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Los Alamos
NATIONAL LABORATORY
*Ideas That Change the World*

# NewsLetter

**Week of March 31, 2003** **Vol. 4, No. 7**

# New high-purity plutonium sources produced at the Lab

*by Kevin Roark*

For the first time since 1987, new high-purity plutonium sources for use as primary analytical chemistry standards have been produced at the Laboratory using a new extrusion method developed at the Laboratory.

The techniques and equipment used in the fabrication of the new plutonium sources were the topic of a talk by Gerald Coriz of the Nuclear Materials Technology (NMT) Division at the recent annual meeting of the American Chemical Society in New Orleans.

Plutonium sources used as standards in analytical chemistry must be of extreme purity, 99.99 percent pure, free of contaminants and surface oxidation. Plutonium is extremely prone to oxidation and can burn when exposed to air. The plutonium sources fabricated at Los Alamos had to be made in an oxygen-free environment, at less than 10 parts per million, and sealed under vacuum in glass ampules to ensure their utility as primary standards.

"In the past, analytical standards were made with a 'nibbling' method," said Coriz. "You would start with a thin plutonium plate and nibble little pieces off it. Although it was never proven, wear on the nibbling tool was thought to be a source of contamination with this method. It was for this reason we looked at an extrusion process, with planning that started in 1997."

After many delays and technical problems, a press system built into a specially modified glove box was finally in place in May of 2002. The process uses 15,000 pounds of force at 75,000 pounds per square inch to squeeze machined plutonium plugs, one-and-a-half-inches long by one-half inch in diameter, through a specially designed extrusion die. The plugs, heated to 785 degrees Fahrenheit and roughly the consistency of taffy, come out of the die as a 5/32nd-inch diameter wire, which was then cut into individual sources, each weighing approximately one gram. Each source is about the size of a small hearing aid battery, one-quarter-inch long and cut to a tolerance of plus or minus one tenth of a gram.

"At room temperature plutonium is very hard but also very fragile," said Coriz. "As the soft plutonium wire came out of the extrusion die, it hardened very quickly as it cooled. It produced a shape that was easy to cut with a small re-bar cutter even though the material was fairly brittle and, because of the nonreactive materials used in extrusion die, wasn't contaminated."

The Laboratory produced 1,200 of the one-gram plutonium sources. The majority of the sources are currently undergoing analytical evaluation at the Department of Energy's New Brunswick Laboratory in Illinois. A few of the sources also are undergoing evaluation at Los Alamos. Once accepted, the sources will be made available to nuclear industry and approved governments worldwide. Some of the sources will be used at Los Alamos in the Laboratory's nuclear weapons surveillance and certification programs.

"This was a major challenge," said Coriz. "The project was postponed several times, once during the Cerro Grande Fire. And there were many difficult technical challenges. But overall, the project was very enjoyable. Even though a lot of things got in our way, we were able to manage and produce an excellent product."


***Photo at right is a glass ampule containing a one-gram plutonium 239 source, seen at the bottom.***

## Interim director establishes new policy on drop points

***The Laboratory recently changed its delivery policy. Materials deliveries will not be made to designated drop points that do not have, at a minimum, visual oversight of delivered packages by a representative of the receiving organization or facility. Until appropriate practices are in place, Laboratory delivery drivers will attempt to locate a responsible person at the drop point to take custody of the package. If the driver locates a responsible party, the driver will scan that person's badge; that person is then accountable for the package. If a delivery driver is unable to locate a responsible package custodian, the driver will return the package to the SM-30 Warehouse at Technical Area 3, and the intended recipient will be notified. The New policy was implemented at Interim Laboratory Director Pete Nanos' request to accelerate compliance with improved security at designated drop points. Nanos, right, listens to Gary Chavez of Materials Management (BUS-4) as Chavez explains the Lab's tracking system for packages. Nanos and Rich Marquez, associate director for administration, visited the BUS-4 mail room to thank Lab workers who deliver packages across the Laboratory. For more information on the new policy, see the March 18 Daily Newsbulletin at www.lanl.gov/newsbulletin.*** *Photo by LeRoy N. Sanchez*

# Inside this issue ...




Los Alamos NewsLetter

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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

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FROM THE TOP

# Contingency planning in the event of Laboratory closure

***Interim Laboratory Director Pete Nanos***

While we have no knowledge of a specific, credible threat to the Laboratory, we believe it is prudent to be prepared in the event that closure of the Laboratory is required.

• Should circumstances require the Lab to close, no program work will proceed. All facilities and operations of the Laboratory, with the exception of the Emergency Operations Center and a few key safety- and security-related activities, will cease and all Laboratory facilities will close; this includes both on-site and off-site Laboratory facilities. If you are aware of a particular issue or concern that could arise in your work area caused by full closure, please surface this issue through your line management immediately.

• Anyone on call for the EOC or one of the other limited functions that will continue during Laboratory closure should be no more than one hour's travel distance from the Laboratory and should be fit for duty at all times.

• All program activities should have a safe shutdown procedure in place with the associated hazard control plans, as required.

• Group leaders should maintain a roster of all staff members with their contact numbers; that list should be kept with them when they are both on and off Laboratory property.

• If closure is required, government vehicles should be moved and parked away from the buildings to facilitate access by emergency or other equipment.

To ensure we maintain adequate information regarding any staff on site during a required closure, special badges — in addition to the normal Department of Energy employee identification badge — will be required for entry past guard points. Employees will sign in and receive that additional badge at the Protection Technology Los Alamos training center in downtown Los Alamos [1247-F Central Avenue, TA-00 Building 548]; the employee will sign out and return the badge to the PTLA training center at the end of his or her shift or activity.

In the event a closure is required, we will use the normal communications channels to advise employees of the closure, including the Laboratory information line, UPDATE (667-6622 or 1-877-723-4101), and through public media sources including television and radio. We also will activate the emergency Web site (*emergency@lanl.gov*) as an information source, as was done during the Cerro Grande Fire.

Again, I want to reiterate there is no specific, credible threat against the Laboratory at this time. We are simply being prudent and thorough to ensure the protection of our staff, our facilities, and the important work we do for our nation's security.

# *Be safe, be smart, buckle up*

*by Fran Talley*

In a stepped-up effort to increase seat-belt use and promote driving safely, Protection Technology Los Alamos is, at the request of the Laboratory, utilizing security checkpoints on Lab-maintained roads to urge motorists to "buckle up" for safety.

"It's more than simply the fact that wearing seat belts is a law in New Mexico and a Laboratory policy," said Phil Romero of Industrial Hygiene and Safety (HSR-5), "It's the safe, caring and right thing to do to protect yourself and others."

"Each year, thousands of people across the United States suffer disabling or fatal injuries resulting from motor-vehicle accidents," Romero said. "One of the root causes identified in these cases is the fact that vehicle occupants fail to wear their seat belts."

Ivan Wachler of Audits and Assessments (AA-2) agrees that there is a problem and reminds workers to use vehicle seat belts and safety-harness systems on Laboratory property as well as on all public roads, on and off the job.

"In a field study conducted between April 1 through 26 of last year, we observed 99 (38.1 percent) of 260 individuals who did not wear seat belts while driving in government vehicles," he said.

"Time and time again, we read in newspaper headlines of serious motor-vehicle accidents in which the responding officer indicates that the occupant(s) may have had a chance to survive if they had worn their safety belts," Romero said.

"Therefore, we are asking workers to please do their part, to be courteous to the Pro Force as they do their job and to 'Buckle Up.'"

For more information on seat belt safety, go to *www.nhtsa.dot.gov/people/injury/airbags/buckleplan/seatbelt805/police.html* online.

***Lt. Leopoldo L. Trujillo, left, of Protection Technology Los Alamos reminds a motorist to "buckle up" at a security checkpoint on Pajarito Road. The seat-belt checks are being conducted at the request of the Health, Safety and Radiation Protection (HSR) Division and the Integrated Safety Management (ISM) program office.***
*Photo by LeRoy Sanchez*

# Developing stress-management skills

**Editor's note:** ***In these turbulent and changing times, stress can become not only a way of life but overwhelming. Below, Tom Locke Employee Assistance Program (HSR-2) team leader discusses managing stress.***

"Managing stress" often is viewed as a trite piece of advice, full of good intention but lacking in substance or direction. For many of us, managing our stress is what we will do once the dust settles and we get our lives under control. In that approach lies the seeds for medical and psychological difficulties with long-term complications. Before we can "manage stress," we have to be motivated to manage; that motivation comes from knowledge of the impact of chronic stress on our ability to function well. Once we know why we should "manage" stress, we have to be aware when we are stressed. With those two aspects in place, managing stress well becomes something we do for ourselves and those around us.

So, why do we need to manage our stress effectively? Our bodies are wonderfully equipped to respond automatically to anything that threatens our well-being. In the early response pattern, we don't have to "think" to prepare for a threat. Once we label something as a threat, stress hormones are released throughout the body and things happen automatically. That is a good thing. When encountering the saber-toothed tiger (read, *"stress!"*), if my early ancestors would have needed to THINK: *"Okay, I need to start breathing quicker to get more oxygen in me so I can run. Let me get my heart rate up so the oxygen gets distributed more rapidly. Wait, let me get the blood out of my stomach and to my big muscles so I can move more quickly. Oh, and let me get the blood pressure up. Okay, now I am ready!"* then my ancestor would have been eaten, and I would not be writing this piece. That entire body reaction to a stressful event happens automatically and very quickly. Once the stressful event has passed, our bodies are well equipped to reverse the events above, and we return to a more restful, healthy pattern of physiological maintenance. Except when we don't. And there lies the problem for too many of us.

When stress is chronic, our bodies are vigilant — silently reacting to the threat with no time to recover. Tissues in our bodies are constantly bathed by stress hormones, like adrenaline, and that can become toxic for us. Heart and brain tissues can start to deteriorate. Blood pressure that went up to save us can stay up and kill us. Digestive problems can develop because blood flow to the stomach has been chronically restricted. But something more insidious happens under stress. Just as our bodies are hardwired to shut down our digestive system to meet a threat, so are our bodies hardwired to shut down the immune system until the crisis is past. So, chronic stress can be translated into chronic immune system "dysregulation." Not only can we not recover from a health challenge as quickly, we are much more vulnerable to every opportunistic infection that lurks in the environment.

So, now that you are highly motivated (I hope), what can we do about managing our stress? We cannot take the stressful events out of our lives. Though we would like to have that control, there is no evidence that we will pull that one off any time soon.

The first step must be increasing our level of awareness regarding how stressed we are. Often under stress, we go on automatic pilot. That is good in the short run, but often not in the long run. We can lose touch with our bodies — while we are losing our minds — and may not be aware that our physical and psychological health are being compromised. My advice is to assess how you are living now compared to an earlier time, maybe before the Cerro Grande Fire, maybe before the hard-drive incident, maybe before the Sept. 11 terrorist attack, maybe before the ominous prospect of war. You get the overall picture, I am sure. And in the context of that systemic threat, each of us has had our own challenges to face. So, ask yourselves the following questions:

Am I sleeping differently now?
Am I eating differently now?
Am I more irritable now (be honest here)?
Am I less sociable now?
Am I less productive at work?

*Tom Locke*

Am I enjoying life less now?
Am I exercising less now?
Am I smoking more now?
Am I consuming more alcohol now?

After you ask and answer these questions, you might want to ask someone who knows you well to answer them for you. If these areas are changing, you might want to consider whether the automatic pilot needs to be turned off. Maybe it is time for better self-care strategies. So what does that mean?

Some changes are relatively simple. You might need to exercise more. Clearly, there are physical and psychological health benefits from regular, moderate exercise. You might need to address sleep difficulties. You can begin to watch your diet, prompted by an increasing awareness that doughnuts are not a good long-term stress-management strategy. You can schedule an activity that is enjoyable. For some, not putting the activity on the schedule means not engaging in the activity.

Perhaps most importantly, you can talk to someone about the stress you are under. It might be a counselor, but it does not have to be. People who can talk about a stressful situation have fewer long-term complications than people who keep their stress to themselves. Research data are clear about that. So, find someone you trust and be open about what is happening to you. You may just need an attentive ear; you might also benefit from some advice or another point of view.

Remember, Employee Assistance Program counselors are available to each of you and can be reached at 7-7339. We can assist with stress-management needs for any employee at the Laboratory *not* just University of California employees.

In just a few sessions, most people who use our biofeedback services report making rewarding strides in managing day-to-day stressors. Counselors also can offer you information about community resources should you prefer that option. Some people are reluctant to ask for help because that might be seen as a sign of weakness. I am much more inclined to see it as a sign of good judgment.

Concern for clearances often surfaces when people think about asking for help. I continue to believe, and the data support me, that clearances are very rarely jeopardized when employees seek professional help. Call me — anonymously if you like — and I will discuss that, or any other issue, with you.

It is sometimes a challenge to develop good stress-managing skills when stress levels are high; but, do not wait for a calm period to start to take care of yourselves. The wait may be too long, and the cost can be too high.

## To your health

***Editor's note: March 31 through April 6 is National Sleep Awareness Week. The following is a tip from the American Institute for Preventive Medicine.***

### Eight ways to sleep through insomnia

Do you ever find yourself wide awake long after you go to bed at night? Well, you're not alone. An estimated 30 million Americans are bothered by insomnia. They either have trouble falling asleep at night, wake up in the middle of the night or wake up too early and can't get back to sleep. And when they're not asleep, insomniacs worry about whether or not they'll be able to sleep.

An occasional sleepless night is, well, nothing to lose sleep over. But if insomnia bothers you for three weeks or longer, it can be a real medical problem.

Next time you find yourself unable to sleep, try these time-tested cures.

• Avoid caffeine in all forms after lunchtime.
• Don't nap during the day, no matter how groggy you feel.
• Take a nice, long, hot bath before bedtime.
• Read a book or do some repetitive, tedious activity, like needlework. Try not to watch television or listen to the radio. These kinds of distractions may hold your attention and keep you awake.
• Make your bedroom as comfortable as possible. Create a quiet, dark atmosphere. Use clean, fresh sheets and pillows, and keep the room temperature comfortable.
• Ban worry from the bedroom. Don't allow yourself to rehash the mistakes of the day as you toss and turn. You're off duty now. The idea is to associate your bed with sleep.
• Develop a regular bedtime routine. Locking or checking doors and windows, brushing your teeth and reading before you turn in every night primes you for sleep.
• Count those sheep. Counting slowly is a soothing, hypnotic activity. By picturing repetitive, monotonous images, you may bore yourself to sleep.

If, after three weeks, you still have trouble sleeping despite your efforts, see a doctor to rule out any medical or psychiatric problems that may be at fault.

## Groundwater information meeting in Santa Fe draws large turnout

***Michael Dale, right, of the New Mexico Environment Department's DOE-Oversight Bureau discusses groundwater monitoring and surveillance strategies and philosophies with Charlie Nylander, left, program manager of the Lab's Groundwater Protection Program (RRES-GP), and Kim Granzow, also of NMED-OB. The trio had gathered in Santa Fe recently with other scientists and members of the public to discuss groundwater issues in Los Alamos and surrounding areas. The annual public meeting included numerous poster presentations focusing on differing aspects of the geology and hydrology of the Pajarito Plateau, the Laboratory's groundwater and drinking water testing results and efforts under way to understand the flow and transport of water beneath the Laboratory. The meeting was well attended and was intended to provide the public with a wealth of information about groundwater and how it can be affected by past or present Laboratory operations. As part of the Laboratory's ongoing commitment to environmental stewardship, Laboratory environmental scientists have been working cooperatively and closely with representatives of the state Environment Department on subjects of mutual interest.*** *Photo by James E. Rickman*

# Los Alamos water is safe to drink

*by James E. Rickman*

Because of recent headlines about the possible detection of perchlorate in Los Alamos National Laboratory tap water, Laboratory officials wanted to provide employees with information that Los Alamos' water supply meets all state and federal drinking water standards and is safe to drink.

Laboratory hydrologists, Los Alamos County water system operators and state regulatory agency personnel all regularly sample the Los Alamos drinking water supply and analyze it for a suite of possible contaminants. Analyses of these samples have consistently shown that the drinking water supply in Los Alamos is of excellent quality.

Recent tests of tap water in the Laboratory's main technical area by representatives of the New Mexico Environment Department's Department of Energy Oversight Bureau were analyzed using a relatively new ultra-low perchlorate-detection technique that has yet to be approved or adopted by the U.S. Environmental Protection Agency, which regulates drinking water at the national level. The results of the tap-water analyses using this new method — known as Liquid Chromatography/Mass Spectrometry/Mass Spectrometry, or LC/MS/MS for short — indicated the possibility of perchlorate in the tap water at concentrations of 0.24 and 0.5 parts per billion.

Although currently there is no drinking water standard for perchlorate, the EPA has issued interim guidance that perchlorate concentrations in drinking water should not exceed four to 18 parts per billion. The levels NMED recently detected and announced are significantly below those concentrations.

Perchlorate is a non-radioactive chemical used in gunpowder, rocket fuel, high explosives, fireworks, radiochemistry experiments and automobile airbags. Perchlorate has been linked to thyroid dysfunction, making it a potential health hazard.

Perchlorate contamination of drinking water became an issue in 1998, when EPA added the chemical to its Safe Drinking Water Act Contaminant Candidate List and released guidance that perchlorate concentrations in drinking water should remain below the four to 18 parts per billion threshold. The agency eventually intends to set a drinking water standard for the chemical.

The Laboratory has been monitoring drinking water supplies for perchlorate ever since EPA's 1998 announcement. In fact, the Laboratory was the first institution to detect perchlorate at concentrations of two to three parts per billion in a Los Alamos drinking water supply well (the Otowi-1 well) in 2000. The Laboratory announced the discovery in conjunction with DOE and county officials once the discovery was confirmed. Otowi-1 is one of many water-supply wells and does not regularly contribute to Los Alamos drinking water supplies.

The Laboratory is interested in potentially using the LC/MS/MS ultra-low perchlorate detection technique for its tests of drinking water to achieve a lower detection limit. However, the method suffers from several technical and quality-control uncertainties that have yet to be resolved. Laboratory hydrologists are working with DOE and industry experts to develop methods to overcome these uncertainties. Once those methods have been developed, the Laboratory will conduct a performance evaluation of the LC/MS/MS technique to determine whether it can be used to reliably measure perchlorate contamination in water.

Until that determination is made, the Laboratory will continue to use EPA's approved detection method to test Los Alamos drinking water supply. The method has a nominal detection limit of four parts per billion. To date, tests using the approved method have not detected perchlorate in Los Alamos tap water or in drinking-water-supply wells other than Otowi-1. All tests indicate that Los Alamos' drinking water quality is excellent.

Because perchlorate readily moves with water, the Laboratory also is working to reduce or eliminate perchlorate in the environment, particularly Mortandad Canyon.

Last year, an ion-exchange filtration system was added to the Laboratory's TA-50 Radioactive Liquid Waste Treatment Facility, which discharges into Mortandad Canyon. That filtration system has reduced perchlorate in RLWTF effluent to below the perchlorate detection limit for EPA's approved testing method.

In addition, in the last month, the Lab completed its Passive Reactive Barrier in Mortandad Canyon. The PRB is designed to scrub the canyon's shallow groundwater of perchlorate from historic discharges before that water can continue downstream or toward deeper groundwater bodies.

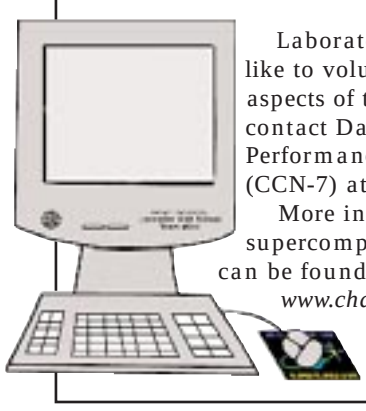
The Laboratory has an extensive groundwater monitoring and surveillance program for all areas of the Laboratory and continues to install new monitoring wells. The program has helped researchers gain a better understanding of how groundwater moves beneath the Pajarito Plateau and how legacy and current operations have affected or could affect the deep aquifer.

"The Laboratory is committed to being a good steward of the environment; our operations affect our quality of life and the quality of life of our regional neighbors. The Laboratory will continue to do whatever it takes to maintain its stewardship responsibilities and ensure that our community and the region remain a safe place in which to live and work," said Beverly Ramsey, Risk Reduction and Environmental Stewardship (RRES) Division leader.

## Adventures in Supercomputing Challenge

*April 21-22*

*Los Alamos Research Park*



Laboratory staff who would like to volunteer in various aspects of the challenge, can contact David Kratzer of High Performance Computing (CCN-7) at 5-4444, ext. 811.

More information on the supercomputing challenge can be found online at *www.challenge.nm.org/*.

# Program inspires young scientists of the future

*Cecily Marroquin of Los Alamos High School, left, and Jody Gibson of Cuba High School participated in an "Acids and Bases in the World Around Us" workshop. The students tested the pH levels of different foods such as oranges, lemons, tomatoes, Coca Cola and various soaps using ammonia, boric acid and baking soda as indicators.*

*Left to right, Shannon Kilburg, Los Alamos Middle School; Sharlene Espinoza, Los Alamos High School; and Linette Tafoya, Victory Faith Academy High School, test man-made and nonman-made objects for radioactivity in the "Radiation and Radioactivity" workshop.*

*The "Anthropology through Trash" activity helped, left to right, Zara Armijo, Cristo Rey Catholic School; Kelsey Thomas, Capshaw Middle School; Jessica Huff, Los Alamos High School; and Amy Herrera, Pecos Middle School, to analyze trash to gather information about the individual(s), such as gender, residence, nutrition habits, education, etc. Laura McNamara of Statistical Sciences (D-1) and Darleane Hoffman of Nuclear Materials Technology (NMT) Division facilitated the activity and encouraged the girls to sift through the trash as cultural anthropologists would do.* Photos by LeRoy N. Sanchez

*by Kathryn Ostic*

"I participated in the Expanding Your Horizons program last year, it was lots of fun and I plan to go into a science profession," said Cecily Marroquin of Los Alamos High School.

Marroquin was one of the more than 100 junior high and high school girls from northern and central New Mexico who participated in this year's annual Expanding Your Horizons program of technical-career workshops. The event was held March 11 at the Immaculate Heart of Mary Catholic Church Parish Hall.

*Deanna Moore of Statistical Sciences (D-1), left, facilitated the "Adventures in Uncertainty" workshop; here she helps Deanna Valdez of Victory Faith Academy High School to calculate various concepts and topics of variation in probability and statistics.*

The EYH program goals are to inspire girls in eighth through 10th grades in math, science, technical fields and nontraditional professions and to provide students an opportunity to meet and form personal contacts with women working in traditionally male occupations, according the EYH Web page.

In the morning, students participated in a group activity, "Anthropology through Trash," a project based on research from the University of Arizona. "The activity showed the participants that anthropologists have little to work with when it comes to solving mysteries from ancient civilizations," said EYH Chair Georgia Pedicini of High Performance Computing (CCN-7).

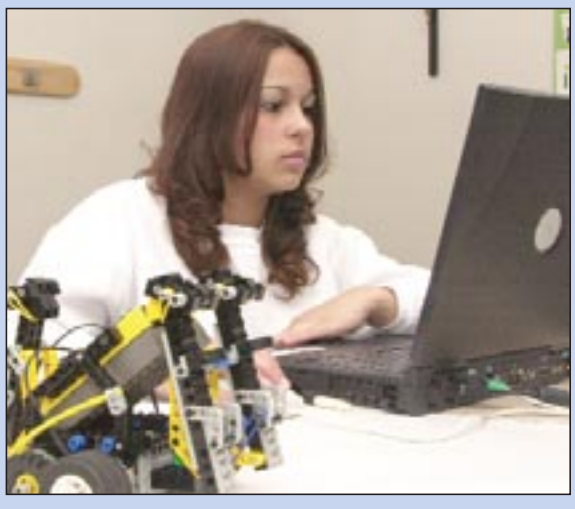
Female scientists, engineers and professionals from the Laboratory and surrounding area led a series of workshops. The workshops were in chemistry, statistics, global warming, cryptography, robotics, dynamic testing of materials, forestry, psychology and neuroscience, archeology, dentistry, radiation and radioactivity, scanning electron microscopy, properties of fluids, veterinary medicine, troubleshooting computer hardware and physical therapy. The hands-on activities "make me feel both excited and nervous," said Amy Herrera of Pecos Middle School.

"The EYH is a national program that has been in existence for more than 20 years. We will be sorting through evaluations for the participant feedback about their experiences. It's always fun to see what they found most memorable," said Pedicini.

Julie Canepa of the Health, Safety and Radiation Protection (HSR) Division delivered this year's keynote address, "From Chemistry to Cleanup." Her talk focused on her journey through the study of traditional science to leading large complex environmental projects. Canepa majored in chemistry in college; she said she also loves geology, and as a senior in high school, she interned at the Cleveland Museum of Art for two weeks studying art history. Canepa's varied interests in science and art inspired her to encourage the girls to attend graduate school and to develop their interests in as many fields as possible, she said. A "real blast" is how Canepa referred to graduate school. "You work very hard, but where else can you organize a trip down the Grand Canyon and call it a geology tour? Geology majors get to travel all over the world," Canepa said.

The workshops are sponsored by the New Mexico Network for Women in Science and Engineering and the Los Alamos Women in Science. Eighteen teachers also participated in a conference as part of the event at Canyon Complex downtown.

For more information about the EYH program, visit its Web site at *lawis.lanl.gov//eyh* online or see the March 5 Daily Newsbulletin at *www.lanl.gov/newsbulletin*.



***The "Designing Patterns using Programming Logic and Mobile Robots" workshop prompted Meagan Prada of Alameda Middle School to use simple execution programs to observe what role logic plays.***

*Maryana Eames*

## Eames appointed to governor's committee

A senior specialist in Training and Development (HR-6), **Maryana Eames** is a recently appointed member at large of the Governor's Committee on Concerns of the Handicapped.

She also is the founder of The Friends Forever Foundation, a Santa Fe Organization that brings joy to children with life-threatening illnesses. Eames, who recovered from Hodgkins Lymphoma, a cancer that attacks the lymph nodes, said she is still considered a disabled American.

"I want to see people who have disabilities get a fair shake in life," she said. Eames said anyone can become disabled, and that she would like to see more open-mindedness toward people with disabilities.

At the urging of friends and colleagues, Eames applied for membership on the committee. She also received a recommendation to serve on the committee from Sen. Pete Domenci's, R-N.M., office.

In addition, she wants to create more accessibility for the disabled throughout New Mexico, which includes the improvement and construction of public walkways and parking.

Eames, who is from New York, has been employed with the Lab since 1992. She left the Lab for about two years to take a job as a stock broker for Salomon Smith Barney in Santa Fe.

Eames has a master's degree in business administration in finance and a master's degree in education and training, both from New York University.

## Lab employees shine at STC competition

Laboratory publications received 16 awards in the recent Society for Technical Communication's Southwest Regional Technical Publications and Technical Art competition.

One Laboratory entry — "Laboratory Directed Research and Development Annual Report" cover design — received an Award of Distinguished Technical Communication in the technical art competition. It will be entered in the society's international competition this month. Results of international winners will be announced at STC's 50th annual conference May 18 through 21 in Dallas.

**Gail Flower** of Communications Arts and Services (IM-1) designed the cover art for the LDRD report.

The technical publications and technical art were developed by a number of IM-1 and other Laboratory employees, said **Judy Prono** of IM-1.

Each year the STC sponsors competitions for technical publications; technical art; and online communication products, such as World Wide Web pages.

In the technical publications category, the Lab garnered five awards of Excellence for

"Los Alamos National Laboratory Showcases Scientists and Professionals"; promotional materials; **Linda Wood**, **Annie Lindberg** and **Kelly Parker**, all of IM-1.

"For the Seventh Generation: A Report to Our Communities"; annual reports; **Earlene Hammock**, **Hector Hinojosa**, **Randy Summers**, **Jan Torline** and **Amy Reeves**, all of IM-1.

"Physics Division Progress Report: Jan. 1, 1999-Dec. 31, 2000"; annual reports; **Todd Heinrichs** and **Donald Montoya**, both of IM-1.

"Actinide Research Quarterly"; magazines; **Meredith Coonley** and **Susan Carlson**, both of IM-1, and **K.C. Kim** of Nuclear Material Technology Division Office (NMT-DO).

"Technology Development, Evaluation, and Application: Fiscal Year 2001 Progress Report"; technical reports; **Earlene Hammock** and **Stacey Perez,** both of (IM-1).

Awards of Merit in technical publications were given to the Lab for "On Ramp"; brochure; **Flower** and "Our Common Good: A Report to the Communities of Northern New Mexico"; annual reports; **Lisa Inkret**, **Rich Leishman** and **Nikki Goldman**, all of IM-1, and **Kay Roybal** of the Community Relations Office (CRO).

In the technical art competition, the Lab received three awards of Excellence:

"Our Common Good: A Report to the Communities of Northern New Mexico"; **Inkret**, **Leishman** and **Roybal**.

"Computing, Communications and Networking (CCN) Division Review Committee CD-ROM"; **Andrea Gaskey**, **Sue King** and **Warren Young**, all of IM-1.

"Last Chance"; poster; **Flower**.

The Laboratory received five awards of Merit in Technical Art for

"Development and Evaluation of a Neutron-Photon Shield for Transuranic Waste Drums"; poster; **Perez**.

"A Field ES&H Evaluation of Air Curtain Destructor Operations"; poster; **Perez**.

"Los Alamos Neutron Science Center (LANSCE) Coloring Book"; informational material; **Garth Tietjen** of IM-1.

"ESD Poster"; promotional poster design; **Flower**.

"Plutonium Futures: The Science Conference"; informational material; **Susan Carlson** and **Kathy DeLucas**, both of IM-1.

A complete list of the awards and those who received them also can be found at *int.lanl.gov/im1/* online.

For more information, call Prono at 5-8383 or write to *jprono@lanl.gov* by e-mail.

# Lab researchers honored for patent, licensing awards

Laboratory researchers who received patents or sold licensing rights in 2002 were honored recently at the Laboratory's fifth annual Laboratory Patent and Licensing Awards ceremony. Awards were given to employees in both Distinguished Patent and Distinguished Licensing categories along with the distribution of $548,000 to Laboratory innovators as 2002 license income.

The recipients of the 2002 Distinguished Patent Award went to Basil Swanson and former Los Alamos staff member Xuedong Song of the Bioscience (B) Division for their patent of the Triggered Optical Biosensor. Song and Swanson's invention involves a biosensor technology that can be used for the detection of protein toxins, viruses, antibodies and other biomolecules. Such sensor technology remains essential in defending against terrorist attacks. In addition, the sensor technology offers opportunities in medical diagnostics, such as in the diagnosis of respiratory diseases.

The Distinguished Patent Award recognizes inventors whose invention exemplifies a significant technical advancement, an adaptability to public use, or an innovation of noteworthy value to the Laboratory mission.

This year's Distinguished Licensing Award recipient is Benjamin Warner of the Actinide, Catalysis and Separation Chemistry (C-SIC). Warner's chemistry work in the fields of radiation dosimeter and timing technology, electrochromic window technology and micro X-ray fluorescence for drug discovery has led to numerous commercialization opportunities for the Laboratory. Warner has 11 patent disclosures and five pending patent applications, the majority of which were submitted in the past two years. He is an active participant in the licensing process and is noted for his ability to develop relationships with potential licensees while moving technologies down the commercialization path.

*Benjamin Warner*

The Distinguished Licensing Award recognizes a Laboratory innovator who has had a positive impact on the Los Alamos Licensing Program. The individual demonstrates, by example, outstanding success in transferring Los Alamos-developed technologies to the public and private sectors and is recognized for her or his role in confirming the benefits of technology commercialization activities.

In addition to the funds distributed to individual innovators, represented Laboratory divisions also will receive $664,000 in license income.

## In Memoriam

### *Shirley O'Rourke*

***Shirley O'Rourke***

Laboratory employee Shirley O'Rourke of Materials Management (BUS-4) died March 15. She was 57. O'Rourke had been with the Laboratory since Dec. 6, 1974, when she joined Supply and Property Department (SP-12). She was a Department of Energy certified traffic manager. She received DOE and Laboratory commendations for her work as project leader in transporting one of the largest single-piece items in New Mexico History: a 690-ton generator from the Tennessee Valley Authority. "We are deeply saddened by this significant loss to the organization, to packaging and transportation organizations, Department of Energy packaging and transportation organizations and those throughout the country," said Carol Smith, BUS-4 group leader. Smith went on to say that O'Rourke had the respect and admiration of all who came in contact with her. She was admired by her peers throughout the National Nuclear Security Administration (NNSA)/DOE complex. "She showed tremendous concern for her staff, and I will personally miss her as a friend and colleague. She was a truly an outstanding member of BUS-4," said Smith. Mary Van Eeckhout of BUS-4 noted that O'Rourke had a genuine interest in people and often provided gifts to those in the Lab's Welfare to Work Program. She earned her master's degree in business management from the University of New Mexico. She is survived by her daughter Meaghan.

### *Ray Edward Williams*

Laboratory retiree Ray Edward Williams died Feb. 28 in Albuquerque. He was 81. Williams had a strong interest in the application of mathematics that ultimately translated into a degree in mechanical engineering from Kansas State University in 1943. He then accepted an ensign's commission in the U.S. Navy. He served aboard the USS Shangri-La and later the USS Windom Bay. Williams returned to Kansas State University in 1949 and received a master's degree in mechanical engineering in 1951. That same year, he accepted a position with Sandia Corp. He began his career with the Lab in 1966 in what was then Test Engineering (J-7) and retired in 1987 from then-ESS-4.

During his professional career, he worked on numerous projects in weapons development including "Operation Plowshare." He also worked on the "Sub terrain" project at various locations including Fenton Hill in the Jemez Mountains and the BEAR (Beam Experiment Aboard a Rocket) Project.

He is survived by his wife, Theda Maxine (Elmore); daughter Bernice Carol Williams of Manuel Lujan Jr. Neutron Scattering Center (LANSCE-12) and her husband, Richard Reynolds of Training Services (PS-13); two sons: Stephen Earl Williams and John Zachary Williams and his wife, Carol Anne Gauthier, of Los Alamos; and two other daughters: Theda Jean Williams and Evelyn Margaret Genta.

## Student Association elects new chair

***Robert Smith, seated center, recently was elected as new chairperson of the Lab's Student Association. Here he talks with Student Association and Student Programs Advisory Council members in the J. Robert Oppenheimer Study Center at Technical Area 3. Smith is a materials sciences major in Materials Technology: Metallurgy (MST-6). Pictured with Smith left to right are Bill Robertson of Enterprise Support and Computer Education (IM-2), chair of SPAC; Cheryl Sedlacek of Hazardous Materials Response (S-10); Margaret Marshall of the Office of Equal Opportunity (OEO); Shauna Kackley of Science Applications (RRES-SA); and Pavlo Quintana of the Ombuds Office.*** *Photo by LeRoy N. Sanchez*

## April Fool's Fun

Listed below are four claims that have been made in the media. Half the claims are April Fool's Day jokes. The other half are real news stories. Can you tell the difference between the two? (Answers on the bottom of Page 8)

**1) The Tooth Telephone —** Engineers recently unveiled the world's first tooth telephone, perfect for those who want to talk hands-free while on the go. When implanted into a tooth, the tiny device vibrates to let the user know there's a call. Users speak normally, and the tiny microphone picks up their voice. Incoming sounds are transferred to the inner ear by means of bone resonance.

**2) Alabama Changes Value of Pi —** In 1998 the Alabama state legislature voted to change the value of the mathematical constant pi from 3.14159 to the Biblical value of 3.0. NASA engineers in Huntsvile, Ala., were reportedly disturbed by the decision.

**3) Bank Teller Fees —** In 1999 a Connecticut-based bank announced that because of rising costs, it would be forced to charge a $5 fee every time a customer visited a live teller. The bank promised that the fee would actually help to improve the quality of customer service.

**4) Purple Carrots —** For those yearning to add a colorful splash to their meals, a British supermarket announced last year that it will soon be selling purple carrots. The store hopes that the new offering will appeal to fickle children who have grown bored by the orange variety.

**Los Alamos National Laboratory and the Interagency Wildfire Management Team present**

# Wildfire 2003

*5 to 9 p.m. • April 15*

Graves Hall, United Church
2525 Canyon Road, Los Alamos

**5 to 6 p.m. —** Exhibits and Displays

**6 to 6:05 p.m. —** Welcome and Introductions; Diana Webb, chair, Interagency Wildfire Management Team; Robert Gibson, facilitator

**6:05 to 6:20 p.m. —** "The Big Picture: A Scientific Framework for Fire Management," Pat McCarthy, Nature Conservancy

**6:20 to 6:35 p.m. —** "Impact of the Continuing Drought," Steve Coburn, Los Alamos Fire Department

**6:35 to 6:50 p.m. —** "Bark Beetle Infestation — An Update," Carlos Valdez, Los Alamos County Cooperative Extension Services

**6:50 to 7:05 p.m. —** "Risk Mitigation and Environmental Concerns," Steve Mee, Cerro Grande Rehabilitation Project

**7:05 to 7:20 p.m. —** "State Road 4 Fire Season," Dean Clark, Bandelier National Monument

**7:20 to 7:30 p.m. —** "Community Evacuation Plan — an Update," Phil Taylor, Los Alamos County

**7:30 to 8:15 p.m. —** Questions and Answers

**8:15 to 9 p.m. —** "Meet the Experts" Breakout Session

Exhibits and displays from the American Red Cross, Bandelier National Monument, County of Los Alamos Community Development, Davey Resource Group, Family Strengths Network, Los Alamos County Cooperative Extension Services, Los Alamos National Laboratory, Nature Conservancy, Volunteer Task Force.

For meeting information, call Fran Talley of the Public Affairs Office at 7-5225.

# Lab employee participates in filming of educational video


*by Nancy Ambrosiano*

Across the country, hospital staffs and other medical professionals are learning about the effects of nuclear exposure and radiation dispersal devices (RDD) thanks to the on-camera skills of health physicist Brian Rees of Health Physics Operations (HSR-1).

Filmed in part at the Bradbury Science Museum in May 2002, "Radiological Terrorism," is an educational video made to inform health professionals of the reasonable precautions that are effective in treating those exposed to RDDs and other sources of nuclear contamination.

The video, available to hospitals for several months, recently won a "Chris" award from the Columbus International Film and Video Festival in Columbus, Ohio, in the Physical Health category.

The Tucson-based Medfilms company that created the tape contacted the Laboratory in the early spring to see if anyone here could talk about the effects of an RDD, in the logical, down-to-earth terms that would be most helpful to nurses and other emergency workers. Rees, already providing similar, live briefings as part of his work with the Health, Safety and Radiation Protection (HSR) Division and Technical Area-18 personnel, was an easy choice.

Said Rees, "Medical personnel cover a wide gamut of the population in general, and many of them have the same misconceptions about radiation that the general population has. I wanted to be sure their misconceptions didn't end up harming anybody, either by their actions or inactions."

With that in mind, Rees and the director, Alan Reeter, developed a package that shows, through the example of a 1987 radiation-exposure incident in Goiania, Brazil, what health-care workers can expect in an accident or deliberate exposure situation. Among the key effects is that of panic, which brought more than 100,000 people to hospital doorways in Goiania, despite the fact that just less than one-tenth of 1 percent of that number actually required hospitalization — a significant number, four of whom died, but nowhere near as large as the surging crowd that sought treatment and reassurance.

In the video, Rees explains the nature of background radiation, how normal hospital procedures for infectious agents are usually effective in containing radioactivity and why common exposure-control methods are effective. Dr. Fred Mettlers, former health-effects team leader at the Chernobyl disaster site, also is interviewed on the medical effects responders are likely to see.

A key part of Rees' message, however, is that "health-care workers can reinforce to the public that people are exposed to radiation every day. It's not a new hazard, it's not a unique hazard, and it's something that is very well understood and very well studied."

The experience of working on the video, Rees said, was a good one. "Because of the large amount of bad and false information put out by people with misguided agendas, there are large portions of the population who misunderstand the hazards from low-level radiation exposures, and this could result in further harm to victims. It's rewarding and exciting to have a part in the opportunity to educate people who may end up having to be part of a radiological incident," he said.

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*Answers to April Fool's Fun on Page 7: 1) True 2) April Fools 3) April Fools 4) True*