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.

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 engineering.

(Continued on page 4)
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 Micsystems, Nanotechnology, and Advanced Materials. Only companies with technical products or services in these focus areas are accepted to participate.

Project manager Toni Leon Kowalski 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/techshowcase/attendees/
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 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 three of the three-day events available online: 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.)

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

Nearly 150 kids in grades 3 through 12 attended Sandia/Caifornia 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

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 contra-band 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. Downloading 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 musical CDs are not 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 signature files and have detection and protection against 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 music CDs (regardless of ownership) that contain only music (audio) are exempt from the requirements 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 Schalip (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 Engartner, one of the Sandia project leaders, 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.

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-puzzle-like 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.

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 (55 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 is that 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 geologic 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 drilling 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 at and 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 underground 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, creates the openings, and 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 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 longstanding 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 age, the thermal gradient decreases, 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 the 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 Kern

Blue Star Mothers
(Continued from page 1)

ills 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. Membership includes active duty servicemen and women and families.

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.

“Every 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.”

“The worst thing that can happen is for our troops to think they are forgotten by the folks at home. They think they are forgotten by the folks at home. They need to know we support them and their efforts.”

Marcia Anderson

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.mnrngbluestar.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 #68388.

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 pork and beef jerky mixes, AA batteries, antiseptic wipes, sunscreen, and insect repellent. Call 897-2772 or check the website for donation information.

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

Marcia Anderson

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
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 enormous,” said Dallas. He praised the Sandia-originated SUMMIT design process, saying 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 Pfeil and student Paul Taffo from Albuquerque’s 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 microbot 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.

Pfeil said, “Not only did students learn details but also how important design is to the final fabrication 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 Pfeil, 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 innovative 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™ 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.

‘US must take nuclear energy lead’

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 USEnergy 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 waste 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 an essential component of the overall GNEP vision,” 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.
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., Genentech, 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.diversityinc.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

Tom Hunter tours MESA in ES&H walkthrough

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

Sandia News Brief

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

Andres Gallegos, son of Z-Cell Shoes founder Al Gallegos and president and CEO of Z-Cell 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-Cell shoes and has never looked back. In FY03, a New Mexico Small Business Assistance (NMSBA) project was established between Sandia and Z-Cell (see Lab News Feb. 6, 2004).

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

Guyline 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.

Guyline, 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 awarded 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.

Individual honorees

![Dennis Anderson](image1)

Dennis Anderson
6642

![Karelyn Baker](image2)

Karelyn Baker
8774

![Amy Blumberg](image3)

Amy Blumberg
11100

![David Brekke](image4)

David Brekke
8517

![Jeffrey Brooks](image5)

Jeffrey Brooks
5531

![Bruce Brunetti](image6)

Bruce Brunetti
8235

![Gary Bullmann](image7)

Gary Bullmann
10842

![Brandy Candelandia](image8)

Brandy Candelandia
4519

![Edward Castrona](image9)

Edward Castrona
3331

![Adeleina Chapman](image10)

Adeleina Chapman
10200

![Walkington, Thomas Witkowski](image11)

Walkington, Thomas Witkowski
8517

![Rob Pappas, Richard Perry, Floyd Spencer, Paul Swindell, Phil Taylor, Colorado Internal Team](image12)

Rob Pappas, Richard Perry, Floyd Spencer, Paul Swindell, Phil Taylor, Colorado Internal Team
2000

![Kirk Rackow, David Moore, Archibeque-Guerra, Waylon Campos, William Reutzel, Frank Whiston, David Faucett, Michael B61 Development Test Assembly Team](image13)

Kirk Rackow, David Moore, Archibeque-Guerra, Waylon Campos, William Reutzel, Frank Whiston, David Faucett, Michael B61 Development Test Assembly Team
11100

![Josephine Graham, George Bailey, John Kelly, Dave Sala, Cindy Burnett, Benjamin Johnston, John Beitia, Roger Busbee, Colleen Harris, Cynthia Richards](image14)

Josephine Graham, George Bailey, John Kelly, Dave Sala, Cindy Burnett, Benjamin Johnston, John Beitia, Roger Busbee, Colleen Harris, Cynthia Richards
10200

![Edward Cazzola, Gary Bultmann, Jeff Lennon, Stuart Fleishman, Jeff Lennon, Stuart Fleishman, Jeff Lennon, Stuart Fleishman, Jeff Lennon, Stuart Fleishman](image15)

Edward Cazzola, Gary Bultmann, Jeff Lennon, Stuart Fleishman, Jeff Lennon, Stuart Fleishman, Jeff Lennon, Stuart Fleishman
10842

![Anita W. Summerfield, Amos Eshoo, Tom Harkin, Joe Donnelly, Sue Myrick, Frank Keating, Mel Martin, Jay Rockefeller, Ben Nighthorse](image16)

Anita W. Summerfield, Amos Eshoo, Tom Harkin, Joe Donnelly, Sue Myrick, Frank Keating, Mel Martin, Jay Rockefeller, Ben Nighthorse
10842

![SANDIA LAB NEWS • May 26, 2006 • Page 8](image17)

The 2006 Employee Recognition Awards program, continuing a trend begun several years ago, again this year shows divisions placing a special emphasis on team accomplishments. 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 members listed in the entry on page 10.

2005 EPC Campaign Team

The 2005 EPC Team led the incredibly successful 2005 Campaign.

Eric Willsey, Sonya Montano, Sonia Herrera, Antonio Valles, Anaya, Ginny Eseleghi, Lorraine Cordova, Pam Catana, Geri Ham, Jennifer Mars, Nicholas Harcher, Janette Kolker, Jacob Ramirez, Tracy Knellinger, Carmen Good, Melissa Garner, Art Vanard, James Jaramillo, Owen Searson, Bill Lusardi, Jon Cathrepill, Tim Alyobdy, M. Grisellia Arimoto, Susette Beck, Tane Renie, Cachacho-Lopez, Kathryn Cowdrey, Joanna Dodge, Sarah Downey, Jason Fillingstad, Cristina Fritz, Laura Judis, Ywone Meke, Debora Manke, Jayanne Paulus, Therese Porter, Sandy Ryan, Rhodee Reams, Steven Ross, Crystal Rugg, David Sael, Colin Srogozinski, Diane Wae, Clare Stanislawczyk, 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 Rodea.

Rebecca Navarro, Ernest Sanchez, Elizabeth Carson, Willie Johns, Brad Lackey, Gabriel King, Mark Warner, Darrell Fong, Anthony Loyola, Lewis Martimmon.

Advanced Fuel Cycle Initiative (AFCI) Technical Integration Team


Airworthiness Assurance Team

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


Atmospheric Radiation Measurement-Unmanned Aerospace Vehicle (ARM-UV) 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 Grodopok, Dan Ye, Larry Label, John Smith, Bob McCoy, Tim Tooman, John Bellis, Robert 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.


BioNet Systems Modeling and Analysis Team

For delivering the Biological Decision Analysis Center (BioDAC), a tool that produces important results to improve the nation’s defense against bioterrorism.

California Team Members: Dawn Hanley, Heidi Ammerlohr, Lynn Yang, Marion Martin, Julie Fruechtl, Christine Yang, Marilyn Hazelby, Ben Wu, Michael Johnson, Zach Heath, Stephen Muller, Mike Goldby, Jaleel Ray, Mark Allen, New Mexico Team Members: Han Wei Lin, John Jungels, Luis Hernandez, Jr., Michael Chen, Donna Duyerdings, Johna Honda, Angela Hua, Andrew Rothfuss, Timothy Sa, Keith Vandevelde, William Wilcox.

CDM Financial Team

For delivering the revised processes to meet Tail Number Accounting Requirements.

Joan Lane, Caithe Sanchez, Donna Bauer, Patricia Salgado, Maryanne Hales, Mary Quintana, Maria Baitz, Emily Sers, Shawn Littlesett, Joel Bayer, Lisa Cadillo, Sharon Dobos, Joanna Furrillen, Roger Rita, Brian Leen, Bva Wilcox, Lark Wilkinson.

Center 4500 Software Engineering Process Group

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

Team awards recognize achievement

(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 Chinese Institute of Atomic Energy. 

Lori Carroll, Tashia Perez, Heidi Smart, Dominic Martinez, Steven Iveson, Jason Coombs, Donnie Glidewell, Charles Nickerson, David Ferguson, Larry Lucero, Christopher Moya, Paul and DP) focused environment.

Power design and development in a strongly customer (WFO

Compact Pulsed Power Team

For creating exceptional teamwork, dedication, and technical achievement in developing and implementing new software tools that enables analysis to more profoundly impact weapon design.

Seán Pubby, 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 Realizaton Team)

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


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 work groups.

Pete Nieko, Taylor Sparrow, Christine Saavedra, Yvonne Molina, Ricardo De La Rio, David Baca, Mary Rawlins, Donald Rhoades, Dominic Kittredge, Edward Archebique, Michael Lucero, Ernest Sailer

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 Macthnder, David Schruch, Leonardo Arrital, Kyle Hayden, Jonathan Kreisile, Ronald Wysolabel, Rachel Cardona Brown, Elaine Martinez, Michelle Attila, Rachel Druda, Cheri Foer, Linda Garcia, Cynthia Huber, Peggy Schiavone, Mike Minta, Walter Walkow, Carl Preston, Bernardino Edge, Michael Hagenbrucher, Michael Luber, Dave Kelly, Craig Cards, Andrew Arinbog, Susan Gonzalez, Angie Morelos

Explosives Technologies Group On-the-job Explosive Training Team

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

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

Facilities Lighting Enhancement Design and Construction Team

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

Martin McCord, Donald Kinkaekel, Karl CAC, Herman Gomez, John Gonzalez, Greg Anderson, Nicasio Nolezco, Jr., Gary Haw, Ralph Winters, Steve Kuffman, Wesley Ritz Mueller, Roger Ritsalab, Luckie Rybald, Thomas Vigil

Facilities Maintenance MESA Customer Service Team

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

Eugene Wade, Albert Yopa, Adrienne Gayler, Kelley Garcia, Michael Kuchen, Randy Gabe, Dan Williams, Mary Trump, Thomas Mulville, Bill Kolb, Jim Davis, Enrico Balboni, Joseph Hancock, Thomas Bothe, Steve Goodrich, James King, Garold Walters, Kit Wilson, Rick Blixt, Greg Anderson, Pete Ango, Philip Pelzman, Richard Simmons

Foreign Travel Team Integration

For integration of Division 6400 Foreign Travel Office with Center 6900 travel expertise, developing one team to provide comprehensive foreign travel support to the Labs.

Lori Carroll, Cyntita McFarlene, Janine Donnelly, Aki Parmater, Ramona Tenorlo, Christine Schwebatis, Susan Kline, Patricia Dickens, Marcella Jordan, Laura Connolly, Stephanie Kelly, Leslie McReean, Jackie Stover

FY2006 Ten Year Comprehensive Site Plan Team

For exceptional contributions to an outstanding FY2006 TCP.

Norman Watson, Carol Meincin, Nydia Schmitz, Monica Saks, Debra Quisquerto-Triplip, Edward Pasquino, Brian Davis, Donald Campbell, Kenneth Kudo, Michael Gonzalez, Edward Toolely, Harry Guillet, Karen Luneh Henry, Oial Joulwan, Thomas Bullejacq, Darrell Rogers, Allen Rings, Andrew Derrico, Johns Lince, Linda Chaves, Beth Digs, Gary Houe, Michael McCaffrey, Katherine Rivera, Nathan Sommer, Peggy Stevens, Acquar Strader, Cozy Taylor

Glass-to-Metal Sealing Team

For exceptional teamwork, dedication, and technical achievement in addressing hermetic seal failures on Lightning Arrester Connectors in support of the W 6-1 and W 80-3 programs.

(Continued on next page)
AIRWORTHINESS ASSURANCE TEAM

Team honorees

(Continued from preceding page)

Garry Bryant, Bonnie McAllister, Alice Kilo, Neil Sorensen, Mark Rodriguez, Donald Loehman, Michael Rye, William Wallace, V. Carter Hodge, Chad Watson, Charles Foley, James Van Ayk, Mark Race, Jason Brown, Richard Grant, Jeffery Christensen, Ronnie Stone, Larry Andreason, R. Wayne Battry, Michael Cuban, James Emmons, Joseph Michael, Sandra Monroe, Donald Susan, Wayne Tungish

Hurricane Katrina Economic Analysis Team

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

Nancy Brodky, Larry Cooperstock, Paula Downe, Mark Ehlen, Verni Loosio, Andrew Scholdan, Vanessa Vargas

Intergated Correlation and Display System Team

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


ISL Modeling Team

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


Israeli-Jordanian Explosive Portable Monitor Portal Cooperation Team

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

Kurt Breyten, J., Christopher Ryan-Bunao, Amir Moghnieh

KM-SAL Team

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

Susan Moore, John Titlar, Rachel Drucilla Sigg, Lorraine Coraza, Ellen Lamer, Jay Buffington, Laurence Cole, Mark Rajt, Marcelias Davis-Snedden, Bartha Barreras, David Pollock, John Montoya, Tamala Orf, Jessica Dean, Bernardette Edge

MicroChemBioLab Protein-Based Biological Detector Deployment Team

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

Bruce Mosier, George Sarker, Nanci Handian, Jeanne Stakehock, Judy Roffen, Ron Herold, Scott Finko, Dan Yoe, Gabriela Cheko, Victoria Vanderkoot, Jim Ide De Vroope, Rafael Davolos, Tom Rober, Isaac Shook, Michael Bartich, Pamela Caten, Evelyn Cote, Jamie Lachmich, Erin Shugard, Karl Vallery, 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 Elizur, Robert Espinoza, Alan Phan, Tabitha Peyton, Jared Dowle, Philip 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 Rookus, William Shirriff, Juanita Marker, Liliana Andrade, Susan Shelton, Ruth Bargman-Romero, Mark Rule, Robert Shier, Cory Hensley, Jacqueline Scoggin, Mary Brenner, Monica Jones, J., Anthony Wingate, Bobby Baca

Neutron Tube Target Loading Team

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

Sean Benvenist, Douglas Evans, Peter Henderson, David Fraiga, Michael Lopio, Steven Woodall, David Hauen, Robin Olhausen, Lisa Wall, Carol Mottshor, Tony Hagan, Daniel Seversonhaus, Kenneth Burris, Donald Zaremba, Kanti Robbins, Michaelangelos Smith, J., Michael Vining, Nathan Acree, Patrick Apodaca, Jamin Coffee, Jami Luce, Henry Peake, Christopher Roberts, Domenico Tubelli

(Continued on next page)
Nuclear Power Plant Vulnerability Assessment Team

Frank Gardin, 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.

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 Tp2p light radial technology.

Sandia's Intrusion Detection Team

This team created a computing environment that this year has withheld some of the most substantial and counter-attacked attacks against our Internet-facing servers.

Sandra Radiological Assistance Program (RAP) Team

The Sandra RAP Team and robotic personnel from the Mobile Robotics Department successfully resolved an incident at WSN involving a study 15 kilocurie cobalt-60 radiation source.

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.

Team Moonbeam

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

Team honorees

(Continued from preceding page)

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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 Lupan, Don Dacula, Brent Petersen, Mark Olona, Delores Lupan, Iona Walk, Myra Gabban, Judy Muirhead, Cindy Barchus, Judith Preston, Gary Chemlouck, Richard Sandvold, Jacob Aitken, Dale Green, Robby Wolf, Warren Benjamin, Chad Hooker, Howard Karchewa, Dale Kruez, 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.


W76/LLE/LEP System Abnormal Impact/Stronglink Shock Unlock Evaluation Team

Outstanding evaluation and resolution of the Abnormal Impact/Stronglink Unlock on the W76/LLE/LEP System.


W76/LLE/LEP System Abnormal Impact/Stronglink Shock Unlock Prototype Design Review Team

Outstanding engineering review of the Abnormal Impact/Stronglink Unlock Prototype Design.

Christopher Sorensen, Gustavo Toledo, Michelle Griffith, Brian Franke, John Stephens, Alice Kigo, Edward Adele, David Van Ornum, James White, Bruce Bleser, Daniel Sherman, Scott Jones, Kent Robbins, David Low, John Hart, Richard DiPerna, Christopher Kureczko, Andrew Mayer, David Moore, Cip Nunn, Timothy Noermer, Ford Spencer, Robert Shiers, Lorin Upholdrag

W80 LEP Stronglinks Prototype Design Review Team

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

Christopher Sorensen, Gustavo Toledo, Michelle Griffith, Brian Franke, John Stephens, Alice Kigo, Edward Adele, David Van Ornum, James White, Bruce Bleser, Daniel Sherman, Scott Jones, Kent Robbins, David Low, John Hart, Richard DiPerna, Christopher Kureczko, Andrew Mayer, David Moore, Cip Nunn, Timothy Noermer, Ford Spencer, Robert Shiers, Lorin Upholdrag

W87/T44 FTU-19 High Accuracy Separation Package (HASP) Team

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

California Team Member: Daniel Levy New Mexico Team Members: Anthony Tabula, Augie Chapa, Michelle Winsin, Kyla Martinez, Yvonne Batchelor, Frank Pena, Charles Halier, Peter Zick, John Sandford, Stewart Kahler, Rayon Kinney, Kevin Hurt, Lorraine Ashford, Richard Cordeban, Leanne Frequez, Patrick Gabaldon, Stewart Jerzan, Leroy Miller, Kathryn Sargent, Kenneth Reaves

W88 STE Design and Implementation Team

Team successfully defined new QCL 110/160 9000 processes and architecture for the design and implementation of Surveillance Test Equipment (STE) and delivered a new W88 STE.

David Turner, Bu So, Katharine J.K. Brown, Jose-Castillo, Gerald Miller, Jr., Peter Smokowski, Maria Amendola, Madlyn Cornell, Patricia Bonham, Anna Olivo, Carol Skinner, Suzette Beck, Redney Depoy, Ronald Richardson, Edward James, Aaron Thompson, Algret Seeling, Dean Martin, Stephen Graham, Brandon Hill, Larry Kuykendall, Rene Ramirez, David Schutz, Kathryn Snyder, Steven Spinhirne

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.


Z-pinch Radiation Pulse Shaping Team

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

Raymond Leonno, Michael Cuneo, Diana Shenon, Daniel Sinars, Roger Vesey, David Bliss, Gordon Chandler, Michael Mazarakis, William Sygar

CDM FINANCIAL TEAM

Exceptional Service Team leadership excellence

Don Ozbourn, Judy Lau, Roman Remond, Tom Clark, Veronica Harwood, Kit Schmirtz, Kit Tieu, Levi Forman, George Schubert, Ban Harlan, David Bartz, Gary Kirchner, Sean Chiu, Guy Valejo, Kurt Berger, Mark Claudicin, Bruce Hamilton, Keesen Hurt, Ron Kinney, Paul Lowe, Mark Martin, Quentin McAlin, Lee Regev, Anthony Tabula, Peter Zick

W87/T44 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.

SANDIA’S SENIOR MANAGEMENT TEAM, including Deputy Labs Director John Shichman (left), Labs Director Tom Hunter (second from left), California Site VP M M John (center), Deputy Labs Director Al Roming (second from right) and Deputy Labs Director Joan Woodard joined to congratulate Sandia’s nominees for Sandia’s SENIOR MANAGEMENT TEAM. (Photo by Michelle Fleming)
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 surged up, splashed me in the eyes, and drenched my shirt.

“Some people have called me a hero, but I always think of Ray. Ray, who followed all the safety rules. ‘Some people have called me a hero, but I always think of Ray. Ray, who followed all the safety rules. ‘Macho.’

“My attitude to safety cost my family and me all that suffering. 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.

“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.

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“I wanted to be cool. I wanted to be macho.”
Diana’s Homegrown rides the world of soggy sandwiches
Small business receives Sandia help via New Mexico Small Business Assistance Program

By Stephanie Holinka

Next your 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 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 Aldbrooke, 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 to his father’s dream forward.

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 unsoyghy far longer than most pre-prepared sandwiches, all without preservatives.

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 Arquín Corporation in Alamogordo, N.M., manufactures a product line called Continuous Filament Masonry Ties, used as horizontal reinforcement in their wall construction. Sandia principal investigator Cliff Ho’s (6155) 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 Profilometers provides a long working space, essential for microelectronics 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 investigator Maarten De Boer, Michael Sinclair, and Alex Conwin (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 (6151) performed an analysis of current design with local businesses’ training needs.
- Queston Construction Inc. in Alamogordo manufactures a product line called Continuous Masonry Ties, used as horizontal reinforcement in their wall construction. Sandia principal investigator Herman Molina (5916) provided the company with design consultation and review of the TOF (Tie Off Device), which is anchored to the roof. It provides a standardized attachment point for a safety 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.
- Vivenda! in Taos manufactures and assembles a series of individual building blocks 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.

Sandia’s assistance allowed Diana’s Homegrown to think differently about the way they delivered sandwiches, says Jennifer Schnauber 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 food initiatives and 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.