

US Strategic Petroleum Reserve expansion project gets technical assist from Sandia researchers

By Will Keener

The clock ticks toward a deadline in June as a group of Sandia scientists and engineers are hard at work on an important project to help the DOE make the right choices at the US Strategic Petroleum Reserve.

The multidisciplinary group, centered around David Borns' Geotechnology and Engineering Dept. 6113, is helping DOE meet its goal of adding 273 million barrels in capacity to the reserve, which is contained in natural salt domes deep in the earth along the US Gulf Coast. The Energy Policy Act of 2005 directed the Secretary of Energy to fill the SPR to its authorized one billion barrel capacity.

More on the Strategic Petroleum Reserve

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At a typical 10 million barrels per salt cavern, this means another 27 caverns need to be added to the 62 existing ones, explains project lead Brian Ehgartner (6113). Some of these will be created within existing domes used by SPR (see "SPR makes use of natural geologic features" on page 5), and some will be created at a new location along the coast.

Five new sites are under technical

review, following an environmental impact process. The new site candidates are Stratton Ridge, Texas, Chacahoula and Clovelly, La., and Richton and Bruinsburg, Miss.

Selection input

Working with a \$2.5 million budget, about a dozen Sandia researchers and a few consultants are providing input on a number of issues connected with site selection, says David. These include the geomechanics and engi-

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3-D VIEWS: Anna Snider Lord and Chris Rautman (both 6113) discuss a 3-D model of the Bayou Choctaw salt dome in southern Louisiana. The two are combining geologic and other data, such as well logs and oil industry seismic surveys, to map the domes of the Strategic Petroleum Reserve and display them. (Photo by Randy Montoya)

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2006 ERA winners honored

Exceptional service
Leadership
Technical excellence

Photos, team citations begin on page 8



BLUE STAR MOTHER Marcia Anderson (4014) holds a photograph of her son, US Army Sgt. Eric Anderson. (Photo by Randy Montoya)

Memorial Day is observed Monday . . .

Two Sandia Blue Star Mothers anxious for sons' safe returns

'It makes my problems seem trivial'

By John German

Sundays are lonely days for Marcia Anderson (4014). On those days, as her intellect struggles with her most maternal instincts, the ringing of a doorbell or the slamming of a car door fills her with dread.

"I ask my husband to answer the door," she says. "I won't do it." Marcia's son, US Army Sgt. Eric Anderson, is in Baghdad.

For Myra O'Canna (4532), it was news of an operation to clear an area of insurgents or of a downed chopper that stiffened her spine while her son, US Marine Corporal Travis O'Canna, was in Afghanistan for seven months last year.

"It's hard not to worry during a deployment," she says. Still, neither complains.

"No matter how lonely I am or how bad I feel, it's not nearly as bad as what Eric is going through," Marcia says. "I worry that he's hot, thirsty, hungry, or homesick. It makes my problems seem trivial."

Supporting soldiers, families

In part to curb her anxieties, Marcia, during her son's first tour of duty in Afghanistan in 2004, joined the Rio Grande Valley Chapter of Blue Star Mothers of America, a national group of mothers with sons and daughters in the US military. Myra joined in 2004 as well.

Founded in 1942 during World War II, Blue Star Mothers is named after the Service Star Banner, a red and white banner with one or more blue stars at its center. Each star on a banner signifies a family member on active duty with the US military.

Blue Star members, more than 3,000 nationally, hang the banners in their front win-

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Les Shephard talks about energy challenges facing nation — and Sandia opportunities. Story on page 6.

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- Goodbye, Harry: Harry Kinney, former Sandian and popular mayor, dies . . page 7
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Diana's Homegrown puts a new wrap on sandwiches — with some help from Sandia. Story on page 16.

What's what

My modus operandi is low profile: into the office quietly, close the door, put down the case, pour coffee, launch music, write. Often my colleagues don't know I'm there until I emerge about midmorning scavenging for a donut or muffin. Only twice in recent memory have I been noted publicly:

— Three years ago some friends and I went to Belize for a few days of sailing and my former colleague Larry Perrine maligned me in my own column, alleging scurrilous behavior. All untrue.

— Then I left the column in the capable hands of *Lab News* editor Bill Murphy, who elevated me from unnoticed swabbie to admiral. And pal Will Keener met me at the airport with a sign proclaiming that rank and without doubt leaving some curious onlookers wondering why the Navy couldn't find something better for an admiral to wear than blown-out jeans, a rumpled seersucker shirt, and trashy tennis shoes.

I won't say anything about Bill, because my mortgage company wants me to keep the job I have. But to notoriously frugal Larry, who's currently cruising the country with bride Renae in their land yacht — pulled by a big diesel truck with big fuel tanks: In St. Thomas, I was talking with the captain of a gamefishing boat, just up from the Venezuelan coast, who told me that diesel there costs 11 cents a gallon.

* * *

In the May issue of the company publication *Today*, Lockheed Martin announced that it is awarding scholarships to 82 National Merit Finalists who are the children of employees of LMC companies or affiliated organizations. Of those 82 outstanding members of the 2006 high school graduating class, 17 are the children of Sandians (see story on this page).

Even with my non-technical training, I can do the simple arithmetic: 17 of 82 is a little over 20 percent. LMC organizations worldwide employ about 135,000 people, including 8,000 or so Sandians. According to simple arithmetic, again, Sandians constitute about 6 percent of that total pool. So, about 6 percent of the people working within LMC account for just over 20 percent of the LMC National Merit Finalist high schoolers.

What conclusions can you draw from that? Whatever you want, of course.

But it seems reasonable to at least surmise that all those kids doing all that well indicates that they are encouraged to excel. And you can surmise further that the encouragement comes from people who value excellence, and are free to pursue excellence because they are rewarded well enough to be freed from the distraction of worry about at least some of the mundane issues of daily life. More directly, they work in an environment of excellence with pay and benefits that free them from distraction.

Congratulations to those 17 outstanding youngsters and to their outstanding parents for inspiring them to excellence.

* * *

In case you missed it, there was an interesting brief in the April 25 issue of *Sandia Daily News* about Russia launching a satellite for the Israelis, who were expected to use it to watch Iran's progress with its nuclear program. The Russians, meanwhile, are also working with Iran on that nuclear program. Interesting that a bunch of old Bolsheviks are working both sides of a capitalist street.

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

David Gartling named an ASME fellow

David Gartling has been named a fellow of the American Society of Mechanical Engineers (ASME). David, a Senior Scientist/Engineer in Engineering Sciences Center 1500, has focused his research efforts on developing finite element methods for problems in fluid dynamics, heat transfer, and electromagnetics. He has produced several well-known software packages for general engineering simulations in these areas.

David has conducted fluid/thermal engineering analyses in a variety of laboratory programs including nuclear waste disposal, manufacturing, alternate energy systems, and national security systems. He is a diplomate of the von Karman Institute for Fluid Dynamics, was the recipient of a Fulbright Fellowship (University of Sydney), and has received the Computational Fluid Dynamics Award from the US Association of Computational Mechanics. He holds a PhD in aerospace engineering from UT-Austin.

David is the co-author of a widely used finite element textbook, *The Finite Element Method in Heat Transfer and Fluid Dynamics*, and is co-editor of the *International Journal for Numerical Methods in Fluids*. He is a member of the editorial boards for *Communications in Numerical Methods in Engineering* and the *International Journal of Computational Engineering Sciences*. He has been a member of ASME since 1975 and is active in the Computing in Applied Mechanics committee of the Applied Mechanics Division.

He will be formally presented his fellow designation in November at ASME's International Mechanical Engineering Congress and Exposition in Chicago.



DAVID GARTLING

Sandians' students shine in Lockheed Martin scholarship program

Seventeen of the 82 Lockheed Martin Merit Scholarship recipients this year are children of Sandia employees.

The Lockheed Martin Corporation Foundation awards \$3,000 per year for up to four years of undergraduate study to National Merit Finalists who are the children of Lockheed Martin employees. Selections are made for Lockheed Martin by the National Merit Scholarship Corporation.

Lockheed Martin's scholarship recipients were chosen from a pool of students whose scores on their junior year Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT) qualified them as National Merit Semifinalists and who subsequently identified themselves on the National Merit Scholarship Application as children of Lockheed Martin employees.

The National Merit Scholarship Corporation administers this highly competitive program and notes that the Corporation's winners, in earning the designation of National Merit Scholars, have placed themselves academically within the top one-half of 1 percent of all US high school graduates.

The children of Sandians who have been awarded the 2006 Lockheed Martin Merit Scholarships are listed below, with their parent's names in parentheses.

Anne Baldwin (George Baldwin, 6924), Elizabeth Ballance (Robert Ballance, 4328), Blaise Blain (Matthew Blain, 1713), Kathryn Chinn (Douglas Chinn, 1723), Kyle Klavetter (Elmer Klavetter, 11501), Tyler Larsen (Marvin Larsen, 1517), Sean Malone (Kevin Malone, 5934), Benjamin McNealy (Rebecca Coats, 1652), Kevin Meeks (Kent Meeks, 2820), Camille Metzinger (Kurt Metzinger, 1524), Sarah Rovang (Dean Rovang, 1645), Paul Schmidt (Rodney Schmidt, 1437), Margaret Snell (Mark Snell, 6442), Tate Strickland (Steve and Tammy Strickland, 6453 and 5743 respectively), Karen Torczynski (John Torczynski, 1513), Rachel Veroff (Judy Beiriger, 5536), and Ronny Watkins (Mark Watkins, 2953).

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Tech Showcase set for June 6 at ABQ Convention Center

There is such a thing as a free lunch — and breakfast, for that matter. They'll be served on the morning or afternoon of June 6 during the third annual Technology Showcase & Business Matchmaking Event, co-sponsored by Sandia and the City of Albuquerque. The showcase is at the Albuquerque Convention Center from 7 a.m.-5 p.m.

During the showcase, attendees will have a chance to talk to regional companies with technical products and services that may be of interest for future partnering or procurement opportunities. These companies will be sending scientists and engineers to explain their capabilities, and further discussions may help identify ways that working together could help achieve Sandia's mission goals.

The technical focus areas for the showcase this year include: Homeland Security; Water Issues; and Microsystems, Nanotechnology, and Advanced Manufacturing. Only companies with technical products or services in these focus areas are accepted to participate.

Project manager Toni Leon Kovarik encourages technical staff, procurement-card holders, and Labs buyers to attend and meet with these technology companies. Attendance is free, but registration is required at: <https://programs.regweb.com/morevents/snlttechnologyshowcase/attende/>

Materials researcher to head international scientific society

By Nancy Garcia

Materials researcher Mark Allendorf (8324) has been named president of the Electrochemical Society (ECS).

Mark began the year-long position on May 13. He was elected three years ago as a junior vice president of the ECS, a one-year term that leads to terms as vice president, senior vice president, and president.

"I feel participating in scientific societies is a very important activity that every scientist or engineer should do," Mark says. "It's a very effective venue for building collaborations."

Mark co-authored papers with a German professor who was interested in theoretical calculations at Sandia regarding chemical vapor deposition. In the fall, one of the professor's students helped start a new project by training researchers here to create nanoporous materials that have applications in separations and chemical and biological sensing.

In 2001, Mark became a fellow of the ECS, which has more than 7,000 members and was founded 104 years ago. He served from 1991-1999 on the executive committee of the society's High Temperature Materials Division, during

which he chaired an international symposium on chemical vapor deposition that grew to unprecedented levels of popularity during that time.

Among his other duties, Mark will write a quarterly column commenting on issues related to electrochemical and solid-state science and technology, such as the role of professional societies in the scientific enterprise and publishing in the Internet age. He has been active in helping secure ongoing funding for the society's award for solid-state science and technology. Bestowed every two years, the esteemed \$7,500 award was renamed for Intel co-founder Gordon Moore and is now supported by a \$150,000 grant from Intel. He also raised money to have past issues of the society's print journal turned into electronic copies for online searching.

At Sandia, in addition to his research interests in nanoporous materials and high-temperature chemistry, he is active in organizing R&D Focus symposia and the Truman Distinguished Lecturer series at the California site.

Two recent Sandia/California events are now covered online

The celebration of Sandia/California's 50th anniversary in March continues to have an impact, with coverage of the three days of events available online at: <http://www.ca.sandia.gov/news/>. (Follow the links from this url to "More Stories & Video" and "Sandia Now" to see 50th anniversary coverage.)

Also, photos from the California site's observance of Take Our Daughters and Sons to Work Day on April 27 can be viewed at <http://www.ran.sandia.gov/SWC/kidsday06/photos.html>. (News articles about the day are at the link above.)

Sandia California News

Nearly 150 kids attend Take Our Daughters and Sons to Work Day



NEARLY 150 KIDS in grades 3 through 12 attended Sandia/California Take Our Daughters and Sons to Work Day on April 27. In the top photo illustration, by Randy Wong, Dept. 8362 researcher Lyle Pickett's hovercraft (which he calls "Air Force") wowed visitors in the lobby of the Combustion Research Facility. In the bottom photo, by Nancy Garcia, Nathan Humphreys, 13, Elijah Humphreys, 8, and their father Nathan Humphreys of Dept. 8513 watched marshmallows being blown through a tube across a courtyard as Sunset Elementary fourth-grader Katie Kulp, daughter of Dept. 8368's Tom Kulp, looked on to the right.

Feedback CDs, CD-Rs, CD-RWs: Do personal music and tech areas mix?

Q: What is the policy on bringing personal music CDs into the tech area? Can I bring in a CD that I recorded onto a CD-R (not a CD-RW) disc? Can I bring in a commercial music CD? The contraband signs at the gates depict CDs as a contraband item, and I certainly understand that writable CDs would be an issue, but I'd appreciate some clarification.

A: Thank you for your questions, and the chance to discuss the rules on the use of Sandia equipment and of removable electronic media.

There are several parts to this question:

1) Can we use Sandia computers to rip commercial CDs? Government resources such as vehicles, computers, office supplies, work time, etc. may not be used for non-work-related activities unless such use has been officially sanctioned by Sandia. Utilizing Sandia's computing and other information technology facilities in violation of the policy on incidental personal use creates an unacceptable workplace environment and threatens Sandia's name and reputation besides being a waste of government time and resources. Down-

loading music files, or storing music files on your computer, would not be considered incidental personal use. Since commercially produced CDs can be brought in to many areas, just put them in the computer, put on your headphones, and listen to them. There's no need to rip them.

2) Can I bring music CDs into the Tech Area? Under current policy, commercially produced non-writeable music CDs may be allowed under certain conditions. CPR 400.2.10, Using Information Technology Resources, Section 4.8.4, Removable Electronic Media, states:

Computer media (e.g., CDs, floppy disks, Zip and Jaz disks, pen drives) may be brought onto Sandia-controlled premises only under all of the following conditions:

- The media are used to perform business-related work.
- Sandia computers that will be used to access the media are set up with the latest virus signatures to check for viruses and Trojan horses.
- The media conform to all retention, marking, and other protection requirements of the

type of information present.

Note: Commercially produced, non-writeable CDs (regardless of ownership) that contain only music (audio) are exempt from the requirement that they be used to perform business-related work.

Note that while this policy allows audio CDs for personal use, their possession and use may be further restricted by your management or in areas where classified is processed.

3) Can I bring in a CD that I recorded on to a CD-R? The requirement that personal-use CDs be commercially produced was established at a time when the technology for virus detection and prevention was not as strong as it is today. Based on the strength of our current monitoring and defense capabilities, we will consider changing the policy to remove the term 'commercially produced.' However, if the change to the policy is made, note that all other requirements would still apply, and that Sandia does not condone any illegal copying or sharing of music.

— Michael Schlip (4311)

SPR: Do we really need it? Experts say yes, it can make a difference

Why is the Strategic Petroleum Reserve expanding? Is it worth a \$30 billion investment that includes \$3 billion in infrastructure and \$27 billion in oil? At 5.5 million barrels a day, can SPR production really help the US in a crisis?

Economic and strategic experts say it can help and it's worth the effort.

Brian Ehgartner, one of the Sandia project leads, notes that an economic study from Oak Ridge National Laboratory recently showed that there is a greater than 90 percent chance over the next decade that an event will occur somewhere in the world that will cost the US up to 5 million barrels per day of production. "The reserve is now being sized to make up that difference," he says.

Although the US daily consumption of 20.7 million barrels a day is much higher, the critical difference is typically in product at risk, Brian explains. About 12 million barrels a day are imported to the US, with about five million of that coming from relatively stable resources in Canada and Mexico.

The SPR is designed to cover the balance of higher-risk sources, says David Borns. "The probabilistic situation is that you will lose production from the Persian Gulf, or Venezuela, or some other area for a certain amount of time. SPR is designed to absorb the difference." As recently as Hurricane Katrina, this concept was illustrated when SPR production allowed a number of critical refineries to stay in normal operation until supply disruptions could be repaired.

Given the potential for terrorist disruption, increased global competition for oil, and dwindling supplies, reserves are much more valuable today, says Daniel Yergin, American author and economic researcher. While the standard way of thinking about economic security has been in terms of diversity of supply, Yergin now suggests the concept of "resilience of supply" as a new factor. This includes adequate storage.

In the future, the integration of infrastructure will play an increasing role, says David. Researchers in Sandia organizations 6200 and 5000 are examining these issues.

— Will Keener



THE STRATEGIC PETROLEUM RESERVE is a complex system, calling for a combination of geological analysis, geophysics modeling, herculean plumbing systems, and maybe even a bit of jigsaw-puzzlesque artistry: How do you carve out skyscraper-sized caverns in Gulf Coast salt domes in a way that is geologically and environmentally sound and economically feasible? These images from the Strategic Petroleum Reserve website offer a glimpse of the plumbing systems that tie the reserve together with refineries scattered across various regions of the US.

Petroleum reserve

(Continued from page 1)

neering integrity, access to petroleum infrastructure, existing or historical problems that would make expansion difficult, the geometry of additional salt caverns in presently used domes, and other factors. Major pipelines from the region head northwest into the Midwest, north to the Great Lakes Seaway area and Chicago, and northeast to the Atlantic states, creating the ability to move SPR inventory to most US refineries.

With Sandia consultation, DOE is choosing to add additional storage capacity to its Big Hill, Texas, and its Bayou Choctaw and West Hackberry, La., storage sites, Brian says. This capitalizes on existing infrastructure and operations, shortens development time, and minimizes costs.

Late last year Clovelly, La., was selected as a candidate site for new SPR caverns. "Our work load kept growing. All this happened . . . with a realization that we needed to finish by May or June," says Brian. The Clovelly site is a part of the Louisiana Offshore Oil Port (LOOP) system, a deepwater port in the Gulf of Mexico providing tanker offloading for crude oil transported on some of the largest tankers in the world. LOOP handles 13 percent of the nation's imported oil —

about 1.2 million barrels a day — and connects by pipeline to 35 percent of US refining capacity.

At Clovelly, the team turned to Lupe Arguello (1525), Jonathan Rath, and Jim Beam (both 1524) to look at the idea of putting up to 16 SPR caverns deeper in the salt dome, below nine existing caverns used by LOOP. "Salt is notorious for creeping," explains David. "So there are questions about the integrity of the existing caverns and subsidence [sinking] at the site. It's really an interesting challenge.

"If the concept proves feasible, it can be applied at existing sites throughout the Gulf Coast for storage of natural gas and other products," says David.

Subsidence is critical at most of the SPR sites. Some of the domes are only five or six feet above sea level and researchers must know how they will behave with increased drilling and cavern excavation. This is especially important for the double-tiered cavern concept being considered at Clovelly. Chris Clutz (6141) is providing subsidence modeling input for the project.

Among the things that will have to be worked out are the optimal shapes and separation distances between caverns in the salt domes. Byoung Yoon (6821), an experienced WIPP researcher, is looking at issues related to salt creep and placing new caverns in particularly tight locations at Bayou Choctaw. Steve Sobolik (6117) is studying novel cavern shapes, while anticipated changes of shapes during operations are being simulated by Bruce Levin (6113).

(Continued on next page)

SPR by the numbers

- Current storage capacity — 727 million barrels
- Current days of import protection in SPR — 59 days
- Average price paid for oil in the reserve — \$27.73 per barrel
- Maximum drawdown capability — 4.4 million barrels per day
- Time for oil to enter US market — 13 days from presidential decision
- Investment to date — \$22 billion (\$5 billion in facilities; \$17 billion for crude oil)
- Number of people employed by SPR — about 1,050 including contractors
- Number of years of Sandia involvement — 29
- Number of digits in original Sandia case number — 3



Past emergency sales

- 2005 Hurricane Katrina sale — 11 million barrels
- 1991 Desert Shield — 17 million barrels

Petroleum reserve

(Continued from preceding page)

Original design life for the caverns was defined as five complete drawdowns (full-empty cycles) of all the oil inside. But future usage may be different, with partial drawdowns at a more frequent rate. "The question becomes can we design caverns to be less vulnerable to these changes," says Brian.

Chris Rautman and Anna Snider Lord (both 6113) are looking at seismic and well logs to delineate actual boundaries of the salt domes and existing caverns. They are using modeling software to construct images of the caverns and better define the real estate, where there is currently a lot of uncertainty.

Allan Sattler (6113) is studying the drilling history of the domes to gauge what events may impact future operations. In one case, for example, an oilfield logging tool was lost in a cavern. This kind of information also will be folded into the final decision-making.

Tight schedule

Sandia's work at SPR will be far from finished with the current effort. Once the sites are selected, DOE will look to Sandia to be involved in site characterization, drill holes, and the actual leaching and operations of the caverns. But getting to that point has meant a tough, tight schedule.

"All this would normally take a year, but we need answers by mid-June," Brian says. "We have already provided input for a draft Environmental Impact Statement. Secretary Bodman has already written the president recommending we go ahead. Now we must provide analysis to back that up and help guide the expansion plan, starting with site selection."

"We had a short turnaround and a lot of people had to step to the plate in a nearly impossible time frame," says David. "People have stepped up and accepted this challenge."

SPR makes use of natural geologic features

America's emergency crude oil is stored in salt caverns, created deep within the massive salt domes that underlie much of the Texas and Louisiana coastline. These caverns offer a secure and affordable means of storage, costing up to 10 times less than aboveground tanks and 20 times less than hard rock mines.

Storage locations along the Gulf Coast were selected because they provide a flexible means for connecting to the nation's commercial oil transport network. SPR oil can be distributed through interstate pipelines to nearly half of the US oil refineries or loaded into ships or barges for transport to other refineries.

A typical SPR cavern holds 10 million barrels and is cylindrical in shape with a diameter of 200 feet and a height of 2,000 feet. One storage cavern is large enough for Chicago's Sears Tower to fit inside with room to spare. The Reserve contains 62 huge underground caverns, ranging from 6 to 35 million barrels capacity.

The federal government acquired previously created salt caverns to store the first 250 million barrels of crude oil in the mid-1970s. This was the most rapid way to secure an emergency supply of crude oil following the oil shocks of the 1970s. To stockpile oil beyond the first 250 million barrels, DOE created additional caverns, with scientific and engineering assistance from Sandia.

Salt caverns are dissolved out of underground

salt domes by drilling a well into a salt formation, then injecting fresh water. The water dissolves the salt and creates the SPR caverns. The dissolved salt is removed and re-injected into disposal wells or piped several miles offshore into the Gulf of Mexico. Through careful control of the freshwater injection process, salt caverns of specific dimensions can be created.

The nature of the salt, a material Sandia engineers are very familiar with thanks to the Labs long-standing work at WIPP, makes the caverns mechanically and environmentally secure. At depths ranging from 2,000 to 4,000 feet, the salt walls of the storage caverns are somewhat plastic and self-healing. Should any cracks develop in the walls, they would be

almost instantly closed under normal conditions.

A natural temperature difference between the top of the caverns and the bottom keeps the crude oil continuously circulating in the caverns, maintaining the oil at a consistent quality. As the caverns have aged, the thermal gradient has decreased, resulting in less circulation and in some cases stratification of oil, another topic of research at Sandia. The fact that oil floats on water is the underlying mechanism used to move oil in and out of the SPR. To withdraw the crude, water is pumped into the bottom of a cavern. The water displaces the crude oil to the surface. Each withdrawal affects the geometry and size of the caverns, enlarging and changing them slightly.

— Will Keener



Blue Star Mothers

(Continued from page 1)

dows until their family members are no longer on active duty. A gold star represents a soldier who dies or is killed in service.

The group's goal is to support families of soldiers and show its appreciation for soldiers and veterans.

Blue Star Mothers' Rio Grande Valley Chapter, with about 230 members, coordinates homecoming celebrations at the airport, works with the American Legion to present Blue Star banners to new members, participates in Veterans Day and Memorial Day events, provides travel support for families of wounded soldiers, and presents Gold Star Banners, among other activities. Marcia estimates some 20 Sandians are members.

Care packages are a hit

"There's an old soldiers' saying: 'When there is no mail, it's a long walk back to the barracks,'" says Marcia.

"We want soldiers to feel appreciated," she says. "The worst thing that can happen is for our troops to think they are forgotten by the folks at home. They need to know we support them and their efforts."

Marcia says the local chapter regularly gets together to box and ship individually addressed parcels to soldiers around the world — 1,500 packages from Albuquerque alone last year.

The packages are always a hit, she says, with the soldiers and the members who pack them (see "E-mail from the front lines . . ." below).

"We ask our sons and daughters to tell us who, in their units, does not receive mail, and we make sure those soldiers get packages."

The parcels, which are themed for upcoming holidays, include arts and

"Around the moms, I can cry and I know I will be comforted."

Marcia Anderson

E-mail from the front lines about care packages

"Due to the Blue Star Mothers' efforts, soldiers overseas can now get a pleasant taste of home and enjoy the comforts of useful items that troops deployed may not have the luxury of obtaining. I can attest that most soldiers rarely receive packages and thanks to these efforts, members of my section can better see how much they are appreciated. It has made service in Iraq a lot more bearable." — E-mail from Sgt. Eric B. Anderson, US Army

National Blue Star Mothers organization accepts members, donations

Blue Star Mothers' Rio Grande Valley Chapter welcomes new members and associate members (including fathers and spouses). Visit the group's website at www.nmrgvbluestarmothers.org for membership information.

The group welcomes donations, which help fund care packages for troops and travel costs of family members who visit injured soldiers. A fund has been set up at the SLFCU; CU members can transfer funds into Account #367790-00-02.

The group also accepts items for care packages. The next shipment, themed "Operation: Let Freedom Ring," will go out prior to the 4th of July. In highest demand are non-perishable foods (especially pouched meat products such as tuna and chicken), power bars, powdered drink mixes, AA batteries, antiseptic wipes, sunscreen, and insect repellent. Call 897-2772 or check the website for donation information.

crafts made by moms, cards and letters from school kids, toiletries, playing cards, Nerf balls, books, salsa, snacks, and other items. Once, a *La Bamba*-singing stuffed Chihuahua was included in a Southwest-themed mailing. Most of the items are donated.

A favorite item for Iraq, where it often reaches 130 degrees in the summer, is powdered drink mix to make the hot bottled water tolerable. Another is homemade neck coolers sewn by Blue Star members; about 3,000 will go out during this summer's shipments.

Swapping war stories

Both mothers say Blue Star is therapeutic. It channels their energies and provides a network of other moms with similar worries.

"Sometimes I want to cry and vent, and I feel I can't do that in public," Marcia says. "Around the moms, I can cry and I know I will be comforted."

She says the group's monthly meetings are a chance to swap war stories, mom style.

One mother said her son called home to say, quickly into a cell phone with people shouting in the background, "Mom, I'm shot but I'm OK." Then he hung up.

Another's son was missing for several days before he was found injured, but safe.

"We tell new members if they need to talk, there is someone available 24 hours a day because there is always someone who can't sleep," Myra says.

Albuquerque's TVI and Texas Tech earn top honors

Sandia announces MEMS design contest winners

By Neal Singer

An exceedingly small monorail and a chain with links approximately 1/10 the diameter of a human hair were among the remarkable devices created by the imaginative yet detail-oriented winners of Sandia's 2006 MEMS University Alliance (UA) Design Competition.

Texas Tech's winning design team, directed by professor Tim Dallas and student Jay Friend, won the Characterization/Reliability/Material and Surface Science category. Their design consisted of a MEMS (microelectromechanical systems) monorail, mechanical characterization of bio-cells, and more.

"The Sandia Design Competition is the centerpiece of our MEMS curriculum. We believe the educational benefits are excellent," said Dallas. He praised the Sandia-originated SUMMiT design process, said it allowed students to participate in interesting research, and hoped that "testing and characterization of the fabricated devices will lead to publishable results."

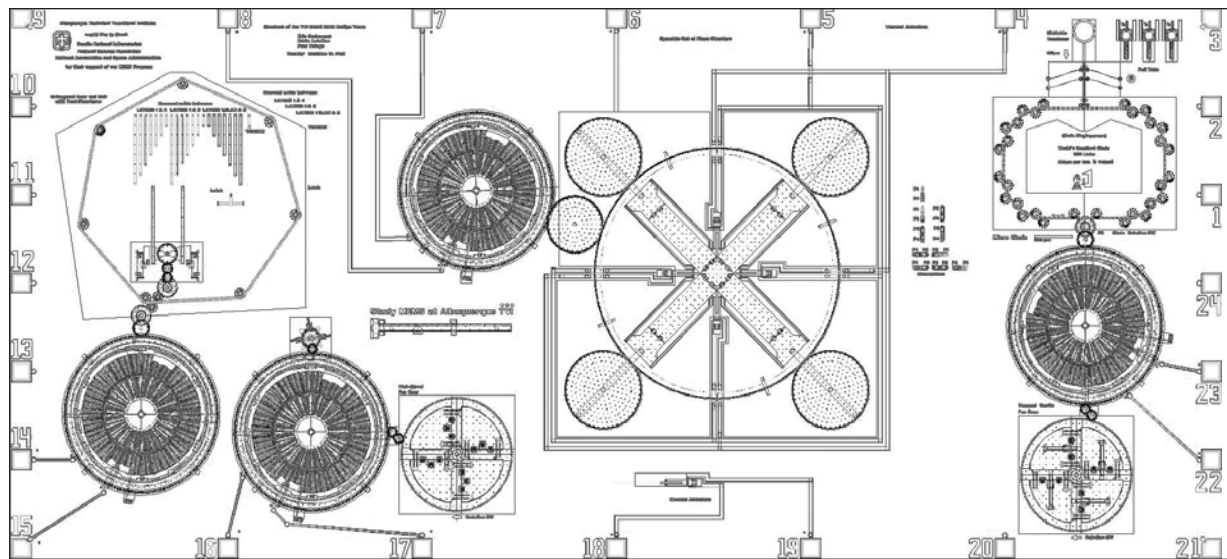
Professor Matt Pleil and student Paul Tafoya from Albuquerque TVI — the only two-year school in the competition — won the Novel Design category with help from students Eric Steinmaus and Eddie Letellier. (TVI will soon be renamed Central New Mexico Community College.)

The group built what it believes is the world's smallest chain (11 microns per link), complete with tensioner, as well as a microbelt able to transfer energy from one point to another. They built orthogonal gears necessary to transfer power from one plane to another (as in transferring power from transmission to wheels) and a trapped-oxide actuator that uses internal stresses to cause the structure to lift out-of-plane.

Said Pleil, "Not only did students learn details but also how important design is to the final fab-



ERNE GARCIA examines a macro model of a MEMS device component.



ALBUQUERQUE TVI'S MEMS entry, winner in the Novel Design category, includes a tiny chain and microbelt drive.

rication of the product. They worked hours on their own time to fine-tune their work. They also had a lot of fun and turned into a tremendously cohesive team. We greatly appreciate the outstanding support we have received from Sandia."

A model for other community colleges

The project has been a model for other community colleges, says Pleil, and has been presented at a local high school to stimulate interest in science. It's also been presented at a number of technical meetings and conferences.

"The ingenious designs submitted by all the participants in this competition are evidence of our success," says Sandia manager and contest lead Harold Stewart (1749).

TVI and Texas Tech team representatives were informed of their victory on April 18. They visited Sandia in mid-May to present their designs for review and to tour Sandia's microsystem facilities. In addition, the two schools will receive organizational memberships to MANCEF (Micro and Nanotechnology Commercialization Education Foundation). The winning designs will be fabricated on Sandia's SUMMiT V™ reticle set and Sandia-fabricated parts will be shared with all University Alliance members to use in their curricula regardless of participation in the 2006 contest.

Institutions must be members of Sandia's MEMS University Alliance for their students to participate. Membership is available to any US institution of higher learning.

Members receive course materials structured to help start or further develop their own MEMS program. They also receive licenses for Sandia's cutting-edge MEMS design software, MEMS parts, and other benefits. Twelve schools are members of the Alliance with a number of agreements pending.

The contest attempts to help attract, inspire, and train US students to become the engineers and scientists of the next generation of the MEMS workforce, according to literature published by the program. Cost-effective programs that build relationships with US students and professors help foster US leadership and competitiveness in a globalized world, the literature states.

This is the second year of the design competition. Greater detail can be found at <http://www.sandia.gov/mstc/education/design-contest/index.html>.

For more information about the contest, contact Natasha Bridge at nabridg@sandia.gov.

For more information about becoming a member of the University Alliance, contact Kathryn Hanselmann at kdhanse@sandia.gov.

'US must take nuclear energy lead'

VP Les Shephard's take on influencing the energy future: Act or the world will develop nuclear energy on its own

By Will Keener

With or without us, the world is going forward with nuclear energy development, Sandia VP Les Shephard (6000) said last week. "The US must actively engage, and if we don't, we're not going to influence the nuclear future."

Speaking to a Technology Symposium audience of about 350 at the Steve Schiff Auditorium in Albuquerque, Les outlined a number of areas where Sandia can contribute to US nuclear energy leadership. (The talk is available internally on streaming video: <http://www-irn.sandia.gov/organization/div2000/ctr2900/techsym>)

Sandia's VP for Energy, Resources, and Nonproliferation concentrated most of his remarks on the proposed Global Nuclear Energy Partnership (GNEP). Meanwhile, Congress is in the midst of considering a proposed \$250 million budget for that effort (*Lab News*, May 12).

Public concerns over nonproliferation, nuclear facility security, clean power for developing nations with few natural resources, and US energy security all make nuclear energy an issue that is appearing prominently "above the fold" in front-page news stories, Les said.

Popular opinion surveys in the US show strong support for nuclear power based on a number of factors, including (1) climate change, (2) reliable, quality electricity for our digital society, and (3) international energy security issues. Economic models, including one developed by Sandia's Chief Economist Arnie Baker, suggest that nuclear power is competitive with coal and natural gas and typically cheaper than other energy alternatives.

These factors and a "growing recognition among policy makers that nuclear must play a significant role," have combined to create opportunities for Sandia to

contribute, Les said. He cited Sandia's experience in repository science — dating to 1974 at WIPP — experience in reactor safety, and nuclear fuel cycle research as areas of opportunity.

Pursuing GNEP goals, including demonstration of fuel recycling that is proliferation-resistant and will reduce total wastes bound for the Yucca Mountain repository in Nevada, will define our future relationships with Russia and other nations, Les said.

Developing a small, robust reactor

Les noted the importance of developing the concept of a small, robust, safe reactor in the 100-300 megawatt power range for "user nations." Supplier nations would be responsible for operation and ultimate disposal of the nuclear fuel from these reactors. "We want to develop and insert Sandia technology to support this supply and return process," Les said.

Aligning Yucca Mountain with GNEP is also important, Les said. "At Yucca Mountain,

the world is watching."

Other nations, which must address the same spent fuel issues, are keenly interested in our approach, he said. As lead lab with responsibilities for managing and integrating the science of seven other labs and the US Geological Survey, technical credibility will be a key issue, he said.

Although critics have characterized GNEP as a response to the fact that Yucca Mountain is struggling with an uncertain future, Les and Sandia President Tom Hunter (see *Lab News*, May 12) have both underlined the importance of Yucca Mountain to the overall GNEP vision. "There are some extraordinary challenges, but Yucca Mountain is on a critical path associated with GNEP," Les said.

The lunchtime talk was part of a series of symposiums presented by the Labs' Strategic Education Initiative (Dept. 2916) to promote continuous learning at Sandia.



"The US must actively engage, and if we don't, we're not going to influence the nuclear future."

Div. 6000 VP Les Shephard

DiversityInc ranks Sandia among top 25 noteworthy companies

Sandia ranks among 25 noteworthy companies for its efforts in diversity, according to the 2006 *DiversityInc* Top 50 Companies for Diversity survey.

The Labs competed for the first time this year in the survey, now in its sixth year. With 256 companies participating, a 100-percent increase over the last three years, *DiversityInc* uses



standard statistical techniques to assess companies in four areas — CEO commitment, human capital, corporate communications, and supplier diversity. The companies identified as “top 50” demonstrated essential CEO commitment to diversity and had balanced performance in the areas measured.

“We are really pleased to see Sandia among the 25 noteworthy companies,” says Margaret Harvey, manager of Diversity, EEO & AA Services Dept. 3553. “For more than a decade Sandians have worked hard to create and maintain an environment of inclusion throughout the Labs. Through this particular instrument, we are able to take note of some of our strengths, such as with our supplier diversity and in evidence of CEO commitment. And, we have a different framework through which to consider opportunities to affect workforce composition as well as internal and external communications.”

While the major focus of this annual survey is on the “Top 50 Companies,” *DiversityInc* also publishes a variety of specialty lists, including the “25 noteworthy companies.” Others on the list of 25 noteworthy companies included Accenture, Army and Air Force Exchange, AstraZeneca, AT&T, Comcast, Cummins, Eastman Kodak, EMC Corp., Genetech, Herman Miller, Hyatt, Kellogg, KeyBank, KPMG, McDonald’s, New York Life Insurance Co., Pepco Holdings, Pepsi Bottling Group, Procter & Gamble, Southern California Edison, TXU, Wal-Mart, Warner Brothers, and Xerox.

In this year’s survey, CEO commitment weighed most heavily in the selection of companies. Other categories considered were unbiased retention — initiatives resulting in diverse representation across all races and genders; regular and consistent diversity training and communications programs; excellent supplier diversity; consistent strength across all four areas; and commitment to supporting all employees and employees with disabilities.

Readers can learn more about the companies recognized this year by going to www.diversity-inc.com. Those interested in subscribing to the newsletter and magazine can do so by clicking on “subscribe” and registering through the Sandia-sponsored subscription.

— Chris Burroughs

Sandia News Brief

Z-Coil CEO awarded New Mexico Small Business Person of Year

Andres Gallegos, son of Z-Coil Shoes founder Al Gallegos and president and CEO of Z-Coil Footwear, is this year’s SBA New Mexico Small Business Person of the Year. With three children at age 26, Andres quit his job to help his father run Z-Coil shoes and has never looked back. In FY01 a New Mexico Small Business Assistance (NMSBA) project was established between Sandia and Z-Coil (see *Lab News* Feb. 6, 2004).

Tom Hunter tours MESA in ES&H walkthrough



ES&H WALKTHROUGH — Sandia Director Tom Hunter, center, talks about Environmental, Safety, and Health (ES&H) issues with Sam Varnado, director of Center 12100, and Joanna Eckstein (10333) during a recent walkthrough of the MESA Central Utility Building (CUB). Joanna is part of Sandia’s air quality division and was assisting during the walkthrough. (Photo by Bill Doty)

Former Sandian Harry Kinney, best known as former taxi-driving, former two-time mayor of Albuquerque, passes away

Harry Kinney, a mechanical engineer at Sandia for 17 years before becoming one of the most popular mayors in Albuquerque’s history, died May 9 in Albuquerque. He was 81.

At Sandia, Kinney worked on weapons projects from 1956 to 1973. During that time, the *Lab News* covered Kinney’s forays into elected politics, first as a Bernalillo County commissioner, later as chairman of the City Council. In those days, those political posts were part-time nonsalaried jobs.

When Kinney retired from the Labs in June 1973 to work as an aide to newly elected New Mexico Sen. Pete Domenici, his Sandia colleagues proclaimed him “The Best Technopolitician Ever,” inventing the word to describe him.

A year later he was elected mayor of Albuquerque. He was known for his nonpartisan and unpretentious approach to politics. Following a second term as mayor from 1981 to 1985 and a stint as a general contractor in the late 1980s, Kinney ran for governor in 1990.

In the early 90s Kinney drove a taxicab. He



IN THIS JUNE 1973 *Lab News* photo, now-Sandia Emeritus Director Bill Alzheimer (then a colleague of Kinney) presents the retiring Harry Kinney a gavel. The inscription on the plaque calls Kinney “The Best Technopolitician Ever.”

was seen, occasionally, waiting in front of Bldg. 800 for a fare. — John German



Guylaine Pollock named ‘distinguished former student’ at Texas A&M

Guylaine Pollock of Advanced Information Architectures Dept. 5632 has received the Distinguished Former Student Award from Texas A&M’s computer science department. She was honored at the department’s annual spring banquet and awards ceremony April 20.

Guylaine, who earned her PhD in computer science from Texas A&M in 1985, was recognized for her leadership in computer science, her mentoring of women in computing, and her invaluable contributions to software engineering research. Texas A&M has established a computer science scholarship for fall 2006 that will be honored in her honor.

57 individuals, 66 teams

2006 ERA program honors exceptional contributors

More than 300 Sandians — individuals, team representatives, and their guests — gathered May 20 at the Albuquerque Marriott Pyramid for the 2006 Employee Recognition Night, Sandia's annual celebration of exceptional service, leadership, technical accomplishment, and teamwork.

This year, the awards honored 57 individuals and 66 teams for their contributions to Sandia's mission success.

Each year, the gala event is built around a theme; this year it was a "Through the Decades," featuring a four-star dinner menu and entertainment by Celebrity Enterprises.

The individual recipients are pictured over the next few pages. A complete listing of team winners and team citations and the names of individual team members begins below. Individual citations are on the internal web.



MY, WHAT A BIG HAT YOU HAVE — Division 4000 VP Ron Detry joins members of the performance group Celebrity Enterprises to sing "Your Cheatin' Heart." More than 300 Sandians and their guests celebrated the 2006 Employee Recognition Awards last weekend at the Albuquerque Marriott Pyramid. (Photo by Michelle Fleming)

Individual honorees



Dennis Anderson
6642



Karelyn Baker
8774



Amy Blumberg
11100



David Brekke
8517



Jeffrey Brooks
5531



Bruce Brunett
8235



Gary Bultmann
10842



Brandy Candelaria
4519



Edward Cazzola
3331



Adelina Chapman
10200

The 2006 Employee Recognition Awards program, continuing a trend begun several years ago, again this year shows divisions placing a special emphasis on team accomplish-

ments. The teams listed over the next five pages were deemed to have made exceptional contributions to an important program or process. A few representative teams are pictured.



INTEGRATED CORRELATION AND DISPLAY SYSTEM (ICADS) TEAM

The team successfully delivered and verified the Integrated Correlation And Display System (ICADS). Team member names are listed in the entry on page 10.

2005 ECP Campaign Team

The 2005 ECP Team led the incredibly successful 2005 Campaign.

Ellen Wilsey, Benita Montano, Sonia Herrera, Antoinette Anaya, Ginny Edmund, Lorraine Cordova, Pam Catanach, Geri Herrera, Nichole Herschler, Janette Kohler, Jacque Ramirez, Tracy Knowlton, Carmen Good, Melissa Garner, Art Verardo, James Jaramillo, Gwen Sorensen, Ed Lizewski, Jon Cashwell, Iris Aboytes, M. Griselda Armijo, Suzette Beck, Tara Renee Camacho-Lopez, Kathryn Crowder, Joanne Dodge, Sarah Downey, Jason Follingstad, Cristina Fritz, Laura Justus, Yvonne Mak, Debra Menke, Joanne Paulos, Therese Porter, Sandhya Rajan, Shelley Reams, Steven Rivera, Crystal Rose, David Salas, Colin Scroggins, Diane Sessa, Clare Stanopiewicz, Dana Tidwell, Mary Beth Tidwell, Mary Woodruff.

5th Annual Forklift Rodeo Team

This team is dedicated to the safe operation of forklifts here at the Laboratory through the Forklift Safety Rodeo.

Rebecca Naranjo, Ernest Sanchez, Elizabeth Carson, Willie Johns, Brad Lackey, Gabriel King, Mark Warner, Darrell Fong, Anthony Leyba, Lewis Marlman

Advanced Fuel Cycle Initiative (AFCI) Technical Integration Team

The AFCI Technical Integration Team rises to meet the Energy Policy Act of 2005 (EPACT) reporting requirements for DOE-NE and the Secretary of Energy.

Doretha Smith, Helen Srader, Victoria Kristine Nuanes, Kasumi Silva, Heather Maclean, Peggy Collins, James Smith, George Bailey, John Kelly, Dave Sala, Cindy Burnett, Benjamin Cipiti, Shawn Burns, Tracy Dunham, Nancy Hetrick, Karen Jo Klar, Doug Prout

Airworthiness Assurance Team

This team produced maintenance, inspection, and repair solutions to address critical airworthiness problems for the FAA, NASA, military, and world aviation community.

Ciji Nelson, Joseph Dimambro, Dennis Roach, Julia Archibeque-Guerra, Waylon Anthony Delong, Josephine Graham, Lenore Boulton, Paul Veers, Paul Werner, Kirk Rackow, David Moore, Eric Bloomquist, Tonimarie Dudley, Mike Ashbaugh, Michel Bode, Ilyin Chang, James Arlin Cooper, David Galella, Gerald Langwell, Rob Pappas, Richard Perry, Floyd Spencer, Paul Swindell, Phil Walkington, Thomas Witkowski

Atmospheric Radiation Measurement-Unmanned Aerospace Vehicle (ARM-UAV) Team

For the team's exceptional dedication and hard work in

developing a complex atmospheric research payload and deploying it in the Tropical Western Pacific.

Terry Spraggins, Jason Reinhardt, Ken Black, Joel Groskopf, Dan Yee, Larry Lebel, John Smith, Bob McCoy, Tim Tooman, John Beitia, Roger Busbee, Colleen Harris, Cynthia Richards

B61 Development Test Assembly Team

For ongoing exceptional service in the assembly/disassembly of numerous successful flight and Area III test units and a critical B61 hydrodynamic test conducted at LANL.

David Clements, Bryan Guernsey, Mark Anderson, DebbieLee Campos, William Reutzell, Frank Whiston, David Faucett, Michael Hall, Thomas Martinez, Felipe Reyes, Samuel Sevier

BioNet Systems Modeling and Analysis Team

For delivering the Biological Decision Analysis Center (Bio-DAC), a new tool that produces important results to improve the nation's defense against bioterrorism.

California Team Members: Dawn Manley, Heidi Ammerlahn, Lynn Yang, Marion Martin, Julie Fruetel, Christine Yang, Marilyn Hawley, Ben Wu, Michael Johnson, Zach Heath, Stephen Mueller, Mike Goldsby, Jaideep Ray, Mark Allen New Mexico Team Members: Han Wei Lin, John Jungels, Luis Hernandez, Jr., Michael Chen, Donna Djordjevich, Jason Honda, Angela Hsu, Andrew Rothfuss, Timothy Sa, Keith Vanderveen, William Wilcox

CDM Financial Team

CDM Financial Team revised processes to meet Tail Number Accounting Requirements.

Joan Lane, Cathie Sanchez, Donna Bauer, Patricia Salgado, Maryanne Heise, Mary Quintana, Maria Beltz, Emily Sers, Shawn Littleford, Joel Boyer, Lina Castillo, Sharon Dobias, Joanna Frumkin, Roger Kite, Brian Leen, Eva Wilcox, Lark Willson

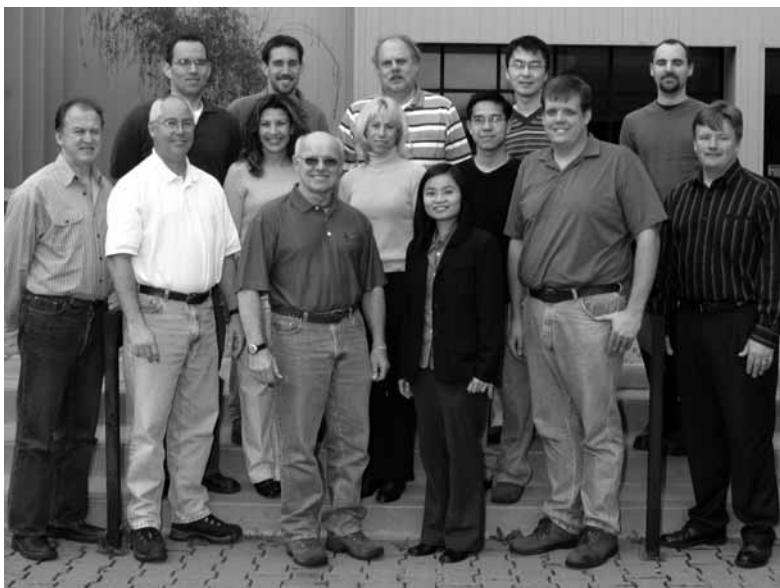
Center 4500 Software Engineering Process Group

Center management and staff sustained their path of software process improvement and were externally certified (and NNSA recognized) as a SW-CMM(R) Level 3 organization.

Terri Galpin, Leslie Gardner, D. Roberta Jaramillo, Larry Kincaid, Susan Harty, Marie Gendreau, Lisa Trainor, Albert Alvarado, David Cuyler, Gerald Esch, Gregory Durfee, R. Scott Joyce, Joseph Schofield, Thomas Cuyler, Kim Denton-Hill, Thomas Ferguson, Manuel Ontiveros, Gary Rivord, Edward Saucier, Boris Starr, Jr., W. David Williams

(Continued on next page)

Team awards recognize achievement



W87 JTA4 FTU-19 ASSEMBLY AND FLIGHT SUPPORT TEAM

(Continued from preceding page)

China Nonproliferation Technology Demonstration Team (CNTDT)

In an historic first, CNTDT was successful in jointly designing and implementing security upgrades at two nuclear facilities at the China Institute of Atomic Energy.

Lori Carroll, Tasha Perea, Heidi Smartt, Dominic Martinez, Steven Iveson, Jason Coombs, Donnie Glidewell, Charles Nickerson, Robert Follis, Tommy Goolsby, Janice Leach, Richard Lucero, Brent Peterson, James Purvis

CID (Classified Electronic Media Inventory Database) Development Team

For creation and production deployment of new automated inventory tools for managing the thousands of pieces of active classified electronic media on the SCN.

Ben Anello, Elisa Berg, Heather Robideau, Matt Bohnsack, Russell Goebel, Rich Cleary, Charlie Snider, Jeffrey Anastasio, Mark Stilwell

Closure of External Safeguards & Security (S&S) Findings

The Resolution of Findings program successfully closed 65 external findings from Security programs and all Sandia sites in FY05 using a thorough verification assessment process.

Gloria Solis, Joanne Trujillo, Theresa Apodaca, Samantha Flores, Anita Romero, Melanie Florez, Timothy Lucero, Enid Brown, Melanie Mead, Heather Egtervanwisserkerke, Steve Feador, Barbara Frames, Daniel Frampton, Dionne Hildago, Ryan Housley, Benjamin Huff, Brenday Jensen, Lisa Kaneshiro, Ronald Knowles, Michael Merlino, Charles J.E. Montoya, Michael Pooler, Robert Schwartzman, Bud Siple, Nicolas Walker

Code Management System (CMS) for the Air Force Materiel Command Application Team.

Code Management System capabilities were significantly increased to support use control for B61-7,11; W80-0,1; B83-0,1 and W84-0 weapons in addition to the previously supported B61-3,4,10.

Adria Liszka Reutzel, Katherine Sutton, Anne Chavez, Mary Atkins, H. Daniel Caton, Amy Matteucci, Carla Weatherred, Johnny Baca, Barbara Pass, Elaine Lopez, R. Reed Jackson, Jr., Elaine Paulsen Evans, Rosemary Gergen, Melissa Wilson, Jim Emery, Mike Dinallo, David Peercy, David Calkins, Juan Espinoza, Marianna Mauritz, Ryland Hubka, Deborah Kernan, Gigi Gonzales, Julie Bouchard, Kevin Schmidt, Steven Rezac, Tom Brewer, Matt Donnelly, James Turner, David Gelet, Dave Neidigk, Harvey Ogden, Brian Geery, David Cocain, Kenneth Reaves, Paula Sanchez, Bryan Spicer

Compact Pulsed Power Team

For consistently providing cutting-edge compact pulsed power design and development in a strongly customer (WFO and DP) focused environment.

Jeff Alexander, John Joseph Borchart, Phillip Coleman, Gary Denison, David Ferguson, Larry Lucero, Christopher Moya, Paul Primm, Steven Shope, Talbot Smith, Joshua Usher, Jose Villalva

Core Design Configuration Management Process Development Team

For creation of the new process for the configuration management of Pro/E model files during the weapon product life cycle.

California Team Member: Aaron Machado
New Mexico Team Members: Timothy Wiseley, Abraham Sego, Irene Kolb, Anthony Trujillo, Sean Brooks, Timothy Meeks

Critical Flight Hardware Fabrication Team

Critical Flight Hardware Fabrication for the Sandia LDRI Orbiter Inspection System (LOIS) in support of the NASA Return to Flight Program.

Paul Thompson, Clarence Esquibel, Michael Meade, Ronald Ward, Monico Lucero, Ronnie Albers, Mario Elevario, Gordon Box, Nicole Yazzie, Mark Kumpunen, Jack Heister, Kraig McKee, James Paustian, Carlos Mascarenas, Thomas Gutierrez, Johnny Montano, E. Keith Mote, John Cresap, William Vansalous, Andy Charley, Linda Kelton, Henry Lorenzo

Cyber Counterintelligence Analysis Team

Roger Suppona, Michael Hannah, and Gerald Hendrickson, teaming on their own initiative, for exceptional contributions to

the national counterintelligence community and the war on terrorism.

Gerald Hendrickson, Roger Suppona, Michael Hannah

DART (Design through Analysis Realization Team)

The Design through Analysis Realization Team (DART) is an integrated suite of software tools that enables analysis to more profoundly impact weapon design.

Sean Brooks, Constantine Pavlakos, Alan Scott, Christopher Lamb, Darryl Melander, Tom Laub, Robert Whiteside, Howard Walther, Patricia Kaufmann, Lisa Ice, Rena Haynes, Catherine Alarid, Lydia Koch, Karen Haskell, Daniel Sands, Teddy Blacker, Steven Owen, Edward Hoffman, Charles Adams, Robert Clay, John Greenfield, Merlin Current, Jr., Michael Hardwick, Victor Holmes, Wilbur Johnson, Joseph Jung, Colby Lavin, Jill Schwegel, Amy Shrouf, Gregory Sjaardema, David White, Brian Wylie

Division 10000 Behavior-Based Safety Operations Steering Committee

The Behavior-Based Safety (BBS) Operations Steering Committee designed and implemented a process to prevent injuries in Division 10000 for Logistics and Facilities Maintenance workgroups.

Pete Nieto, Twyla Sprouse, Christine Saavedra, Yvonne Molina, Ricardo De La Rosa, David Baca, Mary Bawcom, Donald Rhodes, Dominic Kittredge, Edward Archibeque, Michael Lucero, Ernest Salas

Enterprise Database Administration Team

Recognition of teamwork, technical skills, and commitment demonstrated by the DBA team in achieving the goal to become a true enterprise resource for database services.

Art Machtlinger, David Schoch, Lawrence Arellano, Kyle Hayden, Jonathan Kreisle, Ronald Weagley, Rachel Cardona Brown, Elaine Martinez, Priscilla Altsisi, Rachel Drucilla Sitges, Linda Garcia, Cynthia Huber, Peggy Schroeder, Michael Mink, Walter Walkow, Carl Prestwich, Bernadette Edge, Michael Hagengruber, Michele Leshner, Dave Kelly, Chris Castle, Andrew Ambabo, Susan Gonzales, Angie Morales

Explosives Technologies Group On-the-Job Explosives Training Team

This team developed and presented hands-on explosives safety training for the Explosives Technology Group. This comprehensive, documented training will ensure safe, consistent work practices.

Brian Melof, Kevin Fleming, Susan Bender, Adam Jimenez, David Wackerbarth, Frank Horine

Facilities Lighting Enhancement Design and Construction Team

The Lighting Team converted most of Sandia's lights to improve illumination quality, reduce maintenance, standardize equipment, and reduce energy consumption by over two million watts.

Samuel McCord, Donald Kerekes, Kelley A.C. Garcia, Herman Gomez, John Gonzales, Greg Anderson, Nicasio Nolasco, Jr., Gary Hoe, Ralph Wrons, Steve Koffman, Wesley Rita Mozley, Roger Rizkalla, Lucille Roybal, Thomas Vigil

Facilities Maintenance MESA Customer Service Team 2

For employing a team approach to reducing costs, improving performance, and reducing customer disruption in maintenance and modification of building mechanical and electrical systems.

Eugene Wade, Albert Yepa, Adrienne Gaylor, Kelley Garcia, Russel Matheson, Randy Gates, Dan Williams, Mary Trump, Thomas Mulville, Bill Kolb, James Dotson, James Robinson, Joseph Hancock, Thomas Boothe, Steve Goodrich, James King, Gerald Walters, Kirt Wilson, Rick Elliott, Greg Anderson, Pete Argo, Phillip Pelzman, Richard Simmons

Foreign Travel Team Integration

For integration of Division 4000 Foreign Travel Office with Center 6900 travel expertise, developing one team to provide comprehensive foreign travel support to the Labs.

Lori Carroll, Cynthia Maxwell, Janine Donnelly, Keri Parmeter, Ramona Tenorio, Christine Schwatken, Susan Kline, Patricia Dickens, Marceline Jordan, Laura Connolly, Stephanie Kelly, Leslie McReaken, Jackie Stover

FY2006 Ten Year Comprehensive Site Plan Team

For exceptional contributions to an outstanding FY2006 TYCSP.

Norman Wasson, Carol Meincke, Nydia Schmidt, Monica Salas, Debra Yzquierdo-Trujillo, Edward Ploquinto, Bryan Davis, Donald Campbell, Kenneth Kuzio, Michael Gomez, Edward Tooley, Harry Gullett, Karen Lynne Henry, Olaf Juveland, Thomas Bosiljevac, Darrell Rogers, Allen Herring, Darrick Jones, Linda Chavez, Beth Dick, Gary Hoe, Michael McClafferty, Katherine Rivera, Nathan Sommer, Peggy Stevens, Racquel Strader, Craig Taylor

Glass-to-Metal Sealing Team

For exceptional teamwork, dedication, and technical achievement in addressing hermetic seal failures on Lightning Arrestor Connectors in support of the W76-1 and W80-3 programs.

(Continued on next page)



Sharon Ann Chino
10513



Isabelle Chumfong
8114



Alicia Cloer
7000



Phillip Cole
2453



Charles Cote
4537



Christine Coverdale
1344



Larry Demo
2523



Rhonda Dukes
10243



Karen Erickson
5522



Juanita Evans
10533



Jennifer Gaudio
6928



Douglas Ghormley
5623



Linda Gillen
5925



James Godfrey
241



Paul Graham
10545



Anthony Griego
2724



Patrick Griffin
1384



Bruce Hamilton
2661



Heidi Herrera
10312



James Hipp
5533



Linda Jaramillo-Alfaro
3521



Timothy Knewitz
12117



Eric Lamb
1055



Matthew Leininger
8961



Jeffrey Lenberg
5932



Adriane Littlefield
4225



David Marks
5932



Michael McDonald
6631



Jeffery Miller
10223



William Miller
5910



Samuel Myers
1112



Mary Nation
10743



James Opalka
2623



Stanley Orrell
6850



Gary Polansky
5424



Carolyn Quinn
4014

Team honorees

(Continued from preceding page)

Garry Bryant, Bonnie McKenzie, Alice Kilgo, Neil Sorensen, Mark Rodriguez, Ronald Loehman, Michael Rye, William Wallace, V. Carter Hodges, Chad Watson, Charles Walker, James Van Den Avyle, Mark Reece, Jason Brown, Richard Grant, Jeffrey Christensen, Ronnie Stone, Larry Andrews, R. Wayne Buttry, Michael Cuban, James Emmons, Joseph Michael, Sandra Monroe, Donald Susan, Wayne Tuohig

Hurricane Katrina Economic Analysis Team

Providing Economic Impact Analysis of Hurricane Katrina accurately and ahead of schedule.

Nancy Brodsky, Lory Cooperstock, Paula Downes, Mark Ehlen, Verne Loose, Andrew Scholand, Vanessa Vargas

Integrated Correlation and Display System Team

For successfully delivering and verifying the Integrated Correlation And Display System (ICADS).

Stefani Chan, Jamie Smith, Jeanne Oselio, Kathryn Smith, Joselyne Gallegos, Mary Padilla-Myers, Carmen Allen, Janis Schuster, Melicia Proctor, Christine Korbin, Susan Louise Wilson, Denise Carlson, Betty Roush, Birute Watson, Theresa Bourne, Amelia Maxted, Russell Osborne, Susan A.H. Jean-Pierre, Alicia Perry, Michael Kruthaupt, Monica Carriaga, Michael Duran, Jill Rivera, Marisa Ruffolo, Kevin Heck, Audrey Martinez, Martin Chen, Jeannine Washington, Gery Navalesi, Richard Chapman, Lawrence Ray, Linda Dubbert, Jeremy Goold, Jake Proctor, Marc Gunkel, Glyn Evans, Loren Jayne, Michael Hess, Cathryn Peterson, Linda Shepard, Sally Harrer, Billy Don Richard, Karen Erickson, Gary Cable, Meara Allena Walsh, Paul Attermeier, Walt Huebner, Thomas Anthony Artale, Dorothy Simpson, Deborah Pechewyls, Cindi Reyes, Renee Howell, Michael Eckley, J. Randy Weatherby, Charles Keller, Patricia Sprauer, Teresa Bottomly, In Mccann, Sue Bodily, Andrew Jonathan Horn, Edith Henderson, Mathew Morlock, James Opalka, Anthony Montoya, Gary Day, J. David Kestly, John Williams, Philip Dreike, Steven Weissman, William Breiland, William Filter, Don Rountree, Ellan Anderson, Darrell Thomas, Allen Sault, John Romesberg, Martin Arrambide, John Robert Iverson, Nazim Elmazi, Surapong Somkaew, Randall Comer, Ivan Lee, Nathan Michael, John McGlinchey, Robert Carter, David Saetrum, William Slosarik, George Davidson, Bonnie Woodard, Greg Haseman, Robert Paul Clark, Jr., Steve Spahr, Rondall Jones, Christopher Reed Love, Nelson Enns, John Burns, Doug Trump, David Scott Henderson, Paul Getz, David Copithorne, Ryan Prescott, Philip Sackinger, William Hilbun, William Richardson, David Stuart, Brian Errett, Brad Andrzejewski, Lorraine Baca, John Ball, Julian Bartlett, Suzanna Bemis, Joseph Chavez, Meifan Chen, Chui Fan Cheng, Bernard Clifford, David Clifford, Ian Cooke, Jacob Delgado, Eric Fox, Margaret Furman, Mary Caroline Gabel, Daniel Garcia, Phyllis Garcia, Jennifer Gjullin, Maria Grabianowski, Julie Gregory, J. Michael Griesmeyer, Victoria Hamilton, Monica Hansen, Christopher Hogg, Jeffrey Joseph, Jeffrey Kluck, Richard Kominek, Sylvia Lake, Jayme S.C. Lara, William Lawry, Nancy Martinez, Susan Martinez, Anthony Medina, David Michael, Todd Ritterbush, Robert Brian Romero, Deborah Saiz, Lori Sanchez-Guerra, David Sears, Sean Stroud, Marilyn Jane Szydowski, Jimmy Tempel, Tan Thai, E. Don Thalhammer, Eric Tomlin, Vincent Urias, Timothy Vargo, Anthony Wagner, Lonnie Widler, Darin Worf, Stephen Zenker

ISL Modeling Team

In recognition of groundbreaking modeling and simulation based understanding of ISL Shock-Unlock Behavior.

Clay W.G. Fulcher, John Holland, Charles Stone, Nicole Breivik, Timothy Edwards, Timothy Jones, Henry Duong, Kenneth Eras, William Greenwood, Kenneth Gwinn, Lubomyra Kmetyk, Jakob Ostien, Howard Walther

Israeli-Jordanian Explosive Portal Monitor Cooperation Team

Sandia National Laboratories and Soreq Nuclear Research Center (Israel) collaborated to develop an explosive detection portal that is now in use on the Israeli-Jordanian border.

Charles Rhykerd, Jr., Christopher Runyan-Beebe, Amir Mohagheghi

KM-SAL Team

This award is for the synergistic efforts of the business and technical teams to provide Sandia with the Knowledge Management - Streaming Assets Library (KM-SAL) application.

Susan Moore, John Tissler, Rachel Drucilla Sitges, LaVonne Cortez, Ellen Lemen, Jaye Bullington, Laurence Cox, Mark Ralph, Marcellea Davis-Sneddon, Bertha Barreras, David Pollock, John Montoya, Tamara Orth, Jessica Dixon, Bernadette Edge

MicroChemBioLab Proteomic-Based Biological Detector Deployment Team

For building a proteomic-based biodetector and testing it over a three-week period at the Edgewood Chemical and Biological Center (ECBC) in September 2005.

Bruce Mosier, George Sartor, Brent Haroldsen, Jeanne Stachowiak, Judy Rognlien, Ron Renzti, Scott Ferko, Dan Yee, Gabriela Chirica, Victoria VanderNoot, Jim Van De Vreugde, Rafael Davalos, Tom Raber, Isaac Shokair, Michael Bartsch, Pamela Caton, Evelyn Cruz, Jaime Lachmann, Erin Shugard, Karl Wally, David Weaver

Microelectronics Vulnerability Analysis Team

This team developed and demonstrated a very significant microelectronic vulnerability analysis capability that is unique in the nation today.

Joshua Etzkin, Ronald Espinoza, Alan Phan, Tabitha Peyton, Jared Dove, Phillip Forbes

Neutron Generator Subassembly and Quality Acceptance Team

Neutron Generator Subassembly personnel and Product Acceptance personnel combined efforts to review significant data, reduce product acceptance backlog, and thereby put more product to stock.

Glenn Roubik, William Shiffrar, Juanita Marker, Liliana Andrade, Susan Shelton, Ruth Bargman-Romero, Mark Rule, Robert Stiers, Cory Hensley, Jacqueline Scoggin, Mary Bonner, Moses Jones, J. Anthony Wingate, Bobby Baca

Neutron Tube Target Loading Team

The Target Loading Team was able to execute the NNSA Mission reassignment and establish Target Loading within the Neutron Generator Production Center sooner than planned.

Sean Benedict, Douglas Evans, Peter Henderson, David Fragua, Michael Lopez, Steven Woodall, David Hawn, Robin Ohlhausen, Lisa Walla, Carol Mehrhoff, Terry Mason, Daniel Severinghaus, Kenneth Burris, Donald Zerwekh, Kent Robbins, Michelangelo Smith, Michael Vining, Nathan Acree, Patrick Apodaca, Jamie Coffey, James Lucero, Henry Peebles, Christopher Roberts, Domenick Tufariello



AIRWORTHINESS ASSURANCE TEAM

(Continued on next page)



Mark Savage
1644



James Schwank
1731



Carla Ann Scott
4537



Richard Simmons
10854



Ann Smith
5923



Diana Stavros
10267

Team honorees

(Continued from preceding page)

Nuclear Power Plant Vulnerability Assessment Team

For successfully demonstrating the applicability of DOE security assessment tools to commercial nuclear power plants, which led to immediate, tangible improvements in their security posture.

Brady Pompei, Elizabeth Jaramillo, Jane Hillman, Janice Leach, Michael Itamura, James Rivera, G. Bruce Varnado, Richard Grochowski, Donnie Whitehead, Andrew Walter, Christopher Hammond, Patrick Knight, Vernon Koonce, Laura Whittet

Photonic Crystal Light-Emitting Diode Team

This team has developed the single greatest efficiency increase for gallium nitride-based light-emitting diodes in recent years, resulting in a 50% jump in efficiency.

Karen Cross, Kristine Fullmer, Katherine H.A. Bogart, Stanley Kravitz, Randy Shul, Ronald Hadley, Robert Biefeld, Daniel Koleske, Carrie Schmidt, Arthur Fischer, Joel Wendt

Prompt Global Response R&D Team

For outstanding service in the understanding and advancement of Sandia's technical capabilities related to "prompt global response" through focused research and development.

John Wronosky, Ryan Bond, Justin Smith, David Kuntz, Jared Madson, John Emerson, Ronald Tucker, Mary Anna McWherter-Payne, Alicia Ayala, Walter Rutledge, Ronald Loehman, David Vigil, Harold Cooper, John Macha, Jeffrey Galloway, Jonathan Salton, Bennie Blackwell, Rafael Caicedo, Jonathan Christensen, Earl Creel, Sherrika Daniel, John Phelan, David Stokebrand, Alfred Watts, John White

Radar Transponder Development Team

For the outstanding rapid development and successful field trials of two systems important to the war on global terrorism.

Bobby Rush, Michael Murphy, Bertice Tise, Robert Ghormley, Ronald Diegle, Joel Darnold, David Werling, Marjorie Kinkel, Stephanie Otts, Ryan Halle, Adam Umpleby, Jason Payne, Jeffrey Thomson, Bradley Otts, Shawn Leslie, Sheree Boblick, Gerald Boyd, Jacqueline Griffin, Richard Hurley, Joseph Lucero, Brian McMurtrey, Christopher Rodenbeck, Theodore Salas, Bernd Strassner II, M. Ray Thomas, Curtis Webb, David Wiegandt

Radiation Protection & Industrial Hygiene Training Project Team

The RP&IH Training Project Team is recognized for providing exemplary safety training for personnel across Sandia and the DOE Complex, as well as nationally and internationally.

Brian Thomson, Marvin Hadley, Charlie Guinn, Randy Goodwin, John Inman, John Cochran, Vincent McRoberts

Radio Isotope Micro Power Sources (RIMS) Team

For outstanding work in Phase I of the DARPA-sponsored RIMS project, being the only performer in the program to meet all go/no go milestones.

Michael Shaw, Robert Koudelka, Ihab El-Kady, Christopher Murray, James Fleming, James Mikkalson, Carrie Schmidt, Jeanne Sergeant

Red Storm Design, Development & Deployment Team

The Red Storm Design, Development, and Deployment Team designed and partnered with Cray Inc. to develop and deploy a highly successful new massively parallel supercomputer.

Robert Ballance, Linda Bonnefoy-Lev, Ronald Brightwell, William Camp, Douglas Doerfler, James Handrock, Paul Iwanchuk, Karen Jefferson, Suzanne Kelly, James Laros, III, Robert Leland, Michael Levenhagen, John Naegle, John Noe, Kevin Pedretti, Mahesh Rajan, Leonard Stands, Judith Sturtevant, James Tomkins, Keith Underwood, John Vandyke, Courtenay Vaughan, H. Lee Ward, David White, John Zepper

ROWS Development Team

Exceptional efforts to design, develop and install Remotely Operated Weapons System (ROWS) at Whiteman AFB (WAFB) and Y12 in 2005.

Kristopher Klingler, Douglas Smathers, Regina Valenzuela, Daniel Rondeau, Ronald Simon, Michael Martinez, James Tauscher, Paul Johnson, Deborah Eaglin, William Evans, Stella Vigil, Larry Shippers, Steven Scott, Mark McAllaster, Terry Barber, Michael Kuehl,



MICROCHEMBIOLAB PROTEOMIC-BASED BIOLOGICAL DETECTOR DEPLOYMENT TEAM

Frank Gerdin, Kevin Jones, Scott Rose, Michael Williams, James Woods

Saliva Diagnostics Team

For pioneering lab-on-a-chip technologies to measure disease biomarkers in human saliva rapidly and with high sensitivity towards developing next-generation point-of-care clinical diagnostics devices.

James Brennan, Anson Hatch, Amy Elizabeth Herr, Ronald Renzi, Anup Singh, Daniel Throckmorton, Huu Tran, Victoria Vandernoort

Sandia/Goodyear Assurance Tire R&D 100 Award Team

Through innovative use of computational simulation, Sandia and Goodyear collaborated in the development of the Assurance line of tires featuring TripleTred technology.

Charles Stone, Martin Heinstein, Gerald Wellman, John Mitchell, Deepesh Kholwadwala, Samuel Key, Robert Kerr, Kenneth Alvin, Michael Glass, Harold Morgan, Gregory Sjaardema, Paul Wolfenbarger, Arlo Ames, Mark Blanford

Sandia's Intrusion Detection Team

The IDS team has created a computing environment that this year has withstood some of the most substantial and concentrated attacks against our Internet-facing servers.

Douglas Kayatt, Jr., Nellie Ward, Roger Suppona, James Hutchins, Eric Thomas, Timothy Toole

Sandstorm Team

This team conceived, designed and implemented a unique capability that was initially believed to be impossible, providing an unprecedented solution to a significant national problem.

Kevin Harrison, Christine Mitchell, Emily Mitchell, Catherine Nowlen, John Ziegler, David Goodnow, Tan Thai, Bradley Gabel, Douglas Ghormley, Marv Daniel, Michael Pendley, Robert Martinez, J. Joseph Clement, Edward Cole Jr., Kevin Nichols, Jud Blickley, Mark Jacobus, Michelle Leger, James Liang, John Vonderheide

SPR Restart Team

The SPR Restart Team successfully executed a very ambitious schedule to bring the Sandia Pulsed Reactor back to operational status to support critical programmatic testing.

Sidney Domingues, James Duncan, Autumn Higgins, Ralph Clovis, Michael Torneby, Ronald Knief, Darren Talley, Anthony Aragon, Raymond Beets, Robert Brandhuber, Allen Stanley, Norman Schwes, Donald Berry, Matthew Burger, John Ford, Anthony Baca, Gregory Baum, John Garcia, Gary Harms, Paul Helmick, Nancy Hetrick, Michael Knazovich, Robin Perini, Joseph Sandoval, Bonnie Shapiro, Caren Wenner

Security SPR Restart Team

The Security SPR Restart Team faced tremendous, ongoing challenges yet succeeded in delivering critical systems essential for restarting the Sandia Pulse Reactor for Stockpile Assurance.

Tom Rodgers, Walter Smith, Anthony Aragon, George Greer, Gregory Baum, Ronald Baker, Jerry Brenden, Daniel Frampton, Donald Funk, William Gallegos, Todd Harrison, Paul Keller, Ronald Knowles, David Lee, Jr., Magdelene Lucero, Michael Lucero, Michael Merlino, Larry Millington, Michael Pooler, Anthony Ramirez, C. Brian Robinson, Bud Siple, Allan Swanson, Nicolas Walker, Lisa Webster

Sandia Radiological Assistance Program (RAP) Team

The Sandia RAP Team and robotics personnel from the Mobile Robotics Department successfully resolved an incident at WSMR involving a stuck 15 kilocurie cobalt-60 radiation source.

Daniel Puetz, Daniel CdeBaca, Deborah Wright, Clinton Hobart, James Buttz, Michael Saavedra, Phil Bennett, Robb Lee, Robert Anderson, Richard Stump, Alex Horvath, Jr., Gregory Sahd

Stockpile Evaluation Sampling Rationale Study Team

A multi-disciplinary, multi-organization team to develop and support implementation of an alternative sampling rationale for Sandia's nuclear weapons Integrated Stockpile Evaluation (ISE) program.

Sheryl Hingorani, Kathleen Diegert, Janet Sjulín, Ronald Hahn, Kenneth Pierce, John Arfman, Jr., Rene Bierbaum, Tedd Rohwer, Floyd Spencer

Team Moonbeam

Team Moonbeam successfully completed four analytic projects that informed US national security policy decisions and provided key information about emerging strategic threats and proliferation risks.



Craig Taatjes
8353



Tan Thai
8114



Rebecca Ullrich
4532



Larry Varoz
12334



M. Victoria Vivian
5997

Imelda Quam, John Montoya, Ann Smith, Rod Forsythe, Charles Lee, Louis Feltz, William Kerschen, Thomas Heine, Brian Schwaner

Thermal Spray A.T. Program Team

Team greatly exceeded customer expectations, reversed a bad situation, solved a critical national security problem, and enhanced Sandia's reputation, while also reducing customer cost/risk.

David Anthony Urrea, Jr., Rachel Giunta, Mark Smith, Aaron Hall, John Cates, Dominic Vasquez, James McCloskey, Harold Anderson, Jr., Howard Anderson, David Beatty, Beth Brown, Diedre Hirschfield, Andrew Mayer, Timothy Roemer

Thunderbird Computational Cluster Team

For exceptional teamwork, unparalleled effort, and outstanding achievement deploying Thunderbird, the world's fifth-largest supercomputer and new core of Sandia's Institutional and NW capacity computing.

Jonathan Atencio, Matt Bohnsack, Donna Brown, Sophia Corwell, Joshua England, Eric Engquist, Marcus Epperson, Archie Gibson, Russell Goebel, Joann Herrera, Joey Jablonski, Linda Jaramillo, Kevin Kelsey, Anh Lai, Matthew Leininger, Jesse Livesay, Chris Maestas, David Martinez, Geoffrey McGirt, Patricia Miller, John Naegle, Jeff Ogden, Jerry Smith, Ben Taylor, Sean Taylor

Tritium Producing Burnable Absorber Rod Design Evaluation Team

For performing critical modeling and analysis leading to a redesign of the rods to be used for tritium production in commercial light-water reactors.

Bernice Mills, Don Cowgill, Rion Causey, Aili Ting, Michael Malinowski, Robert Nilson

TTC Commissioning Team

For outstanding efforts leading to the commissioning of a state-of-the-art Thermal Test Complex.

Randy Foster, Martin Sanchez, David Whittington, Ciro Ramirez, James Nakos, Thomas Blanchat, Marvin Roybal, Dann Jernigan, Patrick Brady, Sheldon Tieszen, Charles Hanks, Kevin Ward, Allen Smith, Bruce Amos, Bennie Belone, John Bentz, Deven Coddling, Michael Dexter, Don Estrada, Michael Gross, Edward Hunda, Kirk Jensen, John McFarland, Scott Rowland, Paul Schlavin, Richard Streit

(Continued on next page)

Team honorees

(Continued from preceding page)

Video Network Programming Production Team

The Video Network Programming Production Team has demonstrated exceptional teamwork, creativity, and support for corporate initiatives with this important employee communication tool.

Pam Welch, Al Lujan, Don DeLuca, Brent Peterson, Mark Olona, Dolores Lujan, Irene Allen, Myra Edaburn, Judy Hubbard, Cindy Barchus, Judith Preston, Gary Chemistruck, Richard Sanderville, Jacob Adcock, Dale Green, Rogulja Wolf, Warren Benjamin, Chad Hooker, Howard Kercheval, Dale Kruzic, Daniel Schell

Virtual Perimeter Security Grand Challenge Team

The team developed a demonstrable Virtual Perimeter Security (VPS) System with the purpose of extending the current ability to detect, assess, and respond to adversaries.

Bruce Whittet, Diane Armijo, Denise Bleakly, Regan Stinnett, Stephen Ortiz, Daniel Pritchard, Robert Riley, William King, C. Wayne Burton, Douglas Adams, Brian Nelson, Rodema Ashby, Nina Berry, Michael Bukaty, Lonni Diehl, Jeremy Giron, Janice Johnston, Hung Nguyen, Bradley Norman, Willaim O'Rourke, Fred Oppel, III, Kelly Snow, David Toledo, Paul Wayne, Frank Wunderlin

W76-1/Mk4A System Abnormal Impact/Stronglink Shock Unlock Evaluation Team

Outstanding evaluation and resolution of the Abnormal Impact/Stronglink Shock Unlock phenomena on the W76-1/Mk4A Life Extension Program.

Joseph Jung, Timothy Edwards, Stephanie Pollice, Nicole Breivik, John Nagel, Jr., Kenneth Gwinn, Clay W.G. Fulcher, David Clauss, Scott Klenke, Christian O'Gorman, Brad Bosell, Jimmy Brown, Jeffrey Dabling, Alton Donnell, Kenneth Eras, William Greenwood, John Ludwigsen, Jeffrey Mahn, Scott Nicolaysen, Michael Orrell, Todd Simmermacher, Scott Slezak, Charles Vanecek

W78 Thermal Spray Team

Rapid response to develop thermal spray process to satisfy new system hardness requirement within a compressed First Production Unit delivery schedule.

Brian Franke, John Stephens, Alice Kilgo, Edward Astle, David Van Ornum, James White, Bruce Bowles, Daniel Sherman, Scott Jones, Kent Robbins, David Lopez, John Hart, Richard DiPrima, Christopher Kureczko, Andrew Mayer, David Moore, Ciji Nelson, Timothy Roemer, Floyd Spencer, Robert Stiers, Loren Updegraff

W80 LEP Stronglinks Prototype Design Review Team

The Prototype Design Review Team expertly reviewed and summarized the five-year development effort undertaken for the W80 LEP stronglinks.

Christopher Sorensen, Gustavo Toledo, Michelle Griffith, Kelvin Diaz, Laurance Lukens, Jamey Bond, Daniel Wilcox, Aaron Ison, Richard Liedtke, Jeffrey Dabling, Marc Polosky

W87 JTA4 FTU-19 Assembly and Flight Support Team

For demonstrating the highest standards of dedication, excellence, and teamwork. This team met significant high-value W87 milestones despite technical challenges and a demanding schedule.



CDM FINANCIAL TEAM



Exceptional service
Leadership
Technical excellence

Don Osbourn, Judy Lau, Roman Romond, Tom Clark, Veronica Harwood, Kit Schmitz, Kiet Tieu, Levi Forman, George Schubert, Ben Markel, Derek Baptist, Gary Kirchner, Seung Choi, Greg Valdez, Kurt Berger, Mark Claudnic, Bruce Hamilton, Keeven Hurtt, Ragon Kinney, Paul Lowe, Mark Martin, Quenton McKinnis, Lee Rieger, Anthony Tafoya, Peter Zick

W87 JTA4 FTU-19 High Accuracy Separation Package (HASP) Team

For successful delivery of Flight Test Unit - 19 (FTU-19) sensor package, which successfully measured RV trajectory environments for launch, boost, separation and reentry phases.

California Team Member: Daniel Levy New Mexico Team Members: Anthony Tafoya, Augie Chapa, Michelle Vinson, Kyla Martinez, Yvonne Batchelor, Frank Pena, Charles Healer, Peter Zick, John Sarsfield, Stewart Kohler, Ragon Kinney, Keeven Hurtt, Lorraine Ashford, Richard Corderman, Leanna Fresquez, Patrick Gabaldon, Stewart Iverson, Leroy Miller y Romero, Kenneth Reaves

W88 STE Design and Implementation Team

Team successfully defined new QC1-10/ISO 9000 processes and architecture for the design and implementation of Surveillance Test Equipment (STE) and delivered a new W88 STE.

David Turner, Biu So, Nathanael J.K. Brown, Jose Castillo,

Gerald Miller, Jr., Peter Smolenski, Maria Armendariz, Marilyn Cornell, Patricia Bonham, Anna Otero, Carol Skinner, Suzette Beck, Rodney Depoy, Ronald Richardson, Edward James, Aaron Thompson, Bryant Sterling, Dean Martin, Stephen Graham, Brandon Hill, Larry Kuykendall, Rene Ramirez, David Schultz, Keith Snyder, Steven Spinhrne

War Reserve COTS Insertion Process (WRCIP) Team

The WRCIP Team successfully implemented processes and procured the latest technology COTS parts for nuclear weapons, saving over \$100M on just two lifetime extension programs.

Floyd Gentry, Charlie Sandoval, Julio Marchiondo Jr., John McBrayer, Matthew Montano, Richard Wavrik, John Witham, Lorraine Curtis, Jim Sweet, Paul Plunkett, Paul Vianco, Joe Borrego, Clarence Collins, Roger Billau, Raymond Heath, Art Minser, Joe Aragon, Christina Benavidez, Steve Biehl, Jimmy Bou, Emily Crespin, John Gaona, Jr., John Lopez, Jimmie Martinez, Frank Paulic

Z-pinch Radiation Pulse Shaping Team

Experiments on Z demonstrated the ability to generate a soft X-ray radiation temporal profile suitable for imploding and compressing a fusion capsule with low entropy.

Raymond Lemke, Michael Cuneo, Diana Schroen, Daniel Sinars, Roger Vesey, David Bliss, Gordon Chandler, Michael Mazarakis, William Stygar



Labs' Lockheed Martin NOVA nominees honored



SANDIA'S SENIOR MANAGEMENT TEAM, including Deputy Labs Director John Stichman (left), Labs Director Tom Hunter (second from left), California Site VP Mim John (center), Deputy Labs Director Al Romig (second from right) and Deputy Labs Director Joan Woodard joined to congratulate Sandia's nominees for Lockheed Martin's annual NOVA Award. The NOVA nominees shown here are (between Tom and Mim) Jim Tomkins (representing the Red Storm Design, Development, and Deployment Team) and Craig Taahtes (8353) (between Al and Mim). Mim represented the Hurricane Katrina Economic Analysis Team. Lockheed Martin will announce the 2006 NOVA winners in the fall. (Photo by Michelle Fleming)

T-Bird Club to get sneak preview of museum's new microcomputer exhibit

Adrian Hunt, executive director of the New Mexico Museum of Natural History and Science, will talk to Sandia Thunderbirds (and all interested persons) about the microcomputer gallery to open at the museum this fall. The \$5 million, 4,500-square-foot microcomputer gallery is funded primarily by Paul Allen (cofounder of Microsoft) and the Bill & Melinda Gates Foundation.

The free talk is Monday, June 12, 2 p.m., at the Mountain View Club (formerly the Officers Club East), on Kirtland Air Force Base, Bldg. 22000, at the east end of Club Road (turn east just inside the Wyoming Gate).

The Thunderbirds is Sandia's retiree club. Preceding the talk, there will be a luncheon open to all. Just show up between noon and 12:30 p.m.

Call Rod Boenig at 836-6977 for information on how to attend.



THE ALTAIR, made in Albuquerque and announced in the Jan. 1975 issue of Popular Electronics, will be on display in the museum exhibit.

Safety Fair speaker Charlie Morecraft's experience is everyone's worst nightmare

I remember screaming at the ambulance attendants, 'Let me die! Please let me die!'

Editor's Note: This article was abstracted from Charlie Morecraft's website.

Charlie Morecraft worked in an Exxon oil refinery for 27 years. His last position was as an operator, refining raw product into gasoline.

He knew the procedures and safety rules. "I had been to more safety meetings and courses than I can remember," he says. "I would wear sunglasses to safety sessions so that you couldn't tell whether I was asleep or not. As for protective equipment . . . a bunch of us guys in our refinery considered it 'cool' not to wear all the safety gear issued. We thought we were a tough, macho bunch. We modified our PPE [personal protective equipment] to suit our image.

"Oh yes, there was this guy Ray I worked with. He always wore his safety gear properly. Heck, he actually listened at safety meetings. We used to tease him. Ray took it in good part, but he also wore his safety gear.

"Then something happened one night that turned my life upside down, destroyed a large part of an Exxon installation, and gave me all the time in the world to think of my attitude to safety, and how stupid, stupid, stupid I had been.

"I had assumed the night shift position when the call came in: 'A blank needs to be removed from a line.' I had done this job a thousand times. I jumped into my truck and drove over — in my cut-off flame-retardant shirt, and without my safety glasses. When I got to the site, I left my truck running and ran up to the valves.

"The valves leaked. Exxon had planned to replace them during the next shutdown. Meanwhile there was a procedure in place so you could do the job safely.

"I wasn't going to tick off all the safety checks; it would take me all night. But when I went to fix the problem, the highly flammable petroleum product in the line unexpectedly



CHARLIE MORECRAFT

Come hear Charlie tell you the details of his accident on Tuesday, June 6, at 10 a.m. at the Steve Schiff Auditorium. Other Safety Fair events are on June 7.

surged up, splashed me in the eyes, and drenched my shirt.

Sponge Bob first-aid pocket packets among safety items available to employees in Centers 2400 and 2700

By Iris Aboytes

Centers 2400 and 2700 have a grassroots Employee Safety & Security Program (ESSP) run by employees for employees. There are 14 members on the ESSP Team that represent all levels of the workforce and champion employee concerns.

"Employees are very proud about their participation in the employee-owned program," says Jody Thomas, ESSP Coordinator (2733). "They work hard to improve our work environment by identifying and removing hazards, and our centers are starting to see a culture change due to employee empowerment and ownership. About 60 percent of our employees participate voluntarily."

Besides ensuring a safe and secure work environment, rewards are in the form of ESSP bucks. Save enough bucks and you can shop for various safety or security articles from the ESSP Store. For sale are carbon monoxide alarms, emergency blankets, fire extinguishers, and Sponge Bob first-aid pocket packets.

Safety bucks are awarded for taking monthly quizzes on the Internet, submitting suggestions, or removing potential hazards. Each quiz is worth one ESSP buck; suggestions and hazard removal can earn up to ten ESSP bucks.

"Shopping the store is a fun activity," says Jody. "During the recent Take Our Daughter to Work Day, parents had their daughters pick safety articles and shared stories on how they earned their spending money.

"This program isn't like other incentive programs; our center management teams allow us complete freedom in our topics and offer full support for addressing and resolving employee concerns," she says.

Participation is voluntary, nothing is graded, and all feedback and suggestions are respectfully received as employee contributions. If you'd like to learn more about the program ESSP will be at the Safety Fair on June 7.



"I was temporarily blinded. When my eyes cleared, I saw what was happening, and raced to get out fast. I thought, 'Oh my God — the truck is running!' I knew what was going to happen next. I could feel it. As I sprinted past the truck, the chemical vapors hit the truck's ignition system."

The truck exploded.

"I remember screaming at the ambulance attendants, 'Let me die! Please let me die.'" Charlie received burns to nearly 50 percent of his body.

He endured three months in and out of debriding tanks. "When rehabilitation starts, the pain and agony of being burned is repeated over and over," Charlie recalls. "The terrible process is called 'debriding.' It has to be done, to prevent the growth of scar tissue that would turn you into a complete cripple. They lower you into a tank containing a combination of water, Clorox, and antibiotics. Then they peel off, first the dead burned skin, and then, day after day, the new scabs as they form. This was followed by another five years in the hospital, and over 50 operations.

"My attitude to safety cost my family and me all that suffering," Charlie says. "I could have worn proper protective equipment, but I didn't. I could have worn eye protection that night, but I didn't. I could have followed correct safety procedure that night, but I didn't.

"I wanted to be 'cool.' I wanted to be 'macho.'

"When I look at the scars that cover my body, I know there was nothing macho in what I did and didn't do. There was nothing heroic or cool in costing my family all that needless suffering.

"Some people have called me a hero, but I always think of Ray. Ray, who followed all the safety rules. No matter what anybody said to him, or what names we called him, he wore his safety gear on every shift. Ray, who got to go back to his family every night.

"Who is the real hero?"

June 7 Safety Fair to have 40 exhibitors

Sandia's annual Safety Fair opens June 7, Steve Schiff Auditorium, at 8 a.m. with presentation of colors by the KAFB Color Guard, followed by the national anthem sung by Sandia's Holiday Singers. Exhibits will be open from 8 a.m. to 4 p.m.

This year's fair will have about 40 exhibitors, including UNM Search and Rescue, MADD, and Children and Youth Family Services (gang intervention).

Representatives from KAFB will have a demo featuring explosives-sniffing dogs.

Child ID/fingerprint kits will be available, and there will be vehicle checks by Fleet Services and child car seat inspections by Bernalillo County Sheriff officers.

There will be information on eye safety, power tools (lawn and garden), pedestrian traffic safety, and home radiation.

For more information and a complete list, go to <http://safetyfair.sandia.gov/> or call Ernest Sanchez (844-1871) or Willie Johns (844-1497).

Employee Safety and Security Program



Mileposts

New Mexico photos by Michelle Fleming

Recent Retiree



Ronald Haid
40 2996



David Carlson
30 200



Ronald Trelue
30 5600



Jeffrey Keck
30 2951



Finis Long
30 1637



Wilbur Martin
30 2997



Peggy Montoya
30 4220



James Muntz
30 4329



Art Ratzel
30 1500



Bill Richard
30 5526



Steve Roehrig
30 6600



Tony Sill
30 5742



Lawrence Tolentino
30 4334



George Baldwin
25 6924



David Borns
25 6113



Michael Eckley
25 2661



David Jones
25 2667



Terry Keim
25 4211



Suzanne Kelly
25 1422



Neil Lapetina
25 2732



Dennis Martin
25 1711



Paula McAllister
25 4311



Mary McWherter-Payne
25 5422



Fred Mendenhall
25 5932



David Morrison
25 4234



David Schmale
25 1824



Debra Stephens
25 2995



Robert Stiers
25 2723



Paul Taylor
25 1431



Douglas Bickel
20 5354



Terri Bottomly
20 5742



Eden Eager
20 2951



Carl Sicking
20 5936



Louis Weichman
20 2616



John Williams
20 2124



Matthew Brown
15 5717



Ronald Farmer
15 1381



Nancy Jackson
15 6901



Mark Olona
15 3653

Diana's Homegrown rids the world of soggy sandwiches

Small business receives Sandia help via New Mexico Small Business Assistance Program

By Stephanie Holinka

Your next box lunch may come with more than that tuna fish sandwich. That sandwich may come with a ripcord to open it, and a patent behind it.

Diana's Homegrown, a small business based north of Socorro in Lemitar, N.M., has patented a pull-out pouch system that is designed to transform food from an easily spoiled, soggy mess into a fresh and long-lasting meal. The intent of the system is to extend the lifespan of an unrefrigerated sandwich by as much as a month, even longer if it is stored in a refrigerator.

Through the New Mexico Small Business Assistance Program (NMSBA), Sandia provided technical and business assistance to 283 New Mexico small businesses in 2005, including Diana's Homegrown. Funding for the program comes from a tax credit passed by the New Mexico legislature.

This was Sandia's fifth year of helping small businesses through the NMSBA. The program allows Sandia to use a portion of its gross receipts taxes paid each year to provide technical advice and assistance to New Mexico small businesses.

In 2005, Sandia received \$1.8 million in tax credits, which were put to work for small businesses such as Diana's Homegrown. Eight success stories from the 2005 NMSBA program year, including Diana's, were highlighted at a recent event at the Albuquerque International Balloon Museum.

Reggie Alsbrook, the founder of Diana's Homegrown, entered the food business to fulfill a promise to his father, William Noel Alsbrook, who spent 10 years developing and patenting a packaging system that extends the fresh life of sandwiches. He passed away before the patent was granted. Reggie decided to develop his father's packaging system and move his father's dream forward.

The packaging system is essentially a plastic-wrapped bread roll that has a hole in the middle.



SANDWICH MAESTRO Reggie Alsbrook demonstrates how to open a Diana's Homegrown sandwich. Sandia helped Diana's with technical assistance. (Photo by Randy Montoya)

THERE ARE FEW REQUIREMENTS for small-business participation in the New Mexico Small Business Assistance Program — mainly that assisted companies must be for-profit New Mexico small businesses, and that the help is otherwise not available for a reasonable cost through private sources. For more information, contact Mariann Johnston (10222).

In that hole is a sealed pouch of sandwich filling such as green chile chicken salad, tuna salad, or peanut butter and jelly. To get the filling into the sandwich, the hungry person pulls a tab at the end of the sandwich and the filling spreads itself evenly inside the sandwich. Because the bread and filling are kept separate until the last minute, the sandwich can remain fresh and unsoggy far longer than most pre-prepared sandwiches, all without preservatives.

Sandia's assistance allowed Diana's Homegrown to think differently about the way they delivered sandwiches, says Jennifer Sinsabaugh of Supply Chain Management Center (10200).

"When Diana's came to us," says Jennifer. "they thought they had a packaging problem. What they really had was a polymer problem."

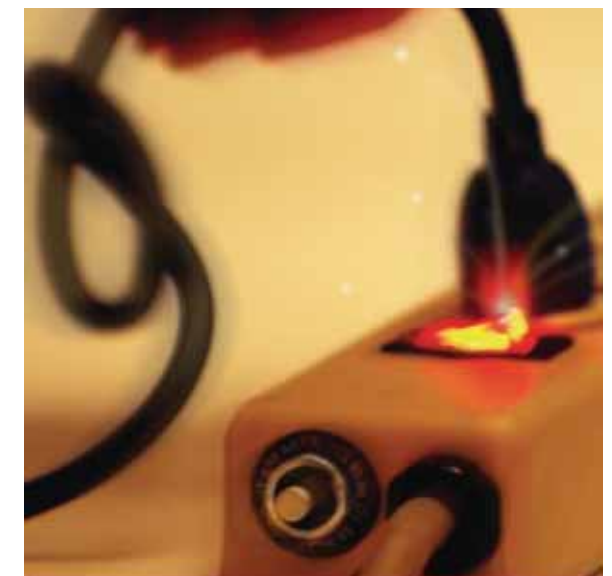
The technical assistance Sandia provided allowed Diana's to ramp up their production, secure some key contracts, and move their business into competition with much larger businesses.

Diana's is now a licensed caterer to Sandia and also has contracts to provide emergency provisions to programs for the elderly at many

New Mexico pueblos.

Currently Diana's packaging system is used to deliver sandwiches and burritos, but Diana's plans to use the system to hermetically seal many different types of food to help extend shelf lives even further. The company thinks its packaging system is perfect for providing emergency fresh food during disasters and as part of international emergency food initiatives.

Diana's is investigating providing food to secure facilities by developing a "secure food environment," in areas where the food supply is in danger of tampering. "Everybody, even people in classified environments, has to eat," says Reggie.



Shocked ... don't be!

Electrical office equipment is potentially hazardous, causing shocks, burns, and injuries if the equipment is improperly used or maintained.

■ Electrical Hazards Include:

- Ungrounded equipment and/or overloaded circuits
- Overloaded outlets
- Defective, worn, frayed, or cut cords
- Failure to disconnect equipment before cleaning/repairing it

■ Helpful Reminders:

- Inspect cords, equipment, and outlets regularly
- Avoid tripping hazards—roll up excess cords and keep them out of traffic areas
- Use extension cords only temporarily
- Use equipment on/off switches: never pull a plug out by the cord

For additional Electrical Safety information:
<http://zap.sandia.gov>



NMSBA recognizes seven other small businesses

In addition to Diana's Homegrown, the NMSBA recognized seven other small businesses at a recent event at the Albuquerque International Balloon Museum. They include:

- **The Arquin Corporation** in Alamogordo, N.M., manufactures a product line called Continuous Filament Masonry Ties, used as horizontal reinforcement in shear wall construction. Sandia principal investigator Cliff Ho's (6115) study "Finite Element Stress Analysis of Ties for Masonry Applications" included two engineering metrics that analyzed resistance to explosive blasts and hurricane force winds with and without the use of Arquin's products.
- **E M Optomechanical Inc.** in Albuquerque provides the nanotechnology/microsystems market with metrology instrumentation. The company's OPTOPro product line of long-working-distance Optical Profilers provides a long working space, essential for microsystems metrology. Based on patented long-working-distance interference microscope technology, developed by Sandia and licensed to EMOM, the OPTOPro products are designed to solve this problem. Sandia principal investigators Maarten De Boer, Michael Sinclair, and Alex Corwin (1749) focused on different areas of microelectromechanical systems (MEMS) science and technology.
- **Healthy Buildings** in Santa Fe focuses on eco-friendly building blocks made of ground wood and cement. Through Sandia, graduate students from the Anderson Schools' Management of Technology Center helped assess Healthy Buildings' business and marketing plans.
- **The Northeastern New Mexico Educational Foundation/The Learning Center** in Raton, N.M., works to enhance educational opportunities for the

residents of Colfax, Harding, and Union counties by partnering with local and nationally accredited institutions of higher learning, thereby providing access to a college education for students close to where they live and work. Sandia principal investigator Jerome Wright (6115) performed an analysis of current design with local businesses' training needs.

- **Queston Construction Inc.** in Albuquerque is a commercial construction company with a division devoted to roofing. As a result of the roofing work and a focus on safety, the company has developed a device for fall protection. The device is called a TOD (Tie Off Device), which is anchored to the roof. It provides a standardized attachment point for a safety harness, preventing anyone working on a roof from falling. Sandia principal investigator Herman Molina (5916) provided the company with design consultation and review of the TOD.
- **Southeast New Mexico Farmers' Irrigation Research Assoc.**, serving the residents of Chaves, Eddy, and Lea counties, is a consortium of growers and producers of agricultural products focused on improving crop production practices in a desert environment. Sandia principal investigator D. Michael Chapin (6822) assisted with a systematic approach to monitor and test soil parameters and other necessary data points that were collected and communicated to the farmers on soil moisture status in relation to plant need.
- **Vivendas!** in Taos manufactures and assembles a series of individual building panels that are transported to the home site for assembly. Sandia and the New Mexico Manufacturing Extension Partnership helped standardize the process and improve supply chains to help lower labor costs and help increase the number of houses produced per year.