynn Byers of Communication Arts and Services (IM-1) died Feb. 28 in Albuquerque after a long illness. Byers was 65.

Byers joined the Laboratory in August 1984 and was a senior technical writer in IM-1 at the time of his death. He was deployed as a writer in the Applied Physics (X) and to the former Nonproliferation and International Security (NIS) divisions. It was while deployed to NIS that Byers developed expertise in aspects of export control related to nuclear weapons technologies.

"We will miss Lynn's dry sense of humor, his gentle manner in handling the toughest assignments and his tremendous work ethic," said Kit Ruminer, IM-1 group leader. "And we remember him as a talented trombone player in local jazz and swing bands."

He is survived by a son, Matt, of Carlsbad, and two daughters, Peggy Lewis and Valerie Byers of Albuquerque.

### *Joey Donahue*

Laboratory employee Joey Donahue died suddenly March 6 in Los Alamos. Donahue was a technical staff member and acting group leader in High Intensity Beam Line Experimental Areas and Remote Handling (LANSCE-7). He was 58.

Donahue came to Los Alamos in 1978 as a staff member in the former Experimental Areas Group (MP-7) in the former Medium Energy Physics (MP) Division, the precursor to Accelerator Operations and Technology (AOT) Division and the Los Alamos Neutron Science Center (LANSCE).

Donahue was a black belt instructor in Tae Kwon Do.

He earned his bachelor's, master's and doctoral degrees in physics from the University of California, Irvine.

Donahue is survived by his wife, Michelle; and sons, Chris, of Kyoto, Japan; Steve, of Los Angeles; and John, of Albuquerque.

# March service anniversaries

**35 years**
Eluterio Garcia, ESA-TSE

**30 years**
Sheila Armstrong, X-DO
Joseph Ivie, LANSCE-7
Richard Krajcik, X-DO
Ronald Martinez, C-PCS
Viola Martinez, LANSCE-6
Rebecca Michelsen, ISR-3
David Moir, DX-6
Jeannette Mortensen, CER-20
Don Parkin, MST-CINT
Kathryn Pfeufer, DX-5
Jimmy Roybal, IM-4
Amelia Roybal, ISR-4
J. David Schneider, ISR-DO
David Sharp, T-13
Robert Shurter, LANSCE-6
Bryan Travis, EES-2

**25 years**
Mary Bowen, CIO-PO
Anthony Burris, ISR-IT
Bradley Clark, CHS
R. Wayne Hardie, CHS
Dan Knobeloch, ESA-AET
Betty Martinez, FWO-DF
Warren Pierce, LANSCE-3
Karen Rodriguez, ISR-DO
Dan Winske, X-1
Merri Wood-Schultz, X-2
Robbie York, N-2
Frank Ortiz, S-4 (inadvertently omitted from the January 2004 anniversary listings)

**20 years**
Christella Baca, CFO-1
Jeanne Bowles, IM-1
Larry Brown, N-3
Jackie Bustamante, NMT-4
David Chamberlin, N-3
Rose Des Georges, ISR-3
Ilene Farmer, HSR-12
Robert Gonzales, S-1
Charles Harvier, FWO-DECS
Jill Hefele, S-7
Karen Hench, ESA-AET
Carl Hoth, ESA-WSE
Richard Lohsen, X-4
John Longer, ESA-WR
Marcia Lujan, HR-D-O
Walter Martinez, FWO-FIRE
Gilbert Montoya, FWO-SWO
Donald Montoya, IM-1
David Neal, CCN-7
Ralph Nelson Jr., X-4
Nicholas Olivas, ISR-4
Dale Osborn, S-3
Jane Poths, ESA-TSE
Wayne Scoggins, CCN-12
Michael Stevens, ADWP
James Toevs, N-4
Robert Tokar, ISR-1
W. Rick Velasquez, RRES-WQH
Henry Vigil, FWO-WEST

**15 years**
Rosella Atencio-Gerst, DX-DO
Charryl Berger, OEEI
Sherri Bingert, ADWP
Christoph Borel, ISR-2
Vicki Brown, IM-2
Charles Calef, T-10
Lorraine Dominguez, ESA-WDS
Eduardo Estrada, HSR-1
Monika Hoeberling, N-1
Tommy Hook SUP-1
Starr Johnson, ESA-WMM
Larry Jones, EES-2
Elizabeth Jones, RRES-MAQ
Martin Koby, C-ACS
Deborah Kubicek, D-4
Seledon Martinez, NMT-7
Leslie Morgeson, CCN-5
Richard Morley, ESA-GTS
Susan Radzinski, RRES-ECO
Rick Romero, ESA-WSE
Daniel Roybal, N-1
Wanda Roybal-Trimmer, HR-B
Cindy Sievers, CCS-1
Susan Spach, NMT-3
Gerald Tafoya, SUP-2
Aquilino Valdez, NMT-2
Bill Waganaar, P-24
Kathleen Wright, ESA-WMM

**10 years**
Warren Finch, SUP-1
Ralph Hinde Jr., ESA-AET
Mavis Lin, RRES-CE
Kenneth McClellan, MST-8
Dale Melton, C-OPS
Eric Nelson, X-1
Jon Reisner, EES-2
Tracy Valdez, ESA-WOI

**5 years**
Kevin Anderson, RRES-MAQ
Pamela Baron, HR-D-WEM
Tony Bishop, FWO-SWO
Andres Borrego, FWO-CMR
Susan Brockway, TT
Richard Brown, ISR-10
Sandra Chance, LANSCE-DO
James Conca, EES-12
Amelia Cordova, CCN-4
Tanya Cordova, FWO-FIRE
Robert Cunningham, CCN-7
David Daniel, CCS-1
Vivek Dave, NMT-10
Janet Davis, CFO-3
Nicholas Degidio, C-OPS
Andrew Dunseith, NMT-DO
Wesley Estill, EES-12
Louise Garcia, NMT-6
Charles Gibson, TT
Todd Graves, D-1
David Hayes, N-2
Mary Holmes, CCN-5
Edward Horst, NMT-7
Jackie Hurtle, RRES-MAQ
Stephanie Jacquez, HSR-8
Alan Kirby, PM-4
Julie Lanterman, NMT-6
Hal Marshall, CCN-7
Dean Martinez, NMT-5
Arlene Martinez, SUP-3
Ronald Minnich, CCS-1
Joshua Montaño, ESA-WMM
Albie Natalie, PM-4
James Oldham Jr., NMT-6
Jonathan Phillips, ESA-WMM
Paul Pope, ISR-2
Fernando Quintana, PM-4
Phillip Rivera, ISR-3
Chenee Sherwood, CCN-4
S.G. Srivilliputhur, MST-8
Darril Stafford, HSR-1
Joyce Sullivan, SUP-1
Connie Sutton, CCN-5
Lav Tandon, C-AAC
Billy Terrazas, HSR-1
Vangie Trujillo, CER-30
Mary Van Eeckhout, SUP-3
Steven Veenis, RRES-WQH
Steven Wageman, PM-PPC

## Naranjo elected Lieutenant Governor of San Ildefonso Pueblo

**Louis Naranjo Jr.** of Meteorology and Air Quality (RRES-MAQ) is the new Lieutenant Governor of San Ildefonso Pueblo. Naranjo's two-year term began in January.

Naranjo will assist the governor in gaining experience with interactions between the pueblo and federal and state authorities and also with day-to-day operations in his absence. Naranjo is a former San Ildefonso Pueblo governor elected for a two-year term in 1987.

"As lieutenant governor, I will assist Gov. Dale Martinez as requested by his office. It is great honor to be elected lieutenant governor and to share my experiences as a past governor and councilman with the younger and first time council members," said Naranjo.

Naranjo's career spans almost 30 years in Los Alamos. He worked as a subcontractor for Johnson Controls Inc. for 20 years; and as a Laboratory contractor in the former Environmental Restoration (ER) Division and Air Quality (ESH-17) group. Naranjo became a Lab employee in 1997 and currently works as an environmental health technician for the Soil and Food Stuff team in RRES-MAQ.

"Being an elected official provides me the opportunity to make changes to improve the health, welfare and the well being of my tribe community and its residents. The position also ensures that good economic developments occur, because of my association with the Lab," added Naranjo.

# This month in history ...

## *March*

**1789** — The first session of the U.S. Congress is held in New York City as the U.S. Constitution takes effect.

**1826** — The Rensselaer School in Troy, New York is incorporated. The school, known today as Rensselaer Polytechnic Institute, became the first engineering college in the United States.

**1868** — The first club for professional women is formed in New York City by writer Jennie June Croly. The club is called Sorosos.

**1909** — The first double-decker bridge, the Queensboro Bridge, opens in New York City.

**1918** — The first seagoing ship made of concrete launched at Redwood City, Calif. The ship, "Faith" cost $750,000 to build and does stay afloat.

**1931** — Congress establishes the United States Geological Survey, an organization that played a pivotal role in the exploration and development of the West.

**1939** — Enrico Fermi and Herbert Anderson find that there are about two neutrons produced for every one consumed in fission. *

**1943** — Richard C. Tolman writes J. Robert Oppenheimer about using explosives to collapse a shell into a critical mass. This is the earliest surviving reference to the idea of implosion (although this term was not used).*

**1946** — Churchill delivers "Iron Curtain" speech In one of the most famous orations of the Cold War period. His speech is considered one of the opening volleys announcing the beginning of the Cold War.

**1951** — The trial of Ethel and Julius Rosenberg begins in New York Southern District federal court.

**1997** — Trial of the class action lawsuit filed in response to the 1995 reduction in force at the Laboratory is set to begin March 3 in Albuquerque with selection of the jury.

**1997** — J. Carson Mark, leader of the Laboratory's Theoretical (T) Division for 26 years, dies March 1 at a Los Alamos nursing home. He was 83.

**1998** — Numerous computers at the Lab experienced the "blue screen of death" from an "attack" computer program transmitted over the Internet. The program targeted computers running Windows NT and Windows 95 operating systems. Various universities and federal facilities across the country were affected.

**1999** — Rio Grande Air, a Taos-based carrier that is providing airline service to Los Alamos, makes its maiden flight when the airline's nine-passenger Cessna C-208 Caravan flies New Mexico Sen. Pete Domenici to Los Alamos.

**2000** — Eight workers at the Laboratory are exposed to plutonium-238 while working at Technical Area 55, the Laboratory's plutonium facility. No plutonium was released to the environment as a result of the incident.

**2002** — Scientists unveil maps that detail the location of hydrogen, which may indicate water-ice just below Mars' surface. The maps are based on data from a neutron spectrometer built at the Laboratory and flown aboard NASA's Mars Odyssey.

***And this from the March 11, 1960, Los Alamos Scientific Laboratory Bulletin*** – Stan Ulam gives a special mathematics seminar, "Some Curiosities, Old and New, in Number Theory," March 15 at 4 p.m. in the T Division conference room.

**Carey Sublette, "Chronology for the Origin of Atomic Weapons" from www.childrenofthemanhattanproject.org/MP_Misc/atomic_timeline_1.htm*

*The information in this column comes from several sources including the online History Channel, the Newsbulletin and its predecessors, the atomic archive.com, Echo Vitural Center, Science & Technology and Real History Archives.*

*Submissions are welcome. Please, be sure to include your source.*

# A kidney recipient's triumphant games

*by Kathryn Ostic*

The 2004 U.S. Transplant Games at the University of Minnesota this summer will celebrate 50 years of organ transplantation. The National Kidney Foundation organizes the games to demonstrate to the public that transplantation works and to illustrate the tremendous need for more organ donors, said Bob Skaggs a kidney transplant recipient, Laboratory retiree and former armor program manager in the Advanced Technology Application Center (ATAC) Office.

Skaggs knows first-hand what the journey as a transplant recipient and athlete is like. Skaggs' story begins at age 30 while attending graduate school when he began noticing sharp pains in his flank. After two weeks of testing, Skagg's doctor identified the problem as polycystic kidney disease, or PKD, a slow progressive disease that causes multiple cysts to grow on the kidneys. Ultimately, the diseased kidney shuts down causing end-stage renal disease for which dialysis and organ transplant are the only forms of treatment.

"I didn't tell many people at work about my disease, because I didn't want sympathy or compassion while doing my job," Skaggs said. Finally, in 1993, after 33 years of service, he decided to retire. His wife Barbara, a Lab staff member in the former Health Safety and Environment (HSE) Division, also retired that same year. The Skaggs' wanted to spend quality time together and to begin extensively researching health options. Skaggs received a kidney transplant on March 27, 1996, after waiting only four months. The normal wait for a transplant organ is two to three years. "A primary and a back-up candidate are called when an organ becomes available. I was called the first time as a back-up when I first arrived at the University of New Mexico hospital, but was told that the primary candidate had refused the kidney and it was mine. What a stroke of luck," said Skaggs.

For more information about kidney transplantation, see the National Kidney Foundation Web site at *http://www.kidney.org/* online.

Skaggs began competing in the U.S. Transplant Games five months after his transplant surgery and won silver and bronze medals in the freestyle and backstroke swimming competitions at the Salt Lake City Summer Games. "The usual wait for competing is six months, but I've been a swimmer since I was 10 years old, and my doctors were not concerned about my becoming dehydrated," Skaggs said.

The first games were held in Texas in 1982 and attracted only a small number of participants. In 1990, the National Kidney Foundation, in partnership with Sandoz Pharmaceuticals, organized the games, and participation grew to 400 athletes and 600 supporters. "The games are patterned after the Olympics, and the same rules are followed from opening to closing for all the events," Skaggs said.

Skaggs has garnered more than 20 medals since competing in 1996. "Records normally are not kept at the Transplant Games, so I don't know if I set any. However, I do know that I am the fastest 67-year-old transplant athlete in the world in the events that I won," Skaggs proudly said.

According to the U.S. Transplant Games Web site, the games are international sporting events held every two years under the auspices of the World Transplant Games Federation and are open to recipients of a currently functioning, life-saving solid organ or tissue transplant. The games were first called the Transplant Olympics but were renamed in subsequent years because of increasing size and visibility.

The mission of the World Transplant Games is to promote the importance of organ donation and the success of transplantation through demonstrating athletic excellence in sport competition.

Skaggs was to have competed in the 2004 Winter World Transplant Games held in Bormio, Italy in January but had to withdraw because of an injury. "The purpose of the games offers a unique opportunity to meet people from all over the world, to develop friendships, to participate in fierce competition and most importantly to resume a normal life," said Skaggs.

For information about transplantation, contact Skaggs at 455-2392 or see the U.S. Transplant Games Web site at *http://www.kidney.org/recips/athletics/0/what_the_games_are.cfm* online.


***Laboratory retiree Bob Skaggs holds a picture of the kidney donor who, he says, "gave life so that others could live." Skaggs has been competing in the U.S. Transplant Games since 1996, only five months after receiving a kidney transplant and has garnered more than 20 medals. The games are patterned after the Olympics and the same rules are followed from opening to closing for all the events. Following are the events Skaggs has competed in and some of the medals he has won.*** *Photos by LeRoy N. Sanchez*

## U.S. games

*Swimming, freestyle and backstroke*

- Summer 1996, Salt Lake City, Utah, silver and bronze
- Summer 1998, Columbus, Ohio, two gold, silver and bronze
- Summer 2000, Orlando, Fla., three gold, silver
- Summer 2002 Orlando, Fla., four gold

## World games

*Skiing downhill, giant slalom, slalom*

- World Winter Games, Snowbird, Utah 1999, three gold
- World Winter Games, Nendaz, Switzerland, 2001, no medals
- World Summer Games, Nancy, France, 2003, three gold

Los Alamos NewsLetter
P.O. Box 1663
Mail Stop C177
Los Alamos, NM 87545

Nonprofit Organization
U.S. Postage Paid
Albuquerque, NM
Permit No. 532

LALP-04-001