

# LANL

## LOS ALAMOS NEWS LETTER

A publication of Los Alamos National Laboratory

Vol. 3, No. 5 • March 21, 2002

## Laboratory in excellent condition declares director in State of the Lab address

by Jim Danneskiold

For Laboratory employees, "living our vision" means practicing such values as public service, teamwork and diversity, Director John Browne said in his annual State of the Laboratory address last month.

Browne characterized the Laboratory's overall condition as excellent. In fact, a recent evaluation by the National Nuclear Security Administration gave the institution an overall grade of 89 percent.

Last fall's terrorist attacks present "a new challenge both for the nation and for the Laboratory," Browne said.

He pointed with pride to Los Alamos' rapid response to national needs in such areas as anthrax DNA analysis, multispectral satellite images of Manhattan after the attacks, infrastructure modeling and nuclear emergency preparedness.

In his wide-ranging talk, Browne discussed the recent Nuclear Posture Review by the Bush Administration, the importance of basic research, institutional revitalization,



**Director John Browne discusses the importance of basic research, institutional revitalization and more during his annual State of the Lab address last month.** Photo by LeRoy N. Sanchez

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## **BSL-3 lab at LANL: Another step closer**

Earlier this month the National Nuclear Security Administration Office of Los Alamos Site Operations issued a "Finding of No Significant Impact," or FONSI, on a proposal to construct and operate a biological safety level-3 laboratory at Los Alamos.

The proposed lab would be used in development and evaluation of technologies such as sensors that

can detect biological agents in the air or on the ground and laser-based systems that can quickly identify an outbreak of an unusual disease in animals or humans.

Corey Cruz, acting director of LASO, said, "This decision is based on analyses which indicate that design, construction and operation of this facility will not have significant impacts to human health or the

environment. I am convinced that the decision to construct and operate this facility will safely and securely leverage the Lab's science base to enhance national threat reduction."

The proposed lab would be used in development and evaluation of technologies such as sensors that can detect biological agents in the

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# Assisting with homeland security



**Director  
John  
Browne**

Recently the Lab had the honor of hosting a visit from Tom Ridge, assistant to the president for homeland security. Ridge has been visiting the national labs and other facilities to gather information on what capabilities and technolo-

gies exist nationwide to assist with homeland security.

The mission of Ridge's office is to develop and implement a comprehensive national strategy to secure the United States from terrorist threats or attacks. His office coordinates the executive branch's efforts to detect, prevent, protect against, respond to and recover from terrorist attacks within the United States — and he is interested in what technical assets the nation can provide in each of those areas.

Ridge told us of an awareness of Los Alamos he had gained as a youth reading about our role in World War II, and he also recognized our role during the Cold War. After acknowledging the critical importance of these contributions to the nation, he said, "We're going to have to rely again on the creativity and the commitment of these men and women in this facility as we combat a different kind of enemy."

During his visit, we focused on detection, prevention and response to nuclear and biological threats. Ridge learned about our efforts to secure nuclear materials in Russia, what sorts of nuclear technology terrorists might be able to assemble, and what capabilities Los Alamos and other labs have for detecting and responding to such threats.

Members of Ridge's staff heard about our expertise in detecting and analyzing biological agents and specifically about the support we have given to the federal investigation

into the criminal use of anthrax spores. We also demonstrated the technical advances we are making in automating the analysis process, which greatly increases the speed and efficiency with which large numbers of samples can be processed.

The principal message we delivered to Ridge was that the Lab is not only ready to assist with the national effort on homeland defense, but that we have a depth of technical skills and unique facilities appropriate for this task. Because we've been worrying about threats to national security for many years — beyond just our principal mission associated with nuclear deterrence — we have developed detection and monitoring technologies, threat analysis capabilities and other expertise that are immediately available to the nation.

Gen. John Gordon, administrator for the National Nuclear Security Administration, accompanied Ridge on his visits to Los Alamos, Sandia and the Nevada Test Site. He said afterward, "I believe we hit a home run with Gov. Ridge showing him the capabilities we have."


Ridge applauded Lab staff during remarks to the news media. "I just want to make a special tribute to the men and women that work here [at Los Alamos]. They go about a very difficult and challenging intellectual task on a regular basis and we applaud, as a country, their genius and their commitment to their country."

Gordon reinforced those sentiments in a recent radio interview. "The people are the Lab — they are the most valuable asset this country has."

The recent Nuclear Posture Review reaffirmed the importance of our stockpile stewardship mission to the nation. The Office of Homeland Defense is aware of the valuable contributions we can make in this area.

As I said in my recent State of the Lab address, our mission and the needs of the nation haven't been so closely aligned since the Cold War ended.

I want to thank all the technical and support staff who contributed to making the visit by Tom Ridge such an outstanding success. We can do great things for this nation, and it is always beneficial when we can demonstrate our capabilities to such important visitors.



The Los Alamos News Letter, 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](mailto: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.

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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.



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# NMT celebrates safety success

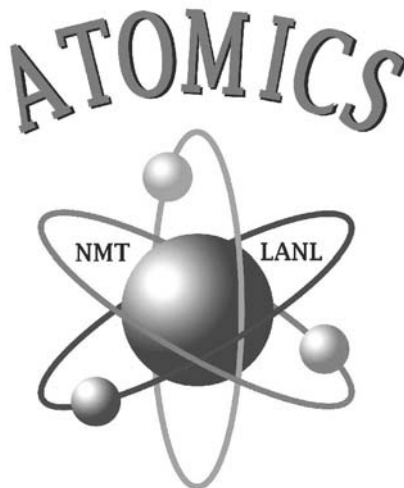
by Fran Talley

Nuclear Materials Technology (NMT) workers known as the ATOMICS (Allowing Timely Observations Measures Increased Commitment to Safety), recently met a team goal to complete 2,000 behavior-based safety workplace observations in 2001. To celebrate, the division honored all observers at a special event in the Technical Area 55 auditorium.

"Of the 2,746 workers who were observed last year, 22,284 safe behaviors and 1,854 'at-risk' behaviors were identified," said Tim George, NMT Division leader and ATOMICS management sponsor. "We followed up with corrective actions, such as the ordering of booties and ergonomic referrals to address areas of safety concern.

"NMT is one of the Laboratory's largest divisions, and we felt the need to do something to complement our safety culture from within," George said. "We have taken an integrated approach to safety in which managers and workers are actively working together toward the same goal: to further develop an already strong safety culture and to not let anyone get hurt. Thanks to our employees, it is working."

Three hundred and forty-two people have been trained and participate in the ATOMICS behavior-based safety (BBS) observation process. They include group leaders, deputy group leaders, team leaders, Health Physics Operations (ESH-1) radiological control workers, subcontract workers and crafts personnel.



The behavior-based safety process, first introduced to the Laboratory in 1996, is an employee-driven process in which workers are trained to observe and collect data on safe and at-risk, on-the-job behaviors. Collected data provides a metric for measuring safety and for addressing safety problems.

"The management commitment and the worker involvement we have seen thus far epitomize the first guiding principal of Integrated Safety Management (ISM)," said ATOMICS facilitator Jim Kleinsteuber of NMT-DO. "And that is the very concept upon which ATOMICS is based."

"ATOMICS was formed in December of 1999 to develop and implement behavior-based safety (BBS) for the division," added George. "Their responsibilities include the development of the details of the process, communication and training activities and oversight of data quality."

"We set an aggressive goal to complete 2,000 observations last year," Kleinsteuber said. "Like everything else, we had to start somewhere. What is so great is that we turned this concept over to the employees, and they ran with it.

"While we consider this to be a significant milestone in our employee-owned and -driven behavioral observation process, we know that one 'at-risk' behavior is one too many," Kleinsteuber said. He added that three observer training sessions already have been scheduled for the first quarter of this calendar year and ATOMICS has set a goal to perform 3,000 observations in calendar year 2002.

To learn more about ATOMICS, go to <http://c-aac.lanl.gov/atomics.html> online.

## NNSA announces organizational realignment

Administrator John Gordon recently announced a decision to eliminate a layer in National Nuclear Security Administration's field management and streamline the operation of the nation's nuclear weapons complex.

Gordon announced his decision in a report to Congress that outlines a series of steps to reduce duplication and increase accountability in the organization. NNSA is the national security arm of the U.S. Department of Energy. In addition to managing the nation's nuclear weapons stockpile, including its safety, security and reliability, NNSA conducts programs to foster nuclear nonproliferation and

provides nuclear propulsion for the U.S. Navy.

When the realignment is fully implemented later this year, the NNSA's eight contractor-operated national security laboratories and weapons production plants will report to the administrator through an NNSA Site Office. Currently, there are two federal field management layers — an operations office and a local area office — between NNSA headquarters officials and contractor employees who carry out NNSA's mission. The operations offices will be converted to federally staffed "Service Centers" to provide support, such as human resources, finance

and procurement, to the eight NNSA site offices.

The reorganization will move many key decision-making responsibilities from headquarters to the field, closer to where the work is actually being done. For example, contract and project management oversight responsibility will rest with each NNSA site office. Headquarters will be responsible for strategic and program planning, budgeting and oversight of research, development and nonproliferation activities.

A copy of the report is available online at [www.nnsa.doe.gov](http://www.nnsa.doe.gov). See the Feb. 26 online daily Newsbulletin for more information as well.

# BCBS NM to audit health-care providers

by Shelley Thompson

Blue Cross Blue Shield New Mexico, the Laboratory's health benefits providers, is conducting routine audits of health care providers in the region.

Blue Cross Blue Shield and other insurance companies periodically audit providers to ensure proactive and responsible management of health-care costs and to help keep overall health care costs down. Laboratory workers may hear of the audits from their health-care providers, and the Human Resources (HR) Division wanted employees to know this is part of routine oversight procedures,



said Helga Christopherson, HR Division leader.

Compensation and Benefits (HR-1) and University of California benefits staff also remind employees that monitoring their health-care expenses for savings opportunities is another proactive way to help keep health-care costs down. The UC Benefits Health page at <http://www.uc.thehealthpages.com/> online has useful tips for Lab workers on health care, drug formularies and other health information.

Nationally and locally, health-care costs and premiums are increasing at a rate significantly higher than inflation. Increased use of hospital

services was the prime factor driving up overall health-care expenditures by 7.2 percent last year, the largest jump in a decade, according to the Center for Studying Health System Change. The rise in hospital costs accounted for 47 percent of the overall spending increase in 2000, according to the center.

"The Lab remains committed to providing employees the best health care at the lowest cost available in our area," Christopherson said. "Employees can contribute to the success of this effort by making sound health-care decisions for themselves, ensuring that the Laboratory family gets the best benefit from [its] health plan."

For more information, contact Sandra Haire of HR at [shaire@lanl.gov](mailto:shaire@lanl.gov) by electronic mail.

## Laboratory in excellent condition ...

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the need to hire new researchers and the importance of the values practiced by current staff.

Browne said one of the key challenges the Lab faces is ensuring that science remains integral to all Los Alamos' work. "To me, the science that we do at our Laboratory is really the base and the underpinning of all of our missions because it is where the creativity comes in that allows you to solve problems in the future," Browne said. Los Alamos doesn't merely apply outstanding science and technology to national problems, "we invent it," he added.

Browne said he expects the overall Laboratory budget to increase by nearly 10 percent next [fiscal] year, from \$1.64 billion to \$1.8 billion, with increases in nearly every area except funding for basic research from the Department of Energy's Office of Science, which has been flat for years.

The Nuclear Posture Review set out a "new triad" for the nation in which nuclear deterrence fits into a larger defense posture. That triad of non-nuclear and nuclear capabilities, national defense and an infrastructure capable of quick response will depend heavily on technical creativity, rapid prototyping and concurrent engineering to get innovations quickly into the hands of those who need them.

Turning to counterterrorism, Browne said the demand for technical innovations to stem terrorism will remain a focus for Los Alamos.


The Lab's relationship with Washington and with the DOE offices in Albuquerque and Los Alamos "has improved dramatically with the creation of NNSA," Browne said.

Notable successes in the recent NNSA report card were planning, plutonium pit manufacturing, weapons engineering and directed stockpile work, safeguards and security, financial management and the Laboratory Directed Research and Development program. But the Laboratory needs to improve in safety, facility management and executing its plans, Browne said.

"The bottom line for me is living our values," he said.

For the complete story, see the Feb. 21 Newsbulletin.

**DIVERSITY OFFICE**



**Diversity is everyone**

Do you know how diversity is defined at Los Alamos? At the Laboratory, diversity is everyone. It is all the dimensions of how we identify and connect with each other, either in visible (gender, ethnic, cultural, racial) or less visible ways (religion, sexual orientation, job level, organizational expertise, etc.).



**James Biggs of Ecology (ESH-20) displays one of the collars used for monitoring the movement of elk. A Global Positioning System device, used to track animals in the wild, is attached to the collar. Using this equipment, scientists can predict how movement patterns of a species will change over time. Each collar cost about \$3,000 and is reusable.** Photo by Michael Carlson

## High-tech wildlife tracking

by Michael Carlson

Using Global Positioning System technology, Laboratory researchers are gaining new insight in to how and where wildlife roam. By tracking animals in the wild, biologists can predict how movement patterns of species will change over time.

Data from tracking projects also can help biologists alleviate hazards associated with the movement of elk and observe population trends of wild species, James Biggs of Ecology (ESH-20) said.

Biggs said wildlife managers can use the data to identify areas where elk and deer are most likely to cross busy roads, creating areas of potentially hazardous interactions between humans and animals. Researchers also can incorporate these data into developing warning devices that will alert drivers of elk and deer crossing.

Movements of animals across busy Lab-owned roadways are responsible for an estimated \$250,000 a year in vehicle damage, lost work time, emergency response and injuries. Fifty to 60 accidents are estimated to happen annually in the Los Alamos area.

Biggs said drivers can minimize their chances of a collision with deer and elk by taking certain precautions. He said if you see a deer or elk on the side of the road, there may be another one nearby that is ready to cross, so be particularly aware of your surroundings. Flash lights to warn other drivers of animals crossing and drive 5 to 10 miles an hour slower than the posted limit during times when animals may be more active and moving around.

Tracking information also is useful for monitoring the effects of the Cerro Grande Fire on wild species. Elk are expected to return to areas hit hard by the devastating blaze because of new growth of shrub, grasses, aspen and other plant life.

"Plants tend to be higher in nutrient quality after a fire," Biggs said. He said elk will be more attracted to fire-scarred areas because of the potential for higher quality and quantity of food items, and it often takes a few years for wildlife to adjust to new feeding places.

The Lab is working closely with the National Park Service, New Mexico Department of Game and Fish as well as the U.S. Forest Service to trap and collar wildlife in the region, Biggs said. A project to collar elk was completed last year. He said efforts to collar additional elk near the fire area are in planning stages.

Each GPS collar costs about \$3,000 and is programmed to fall off the animal at a predetermined time. Because the collars are equipped with beacons, researchers can retrieve the units and reuse them.

By attaching GPS receivers to animal collars, rather than the conventional VHF radio devices, researchers can monitor the movements of wild animals over a wider area for a longer period, collect a dramatically greater amount of data and obtain more accurate data.



### Online scam aimed at tax filers

by Kevin Roark

Internal Security (ISEC) is encouraging all Laboratory workers to be aware of a fraudulent scam being conducted via electronic mail.

The Internal Revenue Service alerted the Department of Energy about the scam in which a few taxpayers across the nation have received an electronic mail message from a non-IRS source indicating that the taxpayer is under audit and needs to complete a questionnaire within 48 hours to avoid the assessment of penalties and interest. The e-mail refers to an "e-audit" and references IRS Form 1040. The taxpayer is asked for Social Security numbers, bank account numbers and other confidential information, according to the IRS alert.

It is important for everyone to know that the IRS doesn't conduct e-audits nor does it notify taxpayers of a pending audit via electronic mail. This e-mail is not from the IRS. Taxpayers shouldn't provide the requested information; this may be an identity-theft attempt.

Laboratory workers who receive an e-mail of this nature — the source may be the address [blesstheaday.com](mailto:blesstheaday.com) — should contact a local Internal Revenue Service office.

For more information, contact ISEC at 5-6090.



## NEWSMAKERS



**Leonard Trujillo**

**Leonard Trujillo** is the newly appointed group leader of Dual Axis Radiographic Hydrodynamics Test (DARHT) Accelerator Construction (DX-8). Trujillo has been at the Lab since 1972, begin-

ning his career in the former Field Test (J-DO) and in Dynamic Experimentation (DX) divisions. He served as a team leader and work-package manager for the DARHT facility. He most recently served as the deputy group leader of DX-8.

Trujillo's goals are to successfully lead DX-8 through the completion of the DARHT construction phase by end of this calendar year. Among Trujillo's other accomplishments are his four distinguished performance awards in the individual, small- and large-team categories.

**Amy Sahota** is the new director for the Office of Equal Opportunity (OEO). She replaces Mick Trujillo, who is now working with Northern New Mexico initiatives for the University of



**Amy Sahota**

California's Northern New Mexico office.

The OEO coordinates and oversees affirmative action and equal opportunity programs. It also works closely with Laboratory Director John Browne and his

senior staff to implement the director's vision regarding equal opportunity and affirmative action.

Sahota has been at the Laboratory since 1981. She has worked in the former Materials Management and Budget and Financial divisions at Los Alamos. She also has been a group leader in Los Alamos' Defense Programs Group and deputy director of the OEO. Sahota has bachelor's degrees in biology, chemistry and education from Punjab University in Chandigarh, India, and a master's degree in business administration from the College of Santa Fe.

**Frank Merrill** of Subatomic Physics (P-25) is the new project leader for Proton Radiography



**Frank Merrill**

(pRad). Merrill's new responsibilities include working with the pRad team to execute the pRad experimental program at the Los Alamos Neutron Science Center (LANSCE) to develop the program into a user

facility. This change allows for more flexibility in promoting internal and external collaborations.

Merrill's career began at the Laboratory in 1995 as a postdoc with Accelerator Operations (LANSCE-6). He became a technical staff member in 1996. Merrill also worked in Accelerator Construction (DX-8) on the Dual Axis Radiographic Hydrodynamics Test (DARHT) facility project. Merrill has a doctorate in medium energy nuclear physics from Carnegie Mellon University.

**Benjamin Luce** of Mathematical Modeling and Analysis (T-7) was re-elected president of the New Mexico Solar Energy Association. He has been president of the organization since December 1999.

In addition to his duties as president, he directs the Sunchaser Educational program, acts as Webmaster, coordinates the Taos Solar Music Festival Solar Village and frequents the Santa Fe Roundhouse. Last year, the association awarded him an achievement award for his work educating industrial and governmental officials.

Currently at the Laboratory, Luce is attempting to develop a program to evaluate the potential for synthesis of carbon-based fuels from atmospherically derived carbon dioxide. Luce said, "I believe that this might ultimately turn out to be the most economical and painless route to a carbon neutral energy economy with the lowest overall environmental impact."



**Benjamin Luce**



**Juanita Cordova of Design Engineering (ESA-DE), left; Donna Vigil of Accounting (BUS-1), center; and Lorraine Segura of Facility Risk Management (ESH-3) discuss their military and Lab experiences at the first event of Women's History Month. The theme for this year's activities is "Women Sustaining the American Spirit." Photo by LeRoy N. Sanchez**

# March employee service anniversaries

## 5 years

Jackie Arellano, NMT-3  
Sheila Brandt, ESH-2  
K.N. Carter, P-24  
Mark Cola, NMT-5  
Leonid Flaks, P-21  
Randy Flores, ESA-WMM  
Joseph Gonzales, DX-DO  
Scott Greenfield, C-ADI  
Adolfy Hoisie, CCS-3  
Sharad Kelkar, EES-6  
Cindy Maze, BUS-2  
Sheila Melton, NIS-6  
Eddie Moody, NMT-11  
Edward Orlor, MST-7  
Matthew Porter, ESA-WMM  
Georgia Sanchez, E-ST  
Robin Shaw, ADTR  
Lorraine Stanford, LANSCE-AHF  
Karen Trujillo, NIS-5  
Roger Wiens, NIS-1  
Sandra Wilson, NMT-4  
Piotr Zelenay, MST-11  
Marvin Zocher, X-7

## 10 years

Claudine Armenta, C-ACS  
Brian Aubert, ESA-WR  
Joseph Bowden, ESA-WR  
Cynthia Bustos, STB-EPO  
Don Dale, C-ACS  
Frank Dickson, LC  
Leslie Duncan, LANSCE-6  
Lawrence Goen, ADO  
Angelina Gonzales, BUS-5  
Christine Gonzales, BUS-2  
Derek Gordon, NMT-14  
Robin Gurule, BUS-2  
Timothy Haarmann, ESH-20  
Kevin Hale, ESA-WSE  
Hans Hartse, EES-11

Daniel Kathios, NMT-2  
Dale Leschnitzer, IM-3  
Judi-Anne Martinez, BUS-1  
Rhonda McInroy, C-PCS  
Gregg McKinney, D-10  
Leroy Padilla, BUS-6  
Karen Paige, E-ER  
Guy Sandusky, BUS-1  
William Smith, NMT-6  
Wendy Soll, EES-10  
Raymond Tell, NMT-14  
Robert Tirey, ESH-OIO  
Kirk Weisbrod, ESA-AET

## 15 years

Thomas Lyttle, D-5  
Richard Smith, T-3  
Keith Woloshun, LANSCE-3

## 20 years

Gerald Leeches, ESA-WMM  
Schon Levy, EES-6  
Peter Lomdahl, T-11  
John Merrill, LANSCE-6  
Susan Padilla, ESA-WER  
Richard Robinson, IM-4  
Laverne Rodriguez, NIS-9  
Norman Schroeder, C-INC  
Roberta Shaw, ESA-WR  
Stanley Simmonds, ESH-10  
Susan Whittington, T-DO

## 25 years

Robert Albers, T-11  
Debra Archuleta, ESH-17  
Mary Campbell, DX-2  
James Clifford, CCN-5  
Barry Drennon, E-ER  
Laura Liles, BUS-3  
Carolyn Mangeng, DIR  
Louis Montoya, ESA-WMM

Gerard Quigley, C-PCS  
Vicky Romero, IM-4  
Jack Shlachter, P-22  
Lilly Silva, ADWEM  
Michael Smith, IM-3  
Richard Stallings, NIS-18  
Robert Swift, EES-11  
Clarence Torres, IM-5

## 30 years

Pedro Aragon, DX-4

John Archuleta, EES-8  
Larry Clark, P-24  
Johnny Harper, E-ET  
Manuel Jaramillo, MST-6  
Gregory Kubas, C-SIC  
Stephen Quintana, MST-6  
Anthony Sgro, X-1  
Elmer Torres, CER-30

## 35 years

Jerry Davis, LANSCE-5

## This month in history

### March

- 1862** — The ironclads USS Monitor and CSS Merrimack engage each other at Hampton Roads
- 1879** — Albert Einstein is born in Ulm, Germany
- 1882** — German scientist Robert Koch discovers bacillus cause of tuberculosis
- 1949** — First nonstop flight around the world by Capt. James Gallagher
- 1953** — United States' above-ground tests start in Nevada
- 1954** — United States explodes 15-megaton hydrogen bomb at Bikini Atoll
- 1974** — The Atomic Energy Commission creates the Formerly Utilized Sites Remedial Action Program (FUSRAP) to identify former Manhattan Project and AEC sites on private land that need remedial action
- 2001** — The 140-ton Mir space station, launched in 1986, was brought down into the South Pacific near Fiji. It had orbited Earth 86,330 times; nearly 100 people, seven of them Americans, had spent some time on Mir

## BSL-3 ...

*continued from Page 1*

air or on the ground and laser-based systems that can quickly identify an outbreak of an unusual disease in animals or humans.

According to Bioscience (B) Division Leader Jill Trehwella, the BSL-3 facility will allow Los Alamos researchers to handle, with appropriate safety procedures, organisms that are potential

threat agents. The facility will enhance our ability to develop advanced detection and analytical capabilities, as well as support creation of better protective strategies by enabling research on how these organisms cause disease. This work is central to the NNSA's Chemical and Biological National Security Program that focuses on domestic preparedness against chemical or biological terrorist attacks. CBNP is the major sponsor for the BSL-3.

A predecisional draft environmental

assessment that analyzed the potential environmental consequences of implementing the proposed action and its alternatives was issued last Oct. 29. A public comment period on the draft EA was extended through Jan. 15.

The final EA is available at the Community Involvement and Outreach Office, 1619 Central Avenue, and in Albuquerque at the Government Information Department of the University of New Mexico's Zimmerman Library.

# Whetting young imaginations

by Jim Danneskiold

Water, water, everywhere.

For Bob Benjamin of Hydrodynamic Applications (DX-3), that old saw rings truer than it does for most people. He's made a career out of studying how water and other fluids behave.

Now he's poured that knowledge in a book for budding young scientists that provides what his publisher calls an "exciting and wet set of investigations designed to arouse curiosity about fluid dynamics."

More than seven years in the making, Benjamin's illustrated manual, *Spills and Ripples*, recently was published by the Activities Integrating Math, Science and Technology Education Foundation, or AIMS. Co-authors are Jim Wilson and David Youngs of the foundation's staff.

The book offers a host of interesting experiments to help students around junior-high age understand such concepts as density, pressure and surface tension, Benjamin said.

"It seemed like it was about time that the world found out about fluid instabilities and how important they are," Benjamin said.

Benjamin has been volunteering in the Los Alamos schools for nearly 20 years, beginning at Piñon Elementary, where his children went to school and where his wife, Susan, still teaches. The materials in the book grew out of his volunteer science classes.

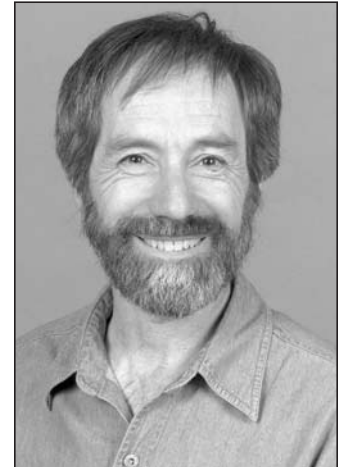
"Typically, these concepts are taught in a dry, uninteresting way," Benjamin said. "But when young people experience these fluid instability experiments, it prompts them to look more closely at something they know already.

"Kids are so familiar with water that many of these experiments seem like water play to them," he continued. "It's simple, yet I think that it motivates them to see the scientific principles behind these familiar phenomena."

The book also teaches students how to control boundaries between fluids, to manipulate Cartesian divers and to construct low-cost instruments such as hydrometers and manometers.

Benjamin said the book was only possible because of his extensive collaboration with the foundation. He approached AIMS after his wife attended one of the foundation's summer teacher training workshops. The Laboratory's Education Outreach office — now part of the Education Program Office (STB-EPO) — also supported the early stages of work on the book, he said.

A 28-year Laboratory veteran, Benjamin was named



**Bob Benjamin**

a Laboratory Fellow in 1994 for his work on fluid interfaces. He holds a doctorate in physics from Massachusetts Institute of Technology.

*Spills and Ripples* is available at local bookstores or from the AIMS catalog at <http://www.aimsedu.org/aimscatalog/default.tpl?cart=32158487483562420&startat=21&max=20&--woSECTIONSdatarq=3&--SECTIONSword=ww> online.

The AIMS Education Foundation is a nonprofit educational foundation in Fresno, Calif. Established in 1981 by the National Science Foundation, AIMS publishes a magazine and hundreds of books, pamphlets and teacher training materials. More than 100,000 classroom teachers have received formal AIMS training. More information is available at <http://www.aimsedu.org> online.



## Los Alamos News Letter

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