



NOT JUST SCARCITY OR DROUGHT — The White House-sponsored roundtable water meeting at Sandia allowed experts from around the country and a variety of disciplines to discuss elements of a possible roadmap to guide the federal government in creating “smart-water” communities. For more about the conference, see [page 5](#). (Photo by Randy Montoya)

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.

Sandia LabNews

Vol. 63, No. 19

October 7, 2011

Managed by Lockheed Martin for the National Nuclear Security Administration



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 Ren Salerno (6820), who at the time was a tech-

(Continued on page 8)



ANTICIPATING THREATS — In this 1999 photo, Sandia researcher Mark 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)



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’Canina to talk about the Labs’ archives and about Myra’s favorite treasures. See [page 9](#).

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NNSA Defense Programs honors four individuals, 18 teams with prestigious Awards of Excellence. See [pages 11-13](#).

That's that

Not so fast. A team of researchers at CERN, the Switzerland-based European Center for Nuclear Research and one of the world's great Big Science laboratories, has been conducting experiments for a number of years that involve firing neutrinos from CERN's Geneva headquarters toward a neutrino detector at a laboratory in San Grasso, Italy. Over time, the researchers have noted something rather odd: The neutrinos were making the 455-mile trip faster than they should, billionths of a second faster. The neutrinos were, in fact, exceeding the cosmic speed limit established by Einstein's theory of relativity. They were going faster than light.

If this is true, it "shakes the foundations of modern science," as the tabloid headlines might say. Members of the community have greeted the news with everything from outright dismissal, to healthy skepticism, to guarded excitement.

There is good reason to at least give this research a close look: The CERN team is topnotch and the data is not something cobbled together overnight; it's the result of years of observation. But what's going on? Is the data just flat-out wrong, despite the best efforts of the team to get it right. Has Einstein been upended? Or is this the first window into something new? One explanation I like suggests that the neutrinos aren't violating Einstein's speed limit at all, but are traveling through another dimension (a dimension not only of sight and sound, but of mind), taking a shortcut, as it were, between Geneva and San Grasso.

Are we really seeing faster than light travel here? I'm skeptical. As Scotty — that is, chief engineer Montgomery Scott — would tell you, the only way to travel faster than light is via warp drive powered by a garden-variety gravimetric field displacement manifold that facilitates a matter-antimatter reaction moderated by dilithium crystals. Everybody knows that.

* * *

The science community was understandably electrified by the CERN announcement; it'll be fun to watch how this incredible story develops. It's already fun reading some of the jokes the announcement has inspired. For example:

•A bartender says, "We don't serve no neutrinos around here." A neutrino walks into a bar.

•Neutrino. Knock, knock.

•Neutrinos going faster than light speed? Well, we didn't see that one coming.

As one wag on a science website put it, these jokes and others of their ilk are only relatively funny.

* * *

One of the best things we can do for each other is donate blood. Sandians have a long and proud tradition of stepping to the plate as blood donors; one of those at the front of the line is Brian Geery (2142), who's donated blood here at the Labs throughout most of his 21-year career. In fact, Brian was donating blood at a regularly scheduled appointment on Sept. 11, 2001, when he first heard of the terrorist attacks. His donation that day took on a special meaning for him, as you can imagine. While donating blood always rewards donors with a feeling of having done something for their fellow man, sometimes donating can have more tangible rewards, as Brian found out recently. He gave a donation early this month that (without realizing it) automatically entered him into a contest for two free tickets with airfare to the Dallas Cowboys football game on Oct. 2. The other day, he got the call saying he was the winner. When I talked to Brian about his win, he admitted that he doesn't bleed Cowboy blue, but he's still looking forward to the trip.

The United Blood Services bloodmobile routinely visits Sandia for donations. You can see the schedule in Sandia Daily News on a regular basis.

* * *

Speaking of football, this weekend when you're watching the team of your choice and are enjoying a nice sampling of chips and salsa and guacamole, pause for a moment to think of Arch West. He was the Frito-Lay genius who invented the iconic Dorito, the irresistible corny, cheesy chip that has become almost as much a part of watching the game as has the remote control. Arch died the other day at age 97. His daughter says that when he was buried Oct. 1, his urn was sprinkled with a covering of the bright orange chips that almost everybody loves.

I'd suggest that at some point during Sunday's football game we all pause for a moment of silence for Arch . . . but what with the nature of Doritos, silence would be a bit hard to accomplish. How about we all offer up a collective crunch in his memory instead? Thanks, Arch.

See you next time.

— Bill Murphy (505-845-0845, MS0165, wtmurph@sandia.gov)

Employee death

Preston Terry had a quiet sense of humor

Preston Terry (6524) 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 AC&D (Alarm Communications & Display) technologist," says his manager, Jeremy Banks (6524). "He supported the security systems design efforts. He was an expert in programming card readers and graphical map displays. Preston was a valuable member of our team who took his work seriously."

"He was a quiet and humble person and nice to everyone he encountered. He respected others and all of his colleagues respected him. Preston certainly exemplified the Sandia core values throughout his career."

His officemate, Kevin Esquibel (6524), says Preston was a quiet individual who got the work done. "He never complained about anything," says Kevin. "Our conversation always gravitated to sports. He loved sports."

"Preston was a good colleague," says Douglas Adams (6524). "He was a member of our Work for Others Team (WFO). He was my testing technician; I called him Mr. Badge. He was an expert on badge readers. He had a quiet sense of humor. I worked at trying to get him to smile."

Preston's obituary of record says he was passionate about golf and loved music. He made a name for himself as DJ Preston T. Where there was music and a microphone, you would hear Preston's voice coming across the speakers, says his obituary. Preston was a member of the Navajo Elks Lodge 863, American Legion Post 95, and the Letterman's Club.

Preston grew up in Marion, Ohio. He attended the Columbus Technical Institute before coming to Sandia in 1983.

— Iris Aboytes



PRESTON TERRY

Recent Patents

Note: Patents listed here include the names of active and retired Sandians only; former Sandians and non-Sandia 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).

* * *

Dale Huber (1132): Magnetic Agglomeration Method for Size Control in the Synthesis of Magnetic Nanoparticles. Patent No. 7,972,410

Rick Kellogg (2616), and Hartono Sumali (1526): Piezoelectric Energy Harvester Having Planform-Tapered Interdigitated Beams. Patent No. 7,948,153

Charles Walker (1832), and Frank Trowbridge (2732): Methods for Batch Fabrication of Cold Cathode Vacuum Switch Tubes. Patent No. 7,938,707

Shawn Dirk (1821), Ross Johnson (1821), David Wheeler (1714), and Gregory Bogart (1718): Weak-Link Capacitor. Patent No. 7,955,945

Frank Delnick (2546): Battery Components Employing a Silicate Binder. Patent No. 7,947,397

Steven Thoma (6124): Single-Layer Transition Metal Sulfide Catalysts. Patent No. 7,951,747

Gregory Nielson (1749): Optical Waveguide Device with an Adiabatically-Varying Width. Patent No. 7,941,014

John Sandusky (5711): Scannerless Laser Range Imaging Using Loss Modulation. Patent No. 7,995,191

Erik Skogen and Anna Tauke-Pedretti (both 1742): Optical Nand Gate. Patent No. 7,995,877

Jeffrey Sniogowski and Stephen Montague (both 5644): Micromachined Cutting Blade Formed from (211)-Oriented Silicon. Patent No. 7,992,309

Ralph Young (1748), and Gregory Nielson (1749): Wavelength-Tunable Optical Ring Resonators. Patent No. 7,983,517

Tina Nenoff (1114), and Dana Powers (6220): Alloy Nanoparticle Synthesis Using Ionizing Radiation. Patent No. 7,998,239

Mathias Celina (1822): Process for Epoxy Form Production. Patent No. 8,003,730

Kurt Wessendorf (1732), Murat Okandan (1749), David Stein (1726), Pin Yang (1833), Jennifer Dellinger (2555): Electrode Array for Neural Stimulation. Patent No. 8,000,804

Eric Shaner (1128): Tunable Surface Plasmon Devices. Patent No. 8,009,356

John Mason and Richard Ormesher (both 5332): Concurrent Signal Combining and Channel Estimation in Digital Communications. Patent No. 8,009,772

Rita Betty and Mark Tucker (both 6632), John Brockmann (1532), Daniel Lucero (1532), and Jonathan Leonard (2546): Enhanced Toxic Cloud Knockdown Spray System for Decontamination Applications. Patent No. 8,012,411



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Sandia National Laboratories is a multiprogram laboratory operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corp., for the US Department of Energy's National Nuclear Security Administration.

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Lab News fax **505/844-0645**

Classified ads **505/844-4902**

Published on alternate Fridays by Media Relations and Communications Dept. 3601, MS 0165



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Fighting a war on two fronts

Virus-like particles could combat cancer and bioweapons

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 30-nm 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 imaging 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."

A targeting peptide is displayed on the surface of the virus-like particle, enabling it to bind to cancer cells but not anything else.

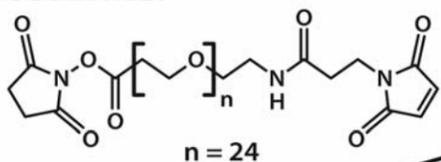
Targeting Peptide (SP94):

$\text{H}_2\text{N-SFSIIHTPIPLGGC-COOH}$

Fusogenic Peptide (H5WYG):

$\text{H}_2\text{N-GLFHAIHFIHGGWHGLIHGWYGGC-COOH}$

Crosslinker

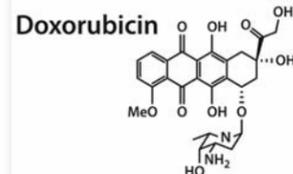


Cargo:

Quantum Dot



siRNA



Ricin Toxin A-Chain

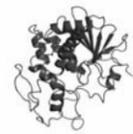
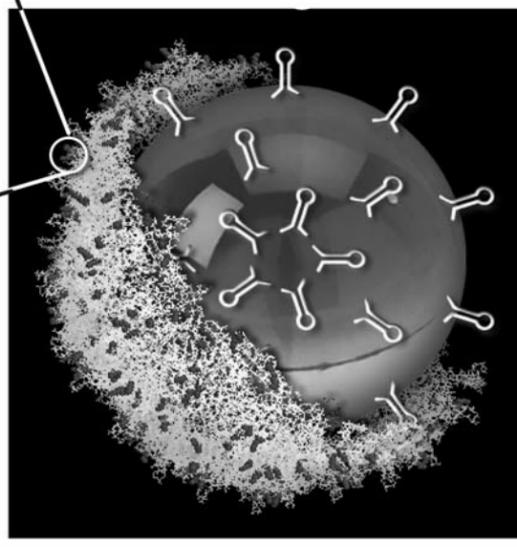


Image by Mona Aragon, Carlee Ashley, and David Peabody



TINY BUT POWERFUL — Virus-like particles that deliver therapeutics to cancer cells, developed by Sandia Harry S. Truman Fellow Carlee Ashley in collaboration with the UNM cancer center, could also be a powerful tool to combat a bioweapon attack. (Photo by Randy Montoya)

Sandia California News

solate 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 Kubiak, 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.

Delivering 'at least one major success story per year'

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

By Neal Singer

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 at the Advanced 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 signees. 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 intersections 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 result of the original MOU between 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.

Schmidly said, "How many universities have a national lab in their backyards? It's up to us to bring the two missions together."

"I'll be discussing new topics with Steve for joint research," said Fulghum. She looked for "at least one new shared research area developed every three years," despite challenges with shrinking federal funding.

The MOU's depth was provided by at least two unusual clauses.



NEW PACT — Sandia Labs Director Paul Hommert, second from left, shakes hands with University of New Mexico President David Schmidly after signing a memorandum of understanding that marks a maturation and deepening of the relationship between the Labs and New Mexico's largest university. Joining the two signatories are UNM Vice President for Research and Economic Development Julia Fulghum and Sandia VP for Science and Technology and Research Foundations Steve Rottler. (Photo by Randy Montoya)

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 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 on quantum 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.

Nanobio lab opens at UNM with a push from Sandia

High hopes expressed for cancer and viral treatments emerging from new lab

By Neal Singer

It wasn't exactly the opening of Sandia's MESA facility, with its grand canopy for guests and Washington administrators. But the dedication Aug. 23 on the third floor of the University of New Mexico (UNM) Centennial Engineering Center for a lab combining nanotechnology and medicine had a kind of start-up charm of its own. Maybe Los Alamos National Laboratory in its early days was something like this.

Clustered in a hallway on a floor of green tiles, with lights, pipes, and vents visible overhead, about 50 informally dressed students and sport-jacketed faculty looked on as Sandia Fellow and UNM Professor Jeff Brinker (1002), UNM School of Engineering Dean Catalin Roman, UNM Cancer Center Director Cheryl Willman, and other suited administrators explained to three New Mexico state representatives, ensconced in a bubble-like room open to the hallway, why the \$2 million the state had contributed to help make the new facility a reality was a good idea.

The drive to create the 5,000-sq-ft lab, formally known as the Nanoscale Materials and Nanomedicine Laboratory, was spearheaded by Jeff, according to attendee Bill Hammetter (1815) and others. Supporting Jeff in research, in addition to UNM researchers, were Sandia Truman Fellows Carlee Ashley (8621) and Bryan Kaehr (1815). A sprinkling of other Sandians were part of the crowd. Former Sandia intern Eric Carnes, now a research professor in UNM's Chemical and Nuclear Engineering Dept., coordinated the design and build-out of the space.

Jeff, speaking first, mentioned the value of cross-disciplinary nanoscience and medicine in curing diseases and creating jobs in New Mexico. Then he paused and said, "I used to be content in making materials, but as my wife used to say: 'Have you saved anyone's life today? What have you really done?'"

He looked at the legislators and said, "We count on your continued support for the next 10 years to get our work into drugs that can save lives."

Willman, who spoke next, said, "I met Jeff only two years ago, and he said, 'I think I'll work on cancer.'" She gave a little laugh in what could be considered astonishment either at the simple assertion on a subject of mind-boggling difficulty or at the subsequent progress made. She pointed out to the legislators that, because of the Cancer Center's joint work with Jeff and with Sandia, UNM is a member with three other institutions —



UNIVERSITY OF NEW MEXICO officials, joined by several elected officials, celebrated the opening of UNM's new laboratory for nano and bio research. Pictured are, left to right, Chaouki Abdallah, interim provost; Catalin Roman, dean of the School of Engineering; Julia Fulghum, VP for Research and Economic Development; Cheryl Willman, CEO, Cancer Research and Treatment Center; Jeff Brinker, Sandia Fellow and distinguished professor in the Chemical and Nuclear Engineering Department; and state Reps. Larry Larrañaga, Gail Chasey, and Rick Miera.

Harvard, Caltech, and MIT — of the National Cancer Institute's Nanotechnology Alliance, which has brought millions of federal dollars into New Mexico.

Prominently displayed on the wall was work, led by Jeff, published in the journals *Nature Materials* and *ACS Nano*. Most prominent was a paper detailing the creation by Carlee, Jeff, and others of pore-riddled nanospheres they termed "protocells," capable of encapsulating and delivering unusually large amounts of cancer-destroying chemicals directly to a cancerous cell (*Lab News*, 4/22/2011). The protocells 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 protocell 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 achievements to market."

Said Roman, "Engineering for biological systems has changed the landscape of engineering." The new nano-bio facility, installed in a space he said 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 Willman 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 protocells for commercial purposes, we have to demonstrate good manufacturing practices that show dosage control, purity, reproducibility, and other factors," she said. "And we have to demonstrate removal of [harmful] endotoxins that can contaminate our work before applying to the FDA for human trials." Eric, she says, has made progress leading these efforts. Other work includes using a new atomic force microscope to measure the pull between a ligand and its target cell and an effort by Bryan to use laser lithography to build protein scaffolds, creating bio-compatible corrals for studying individual living cells.

WATER WORKS

White House Business Council Roundtable on Water, meeting at Sandia, advances possible roadmap of water standards and technologies

By Neal Singer

New Mexicans 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.

Just 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 resources 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



MAPPING A WATER FUTURE — Div. 8000 VP Rick Stulen, left, and National Institute of Standards (NIST) Director Pat Gallagher lead a White House Business Council roundtable discussion that could guide the federal government in supporting sustainable, “smart-water” communities. (Photo by Randy Montoya)

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.”

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 community. A roadmap is 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.

Sandia and NNSA Sandia Site Office leaders sign FY 2012 Performance Evaluation Plan



Sandia and the NNSA/Sandia Site Office (SSO) jointly signed Sandia’s FY12 Performance Evaluation Plan (PEP) on Sept. 28. The PEP represents the negotiated performance criteria against which Sandia’s performance in executing its mission and managing and operating the Laboratories is assessed by NNSA. It is effective Oct. 1, 2011, through Sept. 30, 2012. This year’s PEP is organized into three broad areas: Mission Focused Performance Objectives, Mission Support Performance Objectives, and Performance-Based Incentives. **Mission Focused Performance Objectives** describe the performance expectations for Sandia’s programmatic work executed through the strategic management units and also through the chief technology officer. **Mission Support Performance Objectives** describe the performance expectations for supporting Sandia’s mission by the Operations, Business Management, and Corporate Governance functions. **Performance-Based Incentives** are intended to incentivize achievement against stretch goals, embarking on new initiatives, and implementing creative, innovative solutions to challenging problems. The FY12 PEP can be found on Sandia’s internal website at ILMS > Develop and Manage the Relationship > Laboratory Performance Evaluation. Pictured here at the PEP signing are, left to right (standing), Kim Sawyer, Deputy Lab Director and Executive VP for Mission Support; Kim Davis, deputy Sandia Site Office manager; Richard Sena, deputy Sandia Site Office manager; (seated), Jerry McDowell, Deputy Lab Director and Executive VP for National Security Programs; Paul Hommert, Sandia President and Laboratories Director; and Patty Wagner, Sandia Site Office manager.

(Photo by Randy Montoya)

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?



"When I arrived last November, I found the people to be very open. . . . 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."

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.

LN: You came to Sandia from Lockheed Martin, where you were vice president for engineering at Lockheed's Mission Systems & Sensors. How do you assess the Lockheed-Sandia relationship?

KS: I spent nine-and-a-half years at Lockheed Martin. During those years, I had four very different vice president roles. From those experiences, I learned a lot about the different cultures across the corporation and the breadth of capabilities. Through my work experience and the various development programs I attended, I built a broad network of colleagues.

Like other positions I had, it was important for me to understand the Sandia culture and how it operates.

At Sandia, our culture, structure, policies, processes, procedures, structure, and benefits are different. In fact, just about everything is different.

I think we have a healthy relationship with Lockheed Martin. Lockheed Martin is a valuable resource for us. Our board of directors is comprised of several Lockheed Martin executives and is chaired by Marilyn Hewson, a Lockheed Martin EVP. On an ongoing basis, we are able to reach back to Lockheed Martin for assistance when we need it, leverage best practices, and recruit talent.

When we needed a team to conduct an independent assessment of our personally identifiable information plan, Lockheed Martin sent us an outstanding team and added value to both our team and the plan. I also appreciate the fact that Lockheed Martin trusts us to run our laboratories and meet our business commitments.

LN: 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. The folks in high-demand positions especially want to make sure they are competitively compensated based on market demand.

Our employees highly value the ability to move around to other positions throughout the Lab. I highly encourage rotational assignments and we will still have that ability with TotalComp. Our efforts to initiate TotalComp have stimulated us to

"We decided we didn't want a drastic overhaul of the organization, but we needed to take actions that were going to be beneficial and visible to the Lab in the short term. We identified several areas of opportunity . . ."



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.

Corporate Governance and Assurance

KS: We have been on a journey to mature corporate governance and assurance. It is all about how we manage ourselves and having confidence in our work. First-line managers play a significant role in assurance. A white paper that talks about our management system and our performance assurance system was recently developed and put in a context that everyone can understand. Additionally, we worked with the leadership team to solidify the definition of assurance. It's not about a system, it's about our behaviors. Assurance is something we value because it's how we do our work and how we ensure that we are examining what we do and how we do it. It is about continuously making improvements.

Indirect Efficiencies

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

(Continued on next page)

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 consolidate, where they could do things more efficiently, and where some services could either be reduced or eliminated. We identified about 7.5 percent in actual savings. In total, 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 and I will consider all of them and will report back on our progress.

Mission Support restructure

KS: The Mission Support structure was put in place one year ago. As with any new organization, it will be 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 out on the line, two things that continue to be identified as problem areas are information technology and infrastructure systems.

I soon 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, but we needed 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 that this combination can work. Second, in Div. 9000, we elevated the CIO and IT services to a leadership position, ensuring IT has a strategic view. On Sept. 16, Mike



DEPUTY LABS DIRECTOR AND EXECUTIVE VP for Mission Support Kim Sawyer during a recent all-hands meeting, talks about the restructure 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)

Vahle joined the team as the Div. 9000 vice president. Information technology is a significant part of our business and it was not being directly represented at the leadership table. Third, we created a new Center Mission Support and Corporate Governance (Center 00700). Pat Smith was named its director and she reports directly to me. This change was also effective Sept. 16. Finally, we created two new roles, a privacy officer role and a risk officer role, which will allow us to be much more proactive in addressing privacy issues and the management of risk.

LN: Tell us why those two roles were created and what you hope they will accomplish.

KS: Regarding the privacy officer role, Sandia has information about people that must be protected, whether we possess it or our customers have it. When we work with suppliers, we must hold them accountable for protecting private information and we must be proactive in how we protect that personal information. We cannot afford to continue to operate in a reactive mode. A privacy officer will help Sandia stay in front of these issues. 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 and manage it in our projects, programs, and centers. However, 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 mature the tools 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 it, manage it, and know what the plans are to mitigate it. And if it's a risk that turns out to be significant, we need to say "stop."

LN: You often speak of the importance of diversity and inclusion in the workplace. How do they make Sandia stronger?

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 an environment with strong collaboration and teamwork skills. Teamwork is critical in fulfilling our mission work. It is important that we have diversity of thoughts, opinions, and backgrounds. If everyone were to think the same way, we would have a blind spot. I believe that having different perspectives drives a better result. What is very important to me, personally, is feeling included and knowing that you count. When we create an environment that is inclusive, we can all feel safe being who we are and know that it is safe to take a different position. In an inclusive environment, everyone is recognized.

LN: You have made it a point to schedule regular brown bag lunches with Mission Support staff and meetings with new hires in Mission Support organizations. Why are these meetings important and what have you learned from them?

KS: These meetings are the best part of my job. I want to get to know the people in our organization. I cannot do anything for our organization without these people.

I am relatively new at Sandia, and I have been a new hire several times in my career, so I understand the importance of being exposed to an organization's leadership. 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 present an opportunity for employees to meet their peers and to hear about things going on in other parts of the Laboratory.

The brown bag lunches occur with random employees from Mission Support. We meet in my office and having this time with them allows me to gain valuable insight as to what is working and what is not working in our organization. Our time together also serves as an avenue for me to share information regarding anything important going on in Mission Support. During the introductions, I ask everyone to share something personal that will give others insight as to who they are on a personal level. There have been several instances where they realize they have something in common with another person in the group. In the end, not only have they increased their network, but they have a new-found friendship.

LN: How do you like living in Albuquerque?

KS: I have lived in the Southwest before, both in Colorado and in Arizona. I absolutely love the mountains. There is just something that is so relaxing and comforting about the mountains. The people in Albuquerque are friendly and I find it easy to get around. I love the lack of humidity and the abundant sunshine. I have a pretty sunny disposition and it just lifts me even more. I love being outside and there are so many things to do here.

LN: You mentioned that during introductions with Mission Support staff and new hires you ask them to say something personal about themselves. Tell us something personal about you.

As previously mentioned, I love the outdoors. I am an avid gardener and I love playing in the dirt. I enjoy planting herbs and various types of plants and watching them grow. I also consider myself a gourmet cook — I love to cook on the weekends. I find it extremely relaxing and satisfying. The feeling of creating something awesome from scratch is unbeatable. I took a cooking class a few years ago with some former colleagues; it was so much fun. Some members of my team couldn't even boil water, but they managed to make chicken piccata. It became my favorite dish!

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
- HBE Preventive Health
- Sandia Retirement Processing Team
- Blue Cross Blue Shield of New Mexico
- UnitedHealthcare
- PayFlex
- Delta Dental
- Davis Vision
- 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
2-3 p.m.	UnitedHealthcare for Non-Represented Employees

Anthrax attacks: 10 years later

(Continued from page 1)

nical staff member, flew to Washington the day before the first letters were posted to discuss with US Department of Agriculture officials the security of the government's infectious disease research labs.

The discovery of the first anthrax letters – so soon after the terrorist attacks – pitched fear into frenzy as worst fears were realized, again in a way that was before unimaginable. Within weeks, Sandia was mobilized on multiple fronts in the biological sphere. Tapping Sandia's longtime strengths in physical security and technology development, these new programs solidified the foundation for Sandia's then-nascent biological programs 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 individuals dying from exposure to anthrax. Just the stark reality of this was very much driven home. And it highly motivated everyone involved."

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 nontraditional weapons in the hands of fringe organizations 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 decontamination technologies. One result of this early drive was the MicroChemLab, a handheld detection device for sampling air, water, and surfaces. Another was the now-famous Sandia Decon Foam, which was used to decontaminate a large number of the buildings in Washington that had been contaminated with anthrax.

"Suddenly, this was not a theoretical event, it was not a hypothetical, it was not something that would only happen somewhere else."

— Duane Lindner, Senior Manager

"Even as the buildings were being evacuated in Washington, we were asked how quickly we could get people on the ground to oversee the decontamination of contaminated facilities," Duane says.

Also in the late 1990s, Sandia conducted the Defense of Cities study on behalf of DOE and DoD's Defense Threat Reduction Agency (DTRA). The study established a framework for evaluating and utilizing detection technologies to protect large urban areas in the event of a biological attack. Based in part on that analysis, the government decided to immediately deploy the BASIS system – a biodetection system under development at Lawrence Livermore and Los Alamos national laboratories – in the Washington, D.C., area. In the following months, national efforts to define and evaluate urban bio warning and response systems intensified. With DTRA funding, Sandia, Lawrence Livermore, and Los Alamos established the Albuquerque Test Bed. Environmental sensors and medical monitoring systems were deployed throughout the city to evaluate operational issues connected to such systems.

At the same time, Sandia was asked by the Executive Office of the President to evaluate other proposed biodetection systems for potential national deployment. That work helped define what has become BioWatch, which is now deployed in more than 30 cities nationwide. Today, Sandia operates the BioWatch Indoor Reachback Center and is charged with responding 24/7 should there be a positive from those parts of the system that are deployed in key facilities around the nation. Sandia also is responsible for defining technical requirements and standards for new generations of the BioWatch equipment and for developing the Concepts of Operations (ConOPs) for responding to a positive detection event.

The emergency use of the Sandia Decon Foam also prompted similar long-term projects that required developing a systems-level solution to decontamination



IN THIS 1999 PHOTO, a Sandia researcher demonstrates application of chem-bio decontamination foam from a pressurized canister. At the time the foam was developed, researchers envisioned that it could be sprayed from handheld canisters or from trucks, or be incorporated into the fire sprinkler systems of high-profile government or military buildings. (Photo by Randy Montoya)

and restoration. "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 decontamination activity has been effective, that the place is now safe to occupy. So the technology was very important, it was critical, but ultimately it was insufficient."

The realization of all the factors that decontamination 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 projects, 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 reduction. Within weeks of the anthrax letters, biologists and physical security experts were tasked to assess and secure all of the USDA'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 biosecurity. 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 bioscience laboratory 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 attacks occurred and 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 laboratory safeguards and security. The USDA contracted Sandia to write an early version of what Ren and manager Jennifer Gaudioso (6822) later published as 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 were lacking internationally and we turned our attention overseas."

The international contingent of what is now known as Sandia's Countering Biological Threats programs, the International Biological Threat Reduction program, is now active in more than 40 countries worldwide, securing laboratories, training laboratory and public health professionals, and developing innovative programs to promote 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, Mim John, at one time the California site VP who is now retired, asked her managers to examine how Sandia could contribute in the area of biological threats. Director Len Napolitano (8900) took that on, leading a small committee that researched the space and developed recommendations for Sandia's role.

In 1999, Sandia's executive leadership gave the go-ahead to expand Sandia's bio programs. To seed the new specialties, areas of biosciences around biodefense were targeted for a succession of Laboratory-Directed Research and Development Grand Challenges that continue today.

"This was the first area of fundamental science that did not have a tie back directly to our nuclear mission, but Sandia was transitioning from a nuclear lab to a national security lab," Len says. "It helped build competencies for other national security problems we should be addressing. This was a new class of threat. We were looking for bigger tanks or faster planes and they were mailing little envelopes."

In the years that followed, Sandia specialists, tasked by the FBI, determined the form of bacillus anthracis contained in those letters was not a weaponized form. According to a press release Sandia issued in 2008 about the research, which was conducted from 2002-2008, "the possibility of a weaponized form was of great concern to investigators. This information was crucial in ruling out state-sponsored terrorism."

Still, the letters, especially coming so soon after the 9/11 attacks, were a flashpoint for researchers and for funding agencies. Sandians began to put together more projects, and were able to secure funding to help solidify the Labs' foundation in bioscience.

21st century technology

Sandia's biological-related programs, which are part of the International, Homeland, and Nuclear Security Strategic Management Unit (IHNS SMU), now comprise the international and diagnostic areas but also delve into the fundamental biological and chemical processes of both pathogens and human hosts to identify and develop treatments, forensic frameworks, and other countermeasures, including presymptomatic diagnostic profiles 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 Vitko, who was then-director of 8100 and is now retired.

John was placed at the helm of Sandia's fledgling biodefense programs. He then was tapped to help draft the blueprint for the Department of Homeland Security Science and Technology Directorate when that organization was established. He then went on assignment to DHS (under an Interagency Personnel Assignment) to head their Chemical and Biological Defense Directorate.

"The 21st century belongs to biology," John says. "And if you're going to be a 21st century laboratory, you need to be well-versed in the technologies that drive the issues."

October is American Archives Month

Myra found it for me

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.



ARCHIVIST MYRA O’CANNA and a few of her favorite items from the Sandia archives. (Photo by Randy Montoya)



COMPLETED IN 1949 — Bldg. 800 was Sandia’s first permanent building and became one of its symbols. In this 1951 photograph, Bldg. 802 is rising behind 800.

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. More than 20,000 Lab News images are available via the Corporate image database CSANDIA on EIMS FileNet.

One of the highlights of Myra’s career was overseeing the 50th anniversary event held on Nov. 1, 1999. The event included a time capsule with artifacts and materials submitted by every division of Sandia. The

capsule was placed by then-Sandia President C. Paul Robinson and former Sandia presidents still alive in 1999. The capsule, marked by a monument in front of Building 800, will be opened on Nov. 1, 2024.

“I like to think that my enthusiasm and enjoyment of my work stimulates my customers and provides them with access to materials they never knew existed,” says Myra. “I have met many exceptional current and retired Sandians.”

Over the years retirees have served as consultants to the archives, including Ben Benjamin, John Dickinson, Dick Craner, Phil Owens, Leon Smith, and Fred Leckman. Retiree and senior mentor Harold Rarrick has been an active consultant and key contributor to the archives from the very beginning.

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.

“I have learned so much about Sandia,” says Myra. “Many people talk about their jobs, I talk about my career. I love it.”



BLDGs. 800 and 802 as they appeared in 1957.



QUITTING TIME — Employees leaving Bldg. 800.



PAST SANDIA PRESIDENTS (from left) Irwin Welber, C. Paul Robinson, George Dacey, Morgan Sparks, and Al Narath place Sandia’s time capsule in front of Bldg. 800 in 1999. (Photo by Randy Montoya)



MILITARY STAFF CARS line the street outside Bldg. 818, headquarters for Sandia Base and Z-Division until 1949. To the left is the base chapel.

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 produce 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 Endicott 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-based Deposition Sciences Inc. and the University of Delaware also will help with the project.

Involved in the process, in addition to Greg, are: Vipin Gupta (6124); Murat Okandan, Jose Luis Cruz-Campa, Paul Resnick, Bongsang Kim, and Tammy Pluym (all 1749); Peggy Clews and Carlos Sanchez (both 1746); Bill Sweatt (1535); Tony Lentine (1727); Jeff Nelson (1131); Jeff Cederberg, George Wang, and Bob Biefeld (all in 1126); Anna Tauke-Pedretti (1742); Jennifer Granata and Craig Carmignani (both 6112); Jonathan Wierer (1123); Jerry Simmons (1120); Judith Lavin (6124); Ben Anderson (1833); Scott Paap (8114); and Mark Wanlass at NREL.

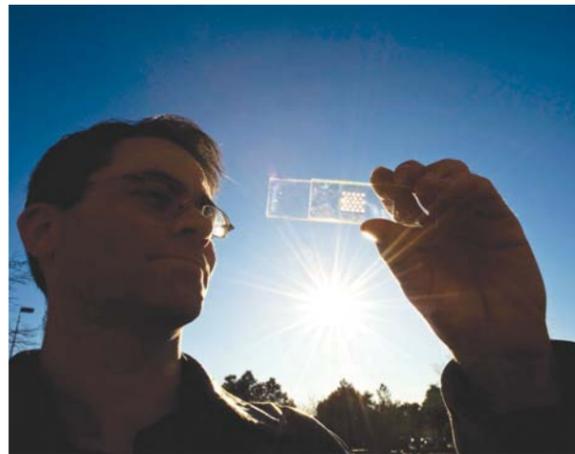
Together, the partners are applying commercially available manufacturing techniques to the solar cells and studying how to better produce them, including some techniques that can make them as small as two microns thick, which is about 3 percent of the diameter of a human hair. They also are researching 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 lead Greg Nielson holds a solar cell test prototype with a microscale 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. 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.

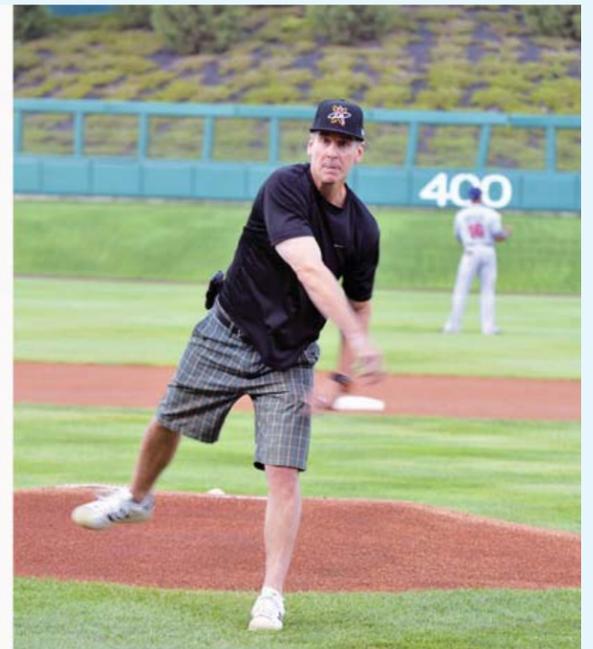
Sandia's other two FLC awards include:

- 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 rescue crews and provide air-quality information. Two-way audio enables survivors to communicate with rescuers. Gemini-Scout's dual tracked-chassis design and tread 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 partnership has promoted interaction between and crossover of scientists and researchers at both institutions, increasing collaborative research. Graduate students do research at both institutions and current and retired Sandia employees serve as UNM faculty.

The winners were selected from an FLC region that is home to more than 100 federal laboratories in 14 states: Arkansas, Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming.

WINDING UP . . .



DIV. 5000 VP JEFF ISAACSON, who heads up Sandia's Defense Systems and Assessments Strategic Management Unit, throws the opening pitch at a late August Albuquerque Isotopes game. No comment as to whether Jeff's pitch was a ball or a strike, but it was a

smash hit at the Div. 5000 team celebration at Isotopes Park. For the record, the Isotopes won the game, beating the Round Rock Express 8-3.

(Photos by Dave Benyak Sports Photography)

NNSA Defense Programs Awards of Excellence

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 associ-

ated with the stockpile modernization program. Today, the awards honor exceptional contributions to the stewardship and management of the stockpile.

**New Mexico photos by Lloyd Wilson
California photos by Randy Wong**



Dennis Mowry (2952) is recognized for his leadership in managing and nurturing the Surveillance flight test program. Dennis' telemetry and flight test expertise was used this year by NNSA and the State Department, and his guid-



ance 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 certify the stockpile.

DoD, NNSA, State Department, Missile Defense Agency, and Sandia rely on him as a telemetry data expert. His extensive background in firing sets, 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 for 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.

Jamie Morris (8531) is recognized for his exemplary program management performance with the Small Ferroelectric Neutron Generator, or Small FENG, development effort. He rose far above his regular duties by establish-



ing both a project and risk management plan, assembling a detailed integrated master schedule, implementing a formal change control process and assisting in the integration of the Phase Gate process into the existing design review framework. The results of his efforts have been valuable to the Small FENG Product Realization Team and W87 Systems.

Jamie took the initiative and implemented a formal change control process that allowed the team to effectively communicate and document formal requests for changes to cost, scope, or schedule, which greatly improved official communication within Sandia, as well as between Sandia and NNSA. His attention to detail and

his focus on getting the job done make him an exceptional member of the Nuclear Security Enterprise.

Team Awards:

2900 Management Team for Product Definition and Configuration System Upgrade

This team is recognized for leading the establishment of an enterprise product definition management system that enables improved configuration management, engineering collaboration, data quality, and enhanced security. The team led the deployment and adoption of one of the most ambitious and transformational engineering information systems at Sandia and across the Nuclear Security Enterprise. This solution provides an important step towards strengthening Sandia's nuclear weapons system integrator and design roles. The team's goal was to re-engineer the data management processes using industry-accepted configuration management best practices through the deployment of a software solution that supported these practices with built-in, state-of-the-art capabilities. They executed a technical roadmap that included the adoption of these best practices as defined by the Institute of Configuration Management and the deployment of the PDM-Link, Product Lifecycle Management Information System. The team is commended for its unity and exemplary leadership.

Team members: Richard Harris, Team Rep. (2990), Timothy Meeks, Team Rep. (2994), Abraham Segó, Team Rep. (2997), Merlin Current Jr. (2996), Gregory Stephen Deneen (10629), Mathew Donnelly (2993), Richard Graham (2992), Thomas Henderson (2995), Tony Hernandez (2998), Jane Anne Lamph (8243), Jacky Martinez (2992), and Howard Walther (2991).

B53 Dismantlement Team

This team is acknowledged for implementing the B53 Dismantlement Process utilizing efficiency and strict safety standards. The team developed and executed hazard-resistant tooling and procedures to facilitate the safe dismantlement of a 50-year-old, mini-van size bomb weighing approximately 10,000 pounds. Collaboration was established among all sites to meet the milestones and project plan on schedule as



B53 DISMANTLEMENT TEAM

defined by the NNSA. They incorporated the latest material science expertise to address potential age-related degradation. An NNSA Nuclear Explosive Safety Study, also known as a NESS, was conducted to assess the safety adequacy of dismantlement operations and the review resulted in only one pre-start finding, a substantial achievement. The lack of B53 design expertise presented a challenge, but the team

researched B53 records and conducted analysis and tests on aged hardware to recreate this expertise.

Team members: Cynthia Kajder, Team Rep. (2111), Debbie Lee Campos (2111), Martin Fuentes (0416), Earl Graff (2111), Phil Hoover (2111), Kimball Merewether (0425), Jason D. Morris (0415), John Rhoads (2913), Daniel Summers (0411), Kevin Brown (Pantex), Mike Eckart (2111), Joe Fonseca (LANL), John Kramer (LANL), Doug McHugh (LANL), Valerie Noble (LLNL), Paul Salazar (LANL), Arlen Swihart (LANL), and Betty Whitfield (0421).

B61 Captive Carry Flight Test Team

This team is recognized for its outstanding teamwork with the Air Force in the planning and execution of a B61 flight test at Eglin Air Force Base. The objective of the flight test was to gather temperature data on B61 components during a captive carriage flight on an F-15E. A requirements subgroup is reviewing the data for possible updates to the Stockpile-to-Target Sequence. The team members used rigorous project management techniques, including technical peer reviews, to ensure that test plans, critical logistics, security, safety, and environmental issues were thoroughly addressed. Significantly, the team overcame the



B61 CAPTIVE CARRY FLIGHT TEST TEAM

challenges associated with the development of a technical safety package that was reviewed and approved by the Air Force. The technical challenges associated with an instrumented captive carry flight test are numerous, yet the challenges were successfully addressed by this Sandia cross-organizational team.

Team members: Frank Whiston, Team Rep. (2111), James Arnold (1534), Daniel Brown (2951), Debbie Lee Campos (2111), David Clements (2111), Kevin Eklund (2111), William Evans (2956), Justin Charles Fernandez (2951), Nicholas Francis (1514), Pearl Garcia (10621), Raymond Griego (2112), Bryan Guernsey (2111), Douglas Hodge (2996), Roy Hogan Jr. (1514), Leroy Holmes (25411), Kevin Jay Jameson (1534), Robert Lafarge (2951), Hugo Loya (2956), Dean Martin (2956), Devan Myers (26631), Steven Neff (26631), Anna Otero (2956), Thomas Post (2951), Bryant Sterling (2956), Larry Stevenson (2951), Rachel Ann Wasson (2951), Herb Case (Staff Augmentation) (2541), Ron Dobbs (NNSA), Chelsea Fuchs (NNSA), Darrell Palmer (USAF), James Wifall (2951), Rafael Sanchez (Contractor), Theresa Rolfe (4137), Anthony Ryd (USAF).

Common Arming, Fuzing, and Firing 90-day Study Team

The team is acknowledged for its leadership in demonstrating the feasibility of an arming, fuzing, and firing architecture, or Common AF&F, for the W88 ALT conceptual design that is adaptable to the W78 and W87 reentry systems. The team produced two very compelling designs, and they fabricated prototype models that were essential in demonstrating Sandia's engineering capabilities to US Navy and US Air Force customers. In addition, the team developed design approaches for enhancing surety for each of the systems. They met strict schedule constraints, and the prototype stereolithography design models were delivered to Washington, D.C.; for review by the Navy, Air Force, Office of the Secretary of Defense, and NNSA. As testament to this effort, the models are still on display at the Pentagon. If this approach is implemented, the potential cost savings to the complex would be significant.

Team Members: Danny Thomas, Team Rep. (2136), Jerry Adams (2996), Gilbert Benavides (2613), Dante Berry (2143), Kevin Campbell (2996), George Clark (2627), Daniel Dorsey (0243), Celeste Drewien (0245), John Dye (5331), Gary Fischer (2992), David Fordham (0243), Steven Harris (2133), Timothy Locke (2996), William Nance (2626), Hans Papenguth (2547), Anthony John Radler (2136), Amy Elizabeth Rice (2133), Michael Rimbart (2136), Robert Shepherd (2996), Scott Slezak (2133), Patrick Smith (2625), Todd Sterk (2956), Donald Wayne (0247), Brandon Lee Welch (2996), and Ernest Wilson (2613).

CYGNUS Radiography and Velocity Interferometer System for Any Reflector, or VISAR, Team

This team is recognized for providing the primary diagnostics, flash X-ray radiography, and point velocimetry for the Barolo series of subcritical experiments. These are essential diagnostics used to image material under extreme dynamic conditions in the primary certification process for nuclear weapons. Working in collaboration with Los Alamos and National Security Technologies, Sandia completed a three-year effort to field the

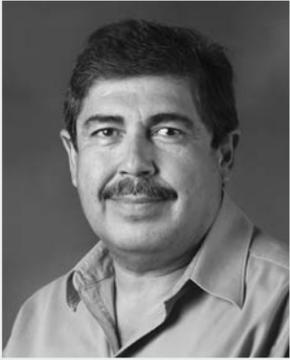


CYGNUS RADIOGRAPHY AND VELOCITY INTERFEROMETER SYSTEM FOR ANY REFLECTOR, OR VISAR TEAM

CYGNUS Dual Axis Flash X-ray radiography system and optical VISAR, in support of the Barolo series of subcritical experiments conducted at the Nevada National Security Site. CYGNUS was designed with a one in one-hundred chance of failure. However, by creating a highly reliable source coupled with a high-performance team of operators and diagnosticians, the team was able to achieve failure rates better than one in three-hundred.

(Continued on next page)

Larry Moya (2848-1) is recognized for his critical contributions to multiple nuclear weapon component design and production programs. Larry currently leads the Power Source team that carries out battery prototyping and in-house mark quality component production for multiple nuclear weapon programs. He organized and executed the delivery of 15 thermal batteries that provided test data to validate battery performance estimates in support of the 90-day fuze study for the US Navy and US Air Force. He managed the work schedule for the Power Sources Processing team; all tasks were completed on schedule. Larry ensured that proper resources were available to assemble these batteries, and he kept other members of the study team advised of progress on a weekly basis.



In addition to this work and his other duties, Larry made notable contributions to other important weapon-related work at Sandia during 2010, including the B61 LEP and the MC3948 thermal battery project.

David Myers (1770) is recognized for his work in advancing the science and technology of microsystems for insertion into the nuclear weapons stockpile. He is known as one of the nation's experts on radiation effects in semiconductors, and is an advocate for attention to nuclear survivability requirements. David's vast accomplishments are influencing the course of action for the B61 LEP and the technologies that will be incorporated into this system.



David led the establishment of Technology Readiness Levels (TRLs) at Sandia, and later led Sandia's Technology Maturation Working Group and supported the NNSA team that established both TRLs and Manufacturing Readiness Levels, MRLs, throughout the Enterprise. David has presented key tutorials on radiation hardening to both internal and external groups including NNSA headquarters staff, the Navy Strategic Systems Program Office, and other federal agencies. He has eight patents and has published more than 100 technical papers.

Team members: Dan Bozman, Team Rep. (16561), Steve Cordova (1656), Michael Furnish (1646), Daniel Nelson (16561), Bryan Oliver (1656), Eugene Ormond (16561), Doug Good (National Security Technologies-NST), Todd Haines (LANL), David Henderson (NST), Keith Hogge (NST), Joe Huerta (NST), Adam Iverson (NST), Stephen Lutz (NST), Vance Mitton (NST), Isidro Molina (NST), John Smith (Los Alamos National Laboratories).

Integrated Lifecycle Security (ILS) Team

This team is acknowledged for developing methods and tools to assess system-level nuclear weapon security risk and for providing sound security improvement recommendations to national leaders. The team created a taxonomy, methods, and tools, for assessing system-level nuclear weapon security risk, across all weapon lifecycle phases. The team completed a baseline assessment of security risk for the current nuclear weapon stockpile and for the stockpile as it will be configured in 2014, once several major venue upgrades are complete. This assessment included an evaluation of several thousand combinations of venue states and asset configurations. The team performed assessments and recommended security improvement options for life extension and other programs. Requests for these assessments were often urgent and the team was extremely responsive in performing the needed analyses and in presenting the results.

Team members are from Organizations: 400, 5600, 5900, 6600, 8100 and 8200.

Integrated Programmatic Scheduling System, Program Control Document, and Weapon Information System Team

After several months of planning, three classified applications associated with Accountability, Planning, and Scheduling, were successfully migrated to Sandia from the Kansas City Plant. These classified applications were: the Integrated Programmatic Scheduling System, the Program Control Document, and the Weapon Information System. This successful migration enabled the Kansas City Plant to meet commitments to NNSA to reduce their Information Technology footprint, and completed the response from the Product Realization Integrated Digital Enterprise, or PRIDE Program, to an NNSA request to co-locate all Accountability, Planning, and Scheduling applications at Sandia. The migration of these systems supports the PRIDE approach to continuing and emerging NNSA requirements for item tracking and accountability and management of system interfaces.

Team members: John Bowers, Team Rep. (9514), Tod Tracy Amon (9515), Jeffrey Anastasio (9324), Mathew Anderson (9533), Lawrence Arellano (9538), Michael Bencoe (9513), C. Douglas Brown (9312), Steve Carpenter (8945), Tania Carson (2994), Chris Castle (9538), Gregory Conrad (9533), Phillip Cox (9324), Jacqueline Ranae Dominguez (9514), Linda Garcia (9324), Vanessa Sherie Garcia (9514), Richard Gay (8949), Jim Hachman (89451), Richard Harris (2990), Lori Kozlowski (9512), Michael Kurtzer (89451), Michele Leshner (9538),



INTEGRATED PROGRAMMATIC SCHEDULING SYSTEM, PROGRAM CONTROL DOCUMENT, AND WEAPON INFORMATION SYSTEM TEAM



INTEGRATED PROGRAMMATIC SCHEDULING SYSTEM, PROGRAM CONTROL DOCUMENT, AND WEAPON INFORMATION SYSTEM MIGRATION TEAM

Tu-Toan Quach (9515), Eric Santillanes (9533), Dennis Tenorio (9329), Ricardo Urioste (9512), Michael Alexander (KCP), Mike Cannady (Triple-I), Jennifer Dyck (KCP), Don Hargreaves (KCP), Michael Haverkamp (KCP), Joe Ledger (KCP), Mark McLean (KCP), James Sommerhauser (KCP), Peter Tripp (Triple-I), and Jon Tyree (Triple-I).

Magneto-Rayleigh-Taylor Instability Experiments Team

This team is recognized for measuring and simulating the growth of the instability in 100 nanosecond cylindrical liner implosions at the Sandia Z facility. Sandia's Z machine is the world's most powerful laboratory pulsed-power capability and it is used to drive matter to extreme pressures and temperatures to evaluate weapon science phenomena. The most important instability limiting the controlled compression of dense matter using magnetic pressure is the MRT instability. This instability can rip a liner apart as it is being compressed and prevent the acquisition of critical data. In controlled experiments on the Z machine, the team successfully captured the growth and evolution of the MRT instability using radiography. These data were used to validate predictions of relevant simulation codes. Using the newly validated codes, the team is extending Z's capabilities.

Team members: Daniel Sinars, Team Rep. (1648), Briggs Atherton (1672), Guy Bennett (5711), Michael Cuneo (1643), Aaron Edens (1679), Mark Herrmann (1640), Christopher Jennings (1644), Gordon Leifeste (1647), Mike Lopez (1679), Ryan D. McBride (1648),



MAGNETO-RAYLEIGH-TAYLOR INSTABILITY EXPERIMENTS TEAM

Charles Nakhleh (1644), Kyle Peterson (1644), John Porter (1670), Mark Savage (1671), Jonathon Shores (1672), Stephen Slutz (1644), Ian C. Smith (1672), William Stygar (1671), Roger Vesey (1644), Verle Bigman (1644), Brent Blue (General Atomics), Jeremy Chittenden (Imperial College), Korbie Killebrew (General Atomics), Diana Schroen (General Atomics), Kurt Tomlinson (General Atomics), and A.L. Velikovich (Naval Research Laboratory).

Neutron Tube Delay Time Improvement Team

This team is recognized for eliminating delay time failures during acceptance testing of MC4277 neutron tubes. Neutron tube yields took a sudden downturn due to a recurring failure mode that had not been addressed. This recurrence caused approximately 50 percent of the product-to-fail requirements. A multidisciplinary team with members from manufacturing, design, testing, and science made solving this issue a top priority. The team focused on data-driven decisions. It was critical for the team to ensure that Sandia continued to meet its schedule commitments for neutron generator shipments. The investigation consumed over three hundred neutron tubes, but in the end, the team's solution recovered these tubes and will remain effective for the life of the production schedule. The resolution resulted in a savings of over \$7 million over eight months, and continues to realize savings by permanently increasing yield.

Team members: Keith Meredith, Team Rep. (2734), Bobby Baca (2714), Anne Benz (2701), Bruce Bowles (2714), Wesley Bruno (2551), Thomas Dickman (2717), Juan Elizondo-Decanini (2735), Robert Ferrizz (2735), Randolph Herrick (2736), Shelia Jones (2712), Daniel Kettleborough (2736), Don Lifke (1776), David Lopez (2736), Korrie Mabray (2701), Roger Moore (2718), Kenneth Morris (2717), Paul Morrison (2712), John C. Nguyen (2712), Maryann Olascoaga (2712), Mark Poiles (2736), Susan Pollard-Walker (1776), Gary Pressly (2734), Regina Schells (1734), Matthew Senkow (2735), and Susan Shelton (2712).

OPUS Development Team

This team is recognized for their outstanding contribution to NNSA's safe and secure transportation program. The OPUS project significantly improves the safety, security, and logistics of containerized nuclear weapon transportation. The project replaces a conventional restraint system in the SafeGuards Transporter, or SGT, with an Over-pack for each weapon container to isolate each system from the others, providing significant security enhancements and safety improvements against severe environments. The Air Force, Navy, and Pantex material handlers provided operational feedback; Kansas City Plant staff provided manufacturing expertise. The project team found creative ways to

maximize safety, security, and cargo-carrying capacity within the tight development schedule and completed the effort more than \$700,000 under budget while meeting all design requirements.

Team members: Robert Waters, Team Rep. (0416), Christopher Aas (0416), Marco Alvares (8231), Sharon Arp (0413), Michael Arviso (1522), Stephen Attaway (1525), Timothy Brown (1534), Jerome Cap (1523), Chad Davis (2115), Dean Dobranich (1514), Lee Druxman (8231), Henry Duong (0416), Anthony Gomez (1522), Kenneth Gwinn (1524), Mark Higuera (8133), Michael Hobbs (1516), Brian Keith Kinler (2913), Anh Lai (0416), Kurt Metzinger (1524), David Pace (6621), Frank Paulic (0421), Thomas Reecer (6623), John Rhoads (2913), Frank Schelling Jr. (6222), Edward Sikorski (6621), Frederick Joseph Snoy III (6623), Brian E. Spease (2913), Derek Wartman (2112), Jason Wilke (6634), Larry Zamora (6623), Lorri Ellis (Honeywell KCP), Andrew Johnson (Honeywell KCP), and Karen Wrigley (Honeywell KCP).

Plutonium Isentropic Compression Experiment Material Disposition Team

They are acknowledged for the successful shipment of nuclear material residues from Sandia to Los Alamos National Laboratory. Nuclear material residue from previous operations was staged at Sandia and awaiting transfer back to Los Alamos when the original planned approach for disposition proved unworkable. The team successfully established a path forward for packaging, handling, and transportation using resources from both labs and the Waste Isolation Pilot Plant, or WIPP. Significant cost savings occurred by utilizing WIPP resources instead of commercial resources. The use of the TRUPACT 2 container to ship the residues was a first for the WIPP team and was concurrent with the first shipment of TRU waste from Sandia. The approach met all standards for Safety, Security, and Quality. The team's success is a model for future nuclear material shipment efforts that span multiple DOE and NNSA organizations, and it provides a complex wide solution with important cost savings over commercial shipments.

Team members: Stanley Haynes, Team Rep. (1386) Albuquerque, Kapil Goyal, Team Rep. (LANL), Rafe Campbell (1381), R. Sidney Domingues (1381), John Ford (1381), Mark Kiefer (1613), Christopher Madigan (42421), Michael Spoerner (4139), Laura Whittet (42421), Jennifer Biedscheid (Washington TRU Solutions Inc.),



PLUTONIUM ISENTROPIC COMPRESSION EXPERIMENT MATERIAL DISPOSITION TEAM



PLUTONIUM ISENTROPIC COMPRESSION EXPERIMENT MATERIAL DISPOSITION TEAM (LANL)

Lee Bishop (LASO), Mike Brown (CBFO), Jeff Carmichael (LANL), Murthy Devaranonda (Washington TRU Solutions, Inc.), David French (LANL-Carlsbad), Jeff Gluth (K-Tech) (1646) Albuquerque, Mark Hamilton, (SSO), Rick Haynie (SSO), Betty Humphrey (Weston Solutions Inc.), Tom Krause (Weston Solutions Inc.), Ronnie Lee (Washington TRU Solutions, Inc.), Roy Lybarger (SSO), Rick Martineau (LANL), John Miller (Sigma Science, Inc.), Jody Pugh (SSO), Dave Rast (SSO), Elizabeth Tafoya (LANL), Sheryl Willis (LANL), and Andrew Worker (LASO).

Radiation Effects Source and Testing Development Team

This team is recognized for their work in increased cold x-ray source yields, improved source characterization, and debris mitigation

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techniques to qualify stockpile components on the refurbished Z machine. K-shell X-ray sources are an integral part of the nuclear survivability testing and certification of non-nuclear components for the stockpile. Working together, the Sandia Pulsed Power Sciences Center and the Radiation Sciences Center developed a variety of K-shell sources and the associated source physics, X-ray spectral and fluence measurements, and environmental control technologies that now constitute the world's most intense and advanced Radiation Effects Testing platform. Team members developed methods for controlling the debris so that test objects, including actual stockpile components, could be protected from the blast. Also, the testing of components for stockpile qualification requires an accurate measurement of the X-ray fluence and spectra that the test objects see. The team developed a modern effects testing platform that is notable for its accuracy, flexibility, and intensity.



RADIATION EFFECTS SOURCE AND TESTING DEVELOPMENT TEAM

Team members: Brent Jones, Team Rep. (1643), David Ampleford (1643), James Bailey (1677), David Beutler (5943), James Bryson (1344), Christine Coverdale (5945), Michael Cuneo (1643), Aaron Edens (1679), Dawn G. Flicker (1646), Stephanie Hansen (1644), E. Frederick Hartman (1343), Christopher Jennings (1644), Michael Jones (1674), Scott Jones (0245), Richard Klingler (1344), Patrick Lake (1749), Nathan Moore (1344), Thomas Nash (1677), Dan Nielsen (1675), Richard Pepping (1343), Richard Plass (1344), Gregory Rochau (1675), Mark Savage (1671), William Stygar (1671), Rayburn Dean Thomas (1342), John Apruzese (Naval Research Laboratory (NRL), Gary Chantler (1343), Y. Chong (NRL), James Cisneros (1678), R.W. Clark (NRL), A. Dasgupta (NRL), Jack Davis (NRL), John Guilian (NRL), Yitzhak Maron (Weizmann Institute of Science), Raymond Mock (1643), Linda Nielsen-Weber (1679), Jason Serrano (1344), J. Ward Thornhill (NRL), and Alexander Velikovich (NRL).

Reentry System Controller Development Team

This team is recognized for the successful development of advanced arming and fuzing concepts in collaboration with the Atomic Weapons Establishment of the United Kingdom. This team designed, developed, and produced an advanced arming and fuzing subsystem prototype that demonstrated key technologies needed for next-generation reentry system controllers. This will reduce the risk, time, and cost for the upcoming W88 Alt 370. The new architecture allows the same controller to be applied to both Navy and Air Force reentry systems; and a programmable Embedded Instrumentation Subsystem gathers more and better data on the functionality and state-of-health of the weapon through its life cycle.



REENTRY SYSTEM CONTROLLER DEVELOPMENT TEAM

Team members: Perry Molley, Team Rep. (5331), Kerry Barker, Team Rep. (Atomic Weapons Establishment (AWE), Jacob Barrandey (5331), Gerald Boyd (5331), John Dye (5331), Jeffrey Farrow (5331), Josh Kidd (5339), George Laguna (5331), Sharon Lujan (5331), Tony Maokhamphiou (5331), R. Shawn Mooney (5331), Gary Patrizi (1742), Anthony John Radler (2136), J. Lee Schoeneman (5331), Patricia Smith (5331), Charles Sullivan (1742), John Teifel (1731), Dave Button (AWE), Crystal Carrasco-Ruiz (2127), John Eves (AWE), Vicky Fay (AWE), Rashad Hussain (AWE), Doug Reynolds (AWE), and Darren Tate (AWE).

The Refurbished Z Plutonium Team

This team is recognized for the completion of the first plutonium experiment on the refurbished Z-facility. Understanding the behavior of plutonium at extreme conditions, like those found in nuclear weapons, is essential. Therefore, plutonium experiments on the Z-facility are a vital component of developing an understanding of plutonium for science-based stockpile stewardship. A team of technical experts was assembled from across Sandia to engineer a system to safely and reliably perform this complex, hazardous, time-critical operation, and to make sure that the highest quality data were obtained. The team analyzed potential failure modes and also put in place a configuration control and assurance program. Excellent data were obtained and we are gaining new insight about plutonium from the analysis of the data.

Team members: Marcus Knudson, Team Rep. (1646), Mike Lopez, Team Rep. (1679), G. Randall McKee, Team Rep. (1676), William Stygar, Team Rep. (1671), Roy Bonsack (102211), Eric Wayne Breden (1671), Anthony Brock (4128), Randolph Castillo (4024), Stephen Coffing (4126), Lisa Cordova (4128), Todd Culp (4128), Jean-Paul Davis (1646), James Dawson (4824), Michael Desjarlais (1640), Richard Dramer (4824), Aaron Edens (1679), Michael Enghausser (4139), Dawn G. Flicker (1646), Gerald Gallegos (4824), Sarah Hayes Goke (4121), Michael Ryan Greutman (4126), Heath Hanshaw (1641), Roger Harmon (1678), Stanley Haynes (1386), Mark Herrmann (1640), Chad Hjorth (4127), Lisa Hooper (4127), George H. Hoskison (4128), Jeffrey Jarry (4139), Michael Jones (1674), Matthew Doyle Kernaghan (1675),



THE REBURNISHED Z PLUTONIUM TEAM

Mark Kiefer (1613), Gabriel King (4024), Maryann Krauss (4139), Amy Renee Laspe (1679), Raymond Lemke (1641), Finis Long (1678), Matthew Martin (1641), Robert Miltenberger (4128), Darlene Moore (4024), Kathleen Moore (4127), Thomas Mulville (1671), Charles Nakhleh (1644), Gregory Naton (1676), Albert Owen (1676), Nina Poppelsdorf (4121), John Porter (1670), Wayne Potter (4824), John Rathbun (4824), Darell Rogers (4824), Stephen Rosenthal (1644), Dean Rovang (1643), Mark Savage (1671), Decker Charles Spencer (1679), Michael Spoerner (4139), Richard Steele (4024), Brian Stoltzfus (1671),



THE REBURNISHED Z PLUTONIUM TEAM

Kenneth Struve (1679), Michael Alex Sullivan (1671), James Thompson (4144), Kiran Androlewicz (1655), Lance Baldwin (1676), Donald Brady (Sandia Site Office), Donald Brunell (Sandia Site Office), Tim Chavez (1676), Matt Christison (1676), Devon Dalton (1646), Vince Garcia (2998), Jeff Gluth (1646), Betty Jo Humphrey (Weston Solutions Inc), Peter Jones (1646), Scot Lewis (1676), Veronica Martinez (Sandia Site Office), Charlie Meyer (1646), Jose Munoz (Sandia Site Office), Jim Puissant (1654), Anthony Romero (1654), Dustin Romero (1646), Kelly Seals (1646), Eric Smith (9351), Annamarie Trujillo (SSO), Heather Trumble (SSO), and Pete Wakeland (1676).

Sandia's Red Storm Operating System Team

This team is commended for the design and implementation of a lightweight kernel operating system and associated reliability, availability, and serviceability enhancements that enabled significant energy and cost savings in supercomputing operations in support of nuclear weapons simulations. Scientific modeling and simulation applications comprise an important part of the nuclear weapons program. Platforms for enabling these large-scale simulations require multimegawatts of power per year at a cost of approximately \$1 million per megawatt. The original microprocessors deployed on Red Storm did not support power savings features; therefore, the operating system was not designed to manage this critical resource. New microprocessor architectures provide power saving features, and the team enhanced the Sandia-designed operating system to exploit these features. The team's efforts resulted in an annual cost savings of \$350,000.

Team members: James Laros III, Team Rep. (1422), James Ang (1422), Robert Ballance (9328), Ronald Brightwell (1423), Suzanne Kelly (1423), Kevin Pedretti (1423), John Vandyke (1423), and Courtenay Vaughan (1423).



SANDIA'S RED STORM OPERATING SYSTEM TEAM

The Technical Basis for Stockpile Transformation Planning (TBSTP) Team

This team is recognized for exemplary collaboration between NNSA and site representatives in preparing a comprehensive nuclear weapons systems planning document that facilitates nuclear stockpile investment decisions. Important areas addressed include: campaign responsiveness to the requirements of Directed Stockpile work; integration management and planning across the design and production agencies; and technology readiness, communication, and improved requirements definition. The team's final product in 2010 was the completion of the annual document titled "Technical Basis for Stockpile Transformation Planning."

Team members: Joseph Fernandez, Team Rep. (0231), Perry Cowen (2143), Mary Gonzales (8240), Ming Lau (8230), Gary Cockrell (Pantex), Dale Conatser (Y-12), David Coy (NNSA), John Davis (KCP), Helmut Filacchione (NNSA), Charles Hills (LANL), Tom Horrillo (LLNL), Lloyd Montoya (NNSA), Geoff Netzley (SRS), and Maurice Pitt (NNSA).

Tritium Thermoelectric Generator (TTG) Technology Development Team

This team's primary goal was to rapidly develop tritium-based Thermoelectric Power Source technology for nuclear weapons applications. The team successfully designed, built, analyzed, and tested prototype units and established a comprehensive materials aging study. The team demonstrated a functional prototype milliwatt generator that would last for 15 years in the size of a D cell battery. Sandia teamed with the Savannah River Site and the Kansas City Plant to ensure that key manufacturing processes were developed. The project produced a detailed three-dimensional thermal model, numerous piece part prototypes, and functional prototypes that underwent both thermal and mechanical testing. This project demonstrated the blending of engineering and science-based aging and materials compatibility evaluations. The use of multiphysics simulations allowed early engineering tradeoffs without having to build and test hardware.

Team members: Christopher Applett, Team Rep. (18152), Richard Behrens Jr. (8128), Jeff Chames (8651), Manuel Contreras (2547), Dean Dobranich (1514), Todd Felver (8224), Andy Gardea (8651), Gordon Gibbs (8224), Ronald Goeke (1832), Steven Goods (8222), John Hachman Jr. (8223), Michelle Hadady (10694), William Hammetter (1815), Terry Johnson (8365), Davina Kwon (8210), Sean Maharrey (8128),



TRITIUM THERMOELECTRIC GENERATOR (TTG) TECHNOLOGY DEVELOPMENT TEAM



TRITIUM THERMOELECTRIC GENERATOR (TTG) TECHNOLOGY DEVELOPMENT TEAM

Bernice Mills (8223), Alfredo Morales (8223), Wiley Green Neel (8125), Ryan Nishimoto (8651), April Nissen (8223), Karla Rosa Reyes (8223), Michael Saavedra (1833), Bryan Sanchez (2547), Peter Anand Sharma (8656), Andrew D. Shugard (8224), Gary Simpson (8226), Catherine Elizabeth Sobczak (1832), Paul Spence (8224), Nathan Spencer (8249), Deneille Wiese-Smith (8128), Daniel Edward Wesolowski (2547), Roger Watson (8222), Josh Whaley (8222), Leroy Whinnery Jr. (8223), Nancy C. Yang (8651), Philip Zablocki (8226), Carolyn Brewer (Savannah River Site-SRS), Randy Davis (SRS), Dennis Fish (SRS), Henry King (SRS), Terry Nigg (SRS), Tom Walters (SRS), Donald Watson (KCP), Daniel Wolf (KCP), and Terry Yotter (KCP).

W84 SS-21 Project Team

This team, composed of diverse organizations in Sandia, Lawrence Livermore National Laboratory, and Pantex, developed a safe, predictable, reliable, and efficient W84 disassembly and inspection process that improved safety by eliminating unnecessary operations and incorporating extensive engineered controls to mitigate hazards. The team designed 57 new tools for an integrated work stand that eliminates all hand carries, controls tool installation and removal, and enhances ergonomics.

Team members: Alfred Ver Berkmoes, Team Rep. (8238), Nathan Brannon (0415), Kenneth Chen (0416), Martin Fuentes (0416), Earl Graff (2111), Nazir Khalil (5942), Robert Kinzel (8238), Colleen Koenig (2951), Benjamin Markel (8224), Michael McLean (2142), Jason D. Morris (0415), David Neustel (8238), Cary Lynn Pratt (0421), John Rhoads (2913), Daniel Summers (0411), Steven Thornberg (1825), David Tobeck (8226), Mary Louise Young (0412), Garvin Chambers (Pantex), Brandi Cota (Pantex), Ron Lee (Pantex), David Longinotti (LLNL), Bill Mercer (Pantex), Gabe Pugh (NNSA), David Rhoten (Pantex), Chris Robbins (LLNL), Mike Shannon (Pantex), Alfonse Walker (Pantex), and Todd Welchlen (Pantex).



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 employers 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 is the current claims administrator that provides access to the Lovelace Health System, effective Jan. 1, 2012, all employees and pre-Medicare retirees enrolled in Sandia Total Health administered by Blue Cross and Blue Shield of New Mexico will have access to the Lovelace hospitals as well as the select physicians in the Sandia HPN.

2011/2012 Sandia Total Health

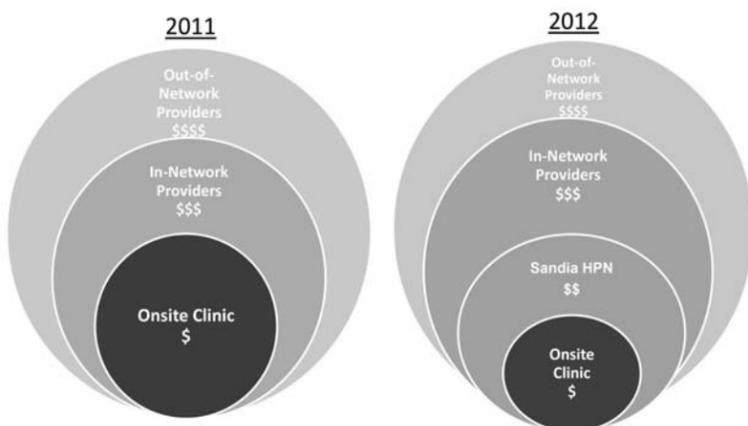


ILLUSTRATION showing how the costs for employees participating in the Sandia HPN work with Sandia's onsite clinic and Sandia Total Health.

Sandia Total Health BCBSNM members who use Sandia HPN providers will see higher benefits through lowered 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, ABQ 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 employer in its community that can serve as an example for other large employers and hospital systems.

Many employers find themselves 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 physicians as a part of the Lovelace Health System
- Ambassador/concierge program to connect Sandia patients with Sandia HPN hospitals and physicians
- Bringing community providers to the Sandia onsite clinic
- Pharmacy program to coach Sandia employees on the proper use of their medications
- Ongoing partnership with the Sandia HBE 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 two tables at right.

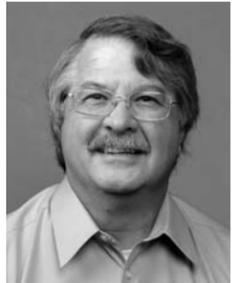
A complete list of participating HPN providers will be available during Open Enrollment beginning Monday, Oct. 24.

Mileposts

New Mexico photos by Michelle Fleming



Wendell Jones
35 200



Charles Ringler
35 6524



Gary Rocha
35 6221



Ernie Correa
30 5953



Bob Paulsen
30 2211



Randy Summers
30 1444



Evan Ashcraft
25 10520



Dale Coleman
25 5443



Bob Goetsch
25 4135



Carol Harrison
25 5554



Michael Prins
25 5564



Paul Clem
15 1815



Marisela Marquez
15 97



Marcos Sanchez
15 1753

2012 Sandia Total Health

2012 Sandia Total Health administered by BCBSNM				
	Onsite Clinic (available to all Sandia employees)	Sandia HPN	In-Network (same as 2011)	Out-of-Network (same as 2011)
Annual Deductible				
Employee	n/a	\$500	\$750	\$2,000
Employee + Spouse or Child(ren)	n/a	\$1,000	\$1,500	\$4,000
Employee + Family	n/a	\$1,500	\$2,250	\$6,000
Coinsurance				
	n/a	10%	20%	40%*
* Please note that the out-of-network percentage is 40%, not 30% as previously communicated. The rate is unchanged from the 2011 rate.				
Out-of-Pocket Maximum (including deductible)				
Employee	n/a	\$1,500	\$2,250	\$6,000
Employee + Spouse or Child(ren)	n/a	\$3,000	\$4,500	\$12,000
Employee + Family	n/a	\$4,500	\$6,750	\$18,000

2012 Sandia Total Health Plan Premiums for Employees								
Employee Contribution Levels	Sandia Total Health Plan - UHC and Kaiser				Sandia Health Partner Plan - BCBSNM			
	Tier 1 <\$50,000	Tier 2 \$50,001-\$80,000	Tier 3 \$80,001-\$130,000	Tier 4 >\$130,001	Tier 1 <\$50,000	Tier 2 \$50,001-\$80,000	Tier 3 \$80,001-\$130,000	Tier 4 >\$130,001
Employee Only	\$51	\$73	\$95	\$117	\$48	\$68	\$89	\$109
EE + Spouse	\$104	\$149	\$194	\$239	\$97	\$139	\$181	\$223
EE + Child(ren)	\$92	\$132	\$171	\$210	\$86	\$123	\$159	\$196
EE + Family	\$148	\$212	\$275	\$339	\$138	\$198	\$256	\$316

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

MISCELLANEOUS

BED, full-size, Ethan Allen, maple, \$100; cherry wood oval coffee table, \$65; handmade quilt, \$75. Wistor, 205-8243, ask for Joanne.

ELECTRIC TILLER, SunJoe, new, \$100; almost new solar collector cover, \$10. Hawley, 299-2516.

TELESCOPE, Orion XT8 Classic Dobsonian, perfect condition, 2 eyepieces, TelRad, soft case, stand, \$250. Bauer, 299-0640.

AB LOUNGE XL, \$65; AB Lounge Sport, \$35; lawnmower, push-reel type, like new, \$35. Aragon, 888-3473.

CASTING CROWNS TICKETS, 4, Oct. 7, Row K (11 rows back), center section, \$232 or \$58 ea. Valdez, 505-550-1993.

METAL DESK, gray, 30" x 60", \$20; car-top ski rack, \$20; Yakima car-top bike rack, \$50. Fuller, 294-3089.

MTO YARD MACHINE, 18-in. string trimmer mower, Briggs & Stratton 5-hp engine, model #25A-203L729, only used twice, \$100. Martinez, 400-6278.

TREADMILL, NordicTrack C2000, \$300; marble-top table w/4 cushion chairs, \$200; bike trailer, \$35; Total Gym, \$75. Gutierrez, 994-0921, ask for Adam.

WHEELS, fit '08 Toyota Tacoma, OEM, 16-in., w/mounting hardware, \$100 OBO. Hennessey, 915-241-8634.

DINING SET, hardwood, high-quality, intricate blue inlay, 6 chairs, 2 leaves, great condition, \$600 OBO. Hernandez, 270-0713.

TRUCK TOP, Raider Viewliner, white fiberglass, 76" x 59", excellent condition, photos at <http://tinyurl.com/6ettvka>, \$500 OBO. Ganter, 750-7528.

CURTAINS, custom made, medium blue, lined, long pleats, 50"W x 85"L for a total of 100"W x 85"L, \$75. Anderson, 232-2167.

OFFICE DESK, modular design, 7-pc., w/desk, hutches, filing drawers, computer station, book shelves, \$650. Barr, 515-6219.

DESK, corner, 2-pc., solid oak & oak veneer, pullout for computer, excellent condition, \$250. Diegle, 856-5608.

WALL HEATER, works great, \$100 OBO; old bicycles, can be restored or used for parts, make reasonable offer. Willis, 304-5034.

GAS STOVE, Norge, \$60; iron wood stove, \$75; antique wood closet, \$85; new queen air mattress, \$85. Gonzales, 296-8006.

GLASSWARE, 7 etched crystal parfait glasses & 8 icers w/matching spoons & cocktail forks, \$9 ea. Wells, 292-0179.

STAIR STEPPER, The Edge, \$120. Blickem, 323-6832.

MOTOR, Tecumseh, 6-hp, perfect for log splitter, go cart, pressure washer or similar project, \$150. Cook, 505-615-2326.

DALLAS COWBOY TICKET, 1, for Thanksgiving game against Miami, section 452, row 3, \$125. Woodall, 797-7702.

REAR PROJECTION TV, Panasonic PT-51HX40, 51-in., great for family room, excellent condition, \$500. Willmas, 505-281-9124.

SNAG HOOKS, lead weight on size 5/0 treble hooks, \$20/50 hooks. Brown, 884-8581.

THANKSGIVING WEEKEND, Nov. 23-27, Las Vegas Polo Towers Studios in the Villas, \$60/night. Baca, 839-5151.

GARAGE SALE, Oct. 8, 8 a.m.-2 p.m., 15+ families, Uptown Garden Club fundraiser, 6512 Osuna Road NE, great deals. Harrington, 505-296-8208.

SCANDINAVIAN FESTIVAL, Nov. 5, 10 a.m.-4 p.m., Scandinavian crafts, music, dancing, 114 Carlisle SE, free. Richard-Franco, 294-5739.

TURNOVER BALL HITCH, B&W goose-neck, fits '01-'07 Chevy/GMC, \$200; 5th wheel to gooseneck adapter, \$300. Scott, 505-450-1778.

HEAD & FOOTBOARD, king, gorgeous cast iron scroll work, w/king size mattress, \$1,000. Romero, 505-980-9506.

BLINDS, Hunter Douglas, 2-in. slats: Country Wood, 22-1/2" x 62-1/4", \$25; 46-1/2" x 58-1/4", \$40; Everwood, 22-3/8" x 58-5/8", \$40. Gorman, 417-1374.

FRAMED MIRRORS, 2, large, new, great for bathroom remodel, photos available, paid \$80 ea., asking \$60 ea. Gloe, 817-733-9288.

DRYER, Maytag, new set purchased, no longer needed, great condition, \$125. Lobato, 505-507-9171.

FURNITURE, like new: living room; wooden dining set; twin bed, solid-wood bar stools w/backs; much more. Behar, 831-5621 or 980-8002.

BILLIARDS SPECTATOR CHAIRS, custom made, solid oak, green fabric, \$150 ea. or \$250/pair. Beaton, 999-1013.

FURNACE; gas stove, Kenmore; pedestal w/heavy-duty grinder & buffer motor; treadmill; drill press; call for prices. Herrera, 833-5035, if no answer try again.

ACOUSTIC ELECTRIC GUITAR, NY Pro 977CEQBC, like new, w/bag, \$200; rug, wall hanging wool, 66" x 30", \$70. Jones, 352-1007.

ROYAL CROWN DERBY ROBIN, collectible paperweight, adorable, perfect condition, sells for £80 (~\$124), asking \$55. Bickel, 822-0951.

How to submit classified ads
DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:
 • EMAIL: Michelle Fleming (classads@sandia.gov)
 • FAX: 844-0645
 • MAIL: MS 0165 (Dept. 3651)
 • DELIVER: Bldg. 811 Lobby
 • INTERNAL WEB: On internal web homepage, click on News Center, then on Lab News link, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.

- Ad rules
1. Limit 18 words, including last name and home phone (If you include a web or e-mail address, it will count as two or three words, depending on length of the address.)
 2. Include organization and full name with the ad submission.
 3. Submit ad in writing. No phone-ins.
 4. Type or print ad legibly; use accepted abbreviations.
 5. One ad per issue.
 6. We will not run the same ad more than twice.
 7. No "for rent" ads except for employees on temporary assignment.
 8. No commercial ads.
 9. For active Sandia members of the workforce, retired Sandians, and DOE employees.
 10. Housing listed for sale is available without regard to race, creed, color, or national origin.
 11. Work Wanted ads limited to student-aged children of employees.
 12. We reserve the right not to publish any ad that may be considered offensive or in bad taste.

MOTORCYCLE THROTTLE ASSIST, i.e. "cruise control", made by Kuryakyn, used twice, all parts & instructions, \$25. Cocain, 281-2282.

TRANSPORTATION

'07 MINI COOPER, AUX & heated seats, white, extended maintenance warranty, clean, well maintained, 51K miles, \$14,750. Coriz 505-927-9965.

'08 TOYOTA HIGHLANDER LIMITED, AWD, loaded, Toyota certified, 100K power train warranty, 43K miles, \$35,000 OBO. Snyder, 505-440-9764.

'04 TOYOTA PRIUS, few minor blemishes, scheduled maintenance at dealership, records available, 67K miles, <book, \$10,800. Vittitoe, 299-9298.

'80 CORVETTE, new engine, almost new everything underneath, nice interior, many extra parts, ready to go, \$13,200. Kranz, 797-3408.

'04 TOYOTA COROLLA CE, 4-dr., AT, silver, 1 owner, 13K miles, great condition, \$9,800. Hoagland, 505-304-3856, ask for Danny.

'94 CHEVY C3500 DUMP TRUCK, new factory motor, 8-ft. dump bed, tool boxes, needs electrical work, \$5,000 OBO. Mabray, 307-4853.

'97 BMW 540i, 6-spd. manual, AC, PW, PL, ABS, 6-CD changer, loaded, 129K miles, \$7,000. Clement, 293-1416.

RECREATIONAL

'95 HONDA SHADOW ACE 1100, all black/chrome, Cobra accessories, runs well, 41K miles, \$1,200. Turner, 281-4264.

'08 HONDA SHADOW SPIRIT 750, upgraded pipes & mirrors, 1,250 miles, like brand new, \$5,000 OBO. Estrada, 505-459-2476.

'04 CLAY'S CLUB CAR, 4 dual lock gun holders, front cargo basket, NM title, ready to go hunting, \$4,500. Martin, 980-0456.

GO KART, Baja 250 cc, w/reverse, never off-roaded, garage-kept, great condition, paid \$2,500, asking \$1,400. Gutierrez, 505-239-7059.

'01 MONACO CLASS A MOTOR HOME, 29-ft., 100-W solar, inverter/charger & more, 23K miles, \$27,000. Pfeiffer, 299-3951.

POP-UP CAMPER, 1 bunk bed, new canvas, lifter arms, tires, stove, extras, <800-lbs. Vaughn, 291-9857.

'06 TREK WOMAN'S SPECIALIZED ROAD BIKE, 51cm, Shimano parts, 30-spd., original owner, carbon fork, excellent condition, \$750. Harmer, 977-1830.

'92 BRIDGESTONE MB-3 MOUNTAIN BIKE, red, excellent condition, \$250 OBO. Boone, 505-227-3361.

'94 HOLIDAY RAMBLER 5TH WHEEL, 29-ft., many extras, very clean, garaged when not in use, \$5,500. Ashcraft, 281-9676.

BOY'S BICYCLE, Jamis, 24-in., minimal usage, paid \$350, asking \$150. Smith, 888-5184.

'01 HONDA CR 125R DIRT BIKE, 2-stroke, w/FMF Q silencer, runs great, \$1,350 OBO. Monk, 890-1132.

DIRT BIKES: '04 HONDA CRF 80, \$1,100; CRF 150, \$1,600; or \$2,500/both; gently used, low hours, garaged, excellent condition. Sanchez, 238-5080.

0.89 ACRE, North Albuquerque Acres, flat, no flood zone at all, 100% building envelope, 11450 Wilshire Road NE, \$170,000. Dwyer, 271-1328.

2/3-BDR. HOME, 2 baths, 1,263-sq. ft., refrigerated AC, appliances, 1 owner, excellent neighborhood, near North Valley, MLS#712968. Garcia, 293-8400, ask for Linda.

FOUR-UNIT APARTMENT COMPLEX, off-street parking, separately metered, fully occupied, 1 block from UNM campus, FSBO, \$334,000. Fosse, 917-886-3698.

3-BDR. HOME, 2-1/4 baths, 2-car garage, 2,398-sq. ft., over 30K up-grades, .25 acre, cul-de-sac, views, Candelaria/Tramway, \$343,000. Sandoval, 275-5768 or 480-9262.

WANTED

MOVING BOXES & packing materials. Sheldon, 888-5971.

HOUSEMATE, share home in NE Heights, furnished, Juan Tabo/Constitution area, seeking female professional who loves dogs, \$450/mo. Beggs, 414-2757, ask for Miquela.

ROOMMATE, share 4-bdr. home, garage parking, Volterra Neighborhood, utilities & internet included, \$600/mo. Bailey, 505-507-4923.

SEWING MACHINES, workable, for Girl Scout troops to borrow (or keep), project to make fleece hats for cancer patients. Portillos, 366-3582, ask for Stephanie.

ROOMMATE, w/44-yr.-old male, NE Heights home, nice, clean, w/cats, available, Oct. 15, utilities included, \$500/mo. Udoni, 980-6921, ask for Mark.

USED BOOKS, puzzles, games, education toys, CDs, DVDs, video, computer games, donate to Holy Ghost School book sale, will pick up. Maestas, 256-1563.

USED CAMPER SHELL, fits Toyota Tacoma, crew cab, 4-dr., short bed pickup, model year '01-'04. Golden, 823-9656.

WORK WANTED

HOUSE & PET SITTING, in your home, experienced & dependable, male college student, references available. Townsend, 401-6118.

REAL ESTATE

3-BDR. HOME, 1-3/4 baths, 1,530-sq. ft., thermal-break windows, large living room, everything well maintained, NE Heights, Montgomery/Louisiana, \$187,500. Usher, 881-2169.

3-BDR. HOME, 2,286-sq. ft., on 2.92 acres in Placitas, passive solar, near RailRunner, awesome views, MLS#713105, \$385,000. Lauffer, 505-264-6358.



Sandia Plans Weekly Exhibits for October – National Energy Awareness Month

TURN WORDS into ACTION

TURN ACTION into RESULTS

SAVE ENERGY SAVE MONEY

www.energysavers.gov

The Facilities Energy Team invites the Sandia/New Mexico workforce to visit its energy-awareness exhibits during October, National Energy Awareness Month. The exhibit will be on display each Wednesday in October and will include energy-related informational materials, posters, and giveaway items as incentives to save energy. The exhibit will showcase the new, internal Energy & Sustainability website.

The 2011 Energy Awareness Month theme is "Turn Words into Action; Turn Action into Results." The Energy Team will be at the exhibits to answer questions and discuss energy-related issues with exhibit visitors. The exhibits will be on display from 11 a.m.-1 p.m., in Tech Area 1 and Tech Area 4 locations:

- October 12 – Thunderbird Cafeteria.
 - October 19 – Area 4 Cafeteria
 - October 26 – IPOC lobby
- For information, contact Susan Clair, sclair@sandia.gov, 284-1482.

Rep. Jerry McNerney visits Labs



REP. JERRY MCNERNEY, D- Calif., learns about the latest developments in solar energy from Cliff Ho (6123). This was the congressman's first return to Sandia/New Mexico since he worked as a contractor in the wind energy program in the early 1980s. "Jerry," as he is known by his constituents, appreciated being updated on Sandia's renewables program and reminiscing about his wind energy patent. His Sept. 16 visit also included touring CINT, MESA, Z, and hearing about cybersecurity. McNerney's district, just adjacent to Livermore, includes about a third of Sandia/California employees. Also pictured are Margie Tatro (6100), Ellen Stechel (6123), and Karen Scott (0162). (Photo by Randy Montoya)

J. Guadalupe Arguello named HENAAC 2011 Award winner

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 went back to my professors and colleagues to find out more about AT&T Bell Labs," says Lupe. "The feedback was all positive. I came for an interview and was convinced it was a good match."

Lupe's first job at Sandia was at the Waste Isolation Pilot Plant (WIPP) project. Currently he works on computational mechanics R&D and supports the modeling of impact/blast dynamics and their effects on infrastructure. He was the structural lead for the analysis portion of the post-9/11 Nuclear Regulatory Commission (NRC) Nuclear Power Plant Integration Vulnerability Assessment project. He continues to work with the NRC on an inspection team that looks at new plant designs.

Lupe also spent about 10 years working in the area of "modeling of ceramic manufacturing processes,"



LUPE ARGUELLO is the recipient of a 2011 Hispanic Engineer National Achievement Award. Here he is with wife, Lisa Marie, and children Alejandra, 7, and Emilio, 5.

where 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 speak a little English. His mother, Herminia, did not

speaking 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 up 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 Emilio Anton, age 5. Lupe also has an adult son, Jose. Alejandra is an aspiring ice skater, and she and Emilio just started playing soccer. Jose earned bachelor's and master's degrees in foreign languages and is in Chicago teaching secondary education Spanish classes.

When 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."

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, because of 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 judged. Hispanic Leadership Outreach Committee Chair Pat Sena then offered welcoming remarks, during which he introduced speakers and recognized donors and sponsors. Speakers included Col. David Hornyak, 377 Air Base Wing commander; Sandia Deputy Labs Director and Executive VP for Mission Support Kim Sawyer; NNSA/SSO deputy manager Kim Davis; and Col. James Cardoso, 58 Special Ops Wing commander. Each of the speakers delivered touching words on the importance and meaning of Hispanic Heritage Month, shared their personal thoughts and experiences, and participated in handing out the Youth Art Contest award certificates. Attendees enjoyed enchiladas provided 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).



Photos by Randy Montoya

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 – Joi Rose, Marie Hughes Elementary, 4th grade (her winning art is pictured below); 2nd – Danielle Genero, Adobe Acres Elementary,



4th grade; 3rd place – Nathaniel Guardian, Adobe Acres Elementary, 4th grade; Honorable Mention – Carolina Centenera, Desert Willow Family School, 2nd grade. **Grades 6-8:** 1st place – Joshua Ward, Kings Highway Homeschool, 7th grade; 2nd place – Tessa Dallo, Albuquerque School of Excellence, 6th grade; 3rd place – Alicia Ulibarri, 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 Bernell Charter School, 10th grade; 3rd place – Jose Calzadillas, South Valley Academy, 12th grade; honorable mention – Raquel Madrigal, Media Arts Collaborative Charter School, 10th grade. The contest drew 239 entries.



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