

# Sandia's MTI satellite completes its three-year mission

The Multispectral Thermal Imager satellite — the MTI — Sandia's first fully in-house developed Earth orbiter, has successfully completed its original three-year research goals, and will continue to collect images for US government agencies. The image here shows Mt. Etna in Sicily during an eruption in August 2001. The image clearly shows lava flows, smoke, and gas clouds. The full image, along with images of Washington, D.C., and the Larson Ice Shelf in Antarctica, are reproduced on pages 6 and 7. John German reports.

## Gov. Richardson's visit to Sandia historic on several fronts

By Chris Burroughs

Bill Richardson visited Sandia last week for the first time in his five-month-old role as New Mexico governor. The visit was historic for two reasons: It was the first time a New Mexico governor has presented a colloquium at the Labs (although Richardson, of course, had spoken at Sandia as DOE secretary); and it gave Richardson an opportunity to add his support to an agreement executed by President C. Paul Robinson, representing Sandia, and Tom Brennan and Mark Benak, representing Zircle LP, that if all goes as hoped promises to

*Sandia, Zircle seal pact to commercialize Labs technologies; state to invest also. See story on page 5.*

(Continued on page 5)

## Wall-to-wall inventory a once-every-four-year Labs-wide sweep

By Chris Burroughs

Some 600 Sandia property coordinators, armed with new lightweight scanners, are sweeping the Labs this spring looking for 56,000 assets — computers, scientific equipment, and other high-tech gear valued at more than \$1.1 billion. Their search is part of a "wall-to-wall" inventory review required by DOE.

"We are scanning every known space at all Sandia sites to make sure we find everything that has a barcode," says David DePolo, Property Manager (10267). "That includes searching sheds, basements, attics, and storage areas, as well as the usual offices and laboratories."

The goal is to locate 99.5 percent of the assets by cost by the end of July with tentative results in by mid-August. The final results will be turned in to DOE by Oct. 1.

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# Sandia LabNews

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## MicroHound 'sniffer' goes to federal emergency response teams for evaluation



READY FOR PRIME TIME? — Kevin Linker, one of the developers of Sandia's MicroHound chemical sniffer, displays a unit similar to those that will be evaluated by federal emergency first-responders. (Photo by Randy Montoya)

By John German

A Sandia team has developed a more capable "electronic nose" for sniffing out vanishingly faint concentrations of explosives.

The latest sniffer, called the MicroHound™, is the size of a totable toolbox and weighs just 12 pounds.

It draws in a bathtubfull of air with each breath, collecting explosives vapors and particles on a metal filter.

The filter is heated, re-launching the trapped explosives into a much smaller puff of air, about a tablespoon's worth.

This air is sampled using an on-board sensor called an ion mobility spectrometer (IMS), which detects and identifies the explosives.

This "preconcentration" technique can be likened to netting thousands of fish from waters as vast as an ocean, releasing the catch into a pond, and then fishing the pond — with much increased odds.

The approach, pioneered and patented by

Sandia in the mid '90s, has enabled the development of highly sensitive sniffers, ranging from a drive-through vehicle checkpoint to a walk-through portal for screening airline passengers at airports, that catch the faintest whiffs of bomb-making chemicals.

By early 2000, the Sandia team had miniaturized the preconcentration equipment enough to create "luggable" devices for identifying trace concentrations of explosives at special events and crime scenes.

### Installable, luggable, portable

The MicroHound™ (a.k.a. μHound™) — a collaboration of Security Systems and Technology Center 5800 and Microsystems Science, Technologies, and Components Center 1700 — is the latest evolution in smaller and cheaper explosives-detection devices, says project leader Kevin Linker (5848).

It is the first hand-carried sniffer that integrates in a single device Sandia technologies for the preconcentration, sampling, and detection of explo-

(Continued on page 4)

# What's what

Discoveries are us at the US government's national security labs, and we made a really important one last week: We need the Internet and e-mail.

If you're a New Mexico Sandian and weren't in the middle of the Southern Ocean in your sailboat last week, you experienced life at work without those two vital tools for most of three days right smack in the middle of the week. And if you don't work in the network/computer/e-mail corps and you were about to pull your hair out for those three days, try to imagine life inside that group of wizards.

It moved Marcus Martin (9235) to ask: "Is ISP a title, such as president or ambassador, that continues to be conferred upon an entity even after it no longer applies? . . . Perhaps we should use something along the lines of the musician Prince and call [the Internet service provider company used by Sandia] 'the company that formerly provided Internet service to Sandia.'"

But by midday Thursday, all was well in our cyberworld.

\* \* \*

Rod Geer (12640), who can actually remember watching Art Linkletter's 1950s television show *Kids Say the Darndest Things*, says parents can say some pretty darndest things, too. His Mom, Mrs. Geer, for example.

She called him at the office one day last week and asked if he had retired. Two points about that call, he said: (1) Mom, if I'd planned to retire, I probably would have told you, and (2) if I had retired, I probably wouldn't have been here to answer the phone.

But I bet he shared that wisdom only with us in the office. Bet he didn't actually say that to Mom.

\* \* \*

I don't know if Steve Trujillo (9112) was serious or just poking a little fun at me about my poking fun the last time around at the Santa Fe Police Department for offering a "reserve-an-arrest" option for City Differenters who might want to be on record as protesting during President Bush's visit, but couldn't actually be on the street.

"Why not just write, 'I hate Santa Fe' and be done with it? Just wondering," he wrote.

I answered Steve, and I reiterate here: I love Santa Fe. And mostly for just that "reserve-an-arrest" sort of thing. I mean, where else on the planet could you find such a laid-back option? No, Steve, I love Santa Fe. It's like Hollywood, Disney World, and Never Never Land all rolled into one, with touches of Greenwich Village, San Miguel de Allende, and Jimmy Buffetville thrown in.

Nosirree. . . I love Santa Fe.

\* \* \*

And a quick note about the other part of last issue's column. My musings about trying to find a phone number for the Santa Fe Police Department so I could check on that "reserve-an-arrest" deal apparently reached out and touched several someones.

But that's not a bad thing. The phone gurus are re-examining the decision to shut off access to 1-411 and 1-(area code)-555-1212 directory assistance. And having another look rarely hurts.

— Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)

# Feedback

**Q:** Why are Office Administrative Assistants being hired without a clearance, given minimum training, and then sent to the line organizations? These new OAAs are given mentors, but there are also problems with this as the mentor and the new hire are usually in different buildings or even tech areas. Also, why must these new OAAs continue their "basic training, i.e., document control, review and approval process, etc." after they have been assigned to an organization?

Secretarial Services does an excellent job with training; it's just not sufficient to meet the needs of the assigned organization.

**A:** It is a condition of employment that OAAs must be able to qualify for a DOE "Q" clearance, and no OAA is hired into Sandia without that "Q" clearance already in process. As we all know, getting security clearances in a timely manner is a problem for all new employees, not just OAAs.

OAA New Hire Training has been shortened to six full days with the format considerably changed. Our goal is to equip a new OAA with the tools needed for "day-one" success on the line, not total information overload as has been the case many times in the past. Processes unique to the assigned organization may require further job-specific training for the OAA. (For example, processes such as document control, review & approval, property, and even travel, are no longer handled by the OAA in every department.)

The Office Professional Quality Council (OPQC) manages the mentoring program for new-hire OAAs for Secretarial Services, and the job that they do is phenomenal. The mentors are volunteer secretaries who want to help new OAAs get as good a start as they themselves did as new hires. Helping a new-hire OAA "learn the ropes" does not mean that the mentor must be a neighboring secretary. Mentors answer e-mail and voicemail questions, enjoy phone visits, and meet their mentees for an occasional encouraging lunch — all part of the new friendship network a new-hire OAA enjoys at Sandia.

Thank you for your Feedback question. Space here is limited, but I believe that a full discussion of the changes in our new-hire OAA program is in order. Watch for a "Sue's Corner" article in a coming "Secretarial Services Wednesday Weekly Newsletter." — BJ Jones (3500)

## Employee death

Michael Bohn of Weapon Surety Engineering Dept. 12333 died May 18 of injuries suffered in a car accident.

He was 58 years old.

Michael had been at the Labs more than 19 years and was a distinguished member of the technical staff in engineering sciences.

His survivors include his daughter, Juliette Bohn, and son, Alexander Bohn.



MICHAEL BOHN

# Sandia LabNews

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## Caption confusions

In the May 16 *Lab News* a photo caption on page 5 identified a visitor to the Emergency Operations Center as Karen Boardman, Manager of NNSA's new Sandia Site Office (SSO), but the photo actually showed Patty Wagner, Deputy Manager of the SSO.

In the same issue, on page 3, the caption for a photo misidentifies one of the two people looking at a Wall of Fame display. The Anna Trujillo shown is not the Sandian by that name (in Dept. 14186), as we thought, but Anna Trujillo of NNSA's Sandia Site Office.



## Lift the names high

# Albuquerque kids sign Space Day poster for Shuttle launch

Once again, as has been the case for the past several years, Lockheed Martin has teamed up with Sandia and the National Atomic Museum to support National Space Day activities in Albuquerque. Space Day events are held in all 50 states, throughout Canada, and in countries around the world. This year's program, "Celebrating the Future of Flight," highlighted aviation and aerospace accomplishments, taking special note of the yearlong Centennial of Flight celebration. In the photo, Darline Polonis (12660, right) of the National Atomic Museum and students from Mrs. Smith's fifth grade at Collet Park Elementary School look at the poster with their signatures on it that will fly aboard the next Shuttle flight. Mrs. Smith is to Darline's right. (Photo by Randy Montoya)

# Sandia launches engineering fellowship at UC Berkeley

**Shannon Timpe will work on MEMS as first recipient of Excellence in Engineering Fellowship**

By Nancy Garcia

When Shannon Timpe arrived at his graduate research program at the University of California, Berkeley in the fall with ample materials research under his belt, his advisor pointed him to a new research fellowship established by Sandia, the University of California, Berkeley Excellence in Engineering Fellowship.

"I was really excited about this stuff," Timpe says about his research experiences as a mechanical engineering major at the University of Illinois in Champaign-Urbana. "I was in the right place at the right time."

As the first recipient of the new fellowship, Timpe will apply the basic materials science training he received as an undergraduate to characterizing properties of microelectromechanical systems (MEMS). He has access to experimental resources in the mechanical engineering department laboratory of his advisor, Prof. Kyriakos Komvopoulos, a specialist in friction, and related labs under the direction of the renowned Berkeley Sensor and Actuator Center. Timpe also looks forward to presenting his work to Sandia researchers who have synergistic projects and to touring the facilities here.

"Obviously, Sandia is one of the leaders in the MEMS community," he says. "It will be a tremendous learning experience for me."

That interplay is one of the founding principles of the fellowship, says California Laboratory

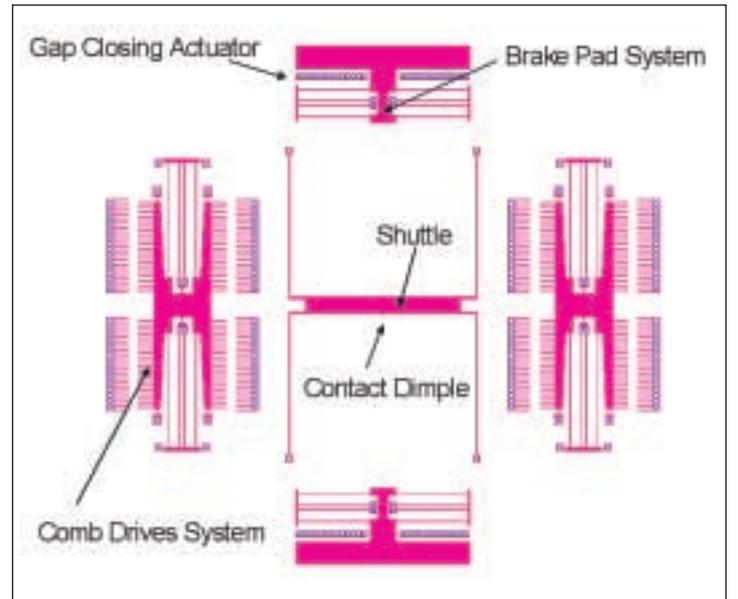
VP Mim John, who is Sandia's UC Berkeley campus executive.

"The goal of the fellowship is to encourage innovation in science-based, multidisciplinary research through support for an outstanding doctoral candidate in engineering," she wrote to Berkeley officials when announcing the fellowship. "In making this pledge, we hope to strengthen our partnership with the University of California, Berkeley to encourage a new generation of engineers who can contribute to engineering and high technology in areas of national interest and critical need."

The fellowship provides \$40,000 in annual student support for two years (renewable for a third year) through Sandia's Laboratory Directed Research and Development program. Its implementation at Berkeley was spearheaded by mechanics of materials researcher Bonnie Antoun (8725). She worked with Wendell Kawahara (currently on leave to teach at UC Berkeley), and her manager John Garcia (8725) to place the fellowship. John and Bonnie recently visited Berkeley to receive a briefing by Timpe on his progress.

"He very quickly came up with a new design," John says, "to measure the contribution of adhesion forces during static friction, a phenomenon that is prevalent in MEMS devices and based on the attraction between very flat surfaces, kind of like the property that causes contact lenses to adhere."

Timpe also plans to study dynamic friction present when surfaces slide past each other. He is working on a comb drive mechanism that is just micrometers long. Some 20 to 25 of the devices fill a polysilicon chip that measures a square centimeter. Based on tests begun in April with the first version, he has devised a second-generation design.



THE DESIGN CONCEPT that fellowship recipient Shannon Timpe devised is shown in this AutoCAD drawing. This design is being used to test friction in microdevices.

To fabricate this more sophisticated device, John says, Timpe will look into using Sandia's Microelectronics Development Laboratory (MDL), which has a unique MEMS fabrication process.

Bonnie shares Timpe's research interest in friction in MEMS. For the past year, she has been serving as a lead experimentalist on an LDRD project led by Dave Reedy (9123) in New Mexico to develop high-fidelity frictional models for MEMS. She and John anticipate mutual benefits from their association with Timpe. "We can draw on their knowledge and expertise, which can help us move

## **Sandia** California News

along in our understanding of MEMS friction," John says. Timpe says the fellowship should form the groundwork for his master's project that he will present to faculty and may also result in a publication. For doctorate work in his joint master's/PhD program, he expects to focus on detailed aspects of the work.

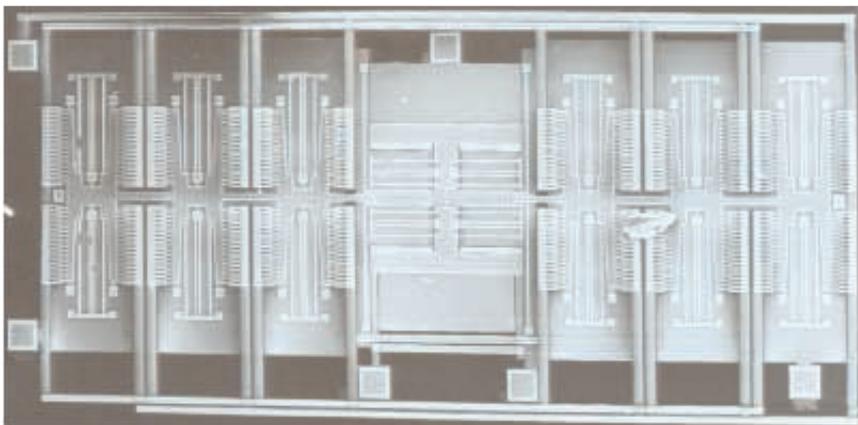
Overall, the new fellowship should generate similar gains for Sandia and UC Berkeley in the years to come, Mim says. "We believe this will jointly strengthen our ability to attract outstanding people, enhance our institutional research, and help foster long-term, mutually beneficial relationships. We believe students and faculty will discover that the national laboratories are the place where they can come to solve the grand scientific and engineering challenges of the 21st century."

### **Stanford, UC Davis also targeted for enhanced interactions**

The University of California, Berkeley is one of three regional campuses that Sandia/California is targeting for enhanced interactions. A broad group of managers and directors have been meeting in a Strategic University Partnerships Committee, and teams are being formulated that target each campus with specific action plans.

To launch the teams, Recruiting and University Partnerships Dept. 8524 has held a series of lunchtime gatherings for Sandians associated with each campus. In addition to UC Berkeley, Stanford University, and UC Davis are on the list; UC San Francisco may be added later.

Goals of the interactions include becoming well-known in the university communities as a Bay Area science and technology institution that is second to none, providing effective pipelines for attracting high-quality staff, increasing opportunities to collaborate on research, and helping Sandia and the campuses improve their visibility to their constituencies.



AN OVERHEAD IMAGE of a complete device microfabricated in polysilicon is shown in this scanning electron micrograph.

## **Homeland Security S&T chief visits California site**



ENLIGHTENING — Department of Homeland Security Undersecretary Charles McQueary, left, hears a briefing about the Extreme Ultraviolet Lithography (EUVL) program at Sandia/California. Rick Stulen, Director of Exploratory Systems and Development Center 8100, is at the center of the group, and Nanolithography Dept. 8730 Manager John Goldsmith is to the right. In the foreground is a display case holding an EUVL reflective mask. (Photo by Bud Pelletier)

## Wall-to-wall

(Continued from page 1)

David notes that due to the political climate, it is particularly important that Sandia meet its goal — and even do better — during this year's wall-to-wall inventory.

"Even though a 98.7 would constitute a marginally passing score, the National Nuclear Security Administration [NNSA] is anxiously awaiting our results, as well as those of other national laboratories. Sandia will inevitably be compared to others," David says.

Inventories at Sandia operate on a four-year cycle. For the first three years property coordinators — people appointed by department managers, usually OAAs — conduct statistical inventories. In FY02 they located a sample of 2,300, out of the 56,000 assets — a sample size calculated by Sandia statisticians. The fourth year they do a wall-to-wall inventory where the emphasis is on accounting for all trackable assets by geographic scan. By focusing on work and storage areas, rather than asset lists, diligent property coordinators will locate items not necessarily assigned to their own organization, and the new location data can be plugged into the records.

The statistical method used costs less, is less time consuming, and still provides information needed to make adjustments to property control systems without doing an extensive wall-to-wall inventory.

Though labor intensive, wall-to-wall inventories can be productive. After two months of effort this year some, \$1.7 million worth of previously "unaccounted for assets" were identified, representing half the cost of conducting the inventory itself. In addition to re-locating assets, it makes good business sense to identify idle or



SCANNING — Michelle Fleming (12640) scans a laptop barcode as part of the Labs' big once-every-four-years wall-to-wall inventory. The process seeks to account for some 56,000 capital assets. (Photo by Randy Montoya)

excess items so as to reduce storage costs and avoid unneeded procurements.

"DOE trusts both our wall-to-wall and statistical sampling methodologies," says Barbara Bays (10267), FY03 wall-to-wall inventory project lead. "We in Property Management are in a challenging position, though. We are Sandians, yet while validating inventory results, we have to be independent and objective. To our credit, unlike some DOE sites this year, Sandia's inventory is not being monitored by consultants or accounting firms."

The property coordinators are hunting several categories of assets. They include "attractive" items that are easily portable like laptop computers and cameras valued at \$1,000 or more. Also tracked are all equipment items valued at \$5,000 or more and, regardless of cost, all firearms and walkie-talkie radios.

The wall-to-wall inventory had a kick-off event in March where property coordinators were instructed about how to do their inventories.

"Essentially we told them the way to do a geographic inventory — how to go into a room and look top to bottom, east to west, north to south, clockwise or counter to check all spaces and to track their progress at a command center," Barbara says.

Following this method, they almost always find assets believed to be shortages or those from another center/department. The property coordinators scan the barcodes of all the assets. Information from the scans is dumped into a mainframe computer every night.

Sometimes, though, shortages are never found in a given year's exercise. At the end of each inventory, a report of shrinkage is given to DOE, along with the full inventory survey. It becomes DOE's role to review the documentation and officially approve "write off" of shortages.

Frequently property coordinators run into assets with bad barcodes, ones that can't be read by the scanners. In these instances the property coordinator writes up a report and submits it to Property Management, which must determine the report's validity. Then someone from Property Management or DOE physically visits the site to look at the item, doing what is called a physical validation. If it is located off site, in Las Cruces for example, people in Property Management provide the barcode number and then ask for another number on the item for further verification.

Barbara says of the 56,000 assets, only a very small percentage is expected to turn up as shrinkage. And those are generally items like computers that have been "cannibalized" for parts. Many shortages have been returned to the manufacturer or loaned to another department, but the records need to reflect such activity. It is also common among NNSA sites that more than 50 percent of

(Continued on next page)

## MicroHound

(Continued from page 1)

sives, he says. (The previous Sandia device, a pre-concentration module called the Hound II, weighed about 28 pounds including the commercial hand-held sensor it attaches to.)

The 12-pound sniffer can detect explosives in parts-per-trillion concentrations, depending on the type of explosive. That's sensitive enough to identify explosives in a fingerprint left by a person who had recently been working with bomb-making ingredients, he says.

The MicroHound could be used to sniff out hidden explosives in courtrooms, schools, or other high-risk facilities, or at entry points to screen people or parcels.

Demand for such sensitive and portable explosives-detection capabilities have increased significantly since 9/11, accelerating Sandia's development work, says Kevin.

For now the customers are members of federal emergency response teams involved in homeland security. Sandia has fabricated, assembled, and delivered several prototype MicroHounds for field-testing and evaluation.

Although the MicroHound is not yet available commercially, Sandia might consider licensing the technology in the future, he says.

### Miniaturizing security sensors

Meanwhile the Sandia team continues to improve the MicroHound's capabilities and reduce its size and cost.

The next MicroHound might include a second preconcentration cycle that would improve its sensitivity even further.

In addition, says Kevin, the ability to fashion more of the MicroHound's components from silicon using microelectronics fabrication techniques, one goal of the ongoing project, could significantly reduce the size and cost of future hand-held sniffers.

Future versions of the sniffer will include not only a micro-sized IMS detector, but also a San-

dia-developed surface acoustic wave (SAW) sensor. The two devices will work in tandem to validate explosives-detections and reduce false alarm rates. (See "MicroHound meets MicroChemLab" at right.)

Inexpensive manufacture of the micro-sized IMS is being made possible through a new fabrication process that employs a low-temperature, co-fired ceramic material, developed jointly with Manufacturing Systems, Science, and Technology Div. 14000 and Center 1700. An associated micro-valve is being developed that uses a Sandia-patented semiconductor fabrication process.

And a micro Faraday detector for improved ion detection, also under development in Dept. 2552 and building on previous work at the University of Arizona (a collaborator on the project), could enhance the detection of explosives by orders of magnitude, as well, says Kevin.

"This is one of several projects involving the application of microtechnology to security problems within Center 5800," says Rebecca Horton, Dept. 5848 manager.

Beyond explosives, adds Kevin, the MicroHound concept might be the beginning of a single integrated portable platform with multiple detectors to find a variety of contraband, including radiation sources, narcotics, hazardous chemicals, and more.

"Kind of like a tricorder," he says.

Other Sandians involved in the project include Doug Adkins (1764), Ivan Alderete (14171), Lester Arakaki (5848), Johnny Baca (1738), Charles Brusseau (5848), Todd Christenson (1743), James Gonzales (14171), Chris Gresham (2552), C.J. Hartwigsen (5832), James Kuthakun (14171), Tom Lemp (1743), Mary-Anne Mitchell (5848), Ken Peterson (14171), Kent Pfeifer (1744), Scott Rawlinson (6218), Chuck Rhykerd (5848), Mike Rightley (1745), Steve Rohde (1738), Diane Ross (5848), Art Rumpf (1744), Robert Sanchez (2554), Gary Shannon (5848), Robert Stokes (14171), Rose Torres (14171), Dan Trudell (1764), Timothy Turner (14171), Eric Varley (5848), and Jimmie Wolf (1738).

## MicroHound meets MicroChemLab

The Surface Acoustic Wave (SAW) sensor proposed for the MicroHound™ captures explosives molecules on its vibrating quartz surface for a fraction of a second and quantifies them by measuring changes in vibration caused by their masses.

The sensor relies on a gas chromatograph (GC) column — a tiny silicon tunnel a hair in diameter but more than a meter long in 43 inward spiraling rotations — to separate the chemical species for SAW identification, explains Curt Mowry (1764).

A polymer coating on the tunnel's inner walls acts like stones in a river, slowing down larger, heavier, stickier objects — in this case molecules — floating in the air stream but allowing smaller, lighter ones to float past unimpeded.

At the end of the tunnel, the lighter chemical species arrive first, followed in waves by increasingly heavier and stickier ones.

The SAW sensor uses each chemical type's travel time to determine its identity.

The GC-SAW combo, a creation of Center 1700, already has been demonstrated as part of the MicroChemLab hand-held prototype detector developed at Sandia to identify chemical weapons agents.

Although explosives detection represents an expanded application for the technique, the approach is the same, says Curt.

The GC-SAW takes longer than the ion mobility spectrometer (IMS) to identify an explosives species, he adds, but it is better at distinguishing among those species.

"The advantage Sandia has is in being able to combine the GC-SAW sensor and the IMS technique into one highly reliable device," he says.

# Zircle, Brennan, and Sandia: A new kind of partnership

Zircle LP, a technology innovation group, is a novel economic development model founded by former Sandian Tom Brennan and business partner Mark Benak. Both are successful entrepreneurs, and Tom told Sandia President Paul Robinson one of his motivations is to give something back to Sandia.

"I am a Sandian," he said at the "historic" signing of a partnership agreement between Sandia and Zircle May 21, with New Mexico Gov. Bill Richardson looking on.

Zircle is a select group of entrepreneurs that will create and manage a pool of equity capital (the target is \$50 million in private and state funds) with its partners, in this case Sandia. Zircle will work with Sandia to identify Labs technologies and market needs that create business opportunities best executed through start-up companies. Sandia, Zircle, the State of New Mexico, and Strategic Limited Partners (corporate partners who will invest in the technologies for potential acquisition or supplier objectives) will share in the ownership of these new ventures based upon their financial and technological investments.

"Unlike venture capital firms, Zircle does not invest in other people's ventures," says Brennan. "We



STATE OCCASION — Gov. Bill Richardson was the focal point at a news conference at Sandia last week announcing a novel partnership agreement between Zircle LP and Sandia that has strong support from the state of New Mexico. From left, Zircle founder Tom Brennan, Sandia President Paul Robinson, Governor Richardson, and Secretary of Economic Development Rick Homans. Also participating in the news conference but not shown are Zircle partner Mark Benak and Gary Bland, the state investment officer. (Photo by Bill Doty)

build our own, using a pool of working capital provided by our investors, and technology supplied by our lab partners. You might say that our philosophy is entrepreneur-centric, rather than capital-centric."

Brennan says Zircle will focus its technology commercialization efforts in "hardware" products focused in technologies for defense, energy, communications, and medical applications.

"Zircle is a new national model for economic

development," New Mexico Gov. Bill Richardson said at the signing ceremony at Sandia. "The bottom line is that Zircle will directly financially benefit the national labs, the scientists, the technology industry, the State of New Mexico, our workforce, our communities, and our educators."

"I have a feeling that this will be a very historic moment five to 10 years from now," Rick Homans, Secretary of the New Mexico Economic Development Department, said.

Homans said the Zircle approach is an opportunity to build new businesses in New Mexico, taking advantage of the "technology gold mine the state is sitting on," with \$3 billion of research under way up and down the Rio Grande corridor. "It is time to bring all this together and take the state to a whole new level. That's what Zircle is all about."

Tom Brennan, one of the managing general partners (with Mark Benak) in Zircle LP, was a senior member of technical staff at Sandia from 1986 to 1996, when he left to found MicroOptical Devices (MODE) in Albuquerque. MODE was based on Sandia-licensed compound semiconductors used in manufacturing vertical cavity surface-emitting laser (VCSEL) components. EMCORE Corporation, a Sandia strategic partner and major employer in the Sandia Science and Technology Park, acquired MODE in December 1997. — Ken Frazier

## Richardson

(Continued from page 1)

bring millions of dollars and thousands of new jobs to the state.

The first part of the May 21 visit was a news conference at which the parties signed an agreement between Zircle and Sandia. Zircle, an Albuquerque investment fund led by entrepreneurs Brennan, a former Sandia scientist, and Benak, will work with customers to identify real-world technological problems and find potential solutions at Sandia. Sandia, Zircle, the State of New Mexico, and Strategic Limited Partners will share in the ownership of these new ventures. (See "Zircle, Brennan, and Sandia" above.)



GOV. BILL RICHARDSON

Zircle plans to give a portion of its profits to New Mexico education programs through endowed chairs at state universities and through funding of some public school initiatives. Also, new companies created as part of the process could mean thousands of new jobs for New Mexicans.

Richardson called Zircle a "new national model for economic development."

"It is focused on aligning the interests of the

*"This agreement is not an exclusive one and it will not stop others from participating in the new ideas we have to offer. But it is a whole new approach — and we predict a winning approach — that will change the road map of how the nation commercializes technology out of research facilities." — Gov. Bill Richardson*

state — and its major technology business stakeholders — and benefiting each through its \$50 million in planned investments," he said. "The bottom line is that Zircle will directly financially benefit the national labs, the scientists, the technology industry, the State of New Mexico, our workforce, our communities, and our educators."

Rick Homans, New Mexico economic development secretary who also attended the news conference/signing, said that Zircle is a unique model. In the past, standard venture capital models have not been as effective as they might have been in transferring new technologies from the labs into start-up business.

"One big reason for this has been because no one but the out-of-state investor had a direct vested interest in outcomes — and even then it has been purely about return on investment, excluding other factors," he said.

tors need to continue their strong effort right up to the end."

### Aha! Missing items found in unexpected places

One department had a missing computer, according to records from the 2002 stat sample inventory.

"No one knew where it was," Barbara Bays, wall-to-wall inventory lead, says.

Then someone thought about a shed on the roof of Bldg. 806 where an old weather monitor was located.

Sure enough, when they went to look, it was there.

"Assets can appear in the most unexpected places," Barbara says.

"We have to climb every mountain and ford every stream," muses David DePolo, property manager.

## Wall-to-wall

(Continued from preceding page)

any given year's shrinkage is located in subsequent inventories.

This year the wall-to-wall inventory has been made easier with a new lightweight scanner. Considerably smaller than scanners used in the past, the new scanner resembles a palm pilot. It tells users, for example, when a scanned item has been retired due to service life and how to locate additional information about the asset. Users can click on an icon with a stylus, which allows them to switch to different programs.

As of early this week, 93.68 percent of Sandia's assets were located, notes Barbara.

"I'm not unhappy with this," she says. "We had a huge increase right off the bat, but 99.5 percent is the goal for an "Outstanding" rating, and we are expected to meet it. Property Coordina-

Richardson noted that this new model will be used initially with Sandia, but later can be applied to other research institutions such as Los Alamos National Laboratory, University of New Mexico, New Mexico State University, and others.

"This agreement is not an exclusive one," Richardson said, "and it will not stop others from participating in the new ideas we have to offer. But it is a whole new approach — and we predict a winning approach — that will change the road map of how the nation commercializes technology out of research facilities."

(The agreement is nonexclusive in a second sense as well: it doesn't preclude other new entities with Zircle-like models at Sandia. The model, says David Goldheim [1300], represents one of a number of approaches being explored by Sandia to transfer technologies to local companies and start-up enterprises.)

The governor introduced Sherman McCorkle, president of Technology Ventures Corp., complimenting the organization on its accomplishments over the past 10 years in establishing start-up companies, creating jobs, and attracting experienced investors to New Mexico.

Later, at a half-hour colloquium for employees in the Steve Schiff Auditorium, Richardson talked again about Zircle, noting that Sandia will have a significant equity stake in the venture. But it will also have a lot to gain as start-up companies created by Zircle mature and convert Sandia's technologies into products, improving the economic base of New Mexico and supporting Sandia's missions on behalf of the NNSA, the Department of Defense, and the Department of Homeland Security.

He also praised the way "Sandia has been a great citizen" of New Mexico and said the Zircle/Sandia mechanism is another way the Labs can help improve economic and educational conditions in New Mexico.

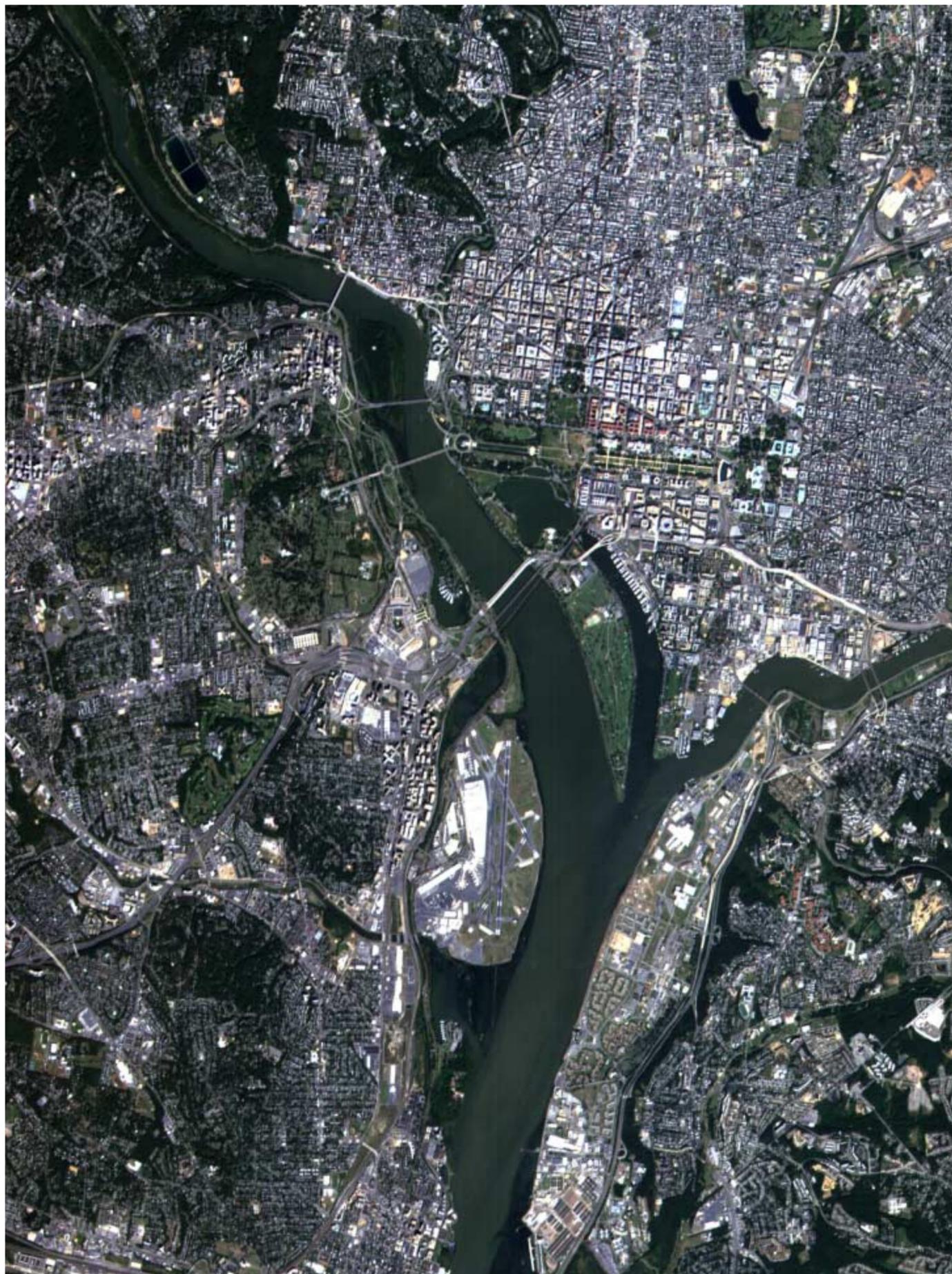
Diverting from the topic, he briefly discussed his success at cutting taxes during the last legislative session.

"We sent the message that New Mexico is open for business," he said. "We're doing things differently. We are moving ahead. . . . I am trying to change the state."

Responding to a question about working with neighboring states, he noted he is doing that, especially now that he is president of the Western States Governors Association.

The western states, he said, have many commonalties — water problems, shared transmission lines, education, immigration, with most of the immigration moving to the west.

"We have to work and we have to work cooperatively," he said.



MTI satellite image of the Washington area, including (west of the Potomac) parts of Arlington and Alexandria, Va. The Capitol is in the right region of the image. Ronald Reagan National Airport is at lower center.

# Around the world 17,300 times: Sandia's MTI satellite completes its three-year orbital research assignment

*Labs team continues to squeeze capabilities out of Sandia's first satellite*

By John German

Mission accomplished.

The Multispectral Thermal Imager (MTI), the first full satellite and sensor system designed and built by Sandia, has successfully completed its three-year research goals, and the satellite continues to collect imagery for US government agencies, says MTI project manager Max Decker (5743).

Not only that, he says, but the satellite has been used in ways that were never anticipated by the design team.

The MTI's telescopic camera captures imagery data in 15 spectral bands that reveal heat or light patterns not visible to the human eye. It does so in levels of radiometric accuracy never previously accomplished from space.

### Mission wrap-up

Since its launch just over three years ago, on March 12, 2000, the satellite has orbited the earth more than 17,300 times. (See [www.sandia.gov/media/NewsRel/NR2000/mtsucceed.htm](http://www.sandia.gov/media/NewsRel/NR2000/mtsucceed.htm) for more about the launch.)

Operators at the Sandia/New Mexico ground station have contacted the satellite twice a day, 365 days a year. More than 440 gigabytes of raw imagery data have been downloaded from space, says Max.

The goal of the satellite's three-year research assignment was to demonstrate the feasibility of using the satellite's unique multispectral imaging technologies for both national security and environmental applications, he says, including treaty monitoring, mapping of chemical spills, studying vegetation health, and more.

As planned, the MTI's imaging camera has collected in some cases more than 50 images of sites outfitted with equipment that allows researchers to compare the imagery data taken from space with data supplied by instruments on the ground — a calibration technique called "ground truthing."

"We've collected large amounts of data in support of the DOE's objectives," says Max, "and the results have been shared with the DOE research community."

### Research and more

Specifically, the MTI team has fielded a highly calibrated system and worked to understand how to keep it calibrated in space, says Max, a feat that had never before been accomplished to the desired accuracies.

The system has repeatedly demonstrated the ability to measure absolute temperatures from space to better than two degrees. It can measure temperature differences to much more precise levels.



MTI satellite image of the Larson Ice Shelf in Antarctica on Nov. 27, 2002. The image shows MTI bands comprising the blue, green, and red channels. Earlier in 2002, a 1,250-square-mile portion of the Larson Ice Shelf (Larson B) disintegrated over a period of five weeks. Only 40 percent of the original ice shelf now remains.

The MTI team also flew a new kind of linear-array focal plane of three sensor chip assemblies each housing 15 detector arrays. Each detector array looks through a filter that defines its optical capabilities. The three sensor chip assemblies are aligned and mounted on a single focal plane, which is cooled to 75 Kelvin (minus 198 degrees Celsius).

The team also demonstrated use of a pulse-tube cryocooler, which kept the components at 75 Kelvin continuously for 30 months.

"This is one of the longest continuously running mechanical on-orbit coolers ever fielded," says Max.

And they supported the research objectives of the MTI Users Group of more than 100 researchers from 50 national defense and civilian agencies. Among the MTI's scientific contributions are new understandings of volcanic activity, arctic shelf breakup, and other natural and man-made phenomena.

*(Continued on next page)*



MTI satellite image of Mt. Etna in Italy, Aug. 1, 2001. A few weeks before, the volcano began a series of major eruptions. In this image, large lava flows can be seen in the thermal bands beneath the smoke and clouds.

# MTI satellite

(Continued from preceding page)

The MTI imaging camera has proven valuable enough that both government and private industry are incorporating similar imaging technology in designs and proposals for future satellites, he says.

## Hurdles overcome

The MTI's mission has not been without problems. Shortly after launch a glitch in the satellite's on-board power system resulted in unexpected battery discharges that prevented data from being collected and transmitted to the ground station.

It raised blood pressures at first, says Max, but the team soon learned to manage its power operations in a way that mitigated the problem.

Two other anomalies, a short in one of the satellite's two solid-state recorders — its computer memory — and a faulty gyroscope forced the team to find other creative workarounds.

## MTI helped NOAA, too

A second imager on board the MTI, a Hard X-ray Spectrometer (HXRS) sponsored by the National Oceanic and Atmospheric Association (NOAA) to study solar flares, didn't quite last three years, says Max Decker.

It quit transmitting on Feb. 17, 2003, but managed to accomplish its planned mission first.

A letter from NOAA Director Ernest Hildner sent to Sandia praised the Lab's assistance and called the partnership a success.

"I extend to you . . . our laboratory's deep appreciation for [your] substantial assistance and cooperation in making the [HXRS] experiment to view the sun an overall success," he wrote.

## Exceeding the mission

Now that the mission goals are complete, the MTI has entered a bonus round, of sorts, collecting data on a routine basis for several government organizations.

To expedite data processing and improve efficiency, data processing responsibilities were formally transferred from Los Alamos to Sandia in late January, says Max. Sandia is now responsible for all aspects of the MTI system.

The satellite currently is gathering about nine images a day, 60 percent of which are requested by other government agencies for research purposes. The other 40 percent are being collected for NNSA labs.

A Sandia Spectral Image Processing and Exploitation team led by Jody Smith (5712) is squeezing ever more analysis capability out of the satellite, developing and experimenting with dozens of data processing algorithms and techniques that allow them to see more with existing instruments.

The new algorithms are providing data useful for cloud identification, terrain characterization, change detection, and more, says Max.

"What we're doing now is trying to push the state of the art in spectral analysis tools," he says. "We are experimenting with a lot of ideas."

One trick, called "super sampling," involves snapping four images during the time period one image would normally be taken, allowing the team to synthesize images with resolutions four times better than the typical 5 meters of resolution.

## The MTI's fate

This kind of experimentation will continue until the MTI is no longer useful, or until it plunges to earth, whichever comes first, says Max.



ARTIST'S illustration of Sandia's MTI satellite in orbit.

The satellite is expected to reenter the upper atmosphere in 2009 — or, rather, be captured by the atmosphere — during a solar max (expansion of the atmosphere) that occurs on an 11-year cycle.

Already the satellite's orbit has decayed. Shortly after its launch three years ago the MTI was 590 km high; today it is about 560 km up. In addition, its sun angle has changed, altering the times of day the imager can acquire targets.

When it does fall toward earth, says Max, it is expected to burn up and disintegrate before it reaches the ground.

"Sandians supporting the MTI program have advanced the state of satellite technology as well as the analysis tools used to exploit the data gathered," says Sid Gutierrez, Director of Monitoring Systems Center 5700. "They should be proud of these major contributions to our national security."

The MTI's development and on-orbit operations were funded by NNSA's Office of Nonproliferation and National Security (NA-22). The satellite and sensor payload were developed by a Sandia, Los Alamos National Lab, Air Force, and industry team led by Sandia.

## Favorite Old Photo



**COWBOY ROOTS** — These are photos of my grandfather's (Dennis B. Lyons, deceased) homestead ranch in central southern South Dakota that was established in 1909. The man on the horse rearing up is my uncle, Richard Lyons, who still has the ranch with my Aunt Bernice. The other photo shows my grandfather tending cattle on the "Lyons' Ranch." Both photos were taken in 1946. My father (Robert J. Lyons, 81) grew up on this ranch. I grew up in Sioux Falls, S.D., and every summer we would go out to the ranch to visit and sometimes help

with tending cattle. This is a real working open-range cattle ranch, which gave me many unique experiences. I will never forget rounding up cattle on horseback, branding, and vaccinating the herd. One time I had a cowpony lay down in a creek with me on the back, soaking me to the bone and causing significant excitement. Today it makes me realize that my family descended from real cowboys, a unique and often romanticized piece of Americana.

— Greg R. Lyons (2616)

## More on Sandia's endeavors at Yucca Mountain Project

The May 2 Lab News featured an article by Will Keener about Sandia's work at Yucca Mountain, the proposed geologic repository in Nevada that will permanently store America's high-level radioactive waste. Due to space limitations, the Lab News was unable to carry two dramatic pictures and a timeline associated with the project. We are presenting them to you now.

### Timeline for Yucca Mountain Project

#### 1982 Nuclear Waste Policy Act

Directed DOE to develop a geologic repository for spent nuclear fuel and high-level radioactive waste.

#### 1987 Amended Nuclear Waste Policy Act

Directed DOE to study only Yucca Mountain in Nevada.

#### 2002 DOE Recommends site to President

After 20 years of study, the DOE recommends the site, Congress affirms, and President George Bush signs a joint resolution.

#### 2004 License application to the Nuclear Regulatory Commission

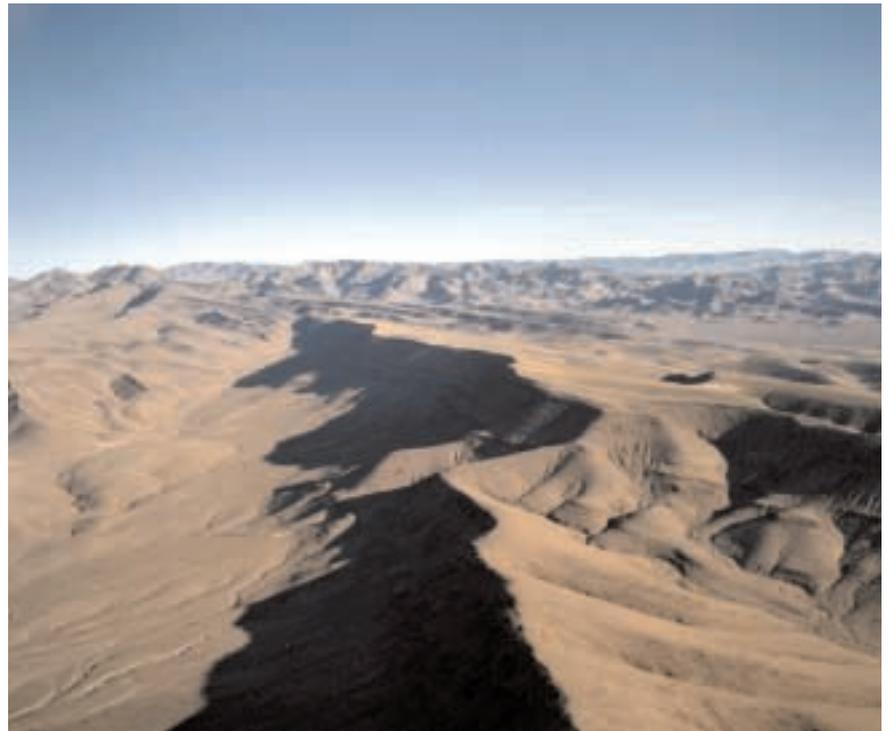
After DOE submits the license application, NRC has three years to review.

#### 2007 Construction begins

DOE concurrently updates license application to receive and process waste.

#### 2010 High-level radioactive waste arrives

The earliest possible date for operations.



REMOTE LOCATION — Nearly encircled by Nellis Air Force Range and the Nevada Test Site, the proposed Yucca Mountain Repository is 100 miles north and west of Las Vegas, Nev., in the remote Basin and Range province.

SIMULATING HEAT that will be given off by high-level radioactive waste containers and to measure the impact on surrounding rock, project researchers inserted this canister into a room off Alcove 5 inside Yucca Mountain and heated it for four years, while carefully measuring results. Measurements will continue for several more years as the rock cools.

## Third Safety Forklift Rodeo called a big success

Logistics and Integrated Safety and Security once again teamed to host the 3rd Annual 2003 Safety Forklift Rodeo. This event gives employees a chance to compete and show off their skills using forklift equipment, while having fun. The rodeo was held in the 957 Complex May 5-8 with tryouts Monday through Wednesday and the final competition and an awards ceremony and barbecue lunch on May 9. There were about 40 participants.

Five individual events were held, each including an inspection of the forklift. Here are the winners for each event:

Fun Course, **Mike Salazar** (3125); Three on Three, **Chris Mehring** (10263); Low Boy/Semi Trailer, **Paul Apodaca** (10268); Grand Canyon, **Mike Vallejos** (3125); Valley of the Serpents, **Chris Mehring** (10263).

The one with the most points in all events is the overall winner; if there is a tie, the best time is the deciding factor.

The overall champion was **Greg Vigil** (10268), with 114 points. **Chris Mehring** was runner-up, and **Bryce Gilbert** (3125) was third.

In 2002 the champion was Chris Mehring (10263), and in 2001, the first year, Roberta Carroll (10263) was the champion. Because a female won the first forklift rodeo, it is now tradition that a tiara be passed on to the new champion.

"The safety awareness, the skills, and the knowledge that our personnel perform each working day is unbelievable and it showed during the competition," says Carolyn Lucero, Manager of Receiving, Mail, and Material Movement Dept. 10263. "The support from all



FORKLIFT RODEO overall champion Gary Vigil (10268) drops a basketball cleanly through the net during one part of the Fun Course competition.

levels within 10000 and 3000 was great. The 2003 Safety Forklift Rodeo was a big success. Thanks to everyone for the participation, the help, and the support."

Carolyn and Al Bendure (3122) championed the event. Team members consisted of Ernie Sanchez (3122), Liz Carson (10262), Pauline Bruskas (10263), Leigh Saunders (10263), Shannon Letourneau (10263), Chris Chavez (10848), Phil Rivera (10267), Greg Vigil (10268), Jeff Jarry (3125), Robert Bruhn (3128), Ernie Salas (10265), Lonnie Trujillo (10265), and Janet Clarke (10260). Many others also helped, including judges and folks who helped with the food and tables. John Ledet (10263) provided music.

## Feedback

**Q:** Since there is more awareness of possible terrorist attacks toward the United States, as indicated through the world and local news, should there be more evacuation drills practiced here at Sandia? Does Sandia feel the annual evacuation drills are sufficient? I know more drills can be an annoyance and hinder performance of work, but safety and awareness at all times should be considered.

**A:** Starting this year, not only will approximately 200 buildings be scheduled for their annual evacuation drills between April and September, but a shelter-in-place drill will also be conducted for those buildings between September and December. It is understood that evacuation drills do impact line operations, and that is why they are scheduled through the Evacuation Team Captain to minimize this impact. The shelter-in-place drills scheduled for later this year will be no-notice and should have a minimal impact on operations. Once the evacuation team has completed the directed shelter-in-place protective action, the drill will be terminated.

The Tone Alert Radio (TAR) installation is continuing, and more than 1,000 units have been mounted and tested within the Sandia/New Mexico buildings. The monthly tests of the TARs began in April and will continue on a scheduled basis. The monthly test will be conducted on Fridays to minimize impact on meetings. Personnel will be notified by e-mail prior to the scheduled test. The Friday tests will be staggered (all TARs will be tested together, on a five-week interval) so all personnel on different work schedules will have the opportunity to hear the alert tone and message.

# Recent management promotions

## New Mexico

**Sharon Walker** from SMTS to Manager of Facility Engineering and Support Dept. 6433.

Sharon came to Sandia in 1984 as a member of the first environmental department at the Labs. She has worked in many environment, safety, and health areas and has worked as a safety analyst for Sandia's nuclear facilities for the past five years.

Sharon has a PhD from the University of New Mexico. She is board certified in toxicology and is a Diplomat of the American Board of Toxicology.

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**Jeff Wilcoxon** from PMTS, Inertial Systems Dept. 2334, to Manager, Analog Electronics Engineering Dept. 5735.

Since he joined the Labs in 1976, Jeff has been involved in the design of analog and digital electronics for inertial guidance and control systems, supporting WR weapons components, advanced exploratory weapons, and space-based optical payloads.

Jeff has an MS in electrical engineering from the University of New Mexico.

\*\*\*

**Lalit Chhabildas** from DMTS to Manager, Solid Dynamics and Energetic Materials Dept. 1647.

Lalit joined the Labs in 1976. His technical interest has been to conduct experimental research in the field of dynamic/shock properties of materials under high strain rates for a variety of materials. Research topics include strength of materials, hypervelocity launcher developments, isentropic and multi-axial loading of materials, fracture and fragmentation studies, shock-induced vaporization studies, and others.

Lalit has a BS in physics from the University of Bombay and a PhD in physics from Rensselaer Polytechnic Institute.

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**Jim Hudgens** from PMTS, Integrated Microsystems Dept. 1738, to Manager, Photonic Microsystems Technology Dept. 1743.

Jim came to Sandia in 2001, and has worked in glass science, optical science and technology, telecommunications, and microsystems product development.

He has a BS and a PhD in ceramic engineering, both from Iowa State University.

\*\*\*

**John Pott** from PMTS, Lethality and Threat Dept. 15417, to Manager, Materials Mechanics Dept. 9123.

John came to Sandia in 1984. His work has been in nuclear weapons research and development. He developed and applied the methods of solid mechanics and structural dynamics to the design of various nuclear weapon systems, including the W76, the W88, and the B61. John also developed and applied methods of solid mechanics to determine the lethality of US kill

vehicles against representative hostile re-entry vehicles. In addition, he was the principal investigator for the thermal-mechanical Yucca Mountain field tests designed to investigate the stability of tunnels to be used to store the spent fuel rods from the nation's nuclear power plants.

John has a BS in applied mechanics from the University of Illinois, Chicago, and an MS and PhD in theoretical and applied mechanics, both from University of Illinois, Champaign-Urbana.

\*\*\*

**Jun Liu** from PMTS, Biomolecular Materials and Interfaces Dept. 1141, to Manager, Chemical Synthesis and Nanomaterials Dept. 1846.

Jun joined Sandia in 2001. His work is in self-assembled materials, biomineralization, functional nanoscale materials, and chemical and biological sensing.

He has a PhD in materials science and engineering from the University of Washington, Seattle.

\*\*\*

**Jesus Ontiveros** from PMLS, CFO Direct Customer Support Dept. 10015, to Manager, Payroll Services and Financial Training Dept. 10502.

Jesus has worked in Sandia's accounting organization since he came to the Labs in 2000. He has experience as a financial analyst, accounts payable manager, and manufacturing accountant.

He has a BBA from the University of New Mexico, Robert O. Anderson School of Management.

\*\*\*

**Matt Riley** from DMLS to Manager, Logistics Risk Management Dept. 10262.

Matt has worked in Sandia's Procurement and Logistics organizations since joining the Labs in 1991.

He has a BA in finance and an MBA, both from the University of San Diego.

\*\*\*

**Dan Schmitt** from PMTS Intelligent Systems Controls Dept. 15211, to Manager, Mechanical Systems Design Dept. 5714.

Dan has worked as a mechanical engineer and project leader since he joined Sandia in 1983. During his career he has worked on weapon components and done mechanical design for the pulsed power machines. Dan was most recently in the Intelligent Systems and Robotics Center, where he worked on a variety of projects, including sensor-based control of industrial robots and development of collective robotic systems.

He has a BS and an MS, both in mechanical engineering from Oklahoma State University.



JOHN POTT



JUN LIU



JESUS ONTIVEROS



MATT RILEY



DAN SCHMITT

## California

**David Rosenzweig** from PMLS, Recruiting and University Partnerships Dept. 8524, to Manager, Facilities Operations Dept. 8514.

Since joining the Labs in 1986, Dave has been the Staffing Team Leader in the Recruiting and University Partnerships Department, Business Office Leader for the ARM UAV Program, senior analyst in Budget and Finance, and an employment representative in Human Resources.

He has a BS in oceanography from the United States Naval Academy and an MBA from California State University, Hayward.

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**Greg Cardinale** from SMTS, Nanolithography Dept. 8730, to Manager, Microsystems Design and Integration Dept. 8245.

Greg first came to Sandia as a student intern in 1993, did postdoctoral work in 1995, and became a limited-term employee in 1996. He became a senior member of the technical staff in 1997. Greg went on entrepreneurial leave of absence in 2000 and returned to Sandia in 2002. His work at the Labs has been in microelectromechanical systems (MEMS), nanotechnology, advanced lithography, and business-of-technology.

Greg has a BS in materials engineering from Rensselaer Polytechnic Institute, an MS in mechanical engineering from Northeastern University, and a PhD in materials science from the University of California at Davis.



DAVID ROSENZWEIG



GREG CARDINALE

## Retiree deaths

|                                |               |
|--------------------------------|---------------|
| Dwight L. Allensworth (age 71) | .....Feb. 10  |
| Irma R. Olson (91)             | .....Feb. 24  |
| Harvey S. North (93)           | .....March 7  |
| Henry E. Guttman (84)          | .....March 10 |
| Julian Silva (84)              | .....March 15 |
| Donald Fogel (66)              | .....March 16 |
| Wilma R. Ash (86)              | .....March 18 |
| Peter G. Rospopo (83)          | .....March 19 |
| Haskell V. Jacobs (91)         | .....March 20 |
| James H. Jones (79)            | .....March 20 |
| Otto H. F. Simon (69)          | .....March 23 |
| James B. Ayers (86)            | .....March 24 |
| Alan Yates Pope (89)           | .....March 25 |
| James B. Gibbons (88)          | .....March 26 |
| Benjamin L. Sewell (71)        | .....March 27 |
| Robert P. Stromberg (77)       | .....April 1  |
| Joseph J. Rodzewich (66)       | .....April 8  |
| Chester A. Tarne (88)          | .....April 10 |
| Willard E. Flowers (79)        | .....April 12 |
| Elizabeth F. Six (90)          | .....April 15 |
| June Juanita Moore (80)        | .....April 15 |
| Florence K. Bramlett (91)      | .....April 16 |
| Norman R. Grandjean (59)       | .....April 16 |
| Roxley Eldon Kent (85)         | .....April 16 |
| Juan Jose Tafoya (76)          | .....April 20 |
| Harold B. Thomas (81)          | .....April 23 |
| Marie B. Williams (97)         | .....April 28 |

## Sympathy

To Elsa Glassman (3521) on the death of her father, Herbert Glassman, in Boston, Mass., March 22.

# Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

## MISCELLANEOUS

COUCH, excellent condition, must sell, bought new one, \$40. Chavez, 831-3193.

SURGE-ARREST STRIPS (3): APC 280 (2) & 700 UPS; Multitech modem (3); Office Connect hub; Epson color 777; HP LaserJet 2200 HD; HP 920C. Kholwadwala, 238-9381.

DESK, HON contemporary, steel case w/laminate top, light gray, \$475; printer table, \$125. Marquez, 228-4200.

DOG KENNEL, 6 x 10; dog cage, XL, great for training; baby clothes & supplies, make offer. Baldonado, 294-2904.

DIGITAL CAMERA, Canon D-30, 3.25 MegaPixel res., body only, takes all Canon lenses, \$800. Healer, 298-6967.

POOL, Dough Boy, 4-ft. deep, 16-ft. diam., Barracuda cleaner, used 2 summers, \$650. Barbera, 275-2562.

TARP, new, 13'4" x 18'9"; car stands, 2 ea.; gas can, 5-gal.; snow tires, P215/R-15. Pitti, 256-1629.

SUN CONURE, beautiful, young, friendly bird, 1-1/2 yrs. old, w/cage, \$300. Schalip, 296-4006.

CAMCORDER, Sony, 8mm, hardly used, \$200 OBO; resistance motivational stepper, programmable, Pro-Form 3001, \$200 OBO. Torres, 238-5544.

TREE HOUSE, Little Tikes, \$80; Little Tikes truck (sandbox & pool), \$40; 8-pc. fine china set, w/serving pcs., \$150. Mehler, 823-9020.

UPRIGHT FREEZER, Kelvinator, white, 21.2 cu. ft., ~10 yrs. old, \$100. Keener, 298-0892.

GAME CUBE, w/2 controls, memory card, & 2 games, \$150. Johnson, 573-6902, ask for Christine.

WATERBED MATTRESS, queen-size, heater, 3 railings, free. Chavez, 265-7331, leave message.

ELECTRIC WHEELCHAIRS, 2, \$850 ea.; electric hospital bed, \$50. Buteau, 891-2925.

LAWN MOWER, American reel-type, good condition, \$20; Scotts lawn spreader, essentially new, \$15. Brosseau, 238-5175.

BACKYARD CLOTHESLINE POLES, free. Pollock, 271-2841, after 5 p.m. or weekends.

PLAYSTATION 1, games for both Playstation 1 & 2; motorcycle jacket, leather, large, \$150 OBO. Padilla, 873-0380.

WOOD STOVE, Klondike Iron, w/pipe, great condition, \$500. Lang, 286-0205, ask for Jeannette.

CHINA HUTCH, oak, lighted upper display, looks new, \$350 OBO. Hanson, 286-2364.

GAS GRILL, w/full tank of propane, \$40; McCullough chain saw, w/case, \$70; Homelite backpack gas blower, \$75. Gluvna, 884-5251.

TWIN MATTRESSES, 2, clean, good condition, \$40 OBO both; microwave, good condition, \$20 OBO. Martinez, 296-8285.

DESK CHAIR, Chairworks, adjustable, rolling, leather, like new, \$75 OBO; oak desk armchair, \$50 OBO. Lauffer, 867-2043.

RUGS, 2, hand-knit Persian, 5 x 8, Naeen design, wool-on-cotton foundation, silk highlights, \$2,000 ea. Mohagheghi, 271-0724.

MOTHERBOARD, Asus P3B-F, Pentium III, 700 MHz, 512MB Crucial RAM, \$125 all; Trek 930 mountain bike, w/Avocet cycle computer & U-lock, \$200. Schoch, 822-8479.

OD POLY-PIPE, ~3/4-in. diameter, for sprinklers, about 15-20 ft. Roberts, 268-2946.

WATERBED FRAME, queen-size, good condition, \$25. Delgado, 994-8866.

MULTI-FAMILY YARD SALE, La Luz ECCC, Tech Park, Britt & Gibson (SLFCU building), June 14, 7:30 am-1 p.m. Harris, 265-4792.

10-FAMILY GARAGE & BAKE SALE, fundraiser, 7120 Aztec Rd., NE of Louisiana/Candelaria, June 7, 8 a.m.-4 p.m. Furnish, 884-6626.

TOOLBOX, Craftsman, 5 ft., rollaway, new, matching workbench; Delta bench grinder, w/stand, \$650 all. Rogers, 489-2621.

TELESCOPE, 6-in., f/5 Newtonian, TAL-150PM, excellent condition, extra accessories, sells for \$780, asking \$475. Campbell, 281-0744.

TRAILER, home-made, w/missing hitch, free, you pick up in Sandia Park. Dempsey, 281-9101.

TIMESHARE, Hawaii, Nov. 30-Dec. 1, 2003, 1-bdr., sleeps 6, 2 blocks from beach, really nice resort, \$750 OBO. Bareras, 246-8285.

HORSES: Palomino paint mare, 15 yrs. old, well trained, \$1,000; black w/blaze face, kid's horse, \$1,000. McConkey, 823-6575.

PHONICS GAME, like new, great for summertime activity, \$175. Beeler, 822-9463.

SOLOFLEX, w/leg extension & butterfly arch, \$200. Turner, 238-3964.

GORTEX JACKET & PANTS, military issue, great condition, great for hunting, \$100 for set. Baca, 319-8371.

HOME GYM, Body Solid, 1550LPS, 10 stations, includes leg/calf press, 50 exercises, delivered/set up, \$500. Houck, 286-8405.

KITCHEN CENTER, Oster, blender, mixer, grinder, new, \$125; pediatric table, white enamel, antique, \$30. Zamora, 294-3737.

GOLF CLUBS: Cleveland Quadpro, 1,3 woods, graphite Adams I wood, 18 degree BiMatrix, all R, \$40 ea. Ritson, 299-6284.

SPEAKERS: Bose Interaudio, floor, \$250; Bose bookshelf center, \$50; Yamaha, 80W subwoofer, \$125. Gardner, 286-0644.

CRIB MATTRESS, \$20; Little Tykes outdoor play jungle gym, w/slide, \$50, both excellent condition. Maestas, 836-7336.

DOG RUN, 6 sections, 6-ft. chain link, w/door, needs some work, all hardware, \$100 OBO. Hunter, 294-2877.

CAMERA, 35mm, Pentax Spotmatic, w/50mm, 135mm & 250mm lenses, other accessories, perfect condition, \$235. Pitts, 293-5481.

WASHER & DRYER, Kenmore series 70; heavy-duty, almond, great shape, perfect for student/newly weds, \$350 OBO. Johnson, 573-8960.

GOLF CLUBS, left-handed, men's, steel shaft, full set, includes woods SW & putter, hooded bag, lots of pockets, excellent condition, \$120. Stein, 293-3831.

ELECTRIC STOVE, beige & black, good condition, \$100. Shelton, 797-5008.

COUCH, w/2 built-in recliners, \$175; dresser, oak, w/mirror, \$95; computer desk, \$150. Nutt, 856-8267.

EMIGRATION SALE, furniture, hardware, appliances, clothes, electronics, Ridgecrest, 916 Valverde SE, May 31, 8 a.m.-2 p.m. Mills, 256-4110.

UTILITY TRAILER, new axle & springs, w/15-in. tires, rated @ 2,000-lb., 4'3" x 6' redwood bed, hitch for 2-in. ball, \$350. Garcia, 268-3848.

SOFA & LOVESEAT, burgundy leather, 4 mos. old, paid \$2,400, asking \$1,800. Prew, 296-3815.

JEEP HARDTOP, '97-'03, black, good shape, May 20 windstorm broke rear glass, \$800 OBO. Greene, 980-5896.

AUDIO RECEIVER, 5-100W channels, 5.1/DTS decoders, multiple A/V inputs & outputs, USB input, MSRP \$550, asking \$175. Hale, 298-1545.

EMBROIDERY MACHINE, Pfaff 2140, many goodies, \$4,000; Autodigitizer 4.0 software, \$800, both upgradeable. Esherick, 299-8393.

UPRIGHT FREEZER, Sears Kenmore, white, 15 cu. ft., works great, \$75. Barnard, 856-1952.

TIMESHARE, week in Maui, available June or July, great location near Lahaina, 1-bdr., \$600. Maish, 898-8027.

PLAY TICKETS, "1940's Radio Hour," Hiland Theater, June 8, 2 p.m., great seats, \$24 ea. Torres, 292-1663.

MICROWAVE, Whirlpool, 1000W, white, hardly used, \$40. Mercier, 294-9334.

LAWN MOWER, self-propelled, 21-in. reel, 9-cu.-in. displacement, 4-cyl. engine, \$50 OBO. Kepler, 296-0402, leave message.

ELECTRIC DRYER, Hotpoint, off-white, \$125; washer, GE, off-white, \$125, very good condition. Gonzales, 296-8006.

COMPUTER, complete Mac system, Motorola Starmax Power PC, Sony 17-in. color monitor, HP laser printer, modem, ZIP, \$400. Oberkamp, 292-4366.

OAK BEDROOM SET: dresser, trifold mirror, queen mattress, box spring, mirrored headboard, \$700. Floran, 280-3258, ask for Chris.

TWO END TABLES, sofa table, glass top, \$60 ea.; 2 table lamps, \$50 ea.; brass pot-rack. Cooper, 899-4227.

GARAGE SALE, mountain bikes, bathroom vanity, convection oven etc., Saturday, May 31, 9 a.m.-1 p.m., 2812 Mesilla NE. Ashcraft, 884-4934.

LANDSCAPE STONE, Sunset Rose, 3/8-in., orangeish-pink, approx. half a cubic yard, you load & haul, free. Van Deusen, 291-8196.

GOLF CLUBS: drivers, Callaway Hawkeye & C4, Nike, \$125 ea.; Callaway fairway woods, \$38 ea.; golf balls, \$4/doz.; pullcarts, \$5 ea. Feng, 275-6639.

POCKET PC 2002, HP iPaq h1910, 64MB RAM, Intel Xscale 200 MHz, latest & greatest, \$350 OBO. Garcia, 292-6930.

YARD SALE, baby items, clothes, furniture etc., 11508 Kings Canyon Rd. SE, May 31, 8 a.m. Garcia, 292-6930.

RECUMBENT E-BIKE, like new, adjustable frame, side mirror, black, \$500, will trade for high-end treadmill. Tardiff, 293-0462.

## How to submit classified ads

**DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:**

- E-MAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 0165 (Dept. 12640)
- DELIVER: Bldg. 811 Lobby
- INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.

## Ad rules

1. Limit 18 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. Submit the ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. One ad per issue.
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active and retired Sandians and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. We reserve the right not to publish an ad.

DOOR, carved solid wood, 36-in., w/hinges, excellent condition, paid \$350, asking \$65. John, 345-4006.

SHOW SADDLE, Circle Y, excellent condition, \$2,500 OBO; go-cart, seats 2, Tecumseh engine, great condition, \$500. Halrom, 797-1977.

## TRANSPORTATION

'01 DODGE RAM 2500 SLT, 4WD, loaded w/extras, 62,500 miles, excellent condition, \$21,000 OBO. Stevens, 280-5815, ask for Frank.

'94 CHEVY CAMARO, AT, V6, convertible, power everything, really nice, \$6,300 OBO. Sweiss, 323-8097, ask for Joe.

'88 DELTA 88 OLDSMOBILE, 4-dr., original owner, low mileage, must sell. Sanchez, 865-7992.

'02 LEXUS GS300, 4-dr., sedan, silver, premium package, 1,240 miles, excellent condition, \$38,000. Seavey, 884-8215.

'99 LINCOLN TOWNCAR, executive series, Champaign exterior, tan interior, new tires, 53.8K miles, excellent condition, \$15,800 OBO. Blain, 293-3971.

'94 JEEP CHEROKEE, 4x4, AT, 6-cyl., 4-dr., AC, cruise, white, 110K highway miles, \$5,900 OBO. Whitlow, 286-2591.

'88 CHEVY 1500, 4x4, 350, AT, AC, PS, PB, shell, w/custom interior, 60K miles, \$7,500. Crawford, 881-3812.

'81 TOYOTA COROLLA, 5-spd., 4-dr., AC, good tires, 119K miles, not pretty but runs OK, \$850. Hansen, 265-3987.

'95 JEEP WRANGLER SE, 4x4, 5-spd., hard/soft tops & doors, AC, CD, \$11,500. Williams, 323-9222, ask for Steve.

'92 HONDA ACCORD, 4-dr., 5-spd., fair condition, great student car, mechanically sound, below book, \$1,700 OBO. Harris, 463-1889.

'94 JEEP CHEROKEE, 4x4, 2-dr., 5-spd., V6, white, AM/FM/CD, 133K miles, good condition, \$4,000 OBO. Garasi, 856-3662.

'92 PLYMOUTH GRAND VOYAGER, needs transmission, \$500. Baker, 294-2542.

'99 FORD TAURUS, 24V Purtec engine, fully loaded, mechanically perfect w/maintenance records, \$8,200. Nielipinski, 934-7690.

'99 PLYMOUTH BREEZE, 42,500 miles, excellent condition, priced to sell below blue book, \$5,300. Abeyta, 463-5529.

'96 CHEVY BLAZER, 4WD, auto everything, tow pkg., 72K miles, mint condition. Campanozzi, 265-5220, ask for Bono.

'88 PORSCHE 928 S4, 5-spd., 5.0L, 17-in. wheels, leather, Venezia blue, \$11,000. Wolcott, 898-8329.

'72 CHEVELLE CONVERTIBLE, red, new white top, excellent body/interior, SS rims, 157K miles, \$12,000 OBO. Thomas, 294-2960.

'93 GMC SUBURBAN, 4WD, AC, ski rack, bike rack, 188K miles, very clean, \$10,000. Beckmann, 296-1829.

'01 CHEROKEE SPORT, 2WD, 4-dr., 4.0, V6, PW, PL, PM, CC, new brakes/hocks, 46K miles, only \$10,800. Lucero, 232-2314, ask for Mark.

'97 FORD EXPEDITION, Eddie Bauer, 4x4, loaded, leather, 3rd seat, tow pkg., red, 96K miles, great condition, \$12,800. Starkweather, 823-2747.

'90 JEEP WRANGLER SAHARA, 4WD, 2-dr., 6-cyl., AT, off-road tires, 83K miles, \$6,500. Naru, 821-7490.

'01 TOYOTA RAV 4, 4WD, AT, PW, PL, CD, moon roof, security, 17K miles, excellent condition, \$17,100. Abeyta, 857-9170.

'91 TOYOTA 4-RUNNER, AT, AC, FM/CD, white, looks great, extremely dependable, 135K miles, \$7,800. Newman, 266-6928.

'86 DODGE D150 PICKUP, Royal SE, 360 cu, AT, power, AC, shell, 130K miles, \$2,200 OBO. Cowen, 292-0948.

'96 FORD EXPLORER XL, 2WD, 4-dr., V6, 5-spd., AC, PS, PB, 90K miles, \$1,000 below blue book, \$4,500. Youchison, 237-2391.

'99 SATURN SL, 4-dr., 5-spd., 1.9L SOHC, Platinum/gray, AC, AM/FM/cassette, dual air bags, ABS, 57K miles, great condition, \$6,200. Baca, 345-6082.

'02 OLDSMOBILE ALERO, AT, AC, AM/FM/CD, new wheels, white, \$9,700. Smith, 259-9441.

FORD F150 XLT, 3-dr., red, excellent condition, \$7,600. Nguyen, 561-0865.

'95 SUBARU IMPREZA, AWD, 5-spd. manual, 4-dr., 4-cyl., 1.8L, AC, AM/FM/CD, 1 owner, dealer MX, 100K miles, \$4,000 OBO. Hoffman, 294-4167.

'95 MITSUBISHI ECLIPSE, 5-spd., special wheels, security, PS, power brakes, beautiful 2-tone, \$4,450. Daniel, 260-0461.

'99 MERCURY COUGAR, V6, AT, PW, PL, CD changer, red, great condition, \$6,900 OBO. Jaramillo, 865-7832.

'92 BUICK PARK AVENUE, 4-dr., AC, PW, alarm, AM/FM/cassette, 67K miles, excellent, \$3,995. DiBello, 856-3552.

'86 CHRYSLER LASER, 2-dr., 2.2L, TBI, AT, PS, new motor, \$1,500. Cleland, 281-2228.

'00 FORD EXPLORER, Eddie Bauer Edition, loaded, 31.2K miles, like new. Smith, 275-1666.

'94 SUBURBAN, 4x4, loaded, new Michelin tires, 44K original miles, \$13,000. Tode, 821-6641.

## RECREATIONAL

'87 BOUNDER, Class A, 31-ft. basement model, 454 turbo 400, loaded, 40K miles, excellent condition, \$15,000. Paboucek, 821-2049.

'94 AIRSTREAM MH-190, manuals, mileage & service records available, 18,552 miles, excellent condition, \$26,500. Hughes, 299-6674.

'81 HONDA GOLDWING INTERSTATE, AM/FM/CASSETTE/CD, 35K miles, needs electronic ignition work, \$1,000 OBO. Adcock, 271-0765.

MEN'S BIKE, Giant Boulder SE, large frame, like new, paid \$325, asking \$125. Millard, 298-4764.

'96 HONDA VFR750, extras include Micron pipe, tall windscreen, cover, excellent sport-touring bike, great condition, \$4,100. Smith, 828-3903.

J-3 CUB SIMILAR, 1 seat RANS, S-4 taildragger, licensed, 120 hrs. TT, Rotax 503Dc, dual tanks. Woods, 299-6928.

'95 POLARIS JET SKI, includes trailer, storage chest, custom cover, weather cover, life vests, excellent condition, \$3,500. Walters, 857-9767.

'89 SUZUKI RM 250, dirt bike, great condition, must see to appreciate, \$1,500 OBO. Atencio, 459-0185.

'98 GT LTS 2000, full suspension mountain bike, 4-in. travel, Marzocchi Z1 Bomber, LX/XT/XTR, \$575. Eldred, 281-0224.

'65 CLASSIC SKI BOAT, 17-ft., no motor, no trailer, \$75 OBO. Oliver, 332-2531.

'88 ALLEGRO, 27-ft., 454 engine, split bath, AC, jacks, microwave, generator, awning, sleeps 6, 38K miles, good condition, \$1,300. Cordova, 299-1652.

## REAL ESTATE

3-BDR. HOME, 1-3/4 baths, 1,850 sq. ft., updated, clean house, Tramway/Cloudiview, \$134,500. Chavez, 237-1103.

3/4-BDR. HOME, 1-3/4 baths, 1,950 sq. ft., drip irrigation, hot tub, pond, good schools, NE Heights, ready for move in, \$169,000. Giersch, 259-0885.

3-BDR. HOME, 2 baths, 2-car garage, great room, near Comanche & Tramway, 4 yrs. old. Bhardwaj, 323-5127.

3-BDR. EAST MOUNTAIN HOME, 2 baths, 2,100 sq. ft., 2-1/2 car garage, 2.7 acres, horse property, \$209,900. Hindman, 281-7710.

5-ACRE LOTS, 2, Sandia Park, juniper- & pinion-covered hills, gated community, \$49,000 ea. or make offer for both, must sell. Macnab, 286-8558 or 550-5501.

CUSTOM HOME, covenanted neighborhood, 1/2 mile south of Rt. 66, Edgewood, 3,200 sq. ft., \$250,000. Rogers, 286-2143.

3-BDR. TOWNHOME, 1-3/4 baths, 1,973 sq. ft., upgrades, landscaped, association pool, exceptional, \$159,900. Gutierrez, 822-1669.

3-BDR. CONDO, 2-3/4 baths, 2-story, 1,300 sq. ft., w/fireplace, security system, Tramway/Candelaria, \$115,000. Osburn, 298-0354.

3-BDR. HOME, 1-3/4 baths, 2-car garage, 1,230 sq. ft., shed, skylights, Lomas/Tramway, \$115,000. Forster, 293-7231, or forsters@comcast.net.

3-BDR. HOME, 1-3/4 baths, LR, DR, FR, 2-car garage, new carpet & tiles, 1,700 sq. ft., 1318 Monte Largo NE, \$144,000. Lin, 821-6183.

3-BDR. EAST MOUNTAIN HOME, 3,281 sq. ft., architect designed, 2 acres Ponderosa/piñon pine, bordering National Forest, \$399,000. Cooper, 281-0950.

3-BDR. HOME, 1-3/4 baths, 1,200 sq. ft., Estancia, double lot, adobe fence, 36 piñon trees, estate sale, \$55,000. Watts, 294-4756.

2-ACRE VALLEY LOTS, Tome, w/protective covenants, phone & electricity, irrigation available, will carry financing. Aronson, 898-8893.

3-BDR. TOWNHOME, 2 3/4 baths, 2-car garage, loft, appliances, enclosed back yard, West side, \$110,000. Owens, 839-4286.

5-BDR. HOME, cul-de-sac, 1 block from Sandia High School, many upgrades/updates, \$250,000. Wahlberg, 271-1337.

## WANTED

MILLING MACHINE & lathe; recording of P.J. Farmer's "Riverworld" from A&E. Brooks, 255-7551 or 410-7210.

TOYOTA PREVIA, or any Toyota van. Shields, 286-5917.

OBOE, for summer middle school band lessons, good condition. O'Hern, 275-3185.

RV, 17-22 ft. long, less than 50K miles. Beauchamp, 884-0334.

T-MOBILE PHONE, good condition, will pay. Archuleta, 450-9058.

ISA BUS NIC, ~3GB or ~4GB, IDE HDD for PC. Miller, 292-2746.

ROOM TO RENT, New Mexico Tech student intern, 2-3 days/wk., Albuquerque. Boutt, 453-6458.

## WORK WANTED

UNM STUDENT, babysitting, tutoring, house sitting, evening/weekends. Salim, 877-4945, ask for Valerie.

## LOST & FOUND

FOUND: prescription glasses, bi-focal, outside of Bldg. 811. Fleming, 844-4902.

LOST: gold chain bracelet, w/2 picture charms, lost in parking lot just east & north of Bldg. 811 (Lab News). Maldonado, 845-9554.

LOST: ball cap, tan w/gray bill, Moab Jeep Safari logo, possibly lost outside near Bldgs. 752/880, reward. Sears, 844-1136 or 891-4409.

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# Asian Leadership Outreach Committee chair sees some progress since standdown, but room for more

By Bill Murphy

It wasn't that long ago — just three years this spring — that some festering issues about the experiences of Asian Americans employed in the national laboratories came to a head.

Remember the context: The Wen Ho Lee espionage case in Los Alamos (almost all the charges against Lee, including the most serious ones, were ultimately thrown out) was the high-profile event that turned up the heat about Chinese espionage activities in the US.

Then there was the so-called Cox Commission report on Chinese espionage activities. Two of its three major sound bite findings were that: "1) People's Republic of China (PRC) has stolen design information on the United States' most advanced thermonuclear weapons. . . . and, 2) the PRC penetration of our national weapons laboratories spans at least the past several decades and almost certainly continues today." That report cast a long shadow — wittingly or not — on every NNSA/DOE employee of Asian/Pacific Island heritage.

## Coalescing of factors

A final ironic note that added insult to injury: an Asian-American US Congressman, concerned over anecdotal reports of security-related profiling of Asian Americans at the national labs, was himself the subject of what he perceived to be racially inspired special screening when he attempted to enter Department Headquarters in the Forrestal Building in Washington.

Labs employees of Asian and Pacific island heritage felt that this coalescing of factors — the Wen Ho Lee case, the Cox commission report (and other similar high-level reports), the general national anxiety about an emergent China, and perhaps not a little political grandstanding — had the inevitable effect of sowing suspicion on all of them collectively. They came to work under a cloud. They felt their very patriotism was in doubt.

And more than a few decided enough was enough. After years of laboring quietly in their labs and offices, believing that once their "dues" were paid, things would improve — and now this! Back to square one. The letdown was palpable. But this time, taking their lead from the civil rights play-book, the Asian-heritage labs employees throughout NNSA/DOE were determined not to go quietly into that good night. Symposia were called. Committees were formed. Grievances were aired. At the extreme end of the response spectrum, a California professor called for a boycott of the national labs by Asian grad students, an effort that has met with some success.

In the volatile and emotionally charged atmosphere, then-DOE Secretary Bill Richardson did the right thing, demanding a "diversity standdown." He appointed a headquarters-level ombudsman, Jeremy Wu, to handle ethnically charged complaints and other issues. He laid down the law: there is no place in DOE for profiling. And Sandia Labs Director Paul Robinson weighed in too: profiling Asian Americans for the alleged crimes of one would be the precise equivalent of profiling him (Paul) for the crimes of Aldrich Ames.

## Then and now

That was then. How are things today?

Chui Fan Cheng (6523), chair of Sandia's Asian Leadership Outreach Committee [ALOC], says she is optimistic that improvement is possible but does not sugarcoat the fact that the quest for full equitable opportunity in the workplace for all Americans — not just Asian/Pacific Island heritage Americans — requires a long-term commitment.

"Things of that nature don't change overnight; three years is a short time for this kind of change,"



ASIAN LEADERSHIP OUTREACH COMMITTEE CHAIR Chui Fan Cheng (6523, center), is joined by Redd Eakin (12660, left) of the National Atomic Museum and Margaret Harvey (3553), Manager of Sandia's Diversity program office, during the May 17 "Salute to Liberty: Asian Pacific Islander American Heritage Day" celebration at the museum.

she says. She cites the Bill Moyers PBS documentary "Becoming American — The Chinese-American Story" as the best short course on the unique challenges faced by Asian Americans as they try to assimilate into the larger society. "The show repeated the message that it is very hard for Asians to blend in; it's very hard for Asians and Pacific Islanders to be accepted,"

Chui says.

"To me, those are things that are going to



take generations to change. We all have responsibilities — Asians and non-Asians — we all have responsibilities [to make our society more inclusive]. America is the most open society in the world; the most open to change. So I'm optimistic on that front. In the meanwhile, for us, since we can never really affect the whole opinion, per se, we want to concentrate on things we can do."

ALOC, for example, hosts an annual celebration of Asian and Pacific Island cultures; the event has been held for several years at the National Atomic Museum during May, Asian Heritage month. Chui says the festival is an important part of ALOC's effort to expand understanding about diverse cultures.

The group is also active in the recruiting arena. Chui doesn't mince words in asserting that ALOC feels the Labs could be doing more to hire top Asian American and Pacific Island-heritage prospects.

"We're way behind in that," she says. She makes her case by noting that the "availability pool" — the pool of top candidates from the top schools that the Labs is interested in — is about 30 percent Asian/Pacific Island-heritage. The Labs makes offers to and hires about 5 percent Asian-heritage grads. By contrast, she notes that about 20 percent of Labs' postdocs are of Asian or Pacific Island heritage. From this data, she infers that "we still hire [for fulltime, regular employment] those we're most comfortable with."

Chui thanked Div. 6000 VP Bob Eagan, who is the LLT champion of ALOC and attends many of its meetings, for actively seeking from Labs recruiters the resumes of top Asian-heritage and other minority hiring prospects, setting an example that other VPs are following.

Chui says one of ALOC's goals is to see the Labs devote more resources to actively recruiting minority prospects, money she insists would be well spent. "Diversity isn't a political correctness issue; it's a business necessity," she holds.

## Why work for Sandia?

Acknowledging that the sour taste in the wake of the Cox Commission and the Wen Ho Lee case, along with the on-again/off-again boycott effort, has had some effect on recruiting, Chui says that when a promising young grad student asks her why he or she should work for Sandia, she still feels she can make a compelling case, dispelling their skepticism. Sandia, she tells them, offers work that is a true source of pride, work that is important to the nation; it offers a competitive benefits package, a terrific location in New Mexico (and a Bay Area operation, as well), and an opportunity to work in a number of different arenas during the course of a career. And as for security requirements? That issue, she reminds prospects, is also very much a concern in the private sector, which is determined to protect its invaluable proprietary information.

Is the progress to full acceptance as fast as it should be? Well, is progress in that regard ever fast enough, if you're on the receiving end of discrimination? But Chui does grant that, when looked at over the period of dozens of years, progress can be seen.

She recounts the story of a young Chinese immigrant, no one famous, no one you'd ever hear of, but someone whose experience was representative for most Chinese Americans just a few decades ago. The boy came to America at the age of 10 in the early decades of the century. His father started a Chinese restaurant. The boy worked his way through engineering school bussing tables at the restaurant. He graduated at the top of his class.

But he couldn't get a job. Couldn't get hired. He worked as a chef in the family business. It wasn't until after World War II — a couple of decades after he had graduated — that he finally found work as an engineer. It was a long, frustrating, sometimes heart-breaking uphill climb for him.

"I don't think it would work out that way today," Chui says.



WALK THIS WAY — A martial arts student is part of a troupe of students who demonstrated their skills during the Asian Pacific Islander Heritage celebration at the National Atomic Museum. In the photo illustration above, dragon dancers dazzle attendees with colorful spins and twirls.