Vol. 63, No. 19 October 7, 2011

Myra found it for me
Since 2006, October has been recognized as American Archives Month. To mark the occasion this year, Lab News writer Iris Aboytes sat down with Sandia archivist Myra O'Canna to talk about the Labs’ archives and about Myra’s favorite treasures. See page 9.

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Colleagues remember Preston Terry
Virus-like particles could combat cancer, bioweapons
UNM, Sandia enter into robust new MOU
Sandia, NNSA agree on FY12 performance plan
Federal Laboratory Consortium honors Labs’ work
Introducing the Sandia Health Partner Network
Lupe Arguello named HENAAC 2011 Award winner

Kim Sawyer on Mission Support
Deputy Labs Director and Executive VP for Mission Support Kim Sawyer has had a full plate since she arrived at Sandia nine months ago. In an interview beginning on page 6, Kim talks about TotalComp, indirect efficiencies, Mission Support restructuring, corporate assurance, and more.

Anthrax attacks: 10 years later
Bioterror attack on US soil helped accelerate Sandia’s move into biotech and biosecurity arenas
By Renee Deger
The nation was still reeling from the 9/11 attacks when the first of what are called simply the anthrax letters arrived at the offices of two media outlets. The letters were postmarked Sept. 18, 2001; three weeks later, and four days after the first death, two more letters were posted, headed for Senate offices.

Perhaps because the range of important dates connected to the anthrax letters stretched over a period of weeks and because the first was so soon after the 9/11 attacks, the events are often linked in our collective thinking. And at first, many feared they were. In the first days after Sept. 11, 2001, before US authorities could determine whether the 9/11 attacks were a single assault or a beginning, the fear of a biological attack loomed large. Whether an airborne dispersal of some dangerous pathogen or an assault on facilities that housed them, biological attacks were a big part of the conversation as US authorities tried to anticipate any and all kinds of attacks and were looking to Sandia for guidance.

Almost immediately, Senior Manager Duane Lindner (8120) was asked to investigate how well Sandia’s environmental detection tools, developed in the late 1990s, would operate in a plume of concrete dust should they be needed right away at ground zero. Still another team was examining what it would take to protect federal facilities near the World Trade Center crash site if a biological or chemical release were imminent. And Senior Manager Ben Salerno (6820), who at the time was a tech-

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Anthony Tucker (6632) examines two petri dishes: one with a simulant of anthrax growing in it (left), the other treated with the decontaminating formulation developed at Sandia (right). (Photo by Randy Montoya)
**Employee death**

Preston Terry had a quiet sense of humor

Preston Terry (6/24/1) died on Sept. 21. He was 57 years old and had been at Sandia 28 years.

“Preston supported the Navy Weapons Security Program as an ACAD ‘cybersecurity’ technologist,” says his manager, Jeremy Banks (6524). “He supported the security systems design efforts. He was an expert in physical security. The graphical map displays were a valuable member of our team who took his work seriously. He was a quiet, thoughtful, hardworking person and nice to every- one he encountered. He will be missed by all of his colleagues respected him. Preston could be a bit hard to accomplish. How about we all offer up a collective crunch in his honor?”

**Recent Patents**

Noted: Patents listed here include the names of active and retired Sandia employees. Former employees and contractors' inventors are not included. Following the listing for each patent is a patent number, which is searchable at the US Patent and Trademark Office website (www.uspto.gov).


Kurt Wessendorf (1732), Murat Ocakdar (1749), David Stein (1726), Ping Yang (1835), Jennifer Delling (2596): SolarBender Electrode Arrangement. Patent No. 8,000,804.


Fighting a war on two fronts

By Patti Koning

For nearly 70 years, chemotherapy has been one of the primary methods used to treat cancer and has saved or prolonged countless lives. Anyone who has personal experience with cancer can attest, however, that chemotherapy drugs have many well-known and potentially fatal side effects. Cancer researchers have, therefore, been trying for more than three decades to direct therapeutics to cancer cells to treat the disease without killing normal cells and tissues.

Unfortunately, little progress has been made.

"Cancer cells are more similar to normal cells than they are different," says Sandia researcher and Harry S. Truman Fellow Carlee Ashley (8621). "This makes targeted drug delivery really challenging because it's difficult to identify targeting molecules that will bind to cancer but not to anything else."

Carlee, in collaboration with Jeff Brinker (1002) and the University of New Mexico (UNM) Cancer Center, may have found the solution in virus-like particles (VLPs), protein nanoparticles derived from naturally occurring viruses or bacteriophages (viruses that infect bacteria). See the April 22, 2011, issue of Sandia Lab News for a related story on this research.

Cell-specific delivery of diverse cargos

In a paper titled, "Cell-specific delivery of diverse cargos by bacteriophage MS2 virus-like particles," featured on the cover of the July 26 issue of ACS Nano, Carlee and her co-authors reported the use of MS2 VLPs, derived from MS2 bacteriophage, to selectively deliver chemotherapy drugs as well as new-generation therapeutics like small interfering RNA (siRNA) and protein toxins to human hepatocellular carcinoma (HCC), a form of liver cancer. In addition, they delivered quantum dots used for real-time and diagnosis of early-stage cancer.

"We observed highly specific delivery of these therapeutic molecules to liver cancer cells as opposed to control cells, like normal liver cells, cells that line the blood vessels, and several types of immune cells," Carlee says. "The end result was that we only need two or three of these VLPs to be taken up by a cancer cell in order to kill it."

To create the tiny but powerful VLPs, the researchers remove the bacteriophage RNA that normally allows it to replicate inside bacteria and replace it with chemotherapeutic drugs or anything else they want to deliver to cancer cells. They then modify the VLP shell, which is composed of protein, with peptides that bind to cancer cells and promote uptake of drug-loaded VLPs.

"The main advantage of MS2 VLPs, in comparison with other VLP delivery systems, is that we can encapsulate drugs in the interior volume rather than conjugating them to the exterior surface of the particle," explains Carlee. "Then we use well-established genetic manipulation techniques to display targeting peptides on the VLP surface. The end result is that we can kill cancer with almost absolute specificity."

Identifying peptide sequences

Identifying peptide sequences that bind to cancer cells but not to anything else is one of the biggest challenges in the field of targeted drug delivery. The molecules expressed by cancer can vary from patient to patient and as the disease progresses from benign to metastatic states, further complicating the problem. To address this issue, David Peabody, professor of molecular genetics and microbiology at UNM and corresponding author of the ACS Nano article, has created a library of 10 billion VLPs, each displaying a randomized peptide on its surface. "We don't need to know the peptide sequence that binds to a specific cancer cell. We can simply expose the library to a cell of interest and see which VLPs bind to it," Carlee explains. "This method enables easy identification of targeting peptides when there are no known sequences that bind to a particular type of cancer."

A very versatile system

Once VLPs with high affinity targeting peptides are identified, researchers can then use the exact same particles for drug delivery. "Our particles are the only ones developed to date that can do both," she says. "This strategy can be used to rapidly identify peptides that target primary and metastatic tumor cells, as well as peptides specific for an individual patient. It's a very versatile system."

With Oscar Negrete (8621), Carlee is working on a related project supporting Sandia's biodefense work that seeks to use VLPs to target cells infected with Nipah virus, a bio-safety level (BSL) 4 select agent with potential for use as a weapon by our adversaries. The idea, she says, is to deliver siRNA to Nipah-infected cells to silence the expression of viral proteins that enable viral replication.

In a parallel project, they are developing VLPs to vaccinate against Nipah and related viruses. "These two projects give us a very comprehensive way to treat viral infections using a single particle. Using VLPs, we can potentially prevent an infection, as well as treat an infection that has already occurred," she says.

"The hepatocellular carcinoma and Nipah virus projects provide a very powerful example, demonstrating how advances developed in the fight against cancer can also be applied to Sandia's important national security effort to counter biological threats," adds Glenn Kubak, director of Sandia's Biological and Materials Sciences Center 8600.

Carlee and the UNM team are now working toward Federal Drug Administration approval of MS2 VLPs as delivery vehicles, which is a very long road. They hope to start the first phase of human clinical trials at the UNM Cancer Center within five years.
A memorandum of understanding (MOU) of unusual historical depth and content was signed Sept. 23 by Sandia and the University of New Mexico (UNM) executives before more than 50 attendees and members at the newly opened Material Laboratory's (AML) atrium on University Boulevard.

The increased closeness between the two institutions — which is often not recognized because of the security wall around Sandia — was symbolized by the seating of the four signers. The two presidents occupied the center of the signing table, with Julia Fulghum, UNM vice president for Research and Economic Development, placed next to Sandia President Paul Hommert, and Sandia Science and Technology and Research Foundations Div. 1000 VP Steve Rottler flanking UNM President David Schmidly.

“Relations between institutions are very important but they depend upon relations between people,” said Paul. “Sandia is mission-driven, and UNM is committed to higher education, but beyond that, there are so many other ways we can build upon.”

The intersections are very real. Steve, in his opening remarks, pointed out that 1,800 UNM alumni work at Sandia and roughly 20 Sandians teach at UNM in some capacity. Forty Sandians work at the AML, along with some 30 UNM faculty and students, in a building that was the original home of UNM and Sandia and Los Alamos national laboratories in 1982.

In the last 10 years, research at the AML has produced 10 R&D 100 awards — “a significant record of achievement,” said Steve. “It's hard to keep up with the occupying new topics with Steve with joint research,” said Fulghum. She looked for “at least one new success story per year of manifestly strong benefits to the community, state, and nation, which would probably not have occurred absent this MOU.”

The initial focus will be on “quantum information, nanoparticles in humans, and energy.” The collaboration certainly has a leg up already on these objectives. Collaboration between Sandia and UNM has put inorganic nanospheres in the service of biology as a carrier for cancer-killing chemicals; the story was the cover of a recent edition of Nature Materials and has attracted the interest of venture capitalists on both coasts. Joint work in computing has been featured in several journals.

Any Sandians who did not recognize their communal status with UNM must have felt the ice in their hearts melt when Schmidly deadpanned at the end of the ceremony, “Will signing this MOU help us win football games? If it does, I'll sign another next week . . . and the week after that . . . No resident of Albuquerque could help but feel his pain.

Delivering ‘at least one major success story per year’

By Neal Singer

That’s the stated goal of an MOU signed last week by Sandia and UNM

The first was that the collaboration intends “joint recruitment and hiring of nationally prominent faculty.” Joint appointments have been limited to date. Only two Sandians currently hold tenure-track faculty positions at UNM and are employed at Sandia. The intent of Sandia and UNM management is to use joint appointments as a tool to attract and retain scientists and engineers of extremely high international reputation.

While maintaining these standards, Steve and Fulghum want to create a small number of additional joint appointments in the next several years. The MOU also states the joint intent to “deliver at least one major success story per year of manifestly strong benefits to the community, state, and nation, which would probably not have occurred absent this MOU.”

The protocol work, said Willman, has led to numerous calls from drug companies near Boston and in San Diego, "but we prefer to start a company in New Mexico to bring these technologies directly to a cancerous cell (Lab News 4/22/2011). The protocol was developed as part of Carlee’s Ph.D. project, which was mentored by Jeff, who himself developed methods for synthesizing porous nanoparticles earlier in his career.

The new proto-cell facility, installed in a space he had been left open for just such an imaginative enterprise, would enable the College of Engineering to share research opportunities with Jeff and Sandia, and with William and the Cancer Center. New research efforts have in fact been proposed by other Sandians, he said, as a result of a June Sandia-UNM symposium on nanoparticles/human interactions that grew out of discussions between Sandia division 1000 VP Steve Rottler, Julia Fulghum, research VP at UNM, and Jeff.

The lab contains several walled-off areas to continue work on cancers and low-level pathogens, says Carlee, as well as other equipment necessary to create and analyze new nanomaterials. “To scale up syntheses of protocols for commercial purposes, we have to move into New Mexico,” he added.

Professionally displayed on the wall was the work, led by Jeff, published in the journals Nature Materials and ACSNano. Most prominent was a paper detailing the creation by Carlee, Jeff, and colleagues of inorganic nanospheres they termed “protocells,” capable of encapsulating and delivering unusually large amounts of cancer-killing drugs directly to a cancerous cell. (Lab News 4/22/2011). The protocols were developed as part of Carlee’s Ph.D. project, which was mentored by Jeff, who himself developed methods for synthesizing porous nanoparticles earlier in his career.

The new proto-cell facility, installed in a space he had been left open for just such an imaginative enterprise, would enable the College of Engineering to share research opportunities with Jeff and Sandia, and with William and the Cancer Center. New research efforts have in fact been proposed by other Sandians, he said, as a result of a June Sandia-UNM symposium on nanoparticles/human interactions that grew out of discussions between Sandia division 1000 VP Steve Rottler, Julia Fulghum, research VP at UNM, and Jeff.

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New Mexico's think of water problems in terms of scarcity and drought. But a collection of 21 experts convened, at the behest of the White House, at Sandia in late September showed that these problems were only, so to speak, the trunk of the elephant.

Frank discussions among normally stovepiped participants — ranging from high-tech and manufacturing industries to water associations, universities, and local and state government water boards — may stimulate preparation of a roadmap that could guide the federal government in supporting sustainable, "smart-water" communities.

First the term "smart water" drew fire from several participants. Analogizing it to "smart power grid" metering, Lester Snow from the California Water Service Group said, "The energy-water analogy is great when looked at from 50,000 feet up, but breaks down when you look at the subject more closely. "Water rights are much more prevalent than energy rights. Water is cheap and it's private property," he said. "This leads to the 'classic tragedy of the commons.' That is, individuals pump the water, but if something happens, it's the community's problem."

Another participant called the nation's water supplies "a fragmented system with a thousand variations."

"A water resource engineer said that while many factors played a role, "the gorilla in the room is social/economic issues. Who owns the water, what they can do with it, and how it can be made available to new uses."

Others mentioned the value that could be added by new technologies, if developed and purchased, in tracking water flow and purity from reservoir to tap. Also of value would be weather forecasting and satellite observations that determine and predict the current and future state of mountain snow banks.

Several participants mentioned the enormous amount of water — perhaps as much as 40 percent — leaked from reservoir to tap in many cities from cracks in huge underground pipes. Laid fifty to seventy-five years ago, some have exceeded their expected lifetimes. "Mayors have their eyes above ground for votes," one participant said. "What's below the ground is easily ignored unless there's a disaster."

The roundtable discussion energized Sandia VP 8000 Rick Stulen, who co-hosted the meeting with National Institute of Standards (NIST) Director Pat Gallagher. "The place of a national laboratory is to bring people together to work out solutions to national problems," said Rick after the meeting. "Sandia's interest is water security, but that resonates with other water problems."

Gallagher spelled out the roles of relevant federal agencies like this: the Environmental Protection Agency regulates water use; DOE is interested in water but only for energy; and NIST could serve as a kind of go-between for government and industry.

Expanding the discussion of wastewater treatment and fresh water supply into international terms, Christine Landavazo, a staffer for Senator Jeff Bingaman, said that she had been in discussions with a number of Israeli companies that have been producing innovations for their water-starved nation for the last 50 years. "They're amazed at how much water our systems waste," she said. Better technologies are out there, she said, but companies need national demand to make marketing them here feasible.

Gallagher spelled out the roles of relevant federal agencies like this: the Environmental Protection Agency regulates water use; DOE is interested in water but only for energy; and NIST could serve as a kind of go-between for government and industry.

Said Gallagher, "The normal way things happen in government is that a bunch of feds get together and say, 'Wouldn't it be great if . . . ?' They dangle some money for proposals and people run around with their hair on fire coming up with ideas. But wouldn't it be great if people came together and said, on their own, 'We could catalyze the following things.' You have the opportunity to be the North Star, to help form the road to travel. Regulations are inevitable. If we don't set our own, international standards will be imposed and we'll be operating reactively. For NIST to be helpful, we need an organized voice from your consortium, PA roadmap, the result of companies and individuals working together. We have the vehicle to help the group form and support it, but you're going to need to be the driver."

A closed blog available to participants and certain meeting observers will enable participants to continue their discussion from afar.

Preparations for the meeting were achieved by a planning committee led by Rob Leland. Helping were Sandhya Rajan, John Merson, Erick Ridley, Bob Hwang, Tara Camacho-Lopez, and others.
Supporting the mission

Deputy Labs Director and Executive VP for Mission Support Kim Sawyer talks about initiatives aimed at making the Labs stronger, more effective, more efficient.

Note: Executive VP and Deputy Labs Director for Mission Support Kim Sawyer has had a full plate since she arrived at Sandia nine months ago. Recently, Kim sat down with the Lab News to talk about several key initiatives in her area, including TotalComp, indirect efficiencies, Mission Support restructure, corporate assurance, and more. The interview begins directly below.

Lab News: You’ve been at Sandia for nine months now. What’s your overall impression of the Labs?

Kim Sawyer: When I arrived last November, I found the people to be very open. They are willing to share and to tell you what they are thinking, which is very refreshing. Sandians were experiencing changes with the pension and health care benefits. On top of that, the salary freeze was announced in late December.

While all of those issues were personally important to people, I also noticed how it didn’t distract them from delivering on the mission.

My overall impression of Sandia is exceptionally positive. The work we do at Sandia requires exceptional talent. It is invigorating to be part of such a fine institution.

Lab News: You’ve been busy leading a number of initiatives in Mission Support (MS) over the past nine months. Tell us about those initiatives and why they are important.

TotalComp

KS: TotalComp will help us tremendously in terms of understanding and being competitive with the market. After talking to a few Sandians, I was not sure they would embrace it. I think the people at Sandia understand that we have to do that.

KS: We decided we didn’t want a “peanut butter” approach to budget cuts, but I didn’t want to resort to that. Those types of cuts are not sustainable. I challenged my team to look at a stretch goal reduction of 15 percent. I thought the process would help us discover opportunities to scale back. It was a process that review our policies, address changes, and make additions where necessary. I am anxious to address concerns and move this forward for us. The changes are scheduled to become effective April 2012. This may seem like a long way off, but we still have a lot of detailed work ahead of us.

Corporation Governance and Assurance

KS: At Sandia, we have significant financial commitments that we have to deliver on and, at the same time, invest in our future. During a recent review of our budget, we looked at indirect costs pools, division support, and program management. We recognized that we can’t continue to fund at the same levels of the past and continue to make dollars available for future investments. Many organizations impose a “peanut butter” approach to budget cuts, but I didn’t want to resort to that. Those types of cuts are not sustainable. I challenged my team to look at a stretch goal reduction of 15 percent. I thought the process would help us discover opportunities to scale back. It was a process that

Distinguished speakers enlighten Sandias on critical security concerns

National Security Speaker Series

Former US Sen. Kit Bond, left, and Ret US Air Force Lt Gen. Frank Klotz, right, were the latest in a growing list of distinguished speakers brought to Sandia as part of the National Security Speaker Series (NSSS). Bond, who was the vice chairman of the Senate Select Committee on Intelligence and also is well-known for his support for a strong and well-equipped military, spoke in late August on “Policy Challenges for US Strategic Intelligence.”

Klotz, a senior fellow for strategic studies and arms control at the Council on Foreign Relations and the former commander of Air Force Global Strike Command, spoke on “Sustaining the Nuclear Enterprise: Lessons from the Air Force Experience.”

The objective of the NSSS is to bring senior policy officials and former officials to Sandia to share their thoughts and interact with Sandians on security issues important to the nation. The goal of the series is to increase our understanding of the unique role and contribution of the national laboratories to the national security strategy in the post-Cold War environment. For information about upcoming talks in the series, watch the Sandia Daily News.

Photos by Johanna Hartenberger (5520)
Kim Sawyer talks about Mission Support

(Continued from preceding page)

ran for several months. All of my team members and their organizations identified areas where they could do things more efficiently, and where some services could either be reduced or eliminated. We identified about 40 opportunities, not all of which can be implemented immediately but are certainly things we can continue to work on. Some of those areas were strategic and some were tactical. For instance, we identified several office supplies that can be purchased at a cheaper price, but will still provide the same quality, functionality, and capability. We also identified areas where we can be much more efficient with our IT tools, including the number of desktop computers and printers we have at the Laboratory. In addition, we are seeking ideas from the workforce on how we can operate more efficiently. We have posted a wiki site to collect ideas and I am very pleased with the number, quality, and diversity of ideas. My leadership team will consider all of them and will report back on our progress.

Mission Support restructuring:

KS: The Mission Support structure was put in place recently, and as with any new organization, it is important to re-evaluate the structure on an ongoing basis. I believe we need a more integrated organization that applies a more strategic and integrated approach to providing services. When I talk to folks on the line, two things continue to be identified as problems that all of them can be integrated and infrastructures.

I recently discovered that the subject of information technology had never been presented to our leadership team so they did not have an understanding of what the challenges are and what should be done to address them. We did a scan of the environment and our challenges, including the significant volume of people who will be retiring in the coming months. We examined all the Mission Support organizations and we even looked at things outside of Mission Support to identify where we could increase our efficiency and effectiveness.

We decided we didn’t want a drastic overhaul of the organization. As we need to take actions that were going to be beneficial and visible to the Lab in the short term. We identified several areas of opportunity, the first of which was the consolidation of two centers, Audit and Ethics & Business Conduct. There is a synergy there and Jennifer Plummer (800) has demonstrated during an audit. Rusty Elliott (11100), from our legal division, will fill that role by providing advice to the organization and providing protective measures rather than having issues and concerns pointed out during an audit.

Regarding the risk officer role, again we need to be proactive in identifying risks that we have at the enterprise level. I am aware that we currently identify risk adverse. We can accept various levels of risk, providing we understand and manage it in our projects, programs, and centers.

I felt we needed to do more at the corporate level to ensure we continuously look at risk, assess risk, and identify ways to mitigate risk. The risk officer will help us manage the risks we need to be better informed and more proactive about risk. At the same time, this role will help ensure we do not become overly risk adverse. We can accept various levels of risk, providing we understand and manage it in our projects, programs, and centers.

The new hire meetings are a way to let the employees know that their leadership is engaged and that I care about them. These meetings also provide an opportunity for employees to meet their peers and to hear about things going on in other parts of the Laboratory. The brown bag lunch meetings are just one way to get to know the people in our organization. I cannot do anything for our organization without their support.

2012 Open Enrollment New Mexico Employee/Spouse Fair

Thursday, October 20, 2011, 8 a.m.-4 p.m., UNM Continuing Education Conference Center, 1634 University Blvd. NE, Albuquerque, N.M. 87102
http://dce.unm.edu/location-maps.htm

All employees are welcome to arrive before the presentations begin or stay after they end to speak with representatives from:

• Sandia Health Plans Team
• H&I: Health and Fitness
• Sandia Retirement Processing Team
• Blue Cross Blue Shield of New Mexico
• UnitedHealthcare
• Payflex
• Delta Dental
• Children’s Dental
• Catalyst RX
• Workplace Options

Presentation Schedule

9:10 a.m. BCBSNM w/ Health Partner Network for Represented Employees

10:30 - 11:30 a.m. UnitedHealthcare for Represented Employees

12:30 - 1:30 p.m. BCBSNM w/ Health Partner Network for Non-Represented Employees

2:30 p.m. UnitedHealthcare for Non-Represented Employees

DEPUTY LABS DIRECTOR AND EXECUTIVE VP for Mission Support Kim Sawyer during a recent all-hands meeting, talks about the restructuring of the Mission Support organization to achieve a structure that applies a more strategic and integrated approach to providing services. Kim says the structure will be re-evaluated on an ongoing basis to ensure it is always serving the needs of the Laboratories as effectively as possible. (Photo by Randy Montoya)

LN: You often speak of the importance of diversity and inclusion in the workplace. How do you make Sandia more diverse?

KS: The activities we have under way around our strategic objectives all require a diverse and inclusive environment for us to achieve them. Diversity and inclusion help us create a better workplace. How do they make Sandia more diverse?

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Anthrax attacks: 10 years later

(Continued from page 1)

atical staff member, flew to Washington the day before the first letters were posted to discuss with US Depart-
ment of Agriculture officials the security of the govern-
ment’s infectious disease research programs. The discovery of the first anthrax letters – so soon after the terrorist attacks – pitched fear into frenzy.

Within weeks, Sandia was mobilized on multiple fronts in the biological sphere. Tapping San-
dia’s long-time strengths in physical security and tech-
nology development, these new programs solidified the
foundation for Sandia’s then-nascent biological pro-
grams that today are recognized globally and are poised for significant growth.

“Suddenly, this was not a theoretical event, it was not a hypothetical, it was not something that would only happen somewhere else,” Duane says. “We had issues brought right out of the door, security at the door, the stark reality of this was very much driven home. And it became a national security issue.”

Foam marks the beginning

In 1995, the Aum Shinrikyo cult in Japan killed 13 people by releasing sarin gas into the Tokyo subways. It was a wake-up call for counterterrorism experts that such radiological attacks, or the California ground-zero anthrax letters, could exact a high toll. US legislation that passed the following year authorized DOE to establish the Chemical and Biological Nonproliferation program, and Sandia was tasked with developing detection and decont-
amination technologies. One result of this early effort was the MicroChemLab, a handheld device detection field for sampling air, water, and surfaces. Another was the now-famous Sandia Decron Foam, which was used to decont-
taminate a large number of the buildings in Washington that had been contaminated with anthrax.

“We had a specific technology that was very, very effective. We knew that,” Duane says. “It was when we actually took it into the field, when we took it to Washington to start decontaminating facilities that suddenly we saw the whole system problem.

“We had to rethink what we needed to do,” Duane says. “You have to know where the contamination is, you have to do an assessment. Then you decontaminate. Following decontamination, you have to go back in and do clearance sampling. You have to ensure the deconta-
nination activity has been effective, that the place is now safe to occupy. So the technology was very impor-
tant, it was critical, but ultimately it was insufficient.”

The realization of all the factors that decontamina-
tion and restoration entails has turned into a number of
multiyear, systems-level projects that brought together teams of professionals from a variety of disciplines to
develop and demonstrate scenarios. The most recent program to be completed, the Interagency Biological Restoration Demonstration (IBRD), wrapped up in December but is serving as a precursor to other, more expansive projects just getting under way.

Going global

For Ren, the anthrax letters cemented multiple pro-
jects, which he had proposed several times over the prior year but failed to get backing. They have since led to Sandia’s global activities in biological threat reduc-
tion. Within weeks of the anthrax letters, biologists and physical security experts were tasked to assess and secure all of the USA’s biosafety level three (BSL3) infectious disease research laboratories by that December.

“We were road warriors — traveling constantly,” Ren says. Over the following two years, the Sandians then secured another dozen or so US bioscience labs operated by different agencies.

The work stemmed from a conference Sandia staged in 2000 for both Russian and US laboratories on bio-
scurity. It was a project Ren got under way upon his arrival at Sandia the prior year, when he was tasked to figure out what role Sandia could play in the area of biological threats. It was an interest Ren had developed while working for the United Nations. Seeing Sandia’s long history in physical security, developed around securing nuclear weapons, Ren targeted biocscience labo-
datory security.

“I was making the rounds, but didn’t get any attention outside the immediate circle of laboratory specialists,” Ren says. But when the 9/11 twin towers were attacked, Washington needed an expert, the call went out to Sandia. “Because I had thought about it, we became the experts.”

In the process of securing US laboratories, Ren and his team began developing a methodology for labora-
tory safeguards and security. The USA contracted Sandia to write an early version of what Ren and man-
tiennient Genadad Alibhai, later gifted the “Laboratory Biosecurity Handbook,” which has become the industry standard.

“We had requests to do a lot more laboratories, but instead of securing individual facilities, we focused on creating a methodology that other labs could use,” Ren says. “Once we decided the US was in pretty good shape, we realized the same vigilance and knowledge standards were lacking internationally and we turned our atten-
tion overseas.”

The international contingent of what is now known as Sandia’s Countering Biological Threats pro-
grams, the International Biological Threat Reduction program, is now active in more than 40 countries developing and demonstrating systems-level solutions to biosecurity and, to a lesser extent, public health professionals, and developing inno-

vative programs to help ensure the safe and responsible use of dual-use technologies, materials, and expertise.

Biosciences took shape

In the late 1990s, as the work in detection and decontamination got under way, Mmm John, at one time, said, “We were looking for bigger tanks or faster planes and there were more digging in the soil. In the years that followed, Sandia specialists, tasked by the FRL, defined the form of bacillus anthracis containment in those biosafety level three, and even higher, areas. According to a press release Sandia issued in 2008 about the research, which was initiated with a grant from the FRL, “the possibility of a weaponized form was of great con-
cern to investigators. This information was crucial in ruling out anthrax as the agent in the 9/11 attacks.

Still, the letters, especially coming so soon after the 9/11 attacks, were a flashpoint for researchers and for the public at large.

John was placed at the helm of Sandia’s fledgling biological defense program. He returned to Sandia in the late 1990s to lead a committee charged with developing a methodology that other labs could use. The team created a methodology that other labs could use. The team created a methodology that other labs could use.

In the years that followed, Sandia’s Countering Biological Threats program, the International Biological Threat Reduction program, is now active in more than 40 countries

21st century technology

Sandia’s biological-related programs, which are part of the International, Homeland, and Nuclear Security Strategic Management Unit (HNS SMU), now comprise the international and diagnostic areas but also delve into the fundamental and biological and chemical processes of both pathogens and human hosts to identify and develop treatments, if necessary, and to refine countermeasures, including presymptomatic diagnostic probes and devices. Sandia also has an extensive biofuels program in the Energy, Climate, and Infrastructure SMU.

“If we were to be a broad-based national security lab, able to help the US respond to all sorts of unusual threats, then we needed to consider biology and the anthrax letters served to amplify the need for biological expertise,” says John Yinlo, who is now retired, and was then-director of the lab. John Yinlo, who is now retired, and was then-director of the lab.

“Anthrax attacks: 10 years later”
Archivist Myra O’Canna stands guard over Sandia’s historical treasures

By Iris Aboytes

Pearl Buck said, “If you want to understand today, you have to search yesterday.” Archivist Myra O’Canna (9532) understands that statement better than most. She holds the keys to the repository that houses Sandia’s treasures.

“The treasures weren’t always there,” says Myra. In 1982 at a small staff (now Laboratory Leadership Team) meeting, VP Glenn Fowler stressed the value of capturing the corporate memory while it was still possible. DOE’s History Office in 1983 encouraged the national laboratories to establish archival programs and write their histories. Sandia President George C. Dacey formally established the Sandia History Project in April 1984, and appointed Necah Furman to serve as corporate historian. An archives soon developed as a repository for all materials collected to write Sandia National Laboratories: The Postwar Decade, published in 1990.

Myra came to Sandia in 1990 as an office administrative assistant in the Technical Library. She has a bachelor of arts degree in psychology and anthropology. She was a social worker for the state of New Mexico before she came to Sandia. She managed a department that supervised more than 900 children in foster homes.

Myra transitioned to a reports cataloging position and joined the Corporate Archives in 1993. She became a certified archivist in 1999. She works closely with corporate historian Rebecca Ullrich (9532) to research and respond to historical questions. Myra also oversees the appraisal, processing, cataloging, and preservation of the accessions to Sandia’s Archives.

The archives has a variety of collections, including the Still Photo Collection of 187,000 negatives. “The negatives were created by Sandia’s photographers from 1945 until about 1995,” says Myra. “They provide a comprehensive photographic record of Sandia’s unique work in the nuclear weapons complex.”

Still photo clerk Shirley Aleman (9532) completed the long-term effort of cataloging the negatives so that they can now be searched and retrieved for customers.

When you ask Myra a question about some photo, she quickly replies, “Oh yes, that was taken in the year when such and such was president.” So if you want to know about yesterday, Myra is the person to call.

Myra and her husband, Gary, have three children, Glen, and identical twins, Travis and Randy, and a three-year-old grandson, Elijah. Most of us who know Myra know that Travis was a US Marine who served in the infantry in Afghanistan and about her involvement with the Blue Star Mothers. Her husband is self-employed as shotcrete contractor and they own a local pizza restaurant operated by their twin sons.

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“My people talk about their jobs, I talk about my career. I love it.”
Solar glitter, rescue robot, and university partnership earn Sandia technology transfer awards

By Heather Clark

Sandia will begin researching the use of glitter-sized photovoltaic cells in utility-scale solar power systems, which are expected to be half the cost and nearly double the efficiency of traditional solar panels. Sandia’s work with industry, other labs, and universities to improve the design, materials, and manufacturing processes to replace the Microsystems-Enabled Photovoltaic (MEPV) cells won the Labs a Federal Laboratory Consortium (FLC) Mid-Continent Regional Excellence in Technology Transfer Award.

Sandia also received FLC awards for the development of the Gemini-Scout Mine Rescue Robot and a technology transfer partnership with the University of New Mexico (UNM). The awards were presented recently in Monterey, Calif.

“These projects recognize Sandia National Laboratories’ outstanding technology transfer efforts and highlight a variety of ways in which Sandia continues to make an impact, whether it is teaming with our local university on technology commercialization, providing a tool for first responders, or developing a revolutionary way to collect solar power,” says Jackie Kerby Moore, Sandia’s manager of Technology & Economic Development Dept. 1933. Jackie also is Sandia’s representative to the FLC.

Greg Nielson (1749), team leader on the MEPV project, says Sandia is working with: Universal Instruments Corp. and Endico Interconnect Technologies Inc., both in New York; New Jersey-based International Micro Industries Inc.; Albuquerque-based EMCORE Corp.; the National Renewable Energy Laboratory (NREL) in Golden, Colo.; and the University of South Florida. This fall, some new partners, including California Deposition Sciences Inc. and the University of Delaware also will help with the project.

Involved in the process, in addition to Greg, are: Vinay Garg (1742), Murat Okandan; Jose Luis Cruz-Campa, Paul Resnick, Bongsang Kim, and Tammy Phan (all 1749); Peggy Clews and Carlos Sanchez (both 1746); Bill Sweet (1535); Tony Lentine (1727); Jeff Nelson (1111); Jeff Cederberg, George Wang, and Bob Biefeld (all in 1126); Anna Tauke-Pedretti (1742); Jennifer Grana and Craig Carmignani (both 6112); Jonathan Wierer (1123); Jerry Simmons (1120); Judith Lavin (6116); Ben Anderson (1833); Scott Paap (8114); and Mark Wanlass at NREL.

Together, the partners are applying commercially available manufacturing techniques to the solar cells and studying how to better produce them, including some techniques that can make them as small as two microns thick, which is about 3 percent of the diameter of a human hair. They also are researching materials and designs to improve efficiency, Greg says.

Next month, Sandia will begin applying solar cells to solar power systems and working on a prototype 1-foot-by-1-foot MEPV demonstration module, he says.

“As the cells have matured and gotten to the point where we’re getting good, consistent performance, we’re ready to jump into making systems,” he says. “We’ve got these cells; now what are we going to do with them?”

The new MEPV solar power systems based on single-junction cells are estimated to be up to 20 percent efficient, meaning they capture a fifth of the sun’s energy, and could cost $1.80 per watt-peak, a way of rating a photovoltaic system that measures how many watts a panel produces when sunlight is at its peak, Greg says.

Sandia project leader Greg Nielson holds a solar cell test prototype with a microscope lens array fastened above it. Together, the cell and lens help create a concentrated photovoltaic unit. (Photo by Randy Montoya)

The preliminary cost estimate consists of an 18 percent profit margin and the cost of installing the system, including manufacturing, labor, permits, racking, and wiring.

Today, the low-end cost of installing a traditional utility-scale solar system is about $4 per watt-peak, Greg says.

While preliminary cost estimates for the single-junction MEPV system are competitive with what consumers pay for electricity from the grid now, Greg hopes the cost can be cut and the efficiency increased even further with a number of innovations that take advantage of technologies developed in the last 10-15 years.

Those being studied include: moving from single- to multi-junction cells to increase system efficiency up to a goal of 40 percent by utilizing different wavelengths of light; concentrating sunlight to decrease the amount of solar-cell area needed to produce the same amount of energy; better managing the cells’ thermal output, placing the cells in a series to increase the module’s voltage; placing the inverter directly into the module to reduce installation costs; and decreasing how precise the sun-tracking hardware needs to be to capture the sun’s energy, thus decreasing the cost of the modules’ tracking hardware, Greg says.

The reason we believe we can get the prices down is we’re taking a completely different approach to the photovoltaic systems and it’s based on the MEPV cells,” Greg says. “It’s a direction that the industry has not taken at all,” he says.

Greg says a prototype MEPV solar power system could be built in about two years, but modules for utilities or individual buildings will likely take at least seven years to reach commercial markets, due to rigorous reliability and safety testing requirements. Consumers could have access to flexible MEPV power devices, for example built into tents, clothing, or electrical gadgets, in a few years, he says.

“The companies, which have been willing to take on the challenging manufacturing and research projects, “have been a big help in advancing certain aspects of the technology, while Sandia has done the more advanced technology of the photovoltaic cells,” Greg says.

Sandia’s other two FLC awards include:

The four-foot-long, two-foot-tall Gemini-Scout Mine Rescue Robot, designed to help mine search-and-rescue teams save survivors in hazardous environments; won a Notable Technology Development Award. Sandia has licensed the Gemini-Scout to Black-I Robotics, a small business in Tyngsboro, Mass. The remote-control robot contains color video cameras, a thermal imaging camera, microphones, and sensors that act as eyes and ears for rescuers and provide air-quality data. Two-way audio enables survivors to communicate with rescuers. Gemini-Scout’s dual-tracked-chassis design and track enable it to negotiate obstacles, like large rocks, railroad tracks, or water and mud up to 18 inches deep. The robot also can carry up to 250 pounds of equipment for rescuers. The Gemini-Scout could be fitted to handle rescues in earthquakes, fires, and mining accidents.

STC/UNM, a nonprofit corporation owned by UNM that works closely with Sandia to promote technology transfer, won a Regional Partnership Award. STC and Sandia have 109 jointly owned invention disclosures and have entered into 48 commercialization agreements. The partnerships have resulted in more than 200 publications and more than 70 patents; about 100 students have worked on STC projects; and about 50 companies have been involved in the projects. The companies include General Electric, Boeing, General Motors, Honeywell, and the University of California, Berkeley.

Together, the companies, which have been willing to take on the challenging manufacturing and research projects, “have been a big help in advancing certain aspects of the technology, while Sandia has done the more advanced technology of the photovoltaic cells,” Greg says.

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Dennis Mowry (2952) is recognized for his leadership in managing and maturing the Surveillance flight test program. Dennis’ telemetry and flight test expertise was used this year by NNSA and the State Department, and his guidance was instrumental in recommending changes for the revised Strategic Arms Reduction Treaty, New START. His analysis and technical skills provide the flight test data required to confidently support the stockpile.

DoD, NNSA, State Department, Missile Defense Agency, and Sandia rely on him as a telemetry data expert. His extensive background in firing set, telemetry, ground stations, and surveillance make him an expert in warhead flight test data analysis.

Dennis is the technical lead for NNSA at Joint Air Force and NNSA Flight Test Planning meetings towards the ICBM programs. In addition, he serves as the technical advisor to NNSA regarding ICBM flight testing, New START Treaty issues, and Missile Defense Agency interactions as they pertain to flight testing. Dennis acts as mentor to other flight test engineers.

Four individuals and eighteen teams were selected to receive NNSA Defense Programs Awards of Excellence at ceremonies this year in New Mexico on Aug. 31 and in California on Sept. 15. Don Cook, NNSA’s Deputy Administrator for Defense Programs, served as guest speaker at both events and presented the awards. The NNSA Defense Programs Awards of Excellence were created in the early 1980s to give special recognition to those at the laboratories and plants directly associated with the stockpile modernization program. Today, the awards honor exceptional contributions to the stewardship and management of the stockpile.

New Mexico photos by Wilson California photos by Randy Wong

“…coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the hundred chance of failure. 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CONTROL DOCUMENT, AND WEAPON INFORMATION SYSTEM 

INTEGRATED PROGRAMMATIC SCHEDULING SYSTEM, PROGRAM 

and management of system interfaces.

ments to NNSA to reduce their Information Technology footprint, and 

Program Control Document, and the Weapon Information System. This 

and in presenting the results.

team created a taxonomy, methods, and tools, for assessing system-

Vance Mitton (NST), Isidro Molina (NST), John Smith (Los Alamos 

technologies-NST), Todd Haines (LANL), David Henderson (NST), Keith 

(8949), Jim Hachman (89451), Richard Harris (2990), Lori Kozlowski 

(9514), Linda Garcia (9324), Vanessa Sherie Garcia (9514), Richard Gay 

Steve Carpenter (8945), Tania Carson (2994), Chris Castle (9538), Gre-

regions, and awaiting transfer back to Los Alamos when the original planned 

Nuclear material residue from previous operations was staged at Sandia 

and awaiting transfer back to Los Alamos. The approach met all standards for 

Safety, Security, and Quality. The team’s success is a 

CONTRACTOR Whose Work Is Successfully 

(Continued on next page)
techniques to qualify stockpile components on the refurbished Z facility. The use of multiphysics simulations allowed the team to explore various combinations of nuclear materials and their environments. The team successfully designed, built, analyzed, and tested prototypes that demonstrated key technologies needed for next-generation weapons systems. Platforms for enabling these large-scale simulations required multigigaflops of computing power and vast amounts of data. The team's efforts resulted in an annual cost savings of $350,000.

**RADIATION EFFECTS SOURCE AND TESTING DEVELOPMENT TEAM**

This team is responsible for the successful development of advanced materials testing systems and techniques to deliver new capabilities for nuclear materials characterization. The team's final product in 2010 was the completion of the Refurbished Z Plutonium Team. The team demonstrated a functional prototype milliwatt generator that met all performance requirements. This team's primary goal was to rapidly develop tritium-based technology for nuclear weapons applications. The team successfully designed, built, analyzed, and tested prototypes of next-generation materials for these applications without having to build and test hardware. The team's efforts resulted in an annual cost savings of $350,000.

**THE REFINISHED 2 PLUTONIUM TEAM**

This team's primary goal was to rapidly develop tritium-based Thermal Electric Power Source technology for nuclear weapons applications. The team successfully designed, built, analyzed, and tested prototypes of next-generation thermal power sources for these applications without having to build and test hardware. The team's efforts resulted in an annual cost savings of $350,000.

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Introducing the Sandia Health Partner Network

With the upcoming 2012 Benefits Choices Open Enrollment, Sandia employees and pre-Medicare retirees will continue to be able to enroll in Sandia Total Health administered by UnitedHealthcare and Blue Cross and Blue Shield of New Mexico. California employees have the additional option of enrolling in Sandia Total Health administered by Kaiser Permanente. In 2012, though, Sandia will offer its employees and pre-Medicare retirees an additional option of the Sandia Health Partner Network (HPN).

The Sandia HPN is a network of hospitals and physicians, customized for the Sandia population, dedicated to improving clinical care and reducing costs for Sandians. Sandia, in collaboration with Imagine Health, a company that assists employees with developing these types of customized networks, went through an extensive process to determine which hospital system would meet Sandia’s objectives.

We are pleased to announce that Sandia has selected the Lovelace Health System as the hospital system for our Sandia HPN. As Blue Cross and Blue Shield of New Mexico, Lovelace will have access to the Lovelace hospitals as well as the select physicians in the Sandia HPN.

ILLUSTRATION showing how the costs for employees participating in the Sandia HPN work with Sandia's onsite clinic and Sandia Total Health.

Sandia Total Health BCBSNM members who use Sandia HPN providers will receive higher benefits through lower out-of-pocket costs. The Sandia Total Health plan design will essentially remain the same; however, premiums are lower for employees who enroll in Sandia Total Health BCBSNM, and the deductible, coinsurance, and out-of-pocket maximums will be reduced for participants who access Sandia HPN physicians. See the two tables below for the details on your lower out-of-pocket costs.

The three major hospital systems in Albuquerque (Lovelace, Presbyterian, and University of New Mexico) expressed an interest in becoming the hospital system for the Sandia HPN. During the review stage, it was determined that both Lovelace and Presbyterian hospital systems ranked above the national average in overall hospital care. Because they both rated about equally for patient care, the deciding factor came down to a willingness to partner with Sandia and collaborate on various initiatives over time to improve the health care for our population.

Lovelace, along with its affiliated physician group, ARK Health Partners, embraced Sandia’s health partner network concept and expressed the drive and flexibility necessary to successfully partner with Sandia to improve clinical outcomes and the health of our population. Additionally, Lovelace views this initiative as an opportunity to create an accountable healthcare organization collaborating with an important ally, Lovelace views this initiative as an opportunity to create an accountable healthcare organization collaborating with an important ally, Lovelace views this initiative as an opportunity to create an accountable healthcare organization collaborating with an important ally.

Many employees feel relieved on the sidelines as the claims administrators they select determine the providers in their networks, process claims, and provide case management, disease management, and other activities — all with limited input on quality initiatives from the employer. Because Sandia will provide Lovelace with specific and measurable goals and objectives, it can assist in determining future initiatives to improve the health care for our population.

Some of the initiatives Lovelace committed to implementing for Sandia include:

- Easier access to Sandia HPN physicians including increased same-day appointments
- Inclusion of Heart Hospital doctors and physicists as a part of the Lovelace Health System
- Ambassador/concierge program to connect Sandia patients with Sandia HPN physicians and hospitals
- Bringing community providers to the Sandia onsite clinic
- Pharmacy program to coach Sandia employees on the proper use of their medications
- Ongoing partnerships with the Lovelace HIE Preventive Health Team to develop new wellness programs and services

For more information on the Sandia HPN and its benefits to Sandia’s employees and pre-Medicare retirees, review the tables at right.

**2012/2013 Sandia Total Health**

<table>
<thead>
<tr>
<th>Onsite Clinic Available to All Pre-Medicare Retirees</th>
<th>Sandia HPN</th>
<th>In-Network (same as 2011)</th>
<th>Out-of-Network (same as 2011)</th>
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<tr>
<td>Contribution Levels</td>
<td>Annual Deductible</td>
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<tr>
<td>Employees</td>
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<td>$500</td>
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<td>Employee + Spouse or Child(ren)</td>
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<td>Employee + Family</td>
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**2012 Sandia Total Health administered by BCBSNM**

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**Mileposts**

New Mexico photos by Michelle Fleming

Wendell Jones 35  200  6524
Gary Rochau 35  6221
Ernie Correa 30  5953
Bob Paulsen 30  2211
Randy Summers 30  1444
Charles Ringler 35  5554

Evan Ashcraft 25  10520
Linda Coleman 25  5443
Bob Goetlich 25  4135
Carol Hanson 25  1753

Michael Print 25  5564
Paul Clem 15  1815
Maricela Marquez 15  97
Mariusin Sanchez 15  1733

**2012 Sandia Total Health Plan Premiums for Employees**

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<td>$109</td>
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<tr>
<td>EE + Spouse</td>
<td>$104</td>
<td>$149</td>
<td>$194</td>
<td>$239</td>
</tr>
<tr>
<td>Benefits 100%</td>
<td>$97</td>
<td>$137</td>
<td>$181</td>
<td>$223</td>
</tr>
<tr>
<td>EE + Child(ren)</td>
<td>$122</td>
<td>$171</td>
<td>$210</td>
<td>$262</td>
</tr>
<tr>
<td>Benefits 100%</td>
<td>$115</td>
<td>$159</td>
<td>$205</td>
<td>$259</td>
</tr>
<tr>
<td>EE + Family</td>
<td>$148</td>
<td>$212</td>
<td>$275</td>
<td>$339</td>
</tr>
<tr>
<td>Benefits 100%</td>
<td>$138</td>
<td>$198</td>
<td>$266</td>
<td>$325</td>
</tr>
</tbody>
</table>

**Employee Contribution Levels**

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
</tr>
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<tbody>
<tr>
<td>$0 - $49,999</td>
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<td>$73</td>
<td>$95</td>
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<tr>
<td>$50,001 - $80,000</td>
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<td>$69</td>
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<td>$130,001 - $240,000</td>
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<td>$171</td>
<td>$210</td>
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<tr>
<td>$240,001 - $500,000</td>
<td>$148</td>
<td>$212</td>
<td>$275</td>
</tr>
<tr>
<td>$500,001 - $1,000,000</td>
<td>$138</td>
<td>$198</td>
<td>$266</td>
</tr>
<tr>
<td>$1,000,001 - $2,000,000</td>
<td>$256</td>
<td>$316</td>
<td></td>
</tr>
</tbody>
</table>

*Please note that the out-of-network percentage is 40%, not 30% as previously communicated. The rate is unchanged from the 2011 rate.*
INCENTIVE

DINING ROOM, like new: china
dishes, 4 place mats, 12
dessert plates, 12 dinner
plates, 6 bread plates, 2
salad plates, 432-piece
silver, 1 owner, 13K miles, great
deal at 3K below MSRP, no
rust or dings, contact D. Mabray,
307-4853.

DIRT BIKES: '04 HONDA CRF 80,
900 miles, 4-stroke, automatic
cranks, non-smoker owner,
electric start, must see, $2,000
OBO. Sanchez, 238-5080.

DOE employees.

DOE's 2011 Energy Awareness Month

TRUCKS: Dodge Ram 1500,
white fiberglass, 16’ x 7’
bed, great shape, fully
serviced, $10,000. D. Mabray,
307-4853.

DINING ROOM, like new: china
dishes, 4 place mats, 12
dessert plates, 12 dinner
plates, 6 bread plates, 2
salad plates, 432-piece
silver, 1 owner, 13K miles, great
deal at 3K below MSRP, no
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OBO. Sanchez, 238-5080.
By Iris Aboytes

J. Guadalupe (Lupe) Arguello (1525) will receive a Hispanic Engineer National Achievement Award (HENAAC) during ceremonies held at the annual HENAAC Award conference Oct. 6-8 at Disney’s Coronado Springs Resort in Lake Buena Vista, Fla. Lupe is this year’s Civil Engineering Distinction Award winner.

HENAAC is a nonprofit organization promoting careers in science, technology, engineering, and mathematics (STEM).

Lupe came to Sandia in 1985 after earning his bachelor’s, master’s, and doctoral degrees in civil engineering from Texas A&M University. A Sandia recruiter at a Hispanic conference he attended told him about the Laboratories and piqued his interest.

“I was the partnership among Sandia, Kirtland Air Force Base, the NNSA Sandia Site Office (SSO), and the NNSA Albuquerque complex. Getting the event off the ground was the judging of the salsa/chile/dessert/otra comida (other food) contest, where more than 30 delicious entries were entered,” Lupe said. He developed models for powder pressing and sintering. He was awarded a patent in the area of powder pressing and die design. Lupe is responsible for modeling of the nuclear waste repository (like WIPP) and oil and gas reservoir and geomechanical behavior. He leads the efforts on an international project aimed at benchmarking and advancing constitutive models of salt for nuclear waste repository applications.

Lupe was born in Mexico and immigrated with his family to Texas in 1955. His father, Lupe Sr., could not speak English at all. Neither of Lupe’s parents completed elementary schools, but they always encouraged their children to study hard.

“My father would always tell us, “Hay que educarse para seguir adelante.” (Educate yourself in order to progress.) Lupe heard those words often, especially after the family would return from working in the cotton fields of West Texas. Lupe’s father was a nursing assistant with a series of second jobs. Herminia dedicated her time to raising their five children.

After Lupe arrived at Sandia, he got involved with an organization that was trying to start a branch in Albuquerque. The organization was Habitat for Humanity. “I immediately bought into the basic concept of the ‘theology of the hammer,’—if you want to win the hearts, you must do so through acts of charity in action.” Lupe served the next four years as a member and secretary of the board.

Lupe and his wife, Lisa Marie, have two children, Alejandra Catarina, age 7, and Emilío Antonio, age 5. Lupe also has an adult son, Jose. Alejandra is an aspiring ice skater, and she and Emilío just started playing soccer. Jose earned bachelor’s and master’s degrees in foreign languages and is in Chicago teaching secondary education Spanish classes.

Where Lupe first came to Sandia, he hoped to be here a few years, then return to academia, but as life would have it, he stayed.

“At Sandia, I found a home,” says Lupe. “I found a place that continuously challenged me, a place where I have kept learning and growing. Now I get to receive an award. How blessed am I.”

J. Guadalupe Arguello named HENAAC 2011 Award winner

Sept. 15-Oct. 15

Hispanic Heritage Month

Sandia, Kirtland Air Force Base, NNSA site office team up to celebrate Hispanic heritage

On a beautiful autumn day in late September, more than 450 came out to Hardin Field on Kirtland Air Force Base to celebrate Hispanic heritage. The Hispanic Heritage Month Diversity Awareness Event on Sept. 28 was a wonderful success, says coordinator Janice Martinez, who noted 1,450 students from around the state, broke a piñata, and danced to the salsa music performed by EnJoy (see photo at right).

By Sodexo Thunderbird catering, viewed original pieces of art submitted by students from around the state. Broke a piñata, and danced to the salsa music performed by EnJoy (see photo at right).

The contest drew 239 entries from schoolchildren around the state.

Spotlight on youth art

Winners of the 2011 Hispanic Heritage Youth Art contest, which was based this year on the theme “Many Backgrounds, Many Stories. . . One American Spirit,” were: Grades K-5: 1st place – Jol Rose, Marie Hughes Elementary, 4th grade (not winning art is pictured below); 2nd – Danielle Gennero, Adobe Acres Elementary, 4th grade; 3rd place – Nathaniel Guardian, Adobe Acres Elementary, 4th grade; Honorable Mention – Carolina Centeniera, Desert Willow Family School, 2nd grade; Grades 6-8: 1st place – Joshua Ward, Kings Highway Homeschool, 7th grade; 2nd place – Tessa Dalloc, Albuquerque School of Excellence, 6th grade; 3rd place – Alicia Ulbricht, St. Charles Borromeo School, 7th grade; Honorable Mention – Merari Quirarte, Van Buren Middle School, 8th grade. Grades 9-12: 1st place – Erick Ramirez, South Valley Academy, 12th grade; 2nd place – Katherine Ortega, Gordon Bernel Charter School, 10th grade; 3rd place – Jose Calzadilla, South Valley Academy, 12th grade; Honorable Mention – Raquel Madrigal, Media Arts Collaborative Charter School, 10th grade. The contest drew 239 entries.

Photos by Randy Montoya

Judging the Youth Art Contest, which drew 239 entries from school children around the state.