

# On the surface: Sandia 'detective' solves strange case

Key detail leads to new interpretation of water-solid interactions published in Jan. 4 Science magazine

By Neal Singer

It was a small problem: a layer of water lying flat instead of slightly bumpy as it froze on a solid.

It became a larger problem when no one could explain why that might happen.

The slight difference between experimental results and established expectations might have meant nothing. But possibly it was signaling a basic scientific misunderstanding concerning the interaction of water with solids — an area of major industrial and scientific concern.

Water-surface interactions control the rate at which water passes through microscopic pores — a factor of increasing importance in micro- and nanotechnology. These interactions also affect the adhesion of materials in humid environments, catalytic chemical reactions, and condensation on dust particles in the upper atmosphere, to name a few.

*"This work makes the goal of understanding what happens when water contacts surfaces seem just a bit more achievable."*

Eventually, the problem ended up on the desk of Sandia theoretical physicist Peter Feibelman. His solution, which theorizes that water molecules dissociate near the surface rather than remain intact, was published in the Jan. 4 Science.

"This work makes the goal of understanding

what happens when water contacts surfaces seem just a bit more achievable," Peter said.

## The problem

Several years ago Munich experimental physicists Georg Held and Dietrich Menzel found that the initial layer of water molecules didn't lie the way they should on the precious metal ruthenium.

The researchers knew that ruthenium's surface atoms pack tightly together in a hexagonal array. They also knew that water molecules of ice crystals do the same, in hexagons only marginally bigger than the metal's. So the experimentalists expected that a frozen layer of water molecules would compress slightly and lie on the ruthenium with all the normal characteristics of a layer of ice.

But a small problem intruded from the third dimension: water molecules of ice always arrange themselves in puckered hexagons, with half the molecules higher and half lower.

Held and Menzel found no pucker.

Their layer of (heavy) water on ruthenium was almost perfectly flat.

## Not only shouldn't it be flat, it shouldn't be

Peter saw an opportunity to use modern advances in theory to understand interfaces at the atomic level. "In the past, scientists could only summarize what goes on at surfaces by making assumptions that were embodied as boundary conditions," he said. "The problem is that there was often no foundation for such simplifications."

*(Continued on page 4)*



SANDIA DETECTIVE — Theoretical physicist Peter Feibelman examines unexpected behavior at the liquid-solid interface. (Photo by Randy Montoya)

## Marianna Mauritz serves as Olympic torch bearer



MARIANNA MAURITZ (2125) describes her Olympic torch run in Albuquerque on Jan. 12. Read about her experiences in Chris Burroughs' story on page 8.

## Sandia and Goodyear sign umbrella CRADA

Sandia and Goodyear signed an umbrella cooperative research and development agreement (CRADA) last week that will allow the Labs to take on new research tasks quicker. The signing was part of a visit by senior officials from Goodyear who were at the Labs to discuss progress on the five current CRADAs and tour Sandia facilities.

It's the seventh CRADA signed by Sandia and Goodyear since 1994.

"All of the previous CRADAs were task-specific. Every time we wanted to work in a new area, we had to sign a new CRADA," says Hal Morgan (9120), manager of one of the five major CRADAs. "This umbrella CRADA will give the Labs the opportunity to take on new joint ventures without having to establish a new CRADA every time. It should greatly speed up the start process."

Two initial tasks are defined in the CRADA

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# Sandia LabNews

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## Nation's top architects receptive to Labs' building surety message during conference

Labs' Architectural Surety® work gets nod following WTC collapse

By John German

No building, save perhaps some bunkers, could withstand a collision with a 100-ton airliner followed by an 800° C jet fuel inferno. The World Trade Center didn't stand a chance.

Nevertheless, the attack on one of the world's greatest architectural achievements and the idea that the structure, not the plane, killed most of the World Trade Center's victims are prompting architects and building designers to take another look at how public structures can be made safer and more secure.

A recent survey of building designers by the American Institute of Architects (AIA) found that 72 percent of respondents anticipated their clients would request additional security features in design projects currently under way.

This month Sandia's Architectural Surety® program co-sponsored the AIA's annual confer-

ence Jan. 10-13. More than 250 architects, construction managers, corporate and public facility managers, and building owners gathered in Albuquerque for the event, themed "Building Security Through Design: Protecting Environments in an Open Society."

### Security, function, aesthetics

The conference exposed some of the participants to the principles of surety and risk management for the first time in their careers, says Rudy Matalucci (5862), Sandia Architectural Surety program manager. Others got a unique chance to see how these principles might be applied in real settings, and how emerging technologies might enhance designers' abilities to protect building users.

It began with a windshield tour of local buildings whose designs and security considera-

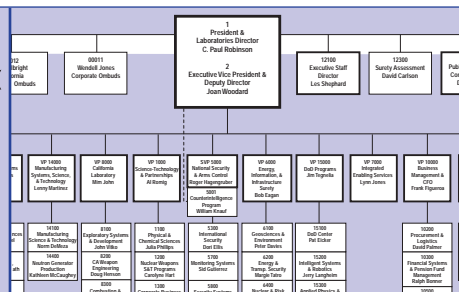
*(Continued on page 5)*

View the new 2002 Sandia Organization Chart

Local school selected to operate new child-care facility

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# No-name-yet column

This is not a new feature of the *Lab News*, of course, but since personal columns like this one are a little more free-wheeling than news columns, they usually have names that reflect their content and the style of their writers. And since I inherited this one from Larry Perrine, I thought maybe it ought to have a new name. Nothing wrong with "This & That," of course, but that name's identified with him, and since I'm not him (whew!). . . .

Editor Ken Frazier and I kicked around a few ideas and when none of them kicked back, we wondered if you might have suggestions. If you do, send 'em along to me (contact info at the bottom) and maybe we'll find a fitting name that way. Naturally, we'd like to reward any sparkling inspiration that comes along, so after Ken checked over his budget, he said we could offer a prize for the best suggestion: a free one-year subscription to the *Lab News*.

I look forward to hearing from you.

\* \* \*

If you hadn't heard from some other source already, Bruce Hawkinson retired last week. He's been around Sandia so long that some people think he hatched the original Thunderbird chick that was the inspiration for the Labs logo. He did grow up on a Kansas farm, but I don't put much stock in that story.

If you know Bruce, you know he doesn't always sing from the same sheet of music as the rest of us, and our Media Relations colleague John German discovered one of those solo performances during Bruce's last week on the job. As John was driving down 20th Street one day, he saw this guy walking along the edge of the street with his thumb stuck out. As he passed, he thought, "Jeez, that looks like Bruce!" He pulled over abruptly and looked in the rearview mirror, and — sure enough — it was Bruce.

Explaining about hitching a ride as they drove off, Bruce said, "Oh, I do that all the time. I know a lot of people and somebody always picks me up. I've been here a long time, you know."

And so he has been, and if you didn't read his "swan song" in the last edition of the *Sandia Daily News* that he sent out (Jan. 11 issue), read a little more about him in Bill Murphy's piece in the column to the right.

\* \* \*

And here's an interesting little "back to the future" vignette. One of my sons-in-law told me when I was visiting for Christmas that he'd found a neat Napster-oid website and had downloaded some really cool vintage music. It was on a CD, he said, that had been engineered to reproduce the pops and hiss that we used to hear on vinyl LPs. Interesting, I thought: We're using the technology we created to eliminate imperfections to replicate those imperfections. Hmmm. . . .

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

## Mr. Communicator Bruce Hawkinson retires after 36 years at Sandia

Mr. Communicator is shutting down his word processor, turning in his tape recorder, hanging up his microphone, and signing off one last time.

Bruce Hawkinson, the highly visible founding father and editor of the *Sandia Daily News*, the creator of the early-90s foray into broadcasting known as Radio Sandia, editor of the *Lab News* for most of the 1980s, and a technical writer who cut his Sandia teeth writing classified accounts of underground weapons tests in the 1960s, has retired after 36 years.

So closely was Bruce associated with his work and such clear relish did he take in it, that his closest colleagues in Media Relations and Communications Dept. 12640 were convinced that he would somehow plug on forever. They were sure that somehow, defying all the actuarial odds, two generations from now, long after they were scattered to RV parks from Scottsdale to Sarasota, Bruce would still be bounding in at 5:30 a.m., his familiar white beard a bit longer, his hair a bit thinner, but still in fighting trim, raring to get another trademark Wry Bye out to the holodecks of Sandians circa 2036.

### Prickly about his beard

"I had no idea what Sandia Corporation did when I hired in back in 1965," Bruce says. What he did know is that the president of the small college in Wisconsin where he was teaching English composition told him his beard had to go. And Sandia — grudgingly, since this was the height of the Cold War and Marx, Lenin, and Castro all had exhibited copious facial hair — allowed the beard to stay. Perhaps Sandia management agreed with the old George Carlin gag in which he notes that those communist icons all had beards, while on the other hand "Gabby Hayes [and Bruce?] had whiskers."

As a tech writer, Bruce soon found himself assigned to the underground testing program. There he came under the wing of weaponeers Carter Broyles and Bob Neel, whom he credits as perhaps the most significant mentors in his early Labs career. Bruce attended several underground tests at the Nevada Test Site. He asserts that his multi-volume classified account of the 1967 Midi-Mist test "became the model for all subsequent underground test write-ups."

### One job, many careers

Sandia is one of those places where an individual can have multiple careers over the course of 35 years. Bruce certainly did. In those days, back in the 60s, certain members of the laboratory staff were rotated through various jobs in order to expose

(Continued on page 6)

If you have access to Sandia's internal web, you can read Bruce Hawkinson's self-written "swan song" at [www-irn.sandia.gov/pubs/daily/Pages/20020111.html](http://www-irn.sandia.gov/pubs/daily/Pages/20020111.html)



MR. COMMUNICATOR  
BRUCE HAWKINSON

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## Labs Accomplishments coming in next issue of Lab News

The Feb. 8 *Lab News* will include the annual Labs Accomplishments special section, a *Lab News* fixture since the early 1980s. The 16-page pull-out section, produced in close cooperation with the VPs' offices and the direct involvement of hundreds of Sandians, will highlight approximately 150 notable technical and administrative achievements from across the Labs during the period of Oct. 1, 2000, through Sept. 30, 2001.

## Employee death

Rich Palmer of Special Projects Dept. 8346 died Jan. 1.

He was 57 years old, and worked at the Labs 31 years.

A senior manager at the Combustion Research Facility, he had worked at the California site since the early 1980s, transferring from Sandia/New Mexico.

He is survived by his wife, Kei, and two children.



## Congratulations

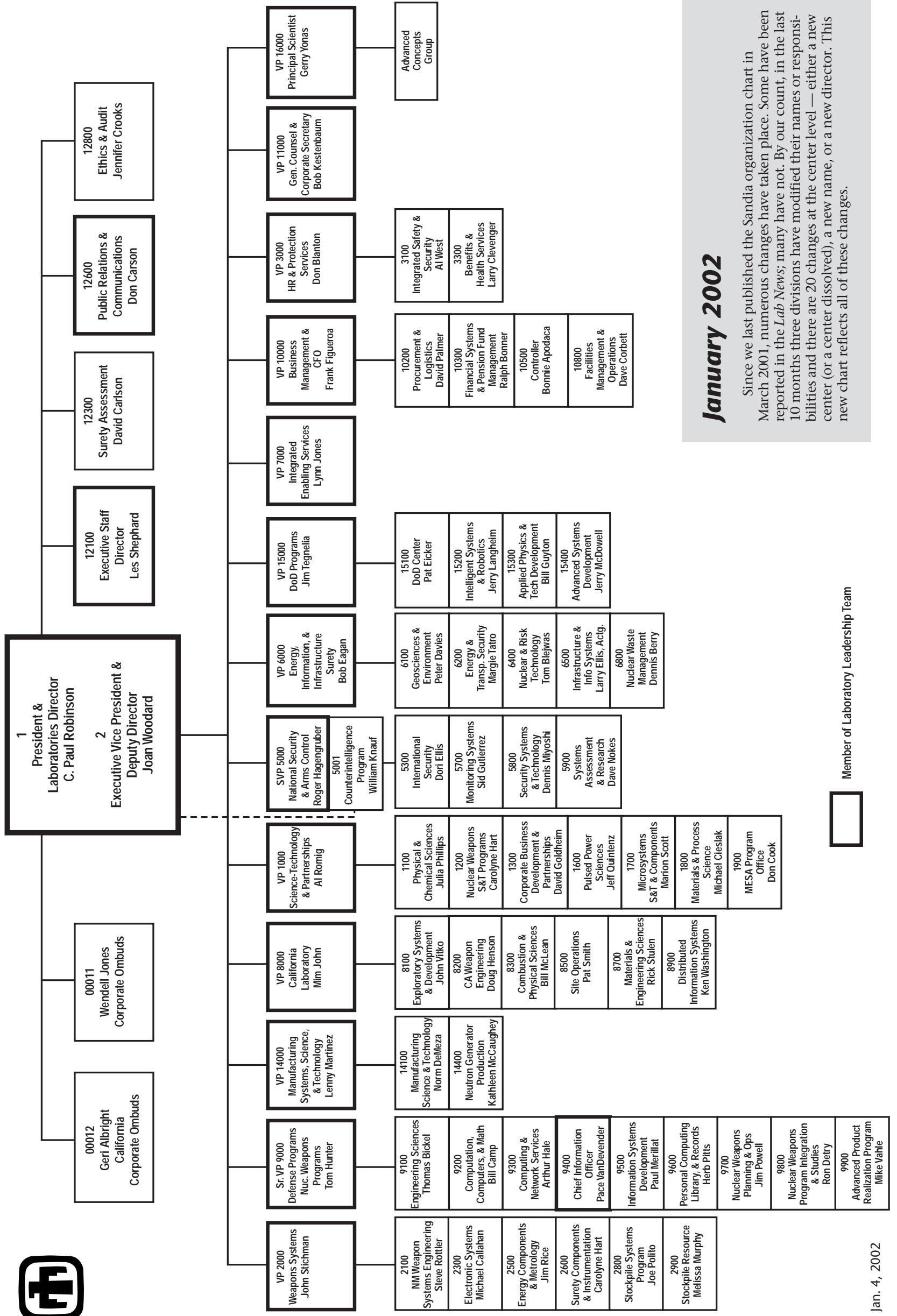
To Kylene (3124) and Perry Molley (2331) on the birth of a son, Jeremy Andrew, on Nov. 27.

## For the record

Those three images of microchains shown in our article "World's smallest microchain drive fabricated at Sandia" (Jan. 11) were taken by Barry Ritchey (14172), and we are happy to credit him.



# Sandia National Laboratories



## January 2002

Since we last published the Sandia organization chart in March 2001, numerous changes have taken place. Some have been reported in the *Lab News*; many have not. By our count, in the last 10 months three divisions have modified their names or responsibilities and there are 20 changes at the center level — either a new center (or a center dissolved), a new name, or a new director. This new chart reflects all of these changes.

Member of Laboratory Leadership Team

## Goodyear CRADA



CRADA PARTNERS — The relationship between Sandia and Goodyear grew even stronger last week with the signing of the seventh cooperative research and development agreement since 1994. The signers were VP Al Romig (1000, left) and Goodyear Senior Vice President Joe Gingo. (Photo by Randy Montoya)

(Continued from page 1)

— information management and an extension of work in the current chemical research CRADA.

Signing the CRADA for Sandia was VP Al Romig (1000) and for Goodyear, their senior vice president, Joe Gingo. A host of other senior officials from Sandia and Goodyear attended the signing.

The CRADA signing was one activity of the two-day meeting that involved tours of Sandia facilities and reports on how shared

research projects were progressing. Goodyear and Sandia top executives meet twice a year for updates. The January meeting, which was postponed from its usual October date, is always held at Sandia, and the mid-year one is usually at Goodyear's Akron, Ohio, headquarters.

Hal says that this new CRADA, like the others, was not designed to develop new products. Instead, Sandia provides its expertise to develop advanced technology tools that help Goodyear develop better tires and other rubber products faster and more efficiently.

— Chris Burroughs

## 'Your Thoughts Please' reaches first birthday

The internal-web-based employee comment feature "Your Thoughts Please" has just celebrated its first birthday, which means it's time for an assessment of the program.

In fact, the question currently posed on the "Your Thoughts Please" web page (go to the Newscenter and click into the site) gives Sandians a chance to offer the program a thumbs up, thumbs down, or a ho-hum through submitted comments.

That question, which will be open for responses until the end of February, reads:

*"Your Thoughts Please" is now one year old. A variety of questions have been posed. A wider variety of responses have been submitted and posted. Although diverse, those responses have carried some common themes. Senior management has noticed responses. What is your impression of Your Thoughts Please after its first year? Good? Bad? Indifferent? Your thoughts will be appreciated as year two begins."*

Questions during the program's first year asked for employees' thoughts on such matters as Lockheed Martin; the Labs' most significant accomplishments of the past several years; the corporate vision, values, and highest goal; the relationship between the Sandia New Mexico and California sites; what you'd want a Labs VP to notice most if they shadowed you for a day; and how the events of Sept. 11, 2001, have likely changed Sandia.

Reponses currently available on the web site are to a question related to the Labs' on-going "common-sense" governance pilot.



## Recent Patents

Charles Cadden (8724), Nancy Yang (8723), and Floyd Hosking (1833): Surface Preparation for High Purity Alumina Ceramics Enabling Direct Brazing in Hydrogen Atmospheres.

Robert Hutchinson (6516), Lyndon Pierson (9336), and Perry Robertson (1751): Flexible Programmable Logic Module.

Barry Spletzer, Gary Fischer, Lisa Marron, and Michael Kuehl (all 15211): Misfire-Tolerant Combustion-Powered Actuation.

Douglas Adkins (1764), Barry Spletzer (15211), Chungnin Wong (9113), Gregory Frye-Mason (1764), and Gary Fischer (15211): Miniature Electrically Operated Diaphragm Valve.

Joseph Michael, Raymond Goehner (both 1822), and Max Schlienger (1800): Crystal Phase Identification.

## 'Detective'

(Continued from page 1)

Peter hoped to use models faithful to nature at the atomic scale to interpret what was going on at the solid-water interface. He already had done significant work on the arrangements and movements of atoms on the surface of materials. At his desk, he reflected on how the chemistry of a solid surface might determine the arrangement of nearby water molecules.

Then he calculated the binding energy of the water molecules in the expected puckered structure versus their binding energy in pure ice. Peter reasoned that if ice is more favorable energetically, then water molecules will not want to spread out into a flat, essentially 2-dimensional layer on a ruthenium surface, but instead cluster together, forming a 3-D "ice cube." And that — unfortunately — was just what he found. "I realized I was unable to explain why there is a 2-D layer at all," he says, "to say nothing of why the layer was flat instead of puckered."

### Using observed facts rather than conventional assumptions

Then Peter thought, "If you take the experimental observation seriously — that all the oxygens are lying in same plane rather than in a puckered structure — then each oxygen atom is at about the

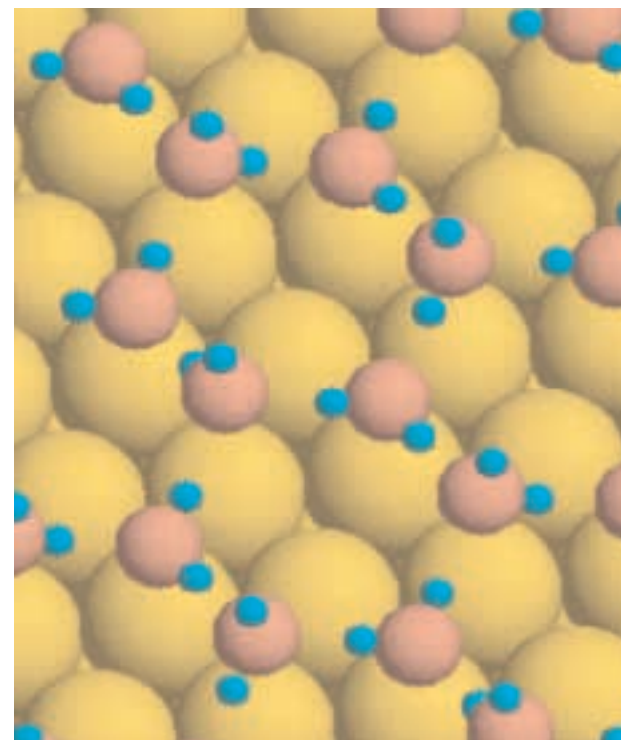
same distance from a ruthenium atom.

"That means all the oxygens should bond to ruthenium atoms. But the only way this can happen is if the upper molecules of the expected puckered arrangement get rid of one of their deuteriums. Oxygen atoms that lose deuteriums will need to bind to something else, and ruthenium atoms are the obvious candidate." (Note: the water in Held and Menzel's experiments was 'heavy water' — deuterium replacing hydrogen — used because it produced electron diffraction patterns that were easier to analyze.)

Excited by this idea, Peter tried a calculation that assumed deuterium atoms broken off from water molecules also would find someplace else to bind on the metal surface.

His results then appeared to answer both the question of why a 2-D layer exists at all, and why the oxygen atoms lie in the same plane.

"Atoms as light as deuterium barely have any effect on electron diffraction," said Peter. "Held and Menzel's experiment by itself could only tell us where the oxygen atoms were in the heavy water layer, but not the deuteriums. Theory, however, can tell us where they lie, and this information leads to a quite new picture of how water wets to a metal. My results make it more than a little plausible that half the deuteriums separate from the water molecules where they originally were."



LARGE BALLS are ruthenium, medium-sized are oxygen, small are hydrogen. The image shows how oxygen can be monoplanar on ruthenium if water dissociates into components of hydrogen and oxygen. The hydrogen atoms also attach where they can to the ruthenium.

# Architects

(Continued from page 1)

tions incorporate some of the safety, security, and reliability approaches advocated by Sandia's Architectural Surety program. One of the buildings, the United States Courthouse in downtown Albuquerque, includes features recommended by Sandia during 1997 consultations with the building's architect.

Several Sandians gave invited talks and presented displays focusing on emerging technologies useful to architects:

- RAMPART software to help prioritize upgrades to government facilities (Regina Hunter).
- Tests to characterize and glazes to improve the blast resistance of window glass (Jill Glass).
- Computer modeling and simulation of blast effects on buildings (Richard Jensen).
- Sandia's assistance providing "K-9 cams" to World Trade Center rescue teams (Ron Glaser and Richard Sparks).
- Computer analysis of fire and smoke propagation scenarios through a building (Lou Gritzo).
- Computer modeling of chem-bio agent dispersal through a building (Fred Gelbard).
- Designing reliability into buildings using a systems approach (Laura Swiler).

Dennis Miyoshi, Director of Security Systems and Technology Center 5800, gave a keynote presentation on incorporating systematic security and risk-management approaches in building designs of the future.

Rudy gave two talks focusing on the benefits of systematically considering the surety approach in preparing for the range of threats to structures — normal (such as aging and deterioration), abnormal (such as natural disasters), and malevolent (such as terrorist attacks) — when designing and retrofiting buildings.

Other presenters focused on striking a balance between security, function, and aesthetics; assessing the relative risks of a wide variety of threats; developing strategies to design safer buildings; and technologies and approaches available to mitigate threats.

"Even before Sept. 11 Sandia has been taking an active role in Architectural Surety," says Prof. Kuppaswamy Iyengar of the University of New Mexico School of Architecture & Planning. "Presentations by Rudy Matalucci, Jill Glass, and others from Sandia were relevant, timely, and extremely useful. Overall, the presentations made by Sandia



RESEARCHERS from all over Sandia have contributed much to the Labs' ability to answer the nation's call following Sept. 11 with regards to the vulnerabilities of structures to attacks. (Photo courtesy of FEMA)

## "Sandia anticipated the growing threats to structures years ago."

were unbiased and critical for the present conditions in the USA."

"I heard people talking about many of the issues we've been discussing at Sandia," says Rudy. "But I also heard people saying let's not overreact. We want to create an environment where people feel secure but not become overwhelmed with guards and concrete that ultimately make us feel 'bunkered' and actually less secure."

## 9/11 gives program a boost

Since the Architectural Surety program began in 1995, says Rudy, researchers from all over the Labs have contributed much to the Labs' ability to answer the nation's call following Sept. 11 with regards to the vulnerabilities of

structures to attacks.

Labs security experts have traveled the country during the past four months developing and applying security assessment methodologies and other risk-management tools for the nation's dams and power systems (*Lab News*, Dec. 4, 2001), government buildings (*Lab News*, July 13, 2001), chemical plants (*Lab News*, Nov. 2, 2001), water supplies (*Lab News*, Oct. 5, 2001), and other potential targets.

Building designers now have better computer models for analysis of blast effects on structures. (Several companies approached Sandians during the conference asking how they could license Sandia's blast codes, he says.)

And Sandia has raised the awareness of risk-management and surety principles among architects and builders nationwide through conferences, speaking engagements, and university lectures.

"Sandia anticipated the growing threats to structures years ago and has developed a good foundation for a methodology to improve building surety," he says. "This conference was a great opportunity to spread the word."

## Feedback

### Readers have questions on replacement of stolen computer, Web Shipper

**Q:** I recently had a Sandia notebook computer stolen from a locked trunk of a rental car while on a trip. Sandia does not provide insurance for such thefts, but my insurance company covered the loss. I wanted to buy a replacement computer with the insurance check and then bring it to work to have a property number put on it. I was informed that this was not possible and that I would have to purchase the replacement computer through normal channels (e.g., JIT). Unfortunately, that will place a 28 percent tax on the purchase. This seems grossly unfair, given the circumstances. Why couldn't I bring in the new computer, as I had wanted? Why does Sandia have a problem with that?

**A:** Thank you for your inquiry. We have made every attempt to find a suitable workaround for your situation, thus the delay. I apologize for any inconvenience. While I empathize with your situation, the purchases load does apply to the laptop replacement.

In response to your question, two areas must be addressed. The first area is Sandia's Procurement Process, which is governed by Sandia's Prime Contract, which is negotiated with DOE. Our contract generally follows the Federal Acquisitions Regulations (FAR), which requires that all procurements be conducted following guidelines that assure government assets are purchased and tracked via fiscally responsible and authorized methods.

The second area addresses Sandia's accounting system, which is a cost accounting system based on cost accounting standards. Cost accounting requires consistent, standard applications. As you are aware, there are loads that are placed on various areas such as labor and purchases. These loads do support indirect functions and are reviewed regularly by Sandia's executive management. Any deviation from the standards (including exemptions from the standard loads) requires approval from the Department of Energy. Sandia reserves such requests for mission critical work which, I regret to inform you, does not apply in this situation.

Given this information, to purchase a laptop computer directly from a vendor, circumventing the established procurement and financial standards, violates several standards and processes established to protect Sandia and the government's assets. I thank you for your honesty and desire to do the right thing. There is a venue by which you can send a personal check advising the project and task to which the money should be credited for your laptop. The check with explanation should be sent to our Treasury Department (Dept. 10507), MS 0189. If you have any questions, please do not hesitate to give me a call. — Dave Palmer (10200)

**Q:** I have a comment on the new Web Shipper, actually any web document requiring a signature. Why can't "they" program/link the signature block to accept your Kerberos password as a "signature" and then return a "signed" by signer's name to that particular field? Maybe we already do this to approve timecards, so why can't we do it for less essential stuff like shippers?

**A:** Thank you for your inquiry regarding how the WebShipper Approval Process Works. The Shipping Department no longer requires obtaining an approval for shipments. However, some managers may require that you route the shipper to them for their approval. The approval process is now automated via the Web Shipper application and is based on the Kerberos password. To select an approver, click on the Approver button in the left bottom panel, click on Find Approver, and then select the approver's name. The system will automatically route the shipper to the approver's workbox. The approver can only access their workbox if they have Kerberos ID and password. The approver then has the option to approve or reject the shipper with the click of a button. For more information please visit the Approver section under the Web Shipper help. — Dave Palmer (10200)

# Albuquerque Country Day School selected to operate new child-care facility near Eubank gate

By Janet Carpenter

Sandia employees are about seven months away from having access to another child-care facility close to the Labs. The building is under construction east of Eubank, and an operator has been selected.

The SSTPS Board has chosen Albuquerque Country Day School to operate the La Luz Early Childhood Learning Center, the new child-care facility in the Sandia Laboratory Federal Credit Union building currently under construction in the Sandia Science and Technology Park.

"The SSTPS Board has been hard at work making this facility a reality," says Larry Clevenger, SSTPS, Inc. chairman and Director of Benefits and Health Services Center 3300. "The facility promises to support Sandia families and provide a choice of near-site quality facilities, with the other facility being the

Shandiin facility supported by the DOE."

"While the center is not exclusively for Sandians, it promises to be of great value in supporting Sandia's employee population and demonstrates Lockheed Martin's effort to meet Sandia employees' individual and family needs," says Don Blanton, VP of Human Resources & Protection Services Div. 3000.

Lockheed Martin Corporation donated \$200,000 to SSTPS Inc. to help with start-up costs and has donated a total of \$65,000 to support tuition assistance at DOE's Shandiin Child Development Center, most recently giving \$30,000 to help the center with transition to a new provider.

La Luz ECLC was founded by SSTPS, Inc., a New Mexico nonprofit organization committed to improving the quality of life for New Mexico residents. La Luz plans to serve 112 children between the ages of 6 weeks and 5 years old in small groups with low child-to-

staff ratios. Information about the facility is available at <http://www.laluzeccl.org>. Information about Albuquerque Country Day School is available at <http://acds.k12.nm.us>.

SSTPS, Inc. was formed in November 2000, with a focus on developing an early childhood learning center in the Sandia Science and Technology Park area.

Sandia Corporation and the Sandia Laboratory Federal Credit Union (SLFCU) were the original contributors who worked together to form SSTPS, Inc. and to get the early childhood learning center started. All officers and directors serve on a voluntary basis without any remuneration from the not-for-profit SSTPS, Inc.

In addition to the Lockheed Martin donations, SLFCU and Sandia have provided executive and staff support.

The projected opening date for the center is August 2002.

## Hawkinson

(Continued from page 1)

them to a cross-section of the Labs' administrative operations. As such, Bruce did a stint in information systems analysis, then served as a manager of two sections in the Accounts Payable office. In 1970, he rotated for a two-year assignment to Washington, where he worked in the US Department of Health, Education, and Welfare. While there, he launched a newsletter for the education section. He fell in love with the process and, upon returning to Albuquerque in 1972, jumped at the chance to become a writer for the *Lab News* under editor John Shunny.

### Lab News editor and Radio Sandia

After paying his dues and proving his worth as a writer — including a two-year assignment in Livermore (1977-79) to cover the California site for the *Lab News* — Bruce was made editor of the *Lab News* in 1982, a position he held until 1989.

Subsequently, Bruce was asked to manage the Motion Picture Dept. Somewhere along the line, someone upstairs must have noticed that Bruce has a distinctive, perfectly modulated middle-American radio voice.

That, combined with his demonstrated journalistic talents and managerial experience, made him a natural to launch Radio Sandia, a low-power AM station that was intended to supplement other Sandia information outlets. In the days before the World Wide Web and ubiquitous e-mail, Radio Sandia was seen as a way to instantly communicate with the entire Sandia population.

Bruce labored hard to make the station a success, but other emerging technologies soon eclipsed it. When the decision was made to darken the station and launch instead an electronic daily newsletter, Bruce was the natural choice to take on the new challenge. That he did so with verve, flair, wit, and dogged hard work surprised no one who has ever worked with him.

### 'My proudest accomplishment'

Indeed, Bruce now says that launching, nurturing, and sustaining the *Sandia Daily News* is his proudest accomplishment.

"Darn few communicators at Sandia or anywhere else in corporate America have had the freedom, trust, and credibility to go off and start a new



BRUCE HAWKINSON in 1984, seen here in the first frame of film ever shot at Sandia by *Lab News* photographer Randy Montoya, who had just gone to work for Bruce.

publication that is blessedly free of any management interference whatsoever."

Bruce says his guiding principle at *Sandia Daily News* from day one was to "use my own judgment" in presenting to employees the news they needed to

know and "not just give them warmed over syrup" from on-high.

"If all I did was spew the management line," he says, "I'd lose my credibility; but more to the point, no one would read it [SDN]. . . and that wouldn't serve the Labs' purpose at all."

Bruce says that over his 36-year career, he's seen things come full-circle. During the height of the Cold War, *esprit* was high and the mission was clear. After the fall of the Berlin Wall, there was a time when Sandia seemed to be searching for an identity.

In the post-Sept. 11 world, Sandia's purpose again seems clear.

"Sandians are stepping up magnificently to respond to our nation's call, and I'm really proud of that," he says. "It's been a privilege to work with extraordinarily bright people doing important things for the nation. This is a very exciting time to be at Sandia. A great time to start a career here."

For a moment, one sees the twinkle in his eye. Maybe, just maybe, Bruce is ready to do it all over again. — Bill Murphy



A WILD and crazy guy!

## Sandia's 2001 annual report now available; profiles Labs activities, seven employees

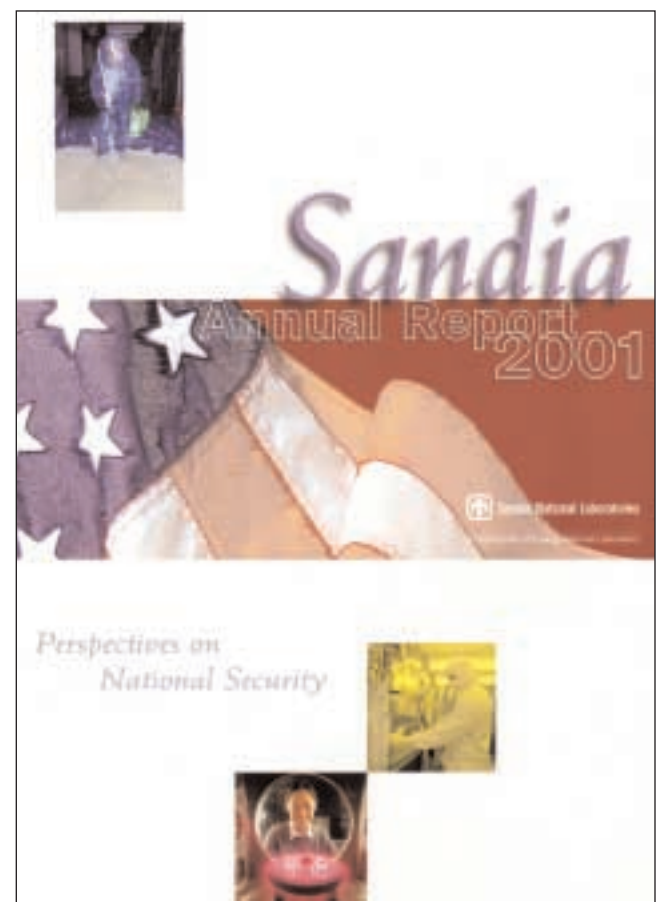
*Sandia Annual Report 2001: Perspectives on National Security*, is now available through Public Relations and Communications Center 12600.

The 68-page illustrated publication highlights many of Sandia's accomplishments over the past year and includes a new feature — profiles of seven Sandians, representing the thousands of employees who make Sandia a vital asset to national security.

Publication of this year's annual report was delayed about a month because of the Sept. 11 terrorist attacks. Several sections required immediate updating.

"The employees of Sandia National Laboratories and their families joined the nation in mourning the victims of these tragic events," writes Laboratories Director C. Paul Robinson and Deputy Director Joan Woodard at the beginning of the annual report. "We also accelerated our efforts in counterterrorism and security technologies, and we are working with a wartime commitment to do our part in this difficult and sustained national effort to eradicate terrorism."

If you wish to have a copy of the new annual report, call the Media Relations and Communications Department at 844-4902.





## Sandian carries Olympic torch as it passes through Albuquerque

*Everything happened so fast, says Marianna Mauritz*

By Chris Burroughs

Everything happened so fast. That's what Marianna Mauritz (2125) says about her Olympic torch run in Albuquerque on Jan. 12.

Marianna was one of 23 runners who carried the Olympic torch in the Duke City on its route to the Salt Lake City 2002 Olympic Winter Games.

Cheering her on were throngs of supporters as she ran two blocks on Pennsylvania Avenue between Cutler and Euclid.

"It was really exciting," says Marianna, a computer programmer who has worked at Sandia 10 years. "So many people came out to see us. There were cameras and television crews everywhere. Everyone was cheering."

Several months ago, Marianna's husband, John Mauritz, saw an ad seeking nominations for torchbearers, and he submitted both of their names. Marianna, who says she is not an athlete, was selected to be a torchbearer after her name was drawn in a lottery conducted by one of the Olympic sponsors, Coca-Cola. Her husband was chosen to be a support runner.

Half of the runners were chosen by the Olympic Committee. The two major sponsors, Chevrolet and Coca-Cola, selected the rest.

The torchbearers were divided into groups of



OLYMPIC TORCHBEARER Marianna Mauritz carries the Olympic Flame through Albuquerque on its way to Salt Lake City, Utah, for the start of the Olympic Winter Games on Feb. 8. Marianna got to keep the torch she carried as a memento of her run. (Photo by Randy Montoya)

10 to 12 and were taken in a van to the locations where they were to run.

"Runners — each with their own torch — were at their start locations shortly before the previous torchbearer got to them," Marianna says. "You knew it was your time to run when a man on a motor scooter came up to you and turned on the gas on your torch."

She remembers standing with her torch high in the air as the other runner came up to her and

lighted her torch. The torches didn't touch — they merely passed the flame.

The actual run took only a few minutes. And as she ran, she held the torch away from her body so the crowds (and television cameras) could get a good look at it. At the end of her run, she lit her successor's torch.

Marianna describes the 3.5-pound torch as looking like an icicle. (They are the Winter Games, after all.) It has a glass top, where the flames shoot out, and a silvery handle. Coca-Cola purchased the torches for all of its runners to keep as mementos. The other runners were given the opportunity to purchase their torches.

She also keeps the uniform — white run pants, long sleeve shirt, windbreaker, hat, and gloves — she was given for the run by the organizers.

Marianna's husband, who was a support runner earlier in the day in Santa Fe, was able to be in Albuquerque in time to see his wife carry the torch.

The Olympic Torch relay kicked off on Dec. 4 in Atlanta, Georgia. The flame will visit 46 states and cover 13,500 miles, finally entering Salt Lake City for the opening ceremony on Feb. 8. Besides the estimated 11,500 torchbearers carrying the flame, it will travel via automobile, airplane, train, boat, dogsled, skier, horse-drawn sleigh, snowmobile, ice skaters, and covered wagon.

## Sandia retiree Doug McGovern key author of Smart Card criteria and standards

Smart cards just got smarter — and more secure — with the help of Sandia retiree Doug McGovern.

Doug spent 25 years working at Sandia. His work here included a year working with the International Atomic Energy Agency in Vienna, Austria. At the Labs, he worked primarily on physical protection technology, smart cards, and biometrics.

Doug, now vice president of Ray-McGovern Technical Consults, Inc., of Hutchinson, Kan., served as the technical editor and principal author of the Smart Card Protection Profile that sets international security standards for smart cards.

These credit-card-sized plastic cards are



DOUG MCGOVERN

embedded with a small computer chip that can process or store information. He says the new standards, which address the needs of the financial services industry, are based on the International Standard Common Criteria for Information Technology Security Evaluation, which defines a process for conducting security evaluations. Sponsors of Common Criteria include nations throughout the world.

The profile document was developed by the Smart Card Security Users Group, which includes major payment associations working with governmental agencies.

Doug points out that industry-wide standards result in economies of scale and the ability to use the card on a widespread basis. Card issuers do not have to meet varying card standards, and developers can manufacture products according to one standard recognized by the international community.

"The development and evaluation of profile requirements," Doug says, "represent a successful industry-government partnership contributing to the security of information systems and networks in the United States and around the world."

## Quality New Mexico conference scheduled March 7-8

In a two-day "Salute to Quality," the 2002 Quality New Mexico conference and awards ceremony will be held March 7-8 at the Sheraton Old Town in Albuquerque.

A busy round of talks, tutorials, and workshops on everything from performance excellence and tools for success to quality in small business and best practices in health care are scheduled.

The awards banquet is Friday evening, with Gov. Gary Johnson scheduled to be the presenter.

For instant online registration go to: [www.qualitynewmexico.org](http://www.qualitynewmexico.org).

Quality New Mexico is a nonprofit organization established "to motivate, educate, and congratulate New Mexico organizations for achievement in performance excellence."

Julia Gabaldon (12143), an executive on loan from Sandia, is creator of Quality New Mexico and has served as its president since its inception in 1993.

## Coronado Club

Jan. 27 — Champagne Sunday Brunch, 11 a.m.-1 p.m.; music by the Roger Burns Trio, 1-4 p.m. Call the C-Club at 265-6791 for details.

Jan. 30 — Ladies Night in the lounge.

Valentine's Day — Call 265-6791 for details about the C-Club's annual Valentine's Day festivities.

C-Club catering — 844-3808

## Sandia Women's Golf Association seeks new members at Feb. 13 meeting

The Sandia Women's Golf Association membership drive and meeting is Feb. 13, in the Coronado Club Zia Room, 5:15-7 p.m.

All Sandia, DOE, DoD, and Kirtland Air Force Base employees and contractors are welcome.

Women and men are invited to join for some fun golf tournaments and golf leagues (nine-hole and par 3). Want to learn the game and etiquette of golf? SWGA can provide beginning, intermediate and possibly advanced classes via Golf Mart and its staff for \$100 plus tax for five one-hour lessons.

For further information, contact Linda Daniels (2561) at 844-5724 or e-mail her at [lldanie@sandia.gov](mailto:lldanie@sandia.gov) or Amy Schwebke (9623) at 284-6442 or e-mail her at [awschwe@sandia.gov](mailto:awschwe@sandia.gov).

