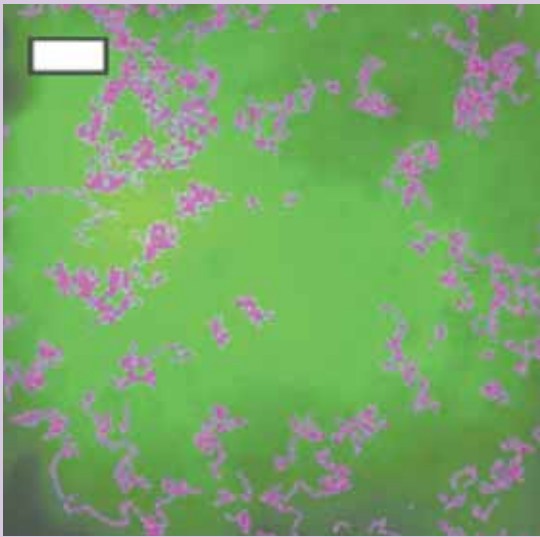


The secret life of cells



TIME-LAPSE IMAGE from a total internal reflection fluorescence microscope of quantum-dot labeled proteins fluorescing on the surface of a cell membrane. The sections empty of the purple-labeled tracks are thought to have formerly unforeseen corral-like structures that may restrict protein movement. Scale bar represents 2 microns.

Sandia, UNM researchers' first-ever video of cell's recognition of danger

By Neal Singer

If you're physically attacked, you hope you'll respond.

That hoped-for response to threat includes the molecular level: We want our cells to respond defensively when an antigen lands on a cell membrane and prepares to cause mischief.

But to activate a response, a cell must become aware of the presence of the intruder on its mem-
(Continued on page 5)

NNSA chief, lab directors make case for broader national security mission



NNSA CHIEF Tom D'Agostino and NNSA's lab directors appear before the Strategic Forces Subcommittee of the House Armed Services Committee. Rep. Ellen Tauscher, D-Calif., (center) chairs the subcommittee. (Photo by Michael Padilla)

By Michael Padilla

In testimony before the Strategic Forces Subcommittee of the House Armed Services Committee last week, NNSA presented its new vision and plan for nuclear weapons complex modernization.

The testimony, led by NNSA Administrator Tom D'Agostino, focused on NNSA's plan to reduce the footprint of the complex through consolidation of programs, making it smaller, safer, more secure, and cost-effective, as well as being responsive to the needs for deterrence.

Labs Director Tom Hunter participated in the testimony and provided a written statement to the subcommittee, chaired by Rep. Ellen Tauscher, D-Calif. Also in attendance were Los Alamos National Laboratory Director Michael Anastasio, Lawrence Livermore National Laboratory Director George Miller, Nevada Test Site Director Steve Younger, and several site and plant managers from the NNSA complex.

D'Agostino stressed that the complex of science, technology, and engineering capabilities that served the nation well during the Cold War will be trans-
(Continued on page 5)

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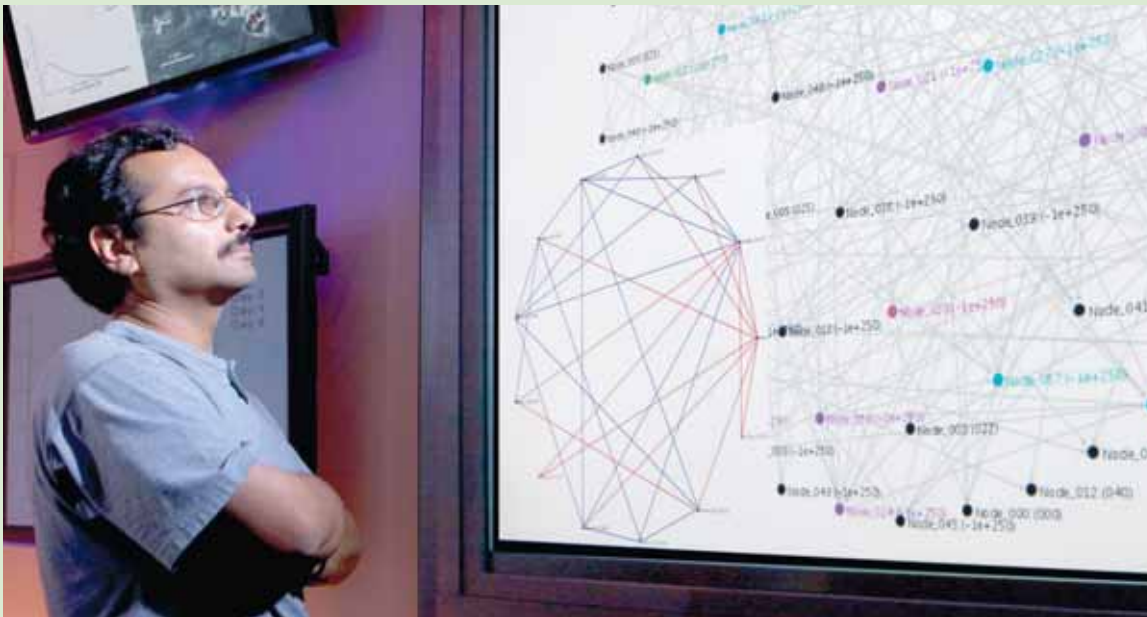
August 1, 2008

Managed by Lockheed Martin for the National Nuclear Security Administration



Technique estimates how many people will fall sick in an epidemic

Jaideep Ray focuses on anthrax and smallpox outbreaks



JAIDEEP RAY has developed a model that can determine in the first few days of an epidemic how fast the disease will spread and how many people may be infected. (Photo by Randy Wong)

By Chris Burroughs

Imagine an outbreak of a disease like SARS (severe acute respiratory syndrome) that will likely become an epidemic affecting thousands of people. Wouldn't it be helpful to know early in the epidemic how fast the disease would spread and how many people may be infected so that the medical community could be prepared to treat them?

Sandia/California researcher Jaideep Ray (8964) has developed a computer model that can do just that.

In his third year of internal LDRD (Laboratory Directed Research & Development) funding Jaideep has figured out a way to determine the number of people likely to be infected and die from noncommunicable illnesses like anthrax — ailments that could be caused by a potential bioterrorist attack — as well as communicable diseases like smallpox.

"In the past decision makers were only able to observe — watch people get sick, go to the hospital, and maybe die," Jaideep says. "They had no idea how many people would get sick tomorrow or two days from now."

He came to this realization in 2004 when he was working on a project for the Department of Defense where he developed a computer model that had decision makers responding to an epidemic at a naval base.

"It struck me that we were going about this completely backwards," Jaideep says.

He proposed an LDRD where he would develop mathematical tools that, using information from the first days of an epidemic, would estimate how many people were going to get sick during the course of the epidemic.

He spent the next three years working on the
(Continued on page 4)

Job restructure update

Team begins compiling descriptions of work people perform

Job analysis continues through August

Sandia's job restructure implementation team — a group representing every division at Sandia — is in phase two of its project to develop a new, market-based job classification system for the Labs.

The purpose of the job analysis phase is to produce a set of current occupation descriptions reflecting the work of Sandia's exempt, nonrepresented employees (including MLS, MLS management, MTS, and MTS management).

Occupation descriptions are broad, generic summaries of the types of work people perform. The descriptions the team develop will be used later in the project to compare Sandians' work and their salaries with those of their peers outside Sandia.

"This is an essential step in developing a system that is more consistent, more flexible, more fair, and more closely aligned with the marketplace," says HR and Communications Div. 3000 VP John Slipke.

Job families, not ladders

After 10 years of use, Sandia's Integrated Job Structure (IS) is outdated and out of sync with the marketplace, says John. The result is that Sandia may be paying too
(Continued on page 4)



Inside . . .

- Former California VP Dick Claassen remembered for his role in shaping Sandia's culture 3
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That's that

Got a note the other day from Bob Locher (10263) in Sandia's mailroom. Paperclipped to the note was a catalog for various kinds of forklifts and such. Bob wrote: "I've sorted thousands of pieces of mail in the Sandia Labs mailroom but I've never seen mail addressed this way. I found it to be amusing." Bob had slapped a sticky note on the catalog with a bold arrow pointing to the mailing label. It read: "Sandia National Poultry." Says Bob: "Maybe this is the real 'top secret' at the Labs: We're really a chicken processor."

Now, I would guess that over the years most of us have processed some paperwork that we'd put into the "poultry-dropping" category (to give it a polite name), but does that make us a chicken plant? And what about all those turkeys we've worked for over the years? (My present management excluded, of course.) Hmmm? Could be this forklift company is on to something.

Maybe we ought to embrace this new identity. As NNSA proceeds to reduce its footprint over the next few years, everything is going to be on the table (like a turkey dinner?). When it turns its gaze on Sandia, we can all just hunker down and say, "There's nobody here but us chickens."

* * *

Hope you'll forgive the scatological reference above, but while I'm on the subject, it reminds me of a story that actually involves our founder and hero, President Harry S. Truman. (He charged us with our mission to "render an exceptional service in the national interest.") Anyhow, it seems that President Truman and his wife Bess are at a party. The president, known for his salty language, can be heard above the crowd calling some political rival's recent speech "horse manure." Another guest sidles up to Bess and whispers, "My dear, you really ought to get the president to tone down his language a bit." To which Bess replies, "My dear, you don't know how long it took me to get him to say manure."

* * *

Last time, I wrote about the coyote I saw outside my office window. Well, that column piece generated several email exchanges between me and other Sandians who had their own stories to tell. Betzi Hitz (3334), who works over in M0307 (near Medical), says she saw a coyote trotting through the Eubank Gate one morning "like he/she was just another stray dog."

If being wary of coyotes is a good idea - and it is - consider what they have to watch out for in Livermore. Duane Lindner (8120) sent along an all-hands message distributed to Sandia/Californians the other day: "There has been a report of a mountain lion sighting near the Arroyo on the south side of building 916. Please be aware of your surroundings and take precautions when outdoors... ." Added Duane: "Be happy you're not troubled by cats." Oh, I am, Duane, I truly am.

And Mike Cannell (2625) sent me photos of another bit of nature, a little piece, playing itself out right before our eyes. His accompanying note said: "It's not like a cougar sighting or a coyote eating a rabbit, but in the ditch near Bldg. 899 there are tadpoles. As of this morning, some have rear legs." Mike's note struck a chord with me: Not long ago, my son and I drove out to the sandstone cliffs on the east side of El Malpais National Monument near Grants. In a tiny cup-shaped hollow high up in the sandstone bluffs, there was a little pool of rainwater. I mean, this wasn't five gallons of water. You just know that in our dry climate that pool couldn't last very long, but it lasted long enough . . . The pool was teeming with tadpoles.

Recalls to me the line by the Jeff Goldblum character (the mathematician Ian Malcolm) in *Jurassic Park*: "Life finds a way." Indeed. See you next time.

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

CINT 'flagship' areas raise hopes of increased scientific impact

New org structure requires single director rather than codirectors

By Neal Singer

An approach that will group research around several "flagship" areas has heightened the interest of researchers at the Sandia/Los Alamos Center for Integrated Nanotechnologies (CINT), says Julia Phillips, director of Sandia's Physical, Chemical, and Nano Science Center (1100).

"It will help build community," she says, envisioning researchers congregating to discuss and collaborate on joint projects.

Three CINT researchers interviewed at random by the *Lab News* — George Bachand, Brian Swartzentruber, and Mike Lilly (all 1132) — agreed the concept could help bring together diverse capabilities of the center to have greater scientific impact and attract additional funding sources like Sandia's LDRD.

The flagship research concept is being led by the new management team of CINT Director Toni Taylor (LANL) and Bob Hwang (1130), the latest Sandia codirector of the center.

Bob, who came on board in October, previously served as nanoscience center director at Brookhaven National Laboratory. He is well-known for research into surface physics phenomena, and was chosen after an extensive national search.

Among Bob's tasks is enhancing the vitality of the CINT core facility.

He intends to do this, he told the *Lab News*, by identifying two or three "flagship [CINT] areas" by the end of the summer and then grouping efforts of researchers and outside users to correspond with these areas.

"The scientists at CINT are very strong," he says, "but working together, the whole will be greater than the sum of its parts."

The idea is to put together a more coordinated effort than universities generally mount, where each researcher "does his own thing," he says. "Bringing together our impressive researchers to work on common themes with the broader scientific community is an opportunity for CINT to have a much greater impact."

A larger integration problem has been to ensure CINT works as a single center though its researchers are part of two larger laboratories with similar but different cultures.

CINT's core facility is a dedicated building north of Kirtland's Eubank Gate.

LANL maintains a dedicated gateway facility in Los Alamos.

To promote harmony and efficiency, directives from Sandia Div. 1000 VP Rick Stulen and LANL Associate Director for Experimental Physical Sciences Susan Seestrom emphasize that CINT work should "grow and nurture cross-lab collaborations."

The directives also request long-term commitments from CINT leaders, and outputs that "provide value to multiple national security customers in addition to DOE's Office of Basic Energy Sciences (BES) [which underwrites CINT]."

However, the administrative structure continues to evolve.

The center now has a single director instead of two codirectors. The leadership structure had been joint between the two labs until this past February, when the new structure with a single primary point of contact with the BES customer kicked in.

LANL's Toni Taylor, a former codirector, was selected as CINT Director, effective Feb. 1, 2008. Sandia's Bob Hwang will continue to serve as codirector until Feb. 1, 2009, when he is expected to become director.

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State accepting requests for computing time on Encanto

The 172-teraflop Encanto supercomputer, supported by the state of New Mexico's Computing Applications Center (NMCAC), is still accepting requests from a few good Sandians interested in accessing nonclassified midlevel computing power.

The capacity machine is intended for open collaboration across a broad community and does not support export-controlled codes. The system is expected to be available this fall.

Interested Sandians are encouraged to submit project requests via Sandia's HPC Estimations & Requirements Tool (HERT) available at <http://computing.sandia.gov/hert>. Select "External (NMCAC)" as the category of your request. Information about the system is also available at Sandia's NMCAC website at <http://computing.sandia.gov/platforms/nmcac>.

Encanto is intended to help economic development across the state by increasing the complexity levels of problems that can be addressed by New Mexico-based companies and institutions, and by helping to merge company, national labs, and university technologies.

Sandia personnel served on the technical evaluation and selection committees for procurement of Encanto, which was built by Intel Corp. and SGI and is maintained in Rio Rancho. Sandia has been allotted 10 percent of the machine's computing time, as have the other founding institutions: New Mexico State University, New Mexico Institute of Mining and Technology, University of New Mexico, and Los Alamos National Laboratory. Another 10 percent is allocated to other institutions of public education, communities, and state agencies in New Mexico. Forty percent is allocated for general competition through a proposal process.

Encanto is an SGI/Intel Altix ICE 8200 cluster on the open network. The system will use the state's high-speed computer network, LambdaRail.

— Neal Singer





VEHICLES line up during tests of a radiation-detection system.

Rad detection for non-port-of-entry border sites

By Mike Janes

US border and immigration policy remains a central topic of discussion for politicians, the media, and citizens. But even as cable news commentators continue to debate the issue and the presumed Democratic and Republican presidential candidates formulate their own immigration policies, Sandia researchers have been working with the Domestic Nuclear Detection Office (DNDO) and Customs and Border Protection (CBP), specifically the Border Patrol, to study the border for another reason: the nuclear terrorist threat.

For the past three years, Sandia researchers have been studying the problem of how to prevent nuclear smuggling through “non-port-of-entry” border regions, which are loosely defined as the broad swath of land patrolled by Border Patrol where it is illegal to enter the country. Non-POE can include fixed interior checkpoints, regions that are patrolled by agents on horseback or on all-terrain vehicles, and other locations along the US border, which extends nearly 2,500 miles in the southern US and more than 3,000 miles in the north.

The border may itself be a distinct line with clear separation between nations. The Border Patrol, however, is responsible for a region that can extend up to 100 miles wide, and they conduct operations throughout this region. Consequently, the studies Sandia has been conducting have necessarily focused on the diverse operations employed by Border Patrol agents in various parts of the country.

Operational flexibility

“The main tenet for Border Patrol agents, we’ve learned, is operational flexibility,” says Jason Reinhardt (8130), a Sandia electrical engineer who’s been involved in Sandia’s border security and radiation detection work since 2002.

“At a port, you can install large, stationary pieces of equipment and enjoy a higher level of confidence that

they’ll perform consistently. Also, you can dedicate personnel whose main focus is operating the portals. For Border Patrol use, the equipment needs to be portable and fit within the scope of the agent’s other equipment and tasks.”

Such operational realities, Jason says, often go against the fundamental physics of radiation detection, adding to the overall challenge of deploying a viable detection system that could be made part of the end users.

The performance of sophisticated detection equipment, while a current subject of debate among lawmakers, is clearly unsuited to non-POE applications for demonstrable, operational reasons, according to Jason. Such equipment, he explains, is difficult to use in the often-harsh and unpredictable environments that border agents can encounter. Heavy winds, dust, downpours, and other environmental realities all contribute to the problem, and the Border Patrol agents themselves are often patrolling wide-open spaces on foot or in a small vehicle, which makes the packaging and portability of detection equipment next to impossible.

A systematic, step-by-step approach

In addition to trying to understand the operations of the Border Patrol agents, Sandia has at the same time been analyzing specific, off-the-shelf radiation detection equipment that could be made part of the border’s defense posture. This is especially key, Jason says, since the effectiveness of many of the radiation detection products is often “oversold” by manufacturers or may not take into account the operational realities involved.

Taking a phased approach to the work, the researchers typically study the instruments in a controlled laboratory environment first before taking the equipment to the Nevada Test Site or the Albuquerque-based Technical Evaluation Assessment Monitor Site (TEAMS) for further evaluation. Then, they familiarize border agents with the instruments back in the lab and, finally, move out to the field with the agents and begin

to integrate the equipment with CBP’s regular operations.

Jason and his Sandia colleagues have spent considerable time examining border regions in the southern and southwestern US and will likely continue to focus in that part of the country for the foreseeable future, with more of an emphasis on systems engineering than testing and evaluation.

Next up: a look at unattended sensors

The research team’s next step, Jason says, is to analyze the voluminous data collected during a recent deployment of equipment at a Southwest border location. Afterward, they’ll deliver a technical report to DNDO that outlines the findings and recommended requirements that Sandia believes may make radiation detection a viable activity in both the short and long term. It’s also possible, Jason says, that a longer test series will occur at a yet-to-be-determined border location sometime next year.

If radiation detection systems turn out to be the direction DNDO and CBP choose to go, unattended sensors could be a part of a future radiation detection system along the border, Jason says. It’s easier said than done, of course, and DNDO will likely need to engage industry partners to develop and engineer new hardware that meets both the performance requirements and operational demands of CBP and its agents.

Until then, Jason says, he and his colleagues will continue to plug away, learning the needs of CBP’s agents along the border, analyzing the radiation detection solutions available today, integrating them into CBP operations, and making technical and operational recommendations for the future.

Sandia CaliforniaNews

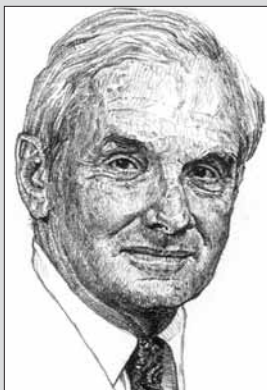
Dick Claassen helped shape Labs’ culture, character

On June 16, Richard S. (Dick) Claassen passed away at his home in Santa Rosa, Calif. He was 86 years old. He will be sorely missed, but the impact he had during his 36-year career at Sandia lives on.

Dick gave Sandia nearly four decades of distinguished service, beginning in 1951 and ending as vice president at Sandia/California from 1982 until his retirement in 1987. He’s been described as a catalyst in creating the culture we now have at Sandia.

Sandia President and Labs Director Tom Hunter, who served as VP of the California site from 1995-1999, recalls Dick’s broad and deep contributions to Sandia. “Dick was a very important part of Sandia’s evolution to a full-spectrum R&D laboratory,” says Tom. “He played an enormously important role in setting up our research programs. He spent considerable time in engaging the nation’s university community. He led our California site at an important time of transition. In his retirement he stayed in touch and continued to provide support to the executive team. All of us who knew him and all who benefited from his work will miss him.”

Adds Div. 1000 VP Rick Stulen: “Dick was the driving



DICK CLAASSEN

force behind our world-class research and workforce, caring deeply that the lab attracted the best staff from our nation’s universities.”

Dick championed many aspects of Sandia culture that we now consider a given — the vitality of fundamental research to Sandia’s mission, the importance of education and professional development, and that integrity is fundamental.

As an early PhD recruit, it is appropriate that Dick went on to develop the process for PhD recruiting at Sandia. He was especially proud of the people he recruited early in his career, including Orval Jones, Everet Beckner, Rick Wayne, and John Crawford, who succeeded him as vice president of Sandia/California. In 1958, he recruited the first female black PhD — Kathy Lawson — and later promoted the first woman, Ruth Whan, to department level.

“It was indeed an honor and privilege to have worked with Dick. My first promotion came during his tenure as vice president of Sandia/California, as did Joan Woodard’s. It was a terrific learning opportunity to serve under his leadership,” says Mim John, who retired as Div. 8000 VP in 2006.

Mim describes two valuable principles she learned from Dick that influenced her throughout her career, including post-Sandia work. “The first was his commitment to diversity, which came long before it was demanded by external forces. For him, it was just the right thing to do,” she says. “The second was a tough but fair approach to personnel matters. He was willing to make

the difficult decisions.”

Dick had many accomplishments in his career — advances in weapons design, establishing the concept of fundamental research at Sandia, and starting programs in radiation damage, plasma physics, atomic and molecular physics, solid state, and magnetic resonance. In interviews given at the time of his retirement, he pointed to the maturing of the Combustion Research Facility as a source of pride.

“Dick was always very interested in the details of new science and technology and seemed most engaged and excited when visiting the labs or being briefed by the staff. He became vice president of Sandia/California while I was away from Sandia working at Exxon Corporate Research in the 1980s. I was lucky to be able to share my industrial research experiences and lessons learned when I returned, many of which he incorporated here at the lab,” says Ron Stoltz, manager of the California Energy Liaison Office (8302).

In addition to his contributions to Sandia, he was a man of many talents and enthusiasms, including skiing, golfing, woodworking, barbershop singing, and travel. He was a devoted husband, father, and grandfather. He used his considerable intelligence, energy, and leadership skills to make significant contributions to each community of which he was a part.

“Dick remained a valued source of counsel for me throughout the remainder of my Sandia career, and I will miss him dearly,” says Mim. — Patti Koning

Job restructure

(Continued from page 1)

much for some types of jobs and not enough for others (*Lab News*, May 23, 2008).

Offering pay and career opportunities that more closely match what employees' peers are receiving outside the Labs is critical as Sandia strives to attract and retain the best people to support Sandia's mission, he says.

The new job structure will depart from the IIS job ladder approach (the MTS and MLS structure) in favor of 15-20 job families, or groupings of like occupations. (See the Change at Sandia website,

<http://changeatsandia.sandia.gov>, for the preliminary list of 17 job families and other information about the project.)

Since identifying the initial job families list in June (the first phase of the job restructure project), team members have been working with the management of their own divisions to develop occupation descriptions that capture the work performed in their organizations.

Once each division has reviewed the occupation descriptions, the team will review them again to ensure that the final occupation descriptions will work across all divisions.

Link to pay

In September, team members plan to move to the third phase of the project: finalizing the new job structure. The purpose of this phase is to determine how the occupations will be linked to pay.



Unlike today where the occupation you are in determines if you are paid in either a technical or administrative salary band, the new job structure will result in an occupation being tied to one of numerous possible salary bands based on a more specific market target associated with that occupation.

Just how many salary bands will be needed and how a given occupation will fall in a new salary band is what the team will grapple with in finalizing the new job structure.

The occupation descriptions will continue to feature levels, so your current level (senior, principal, or distinguished, for example) will not be changed when you are placed in the new structure.

Policies, training

Once the new job structure is finalized by executive management, the team will develop policies associated with it — such as how Sandia will establish new-hire rates and how the compensation review process will work.

Detailed training will be developed for both staff and managers so everyone will know how the new job structure works and how it will affect them.

Development of policies, training, and the new salary ranges are scheduled to be complete by the end of January 2009.

Placement of people

In February 2009, a formal call will go out for managers to place individuals into the new job structure. Formal training will be made available to staff and managers regarding the policies and practices associated with the new structure.

Assignment of individuals to occupation descriptions will be based on the work being performed, not on such factors as degree level, current job ladder, or current organization.

Once people are placed, a cross-divisional team will comb through the placements to ensure consistency and fairness. There will be an opportunity for Sandians to request a review of decisions they feel have been made incorrectly before final implementation.

No employee will have his or her pay reduced as part of this process, although some people who are well below or well above market could see limited or accelerated salary growth, for a time.

Much to be determined

It may seem at this point that relatively little has been

Job restructure division reps

Human Resources and Communications Div. 3000 VP John Slipke encourages employees who have questions or concerns to get in touch with their division representatives on the job restructure implementation team. The team members:

David Sandison1000	Len Napolitano8000
Dennis Miller2000	Michelle Scanlon8000
Kathy Silva2000	Tana Lucy9000
John McAuliffe3000	Connie Wenk10000
Scott Ashbaugh4000	Marianne Hill11000
Pam McKeever4000	Jay Grimley12000
Mike Knoll5000	Tim Madden3000
John Merson6000	Melissa Eakes3000

firmed up, says John. That's because job restructure is a long-term project, and many decisions will be made based on work being performed by the team now.

"Given the potential impact on Sandians of movement into the new job structure, executive management is committed to a careful and thorough process that achieves fairness," he says.

What this means is there are no definitive answers to some questions.

"We understand and respect people's desire to know what the new structure will mean for them," he says. "What we can promise now is consistent and forthright communications as the process unfolds."

The new structure should be finalized for implementation by June 2009, in time for next year's compensation review.

In the meantime, says John, employees can stay up to date through the *Lab News*, the Change at Sandia website, and their own managers. John encourages employees to get in touch with their division representatives on the implementation team as well. A list of team members is available at <http://changeatsandia.sandia.gov>.

The website also includes an option to submit a question or concern via Sandia's Feedback program, which guarantees Sandia employees a response, as well as confidentiality.

"We want to hear people's concerns and questions now so we can design a system that works for Sandia," says John.

Epidemic

(Continued from page 1)

software and in the middle of 2007 successfully developed a model that could infer the characteristics of a bioterrorism-related epidemic of a noncommunicable disease like anthrax. These inferences were drawn from observations of people with symptoms of anthrax exposure collected over the first three to five days of the epidemic. He is within a few months of refining a computer model that would do the same for communicable diseases.

Russian anthrax outbreak

Jaideep says that characterizing diseases requires observations of real outbreaks and then building computer models around them. He did this for a 1979 anthrax outbreak in Sverdlovsk, a city of 1.2 million people in western Siberia. Initially the Soviets said the victims got the disease by eating anthrax-contaminated meat or having contact with dead animals. At the end of the Cold War American physicians reviewed documents published by pathologists who performed autopsies during the epidemic, confirming the pathogen was airborne. Records showed that 80 people were infected by inhaling the pathogen. A total of 68 died of the disease.

Using the computer program, Jaideep ran the data obtained from hospital records of people who became sick in the early days of the epidemic. The program automatically tried many combinations of the unknown number of infected people, time, and dose of anthrax exposure until it got as close to the real observation as possible. In the final runs, using data from the first nine days of the 42-day outbreak, the model inferred that almost certainly less than 100 people had been infected, with the most probable number around 55.

That was "pretty close," to the real event, he says. The program, which also estimated the time of the release and the dose of anthrax inhaled, took 10 minutes to run.

"If they had had this program in 1979, the Soviet

"If they had had this program in 1979, the Soviet officials would have known that this was going to be a small outbreak. Instead they got into a panic and vaccinated 50,000 to 60,000 people — the whole southern end of the city."

officials would have known that this was going to be a small outbreak," Jaideep says. "Instead they got into a panic and vaccinated 50,000 to 60,000 people — the whole southern end of the city."

Nigerian smallpox model

After proving the software actually works, he turned his attention to communicable diseases, specifically smallpox. He modeled a documented smallpox outbreak in Nigeria in 1967, which broke out in a fundamentalist sect (Faith Tabernacle Church, FTC) in the town of Abakaliki. The sect consisted of 120 people who lived in nine different compounds, along with 177 of their nonsectarian brethren. The FTC members mixed strongly in their compounds and across compounds at church four times a week and social visits.

A small girl first introduced the disease into the population. It spread rapidly in her compound and jumped to other compounds via the church and social visits. The sect members refused medical treatment and did not quarantine the sick and contagious members. While the World Health Organization (WHO) monitored the outbreak and kept records of who got sick and when, it did not record the dates of recovery or deaths of the infected people.

Of the 32 people who became infected during the epidemic, 30 were FTC members.

"It was clear from the WHO observations that there was strong transmission inside compounds and weaker ones across compounds," Jaideep says.

Differentiating the communicable disease model from the noncommunicable disease model is the importance of social networks. Communicable diseases spread faster through people in closer proximity. For example, close family members of an infected small child would have a higher probability of contracting the disease than someone who lives in another compound

or house.

Jaideep says the challenge is that making inferences about social networks is hard. There is a tendency for the inference mechanism to quickly "settle down"

into one of a few possible network configurations. While he estimates that it will take about four to six months to overcome this "stickiness" of the inference mechanism, he has successfully obtained estimates using a few simplifications.

One simplification is to assume a fully connected social network but allow the disease to progress through the population at two different rates, one for in-compound transmission and a smaller one across compounds. Using this approach he inferred the two transmission rates from observations and found the cross-compound transmission to be about four times slower.

A second simplification is to assume there exists only one transmission rate and explain the slower spread across compounds to fewer and unknown "strong" cross-compound social links. Using this second approach, he inferred the transmission rate as well as the cross-compound social links that existed.

Under both simplifications, he also inferred the chains of transmission, that is, the links in the social network along which the disease traveled, infecting people in its wake. Typically, chains of transmission are identified by painstaking contact tracing by epidemiologists.

Once these disease characterization parameters are inferred from data, they can be entered into conventional epidemic models that predict the evolution of the epidemic in the population and predict the number of people getting sick on a given day.

As of today, these inference techniques can work with incomplete observations. Using data from the first 40 days of the three-month epidemic, Jaideep was able to develop "true" characterizations.

"These preliminary results are useful and encouraging," Jaideep says. "Within a few months we should be able to remove the simplifications and perform inferences with models which are even more reflective of the actual spread of the disease."

TEAM MEMBERS: Jaideep Ray (8964), Brian Adams (1411), Karen Devine (1416), Youssef Marzouk, Habib Najm (8351)

Secret life of cells

(Continued from page 1)

brane, just as a human first must become aware of a mosquito on a forearm in order to slap it.

In a triumph of joint experimental work, physicists at Sandia and biologists at the University of New Mexico's Cancer Research and Treatment Center have combined techniques amazing to the layperson to make real-time movies that show exactly how a 50-nm-thick cell membrane notifies the cell it encloses that a hostile alien presence — an antigen — has made a landing.

Characterization in real time

"We were able to characterize the motion of the receptor proteins in the membrane in real time as they respond to the antigen," says lead Sandia researcher Alan Burns (now 1012). "Perhaps more importantly, we learned the cell membrane is really complicated and highly structured, rather than fluid and unstructured, as is the prevailing notion."

This new information explains why membrane proteins may not always notify the cell nuclei of problems.

The membrane structures, which resemble holding corrals, says Alan, move around in the membrane. But they restrict the motion of proteins. The response of the cell requires that the antigen receptor proteins cluster with other proteins to commence the cellular signaling network.

"The proteins are like Paul Revere giving a warning," says Alan. "When proteins bind antigens, they begin to cluster. This causes other proteins to thrash around. That may send a message from the membrane to the cell nucleus that something's wrong."

"But if there are places on the membrane that are walled off and an antigen lands there, the cell isn't notified of the problem. No protein, no warning."

UNM researchers already knew that incoming antigens were detected by proteins present in the lipid matrix of the cell membrane. But how exactly to determine the process?



CARTOON MODEL of receptor movement through the membrane architecture. Large actin bundles, as observed in fluorescence microscopy, partition the membrane into large, micron-sized regions. Within this larger structure is a fine meshwork of cytoskeleton composed of intermediate filaments with actin at the junctions that form nanoscale domains. Additionally, membrane rafts (lipid rafts/protein islands) form specialized domains. Sample receptor trajectories are overlaid on this landscape, to demonstrate ways that these various components can restrict diffusion. Though a single snapshot of the membrane landscape is depicted here, in reality it is dynamically changing.

Alan, working with his former postdoc Keith Lidke (now a UNM professor), modified a special microscope called a total internal reflection fluorescence (TIRF)

microscope whose laser-light output is completely contained within the microscope coverslip. This resembles the way optical fibers transport light, except that the TIRF does not ever release any light. But though the light is contained, making its use seem at first an exercise in futility because it penetrates nothing external, it generates a tiny electrical exploratory field that extends about 100 nm into the cell, which lies supported by the coverslip.

"When a cell settles on a piece of bare thin glass," says Alan, "the membrane of the cell by definition is snuggled up against the glass and available to the radiation field."

Watching bank robbers

Enter the UNM biology team. Led by professor Diane Lidke (Keith's wife), the team was able to attach quantum dots of 30 nm and 40 nm respectively to the antigen receptor proteins in the membrane.

Quantum dots emit light when stimulated by an electrical field. The color fluoresced is determined by the size of the dot. So one protein, when stimulated by the laser's electrical field, emitted orange light. The other emitted red. That way researchers could keep track of the motion of single, individual proteins and see how they interacted; moreover, it allowed them to observe barriers to the motion.

Sensitive CCD cameras picked up and videotaped the motion of the lit-up proteins as they reacted to the introduction of antigens to the membrane.

"It was like using cameras to watch individual bank robbers move around as a holdup progressed," says Alan.

The work is of interest to Sandia, a national defense lab interested in determining the human response to bioinfectious diseases, and to UNM's bioscience program.

Other authors on the paper were graduate student Nicholas Andrews and biology professors Bridget Wilson and Janet Oliver, all with UNM's Cancer Research and Treatment Center.

The Sandia work was funded by its Laboratory Directed Research and Development (LDRD) office. The UNM work was funded by the National Institutes of Health.

The work was published online the week of July 20 in the journal *Nature Cell Biology*.

NNSA testimony

(Continued from page 1)

formed into a national security enterprise, one that can respond to evolving global security threats. He said the effort to transform the complex is the right thing for the nation.

Tom Hunter's statement focused on three issues: the national security rationale for the Stockpile Stewardship Program and the complex that supports it; the preferred alternative for Complex Transformation that NNSA has proposed; and other alternatives for securing the continued effective execution of the Stockpile Stewardship Program.

Tom wrote that even as NNSA transforms to a broader national security mission, one of its primary jobs — and the job of its laboratory directors — will be to implement the nuclear weapons mission as determined by the nation's policy makers.

"The nuclear weapon stockpile will no doubt be dif-

ferent as we move forward. Its composition and size will likely be altered, and it will be increasingly older," Tom wrote. "Regardless of how policy may change, the fact that nuclear weapons and a nuclear weapon knowledge base exists in the modern world creates important challenges that must be managed over the long term. The NNSA complex will continue to have principal mission responsibility for meeting those challenges."

"Another important concept to help guide the transformation of the complex is to encourage synergistic multiprogram, multiagency activities under the integrated management of each laboratory. Today's national security challenges are more complex than they were during the Cold War. Challenges in cyber security, homeland security, energy security, and other emerging threats are formidable, and the agencies addressing those challenges need access to the multidisciplinary scientific and engineering resources that exist at NNSA laboratories."

During the hearing, Tom said, "One important and, I think, essential way to look at these laboratories is we

are not a small player now. We are a large player in where the nation [invests in its] commitment to science and engineering. These institutions stand at the very forefront of that today. We have to make sure that continues to be the case in the future."

When asked about energy-related issues, Tom said the national laboratories have an inherent science and engineering foundation that can contribute in other areas of national security, including a strong focus on energy.

"We're actively engaged in energy," he said. "We anticipate more programs in that area. We're working everything from the details of the combustion process and how to make cars more efficient and environmentally compatible, to

making engines work better, to using sunlight, to helping nuclear energy be safe and secure and more proliferation-resistant."

In the written testimony, Tom expressed his concerns about the implementation of Complex Transformation with respect to Sandia's interests in high-performance computing and the role of Sandia/California. He also wrote that he is concerned that proposed reductions in appropriations affecting the Stockpile Stewardship Program will impact the Labs ability to perform the mission.

"However, if these concerns can be addressed, then I see no reason why the Preferred Alternative for Complex Transformation cannot succeed," he wrote.

To read the full testimony, go to Sandia's Government Relations website on the internal web at www.irn.sandia.gov/es/new2006/gr_hot_topics.html.

Externally, the information is available at http://armedservices.house.gov/hearing_information.shtml.

NNSA labs, NTS meet with media

During a special media roundtable a day prior to the congressional testimony, Tom D'Agostino discussed with 16 reporters NNSA's plans for Complex Transformation and its benefits to the nation.

Also present at the roundtable were Labs Director Tom Hunter LLNL Director George Miller, LANL Director Michael Anastasio, and Nevada Test Site Director Steve Younger.

The roundtable included the distribution of the vision statement signed by DOE Secretary Samuel Bodman (*Lab News*, July 4, 2008).

The vision states DOE's commitment to invest in its people and the nation's scientific infrastructure to enhance essential capabilities used by the nation to solve defense, energy, and other critical security issues. The statement says NNSA will partner with other segments of DOE and other federal agencies with national security responsibilities to direct and enhance the underlying science, technology, and engineering capabilities available to the nation.

During the roundtable, D'Agostino outlined two possible futures for the NNSA complex: one that maintains the status quo, which requires pouring billions of dollars into an aging infrastructure; or, the preferred alternative — transforming the nuclear weapons complex into a national security enterprise that is the best alternative for the nation.

DOE Assistant Secretary for Energy Efficiency and Renewable Energy Andy Karsner gets overview of Sandia capabilities



SANDIA RESEARCHER RICH DIVER demonstrates the Counter Rotating Ring Receiver Reactor Recuperator (CR5, for short) that he invented to Alexander (Andy) Karsner, DOE assistant secretary for Energy Efficiency and Renewable Energy, during Karsner's July 17 visit to Sandia. Karsner got a tour of Red Storm, the National Solar Thermal Test Facility, and an advanced drilling technology demonstration in Tech Area 3. Standing behind Rich and Karsner are, from the left, Jeff Nelson, manager of Solar Technologies Dept. 6337, and Grant Heffelfinger, senior manager of Molecular & Computational Biology Dept. 8330. (Photo by Bill Doty)

53 individuals, 71 teams

2008 Employee Recognition Awards program honors teams, individuals for exceptional contributions

More than 300 Sandians — individuals, team representatives, and their guests — gathered last month at the Embassy Suites Hotel in Albuquerque for the 2008 Employee Recognition Night, Sandia's annual celebration of exceptional service, leadership, technical accomplishment, and teamwork.



This year, the awards honored 53 individuals and 71 teams for their contributions to Sandia's mission success.

Labs Director Tom Hunter wrote of the winners in the awards program, "In you [your colleagues] see strong leaders, dedicated citizens of the Laboratories, technical pioneers, and outstanding teams.

"Your contributions," Tom continued, "are part of Sandia's collective, dedicated effort to provide exceptional service to the nation. I am proud of you and grateful for your commitment."

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

Not pictured among individual winners: Corey Campbell, James Chorba, Jane Diggs, Juan Elizondo-Decanini, Tammy Henson, Scott Kuszmaul, Rafael Loya, Thomas Nelson, Joel Siemers, Katherine Simonson, Scott Stafford, Scott Whalen, David Wheeler.

Individual honorees



Vit Babuska
1525



Mark Biggs
10520



Mark Bishop
6439



Wesley Bruno
2553



Randolph Castillo
4127



Jo Cunningham
10221



Marcus Epperson
9328



Vantrice Fuentes
5527



Maria Galaviz
2730



Lucille Garcia
2026

Team honorees

The 2008 Employee Recognition Awards program, continuing a trend begun several years ago, again this year shows divisions placing a special emphasis on team accomplishments. The

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



R. Joann Gomez
4241



Linda Groves
8134



Michael Gutzler
8353



Elizabeth Holm
1814



Willie Johns
4122



Lavone Jones
4825



Jeffrey Jortner
8962



David Karelitz
9326

Complex Transformation: Science, Technology, and Engineering (ST&E) Strategy Team

This team did the work that is allowing the Defense Programs science effort to have its first-ever integrated strategy.

Wendell Jones, Susan Gardner, Richard Yaw, Joseph Fernandez

Advanced Radiographic Technologies

For development and demonstration of the Self-magnetic pinch electron beam diode as an X-ray source for scaled core punch radiography.

Steve Cordova, Fawn Aja Griffin, Kelly Hahn, Mark Johnston, Joshua Leckbee, Isidro Molina, Bryan Oliver, Salvador Portillo, Dean Rovang, Beverly Rudys, Nichelle Bruner, Raymond Gignac, Tobias Romero, David Rose, Dale Welch, Frank Wilkins, Derek Ziska

DARPA SRVS

Under severe budget and schedule limitations, the DARPA SRVS team designed and executed complex test programs to enable the development of advanced Special Forces capabilities.

Dale Shamblyn, Byron Demosthenous, Mark Nissen, Michael Valley, Edward Bystrom, Amarante Martinez, Robert Boye, Glenn St. John, William Sweatt, Edward Thomas, Michael Bejarano, Scott Fuhrer, Jon Hixson, Kevin Leonard, Edward Nowicki, Clarissa Plimpton, Alex Scambos, Alan Schmer, Aaron Sena, William Uncapher, Scott Walkington

Edelman Award Team

For becoming a finalist for the prestigious INFORMS Edelman Award, which is internationally recognized as the premier award honoring practical impact in operations research.

William Hart, Cynthia Phillips, Robert Carr, Jean-Paul Watson, Lee Ann Riesen, Johathan Berry, Erik Boman, Robert Janke, Kevin Morley, Regan Murray, Thomas Taxon, James Uber

ElectroNeedle Biomedical Sensor Array Team

The EBSA team has developed a sensor technology with the potential to impact worldwide healthcare as well as Sandia's national security mission.

Christopher Aplet, Stanley Kravitz, Kent Schubert, David Ingersoll, Colin Buckley, Jeb Flemming, Carrie Schmidt

Ion Beam Laboratory Project

Three years of dedicated teamwork resulted in the CD-2/3 (start of construction) approval for a \$35 million facility that meets critical existing and future NW needs.

James Knapp, Donald Losi, Charles Barbour, Michael Street, Barney Doyle, Gyorgy Vizkelethy, Edward Bielejec, James Banks, Wayne Davis, Stuart Van Deusen, Gary Yuhas, Michael Kupay, Steven Koffman, Ernie Limon, Jr., Del McDaniel, Bruce McWatters, Daniel Buller, William Wampler, Gilbert Aldaz, Mateo Aragon, Karen Higgins, William Jenkins, Jr., Mitchell Callahan, Marc Ghattas, Judy Martinez, Jeanette Norte, Paolo Rossi

LDRD Senior Steering Committee

For fostering innovation in the LDRD program through establishing an integrated strategic direction and improving process efficiency, transparency, quality, and consistency.

Sheryl Martinez, Henry Westrich, Clinton Boye, Ann Campbell, Wendy Cieslak, Carol Jones Adkins, Charles Barbour, Ann Garcia, Mark Kiefer, Wahid Hermina, David Keese, Russell Skocypec, Larry Schneider, Marianne Walck, Michael Sjuln, Sudip Dossanjh, Pablo Garcia, Justine Johannes, Glenn Kubiak, Billy Marshall, Jr., Keith Ortiz, Michael Prairie, Paul Rockett, Daniel Rondeau, Jerry Simmons

Stewardship Transformation Proposal Team

For outstanding work in developing new program-area value propositions and accompanying business and governance models to pilot a transformational stewardship model for Sandia National Laboratories.



Stewardship Transformation Proposal Team

Brian Damkroger, Rosemary Dunivan, John Garcia, Jeffrey Kallio, Denise Koker, Andrew McIlroy, Russell Miller, Leonard Napolitano, Kurt Olsen, Devon Powers, Elizabeth Richter, Karen Scott, Carl Skinrood, Ronald Stoltz, Daniel Strong, Marjorie Tatro, Jeffrey Tsao, Patricia Koning, Karen McWilliams, Kathy Roach

MESA Lean Six Sigma (LSS) Team

For transforming Center 1700 by training and certification of LSS black belts and green belts to foster lean methodologies, improve rigor, and generate cost savings.

Linda Cecchi, Wenona Ayarbe, Amy Moy, Tracy Peterson, Richard Dondero, Don Lifke, Michael Olewine, Debra Ebbesen, Laura Guedelhoefer, Dale Hetherington, Cindy Longenbaugh, Mark Platzbecker

ASC SGT Milestone Team

The ASC SGT Milestone Team performed a heretofore unachieved extremely large-scale crash dynamics simulation, using our latest computational software and hardware.

Kurt Metzinger, Daniel Hammerand, Arne Gullerud, Gregory Sjaardema, Kenneth Gwinn, Joe Jung, Nathan Crane, Jeffrey Gruda, Martin Heinstein

RF MEMS Switch Reliability Team

The RF MEMS Switch Reliability Team demonstrated a low-resistance RF MEMS metal contacting switch with a measured lifetime of greater than 1 billion cycles.

Franklin Austin, Thomas Plut, Jordan Massad, Blake Jakaboski, Christopher Nordquist, Cesar Colmenero, Christopher Dyck, Mark Balance, David Czaplowski, Torben Fortune, Garth Kraus, Thomas Lemp, William Wilbanks, William Cowan, Bernhard Jokiel, Jr., Ted Parson, Gary Patrizi, Adam Rowen, Charles Sullivan, Christian Arrington, Andres Carton, Patrick Finnegan, Isak Reines

JT4A-14C W76-1/Mk4A Abnormal Fuel Fire Test Team

For excellence in planning and execution of a high-consequence system test that provided confidence in the W76-1/Mk4A system performance in abnormal thermal environments.

Joseph Bonaguidi, Dean Dobranich, Michael Enghaus, Sylvia Gomez, Charles Hanks, Michael Hobbs, Dann Jernigan, Thomas Massis, James Nakos, Theodore Simmons, Richard Simpson, Jonathan Snell, Glenn St. John, Tina Stetson, Bennie, Belone, Patrick Brady, Susan, Carson, Randy Foster,

(Continued on next page)



Rick Kellogg
2614



Kevin Kelsey
9328



Alice Kilgo
1822



Monica Lovato-Padilla
2500



Julie Lujan
9317



Analisa Martinez
5402



Melanie Mead
5098

(Continued from preceding page)

Rodney Gwyn, Susan Lacy, Floyd Mathews, Wayne McKenna, Ciro Ramirez, James Satterfield, Richard Streit

Sandia Cat I/II SNM Deinventory Project (Core Team)

Over the last three years, this core team has worked towards the goal of removing Cat I/II Special Nuclear Material from the Sandia site.

Christopher Barth, Joseph Sandoval, Cynthia Kajder, Nancy Collins, Anthony Aragon, Frederick Sexton, Michael Norte, John Maenchen, Warren Strong, Phillip Turner, Norman Schwes, John Garcia, Scott Ashbaugh, Paul Raglin, Michael Spoerner, Steven Sweet, David Wheeler, Paul Keller

Code Management System (CMS) for the Pantex Application Team

The Code Management System (CMS) team provided significant deliverables in support of implementation at Pantex.

Mary Akins, Daniel Caton, Melissa Wilson, Elaine Evans, Juan Espinoza, Barbara Pass, Reed Jackson, Jr., Marianna Mauritz, Sylvia Thomas, James Emery, Steven Rezac, Rebecca Arnold, Michael McLean, James Turner, David Gelet, Kenneth Chen, Brian Geery, Michael Hall, Robert Kinzel, Yau Tang Lin, Michael Neuman, David Percy, Cheryl Post, Tommy Rogers

Key Data Processor III Team

For exceptional skills and dedication that made the 130nm Key Data Processor ASIC and integrated operational software a phenomenal success on the very first pass.

John Gonzales, Tom Mannos, Vivian Kammler, Deborah Kill, Russell Mikawa, Russell Miller, David Ther, Gary McGovney, Elmer Collins, Donald Gallup, Robert Lovejoy, William Cavanagh, Glenn Russell, James Hudgens, Steven Richards, Hui-Chien Shen, Sean Pearson, James Levy, Margaret Hug, Stephen Reynolds, Rita Gonzales, Michael Holmes, Norman Kolb, Jason Millard, Martin Murphy

MC4380A/MC4381 Neutron Generator Hostile Environment Assessment Team

For completion of neutron generator hostile environment assessment for both W76-1 and W78 re-entry systems for 2007 FPUs, complex efforts requiring advanced analysis and measurement.

Michael Dinallo, Kristin Dion, Gary Chantler, James Greenwell, Brian Franke, Frank Dean, Lance Lippert, Spencer Luker, James Bryson, Scott Jones, Edward Stretanski, Ronald Kensek, Kenneth Gwinn, William Barrett, Robert Zaring, Phillip Hume, Robert Stiers, Brett Bedeaux, Wu-Ching Cheng, David Christensen, Daniel Cordova, Patrick Griffin, Gary Harms, Mark Hedemann, Daniel Sherman, Todd Simmermacher, Doug Reeder

ZR Outage Phase Planning and Workforce Integration Team

For exceptional partnering and teamwork in planning and coordinating a vast number of actions necessary to successfully accomplish the Z Refurbishment Project Outage Phase.

Doug Bloomquist, Guy Donovan, Thomas Faturros, Finis Long, Randall McKee, Mark Savage, Debra Ann Tabor, Leonard Torrison, John Weed, Edward Weinbrecht, David Artery, Devon Dalton, Dan Jobe, John Lott

Machining Operations Business Concerns & Tactics for Improved Operations

Dedication and effort in identifying factors that led to a budget shortfall in Org. 02431 and developing tactics for improved business operations and financial solvency.

Lynne Starkweather, Elizabeth Roll

W76-1 MC4702 Firing Set Product Realization Team

In recognition of the exceptional teamwork, dedication, and technical achievements resulting in the successful qualification and delivery of the MC4702 First Production Units (FPU).

Patrick Smith, Kenneth Varga, Joshua Schare, Peter Chauvet, Roger Roberts, Clifton Briner, Susan Camp, Michael Dvorack, Albert Hart, Marc Polosky, Mary Knox, Sheryl Sebelki, Jeffrey Young

W76-1/Mk4A System Qualification Team

For successful, safe, on-time completion of all planned System Qualification Test and Computational Simulation activities in support of the W76-1/Mk4A Life Extension Program.

Randall Romero, Stephanie Pollice, Nancy Dhooge, Deborah Willmas, Ephraim Arquitolá, Dean Dobranich, Robert Naegeli, Frederick Hartman, Gerald Hudson, Rodney Gwyn, Brad Boswell, Brett Bedeaux, Nicole Brevik, Daniel Cordova, David Fordham, Gerald Garcia, Jeffrey Gruda, Shawn Kerr, James Nakos, Michael Newman, Christian O'Gorman, Harold Radloff, Gregory Tipton, Barton Wohl, Dan Scott

Opsec/Comsec/Facility Approval Team

Exceptional Customer Support

Victoria Cox, Angela Eldred, Lisa Cogburn, Jocelyn De Luche

The FY07 ASC Xyce/Charon/Algorithms Integration Team

The ASC Xyce/Charon/Trilinos team has demonstrated excellence

by delivering vertically integrated capabilities for critical national security electrical modeling and simulation activities.

Roscoe Bartlett, Joseph Castro, Todd Coffey, David Day, Gary Hennigan, Michael Heroux, Robert Hoekstra, Russell Hooper, Eric Keiter, Paul Lin, Ting Mei, Roger Pawlowski, Eric Phipps, Thomas Russo, Andrew Salinger, Richard Schiek, John Shadid, Heidi Thornquist, Mary Meinelt, James Willenbring

Advanced Flight Telescope 2 Optics Bench Manufacturing Team

The Optics Bench Manufacturing Team plays a crucial role in delivering value to the customer by leading development and execution of one-of-a-kind aerospace integration systems.

David Zamora, Robin Chambers, Guadalupe Lucero, Joseph Romero, Walter Olson, Daryl Reckaway, Dennis Nelson, Jr., Allen Hurst, Lance Baldwin, Nina Baum, Jason Dimkoff, Joanna Lewis, Faye Monaco

Warhead Field Gas Sampling Team

A team effort to generate and successfully complete an extremely short-notice, time-critical special procedure to verify warhead status enabling decisions for our national defense.

Charles Christensen, Robert Case, Whitney Lacy, Steven Thornberg, Benny Woosley, Monica Chavez, Dean Estep, James Harrison, Rod Heimgartner, Jerry Ithica, Jack Smith, Malcolm Stringer, Jr., David Tenorio, Thomas Tomasi

MESA Project Team

The MESA construction project was completed 3 years ahead of schedule and \$44M under budget by a high performing project team.

William Balassi, Chris Hall, Karen Higgins, Michael Street, Karen Keyworth, Judy Martinez, Mark Schaefer, John Harding, Donald Losi, Frank Martin, Carlos Giron, Jon Eberhart, James Gonzales, Ernie Limon, Jr., Jeanette Norte, Michael Kupay, Gary Yuhas, William Jenkins, Jr., Ivory Alexander, William Kitsos, Gilbert Aldaz, Mateo Aragon, David Bailey, James Beals, Clarence Drennan, Marc Ghattas, Krista Smith

exposures to radioactive material during a radiological event for the Centers for Disease Control (CDC).

Robert Reese, Kenneth Sansone, Brenda Maes, Rose Preston, Denise Fleming, Sonoya Shanks, Nina Poppelsdorf, John Kilbane, Michael Buvinghausen, Kathryn Chavez, Sharon Dobias, Sharon O'Connor, Luis Valdivia, Jacob Vigil

Advanced Solid Modeling Team

Effective utilization of a multi-use model containing embedded computational simulation requirements has transformed Sandia's design processes for mechanical hardware realization.

Robert Arnot, Franklin Dempsey, Brian Franke, Todd Haverlock, Charles Jojola, Stephen Montgomery, Abraham Segó, Mary White, Brandon Moore, David Rakestraw

S&S Assurance Team

Partnering with SNL Security and Line organizations at all SNL sites to help ensure effective and compliant performance of security program requirements and procedures.

Jocelyn Abeyta, Paulette Solis, Melanie Florez, Christine Tamez, Daniel Frampton, Timothy Lucero, Enid Brown, Julie Brewster, Tirzalee Terry, Donald Funk, William Horst, David Salazar, Michael Pooler, Don Lifke, Barry Schwartz, Edward Thomas, Lillian Armijo, Charles Browder, Kileen Hall, Ronald Knowles, Jason Padilla, Bud Siple, Joanne Trujillo, Jennifer Anaya, Robbin Hinojos

Weapons Integration Facility (WIF) Project Team

The WIF Project Team executed the construction and occupancy of a new facility ahead of schedule and under budget.

Michael Street, Chris Hall, Judy Martinez, Krista Smith, Bernard Argo, Gary Yuhas, Martina Padilla, Frank Martin, Carlos Giron, Mateo Aragon, John Harding, Joseph Gonzales, Benjamin Huff, Daniel Fleming, Roger Bell, William Kitsos, Rick Davis, Gilbert Aldaz, Carl Bennett, Richard Elliott, Sammy Lopez, Andrew Zeitler, Marc Ghattas, Matthew Pacheco, Charlie Tomlin

MESA Team wins Lockheed Martin NOVA Award



THE MESA PROJECT TEAM (see citation above) has been named a winner in the prestigious 2008 Lockheed Martin NOVA Awards competition. The NOVA awards were established in 1995 to recognize outstanding contributions to the corporation's mission and business objectives. Other NOVA team nominations from Sandia were: ElectroNeedle Biomedical Sensor Array Team, Key Data Processor III Team, Weapons Integration Facility Project Team, GNT Deployment Team, OCRWM Lead Laboratory Management Team, WR1 Mechanical Modeling and Simulation Team, and the LNO NMSF Phase 1 Operations Team. David Karelitz has been nominated for an Individual Technical Excellence award for authoring the P5 graphical user interface, which enabled NASA to operate the LOIS ground station. Individual winners have not been announced.

New Mexico Hispanic Leadership Outreach Committee

For the outstanding leadership and extra effort to accomplish the activities that helped personnel grow personally and professionally inside and outside Sandia.

Maria Armijo, Miriam Maldonado, Olivia Moya, Bertie Denman, Joseph Maez, Machel Karler, Michael Garcia, Jaime Moya, Elizabeth Huffman, Malynda Aragon, Daniel Baca, Julie Cordero, Rita Gonzales, Saskia King, Robert Lafarge, Mike Lopez, Timothy Mirabal, Gilbert Morales, Jesus Ontiveros, Danny Rey, Miquelita Rogo, John Romero, Marcos Sanchez, Daniel Urenda

Video Streaming Team

The Video Streaming Team uses technology and professional video production expertise to effectively communicate Sandia's mission and business objectives to the desktop.

Al Lujan, Pamela Welch, Laurence Cox, David Leong, Rogulja Wolf, Judith Hubbard, Thomas Wubbels, Richard Sanderville, Sheila Akins, Gary Chemistruck, Michael Montoya, Michael Wood

Radiation Protection Sample Diagnostics Laboratory Team

RPSD developed a rapid analysis technique to determine population

Shanklin, Douglas Stark, Mark Torgerson, James Van De Vreugde, Robert Matthews, Emily Quinnan

Supplier Quality Management Development Team

For the successful development and deployment of procedures, training and tools that ensure consistent and acceptable outputs from our supplier base.

Larry Azevedo, Wesley Bruno, Nancy Dhooge, Damon Gerhardt, Odella Griffin, Kathleen Johns, Anne Lacy, Antonio Lara, Frank Loudermilk, Bradley Mancke, Larry Moya, Jacquelyn Rambo, Maureen Baca

Division 5000 HR Consultant Team

The Division 5000 HR Consultant Team provides outstanding service to the employees and managers in Division 5000.

Richard Garcia, Patricia Brower, Mary Lopez-Carter

GNT Deployment Team

The Ground Nuclear Detonation Detection System Terminal Deployment Team completed the successful deployment of a mobile command and control system to two operational AF facilities.

Michael Hess, Anthony Montoya, Susan Wilson, Betty Roush,

(Continued on next page)



Robert Miltenberger
4128



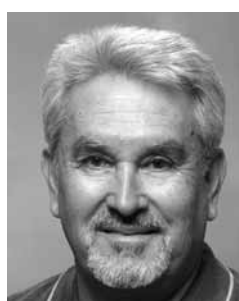
Kathryn Olson
9532



Michael Plowman
12341



Brady Pompei
6412



E. J. Romero
4857



Lani Sanders
247



Troy Satterthwait
5345



Ronald Sigurdsson
8351



Paul Simon
5925



Brian Somerdar
8758



Linda Stiles
4127



Lawrence Trost
245



David Wiegandt
5355



Ellen Wilsey
10030



Lynn Yang
8114



(Continued from preceding page)

Trudi Martinez, Kevin Heck, Jeremy Goold, Glyn Evans, Randall Comer, Darrell Thomas, Paul Getz, David Copithorne, Ryan Prescott, Gregory Haseman, Arthur Bazan, Randolph Asbill, Mark Freeman, Richard Kominek, William Richardson, Lorraine Sanchez-Guerra, Steven Spahr, Craig Mattson

Hardware Assessments Team

The hardware assessments team has successfully developed several significant new assessment technologies and capabilities — resulting in the best year of results ever.

Christopher Dyck, Norman Smith, Simone Smith, Alan Phan, Jeffrey Stevens, Joseph Clement, Stephen Montague, Timothy Meisenheimer, Edward Cole, Jr., James Felix, Joshua Etzkin, Danny Loffredo, Jason Tang, Brett Hamilton

Special Response Team 25-Year ERA

SRT'S 25 Year ERA of Exceptional Service and Outstanding Teamwork.

Lawrence Armijo, Norman Baca, Joseph Castillo, Eric Chavez, Alfred Garcia, Raymond Garcia, Orlando Griego, Jr., Daniel Harbour, Herman Herrera, Lawrence Jackson, Michael Mandril, Roger Martinez, Frank Mata, Rowen Meredith, Danny Moreno, Thomas Moquino, Jr., Michael Padilla, Ruben Padilla, Paul Romero, Kenneth Sandoval, Michael Tachias, Paul Tapia, Peter Tapia, Matthew Torres, Joseph Zamora

HUGS Infrastructure Subsystem Team

The HUGS Infrastructure Subsystem Team successfully delivered and installed the HUGS Mission Ground System.

Joey Sena, Justin DuBois, Jacob Garcia, Guillermo Bonilla, Christopher Adolf, Todd Jenkins, Jim Bronder, David Perea, Lawrence Baca, Robert Romero, Bradley Greene, Sherman Begay, Ruby Chavez, Ann Chipman, David Muron, Janice Smith, Bernard Soules, Steven Wagner

Inertial Navigation System (INS) & Computer Development Team

Successful delivery of an avionics subsystem with a newly designed compact, high performance flight computer called IMPACCT, demonstrated on an MDA STARS FTG-03A flight test.

Cynthia Blain, Keeven Hurtt, Harold Cooper, Andrew Petney, Mark Vaughn, Tracy Sanchez, Charles Brady, Robert Carlton, Christopher Chacon, Arthur Gariety, Philip Kahle, Tammie Neill, John Sarsfield, Jerad Simon, David Vigil

Lunar Ice Detection via Innovative Scatterometry Technique

This team invented and developed a new methodology for processing radar data collected by a lunar orbiter to detect possible ice deposits in polar craters.

Daniel Wahl, David Yocky



Lunar Ice Detection Team

The Design Management Acquisition Team for Corporate Construction

This team implemented the Supply Chain Management Council's corporate strategy for increasing outsourcing agility to better support Sandia's mission work cost effectively.

Carl Bennett, James Bruneske, Ralph Cipriani, Michele Davila, Nancy Davis, Donald Devoti, Steven Fattor, Tanya Gallegos, Camille E. J. Gibson, Walter Heimer, Roy Hertweck, David Humble, Patricia Miller, Patrick Molina, John Norwalk, Ricardo Ortiz, Michael Quinlan, Darrell Rogers, Scott Rowland, Nydia Schmidt, William Tierney, Norman Wasson, David Wisler, Birgitta Foster, Lara O'Neal-Jones

Electronic Module Production Team

The Electronic Module Production Team achieved a significant milestone by completing fabrication, assembly, and conformal coating activities on all electronic modules for the HiFES payload.

Irene Bentz, Edward Binasiewicz, Joe Borrego, Sylvia Chapman, Lorraine Curtis, Gregory Dinger, Stephen Garrett, Michael Gurule, Linda Kelton, Lisa Larkin, Warren Lubin, Debra Lujan, Joseph Maez, David

Martinez, William Morgan, Roderic Nagel, Kathleen Olsberg, Mabel Pecos, Erich Roeschke, Gary Shannon, Cynthia Tenorio, Eugene Tenorio, Tammie Towndrow, Jon Wegener, Georgia Yawakie

Sandia Defense Support Program (DSP)-23 Satellite Launch and Early On-Orbit Testing (EOT) Team

For technical excellence and enduring dedication in providing mission-critical technical and launch support for the DOE/NNSA mission hardware onboard the DSP-23 satellite.

Gustavo Rodriguez, Eilan Anderson, Marlene Brown, Edward Martinez, Linda Dotson, Lillian Ingram-Hill, Dennis Gutierrez, Eloy Marquez, Larry Ritter, James Garsow, David Denning, Paul Getz, Dennis Lierz, Emmett Sandoval, Charles Greenwood, Paul Gibson, Richard Pepping, William Anslover, Debra Archuleta-Bunker, George Bott, Jr., Victor Chavez, Robert Hohlfelder, Dawn Marie Midkiff, Stanley Piekunko, David Saetrum

Central Scientific Computing Operations Leaders

These project leads for Scientific Computing Systems deliver high performance computing to Sandia customers — together, they collaborate to provide customer satisfaction through operational excellence.

Robert Balance, Stephen Monk, Sophia Corwell, Russell Goebel

Kinetic Energy Projectile (KEP) 5k Sled Test Team

For excellence in engineering in the design and development of the kinetic energy projectile system and the near flawless execution of the 5k sled test.

Jimmy Aldaz, Deborah Bateman, Vanessa Berg, Kenneth Chavez, William Engleman, William Escapule, Eric Klamerus, Clarence Marquez, Dannie McNeill, Mark Miszkil, Mark Montavon, Nancy Nesbitt, Dennis Owens, Lloyd Payne, Mark Pilcher, Gary Polanski, Rashad Raynor, Matthew Risenmay, Peter Smolenski, Jerome Stoffleth, Kristen Valdez, Amy Williamson, Mishawn Leadingham, Tony Schauer

BN-350 Spent Fuel Storage Project Team

Sandia's BN-350 Team completed three significant milestones in NNSA's Global Threat Reduction Initiative effort in Kazakhstan, marking a major step in the nuclear nonproliferation program.

Gene Hauser, Bruce Varnado, Linda Holle, David Barber, John Franklin, Gilbert Morales

Comparative Vacuum Monitor Sensor for Real-Time Health Monitoring Team

This team produced the Comparative Vacuum Monitor sensor and achieved certification to install the first on-board structural health monitoring sensor ever deployed on commercial aircraft.

Floyd Spencer, Ciji Nelson, Dennis Roach, Waylon Delong, David Moore, John Bohler, Andy Chilcott, Dave Galella, Jeff Kollgaard, John Linn, Alex Melton, Rob Pappas, Dave Piotrowski, Kirk Rackow, Jeff Register, Paul Swindell, Mark Vellacott, Masood Zaidi

Counter Rotating Ring Receiver Reactor Recuperator Team

For pioneering new design concepts for achieving the promise of converting solar to chemical energy via highly efficient thermochemical routes.

Richard Diver, Jr., Ellen Stechel, Lindsey Evans, James Miller, Timothy Moss, Nathan Stiegel, Mark Allendorf, Roy Hogan, Jr., Steven Lockwood, Darryl James, John Stuecker

Project Crossfire

Exceptional service and dedication supporting our MDA on a high priority and time critical task.

Tommy Barreras, Gregory Bessette, Mehdi Eliassi, Sue Goudy, Jeremy Hollenshead, Daniel Kelly, Michael Slattery

Division 6000 Hazardous Materials/Hazardous Waste Management Team

For outstanding dedication, professionalism, and leadership leading to the first-ever New Mexico Environmental Division inspection of a federal agency resulting in zero findings.

Gerald Langwell, Jonathan Halpern, Angel Vega-Prue, Waylon Delong, Demecio Edwell, Chad Staiger, Johnny Ethridge, Mike Rose, Kirk Rackow, Daniel Puetz, Gerald Naranjo, Jay Kratochvil, Howard Anderson, Christopher Cornelius, Patrick Gronewald, Michael Hibbs, Rebecca Jaramillo-Contreras, William King, Terry MacDonald, Vincent McRoberts, Michelle Shedd, Daniel Trudell, Emily Wright

Foreign Travel Team

Leading the way in providing exceptional customer service to SNL- and DOE-wide international travelers, including bold, strategic innovations to SNL, DOE, and DOS systems.

Janine Donnelly, Cynthia Maxwell, Christine Schwatken, Ramora Tenorio, Suzette Beck, Stacey Foster, Clayton Pryor, Marceline Jordan, Stephanie Kelly, Susan Kline, Teri Walker, Mikael Newquist

MELCOR-H2 Code: Large-Scale Production of Hydrogen Using Nuclear Reactors

Development of the world's first transient nuclear reactor-hydrogen generation design and analysis code.

Thomas Drennen, Sally Ek, Fred Gelbard, Terrie Hof, Leonard Malczynski, William Martin, Gary Rochau, Salvador Rodriguez, Luis Archuleta, Randall Cole, Mohammed El-Genk, Flor Espinoza, Kevin Hogan, David Louie, Katherine McFadden, Seungmin Oh, Shripad Revankar, Jean-Michel Tournier, Karen Vierow

Productionization of VoIP at the IPOC Facility

This cross organization team met all requirements in successfully bringing a new voice technology to over 600 users in the Innovation Parkway Office Center (IPOC).

George Rivera, Jr., Leland Byers, Glen Roybal, Vicki Williams, Elissa Thompson, Lisa Barham, John Long, Gerald Rudolfo, Robert Berg, James McPhee, Brian Amberg, Leslie Brown, Michael Hamill, David Van Houten, Tom Klitsner, Toby LaFave, Natalie Lopez, Robert Mason, Lupe Montoya, Jay Peterson, Dana Striker, Raymond Tafoya, Carolyn Weinreich

Laboratory Biosecurity Handbook Team

The team wrote the ground-breaking Laboratory Biosecurity Hand-

book, published by CRC Press, that describes how to protect dangerous pathogens and toxins from theft and misuse.

Jennifer Gaudio, Susan Caskey, Laurie Dawn Wallis, Natalie Barnett, Brenda McNabb, Madelyne Farber, Reynolds Salerno, George Baldwin, Jack Tillman, Geoff Freeze, Doug Weaver, Ray Shaum, Frank Hansen, Jacob Bolles, Kathleen Lowe, Heather McDaniel, John Milloy, Allan Swanson

OCRWM Lead Laboratory Management Team

The OCRWM Lead Laboratory management team has set a standard for working together toward a common goal under difficult circumstances and with selfless dedication.

Stephanie Kuzi, Janette Lloyd, Jerry McNeish, Patrice Sanchez, Cliff Howard, Kathryn Knowles, Gina Avvakoum, Tito Bonano, Mel Merietta, Jack Tillman, Geoff Freeze, Doug Weaver, Ray Shaum, Frank Hansen, Andrew Orrell, Peter Swift, Tom Pfeifle, Ron Stevens

TriSAR

TriSAR is a NASA-funded program to develop a space-based imaging radar to find ice/water on the moon for a future manned space station.

Adam Tanuz, Michael Gardner, Bertice Tise, Jeffrey Bach, Brian Brock, Jesse Baldwin, Dale Dubbert, Mark Winscott, Marc Ahlen, Steve Becker, Joseph Lyle, Robert Bugos, April Disch, Armin Doerry, Susanne Gabaldon, Michael Holzrichter, Charles Jakowatz, Jr., Arthur Minser, Daniel Wahl, Kathie Woods, David Yocky



TriSAR Team

TEVA Water Security Research Team

Development and implementation of revolutionary techniques for protecting drinking water systems from accidental or intentional contamination.

William Hart, Cynthia Phillips, Lee Ann Riesen, Jonathan Berry, Robert Carr, Mark Koch, Jean-Paul Watson, David Hart, Robert Heaphy, Katherine Klise, Sean McKenna, James Uber, Mark Wilson

Second Line of Defense Megaports Initiative Team

For outstanding contributions to program growth, technical innovation, and overall leadership through unwavering personal commitment, technical excellence, and customer focus to further enhance national security.

Janet Ahrens, Allison Bennett, James Chorba, Robert Daniels, Richard Dietrich, Mark Ekman, Charles Harmon, Richard Lucero, Teresa McCollum, Eduardo Padilla, Lorenzo Salgado, James Schol, Gregory Stihel, Gina Tafoya, Paul Trask, Justin Weaver, Kenneth Ystesund, Walter Humphrey, Alfred Johnson

SNL Application Cross-site Access Contingency Plan

Provided a transition authentication and authorization capability for NWC classified engineering applications to ensure continued cross-site user access during an anticipated technology gap.

Carolyn Quinn, Patricia Malecki, Christopher Nebergall, Amy Shrouf, Thomas Feeny, Frank Vigil, Lilia Martinez, Timothy MacAlpine, Eric Thulin, Thomas Cleal, Douglas Brown, Glenn Machin, Jeffrey Anastasio, Michael Bencoe, Laura Charles, David Dorsey, Roberta Jaramillo, Elizabeth Moser, Joe Sena, Dennis Tenorio, Dirk Vanwestrienen, Jeffrey West, Lisa Wishard

Cost Transfer Request Team

The Cost Transfer Request team automated the cost transfer process, significantly increasing customer satisfaction, reducing processing time, reducing human error, and reducing indirect costs.

Christopher Gallegos, David Klassen, Gwen Pullen, James Romero, Raymond Gabaldon III, Shannon McConkey, John Brewer, Michael Widmer, Richard Baird, Lina Castillo, Richard Calvert, James Eanes, Robert Lomadofkie, Sheila O'Neill, Polly Owens, D. Rivera-Gronager

Collaboration Security Work-for-Others Team

For outstanding technical contributions and programmatic leadership in establishing a new product area that provides an outside revenue stream in collaboration security.

James Berry, Navid Jam, Craig Smith, Corbin Stewart

LNO NMSF Phase 1 Operations Team

This integrated operations team performed the hands-on nuclear material handling, radiation control and oversight during the actual movement of material out of NMSF.

G. Carmelo Anaya, Paul Apodaca, Matthew Burger, Ralph Clovis, Joseph Costales, Boyd Hamilton, George Hoskison, Gregory Vigil, William Wechsler, Christopher Williams

Hydrogen Storage Engineering Team

For exemplary teamwork in building and integrating the vehicle-scale hydrogen storage demonstration and for delivering world-class analysis, design, and experimental results.

Herman Armijo, Jr., Daniel Dedrick, Michael Kanouff, Patrick Keifer,

(Continued on next page)

(Continued from preceding page)

Matthew Paul Klein III, April Nissen, Yon Perras, Thomas Raber, George Sartor, Leroy Whinnery, Jr., David Zanini, Mark Zimmerman, Sal Birtola

Source Request Process Team

For an outstanding job of replacing an ineffective and outdated source request process with an impactful website that will increase competition for Sandia procurements.

Martrice Endres, Louise Britton, Ann Riley, Maria Armijo, Elizabeth Gonzales, Anne Rimbart, Marie Myszkier, Donald Devoti, Sandy Varro, Rhonda Dukes, Michele Davila, Adolfo Bachicha, John Beitia, Jonathan Bundy, Toni Kovarik, Jolyn Maheras, Anna Muller, Karen Reeder

Capacity Computing and Visualization (Capviz) Team

For demonstrating the highest standards of exceptional teamwork, extraordinary dedication, and technical achievement in the leadership and support of capacity computing and visualization Linux clusters.

Steve Simonds, Randy Scott, Aaron Dawson, Sophia Corwell, Donna Brown, Chris Maestas, Jonathan Atencio, Kevin Kelsey, Conor Gilliland, Jerry Smith, Eric Engquist, Stephen Monk, Sammi Amdahl, Kevin Jameson, James Steward, Jay Livesay, Chris Kueny, Jeff Ogden, Marcus Epperson, Doug Pannel, Tuesday Armijo, Ryan Braithwaite, Milt Clauser, David Evensky, Catherine Houf, John Noe, Don Rudish, Sean Taylor

Litigation Team

The Litigation Team met the daunting challenges of a substantially increased litigation and administrative claims workload and preparing Sandia for compliance with new e-discovery requirements.

Charles Pechewlys, Joyce Lesperance, Amy Blumberg, Madelynne Farber, Kerry Kampschmidt, Marianne Hill, Barbara Glasco, Sarah Downey, Peter Warner, Kevin Bieg, Donald Boyle, Kurt Olsen

Multiscalar Detection Team

For exceptional performance in the design, development, and implementation of a unique multiscalar detection system for turbulent combustion research.

Christopher Carlen, Robert Harmon, Duane Sunnarborg

WR1 Mechanical Modeling and Simulation Team

For successfully building multiple versions of full system models and generating component environment estimates for several environments in time for inclusion in WR1 component specifications.

Nicoli Ames, Nipun Bhutani, Nicole Breivik, Arthur Brown Douglas Clay, Bruce Kistler, Amy Elizabeth Rice, Joe Shelton, Nathan Spencer, Michael Burger, Mark Lobitz, Jon Manuel

Neutron Scatter Cargo Container Study Team

For the rapid deployment of the Domestic Nuclear Detection Office's long-dwell cargo container study, which was successfully completed in just 2.5 months.

James Brennan, Kevin Krenz, Peter Marleau, Grace Miranda, Stanley Mrowka, Nicholas Mascarenhas

Pantex Weapon Response Team

The Sandia Pantex Weapon Response Team successfully completed two major and highly visible DOE milestones supporting the Pantex W76-1 and W80 SS-21 programs.

Jon Baldwin, Brent Blankenship, Lawrence Carrillo, James Cates, Kenneth Chen, Martin Fuentes, Robert Galloway, Nazir Khalil, Michael Kopczewski, Larry Luna, Kevin Maloney, Douglas Miller, William Wente, Tino Casaus, John Hancock, Jeff Philbin

Border security's international role

Kenyan Ministry of Defense officers attend security workshop

By Darrick Hurst

Six military officers from the Kenya Ministry of Defense were recent guests at a security workshop conducted by Sandia's Global Security Engagement and International Safeguards (6721).

This program, in partnership with the US Border Patrol and supporting the US Army Central Command, offers participants a series of lectures and exercises in border security topics.

"One of the lessons we work to communicate is that technology alone doesn't always solve everything in terms of border security issues," says Ruth Duggan (6721). "What is important is that well-trained people with environmentally appropriate technology can make border management more effective. This systems-based workshop also demonstrates the role of borders in national security and WMD nonproliferation."

The workshop included demonstrations of border management systems models, border security techniques and technologies, methods for conducting event analysis, approaches for cooperative monitoring and strategic planning. A tour of the Cooperative Monitoring Center Technology and Training Demonstration Area was included. For some of the workshops, the Outdoor Test Facility may also be toured.

The workshop participants attended weapons and armored vehicle information presentations conducted by Sandia security officers.

"This demonstration shows the kinds of armaments and vehicles available for use in effective security patrols today," says Jeffrey Johnson (4211).

When border operations allow, the workshops also include technology demonstrations at the National Training Center on the Arizona-Mexico border.



MATTHEW TORRES (4211) demonstrates the M4 carbine to a member of the Kenyan armed forces. (Photo by Randy Montoya)

"I would like to say that this is a milestone for us as Kenyans, because this represents the partnership between the US and our country in international security," said a member of the Kenyan entourage. "This workshop has been extremely beneficial for us in a lot of ways. We're studying how America manages border security, because in Kenya we are surrounded by countries that are involved in war."

"It has been an eye-opener visiting this country and meeting your armed forces. Border security is not the primary role of our military, but ultimately matters of security are of concern to the armed forces. I want to express my sincere appreciation from our government to the US government and military for facilitating this visit. This is an expression of strengthening our states together."

This workshop is the second in a series this year. The first workshop included 13 border and military officers from Egypt, Jordan, and Yemen, and the third will involve officers from Pakistan and Afghanistan.

Technology community celebrates 10 years

Aug. 15 event observes success of Sandia Science & Technology Park

By Michael Padilla

Patience equals progress.

That is how Jackie Kerby Moore, executive director of the Sandia Science & Technology Park, characterizes the success of the technology community as it celebrates its 10th anniversary this year.

"I'm thrilled at the success of the park," Jackie says. "When we first started the park we knew it would take time to get it where we wanted it."

So far the pace has moved fast.

What started in May 1998 as a big piece of land on the edge of Eubank Boulevard near Kirtland Air Force Base,

the property to bring start-up companies and Sandia industry partners to the area.

The first company to sign on was EMCORE Corp., a semiconductor business that makes photovoltaic cells and optical communications devices. EMCORE now has its headquarters at the park and consists of three buildings.

One of the highlights of the park is that it is connected by ORBIT (Optic Rings for Broadband Information Transport), which offers a high-tech fiber optic backbone to the entire park. This allows easy communication flow among the tenants and provides them with the fastest transmission medium commercially available, says Jackie.

Sherman McCorkle, president and chief executive officer of Technology Ventures Corp. since 1993, attributes part of the park's success to the 501(c)(3) nonprofit Science and Technology Park Development Corp., which plans to open an office in the park in 2009.

"Thank goodness the community established the 501(c)(3) nonprofit Park Development Corp.," says McCorkle. "It has been instrumental in raising about \$4.5 million for park communication and infrastructure."

Economic impact

Since its inception, the SS&TP has had a \$1.4 billion cumulative impact on New Mexico wage and salary disbursements attributable to park activities, according to an economic impact assessment conducted by the Mid-Region Council of Governments (MRCOG). MRCOG used the Regional Economic Models, Inc. (REMI) Policy Insight™ model to do the assessment of the park's impact from May 1998 through December 2007. The figures reflect the estimated impacts to the region in 2007 dollars including Bernalillo, Sandoval, Tarrant, and Valencia counties.

Celebration

Date: Aug. 15, 10-11:30 a.m.

Place: SS&TP Pocket Park II

Special Guests: Sen. Pete Domenici, R-N.M., Sandy Baruah, Assist. Sec. of Commerce for EDA, Tedd Hobbs, former N.M. State Rep, and Fred Mondragon, Cabinet Secretary for Economic Dev., State of N.M.

The park has also helped increase revenue in New Mexico as a result of personal income tax (using a 5 percent rate) by \$72 million.

The park has had nearly \$800 million in cumulative impact on taxable consumption (goods and services) and \$40 million in cumulative impact on gross receipts tax revenue in New Mexico and \$5 million in gross receipts tax revenue to Albuquerque.

Jackie says the average salary for full-time private sector jobs in the park is \$67,542. The comparable figure for the Albuquerque metro area is \$37,284.

Next 10 years and beyond

One of the next goals for the park is to have food service on the campus. "People want a place where they can get coffee," Jackie says. Having food readily available on the campus will add to the ambiance of the park, she says.

The park is also working to get a hotel built in an area close to the National Museum of Nuclear Science and History. The museum will be completed in 2009.

Enhancements to the fiber optic backbone will include security and surveillance additions, which will be tied to cameras, alarms, 911 call boxes, and street lights. New electronic message signage will be added along with freshly landscaped medians, she says.

In the next 10 years, the park expects to expand to more than 6,000 employees and begin on the second phase of the master plan, which is to develop an additional 100 acres at the park. The major goal, Jackie says, is to increase the number of companies and partners.

"I'm so excited about what is going to happen in the next decade," McCorkle says. "We'll be seeing enormous expansion in the years to come."



SANDIA Science & Technology Park, looking east.

(Photo courtesy of SS&TP)

now comprises 18 buildings totaling nearly 900,000 square feet of occupied space. More than 2,000 employees are employed at the 27 organizations located at the park.

The vision for the campus-like park began in the early 1990s when Dan Hartley, now-retired former vice president of development at Sandia, began discussing the idea of a tech park with various officials. Public landowners — including representatives from Albuquerque Public Schools, the State Land Office, and DOE — as well as private landowners then got together to discuss developing

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong



Terry Bisbee
40 6430



Joseph Brazil
40 8949

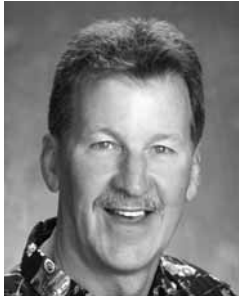


Robert Parks
40 2995

Recent Retirees



Janet Von Toussaint
34 8525



Tim Sage
40 8239



Mark Higuera
35 8228



John Warmouth
35 8227



Patricio Abeita
30 10265



Elaine Boespflug
30 2735



Janice Washington
21 1711



Doug Scott
26 6431



Phillip Fuerschbach
30 513



Joel Groskopf
30 8134



Adele Montoya
30 4232



Robert Nellums
30 5711



Constantine Pavlakos
30 9326



Phyllis Rice
30 2712



Floyd Spencer
30 12337



Christine Yang
30 8116



Yolanda Aragon
25 1056



Robert Dooley
25 4241



Michael Eatough
25 2735



Kevin Jones
25 6471



Darrell Kirby
25 5342



Tina Martin
25 1658



Ronald Martinez
25 2553



Debra Post
25 8248



Gary Richter
25 8112



Janet Sjuln
25 12337



Michael Sjuln
25 240



Sharon Trauth
25 2998



Gerald Wellman
25 1525



Thomas Clark
20 8511



Marcus Craig
20 5577



John Dec
20 8362



Susan Esfahani
20 2625



Robert Glass
20 6326



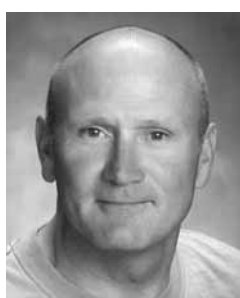
Frank Hansen
20 6785



Mark Howard
20 5422



J. Dixon Patrick
20 4245



George Santor
20 8757



Paul Yoon
20 8229



David Evensky
15 8963



Ines Sander
15 8231



Craig Smith
15 8529



Anne Yang
15 8512

Visit by Massie chairs bolsters Labs' relationship with Historically Black Colleges and Universities

By Bill Murphy

A delegation of 10 engineering professors, nine from Historically Black Colleges and Universities (HBCUs) and one from a Hispanic Serving Institution (HSI), visited Sandia in mid-July to be briefed on the Labs' mission, its work, and on research collaboration and student programs.

The 10 professors hold the Massie Chairs of Excellence at their respective schools (See "Massie Chairs," below right). The Massie program was launched in the early years of the Clinton administration by just-appointed DOE Secretary Hazel O'Leary, who wanted the department to lend more support to minority-focused education. Her goal was to ensure that students at these schools had the opportunity to participate in excellent programs in science and engineering that could lead to advanced degrees and professional employment. The program, which establishes endowed chairs at participating schools, is named to honor Samuel P. Massie, a chemist of international reputation who, among his many career highlights, was the first African-American professor at the US Naval Academy.

Originally begun as a DOE Environmental Management initiative and now supported by NNSA, the Massie Chairs of Excellence program has evolved into a comprehensive ST&E (science, technology, and engineering) and research program across the nine

HBCUs and one HSI.

During the visit, the Massie professors got briefings about Sandia work in a number of areas, including national security engineering, extreme environments, cyber security, and enabling predictive simulation. The visitors also heard about the Lockheed Martin Math and Science Academy and the National Institute of Nano-Engineering.

They liked what they saw. Says Nosa Egiebor, who holds the Massie Chair of Excellence at Tuskegee University, "I was amazed at the level of excellence and world-class depth of research at Sandia. I think it represents a one-of-a-kind repository of human scientific research talents and resources in the US, and the willingness of Sandia's scientists to participate in collaborative efforts with other research institutions across the country is commendable. I was very pleasantly surprised and at the same time excited at the possibilities."

Shouu-Yuh Chang, Massie chair at North Carolina A&T State University, says he appreciated the visit and found it worthwhile, but adds that he hopes it translates into more working relationships.

"While this meeting is a great start," Chang says, "well-planned follow-up steps and efforts are needed to realize the benefits of collaboration between the scientists and engineers at Sandia and the Massie chairs."

Sandia Senior Manager Anthony Thornton (1530) says the visit opened some eyes at the Labs to new collaborative possibilities.

"We engaged in some very direct discussions with the various department [Massie] chairs," Anthony says, "and there was agreement that the



MASSIE CHAIRS OF EXCELLENCE, from left, John Fuller, Prairie View A&M University; James Johnson, Howard University; Nosa Egiebor, Tuskegee University; and Roberto Lorán, University of Turabo, get a briefing on capabilities at Sandia's Thermal Test Complex from Sheldon Tieszen (1532). (Photos by Randy Montoya)

national laboratories in general typically target the MITs, Stanfords, and Caltechs of the world when seeking university collaborations. The chairs reminded us that if we took the time to peel back the first layer, that we could find pockets of world-class capabilities and researchers at their institutions to support our efforts. . . . I envision this [visit] will evolve into joint proposals, a collaborative research environment, and a pipeline of new talent into the laboratories."

The Massie Chairs of Excellence

- Shouu-Yuh Chang NC A&T University
- Ben Wang Florida A&M/Florida State U.
- Ernest Walker Southern University
- Lonnie Sharpe Tennessee State University
- Roberto Lorán University of Turabo
- John Fuller Prairie View A&M University
- James Johnson Howard University
- Adeyinka Adeyiga Hampton University
- Donald Helm Morgan State University
- Nosa Egiebor Tuskegee University



SHELDON TIESZEN, right, discusses the capabilities of a flame chamber at Sandia's Thermal Test Complex with visiting professors from 10 Historically Black Colleges and Universities. At Sheldon's right is Senior Manager Anthony Thornton (1530), who hosted the visit.

Eunice Young looked forward to seeing the mighty Rio Grande

By Iris Aboytis

Eunice Young (5528) erupts into laughter as she talks of her realization that she did not want to study electrical engineering. She loved math, but her college class in engineering circuit analysis cemented her lack of passion for electrodes. "I just care if the lights come on," she says. "My passion was realized in the concrete design classes, civil engineering was the way to go. I wanted to build bridges."



EUNICE YOUNG

Eunice was recently highlighted in the June/July issue of *Diversity/Careers in Engineering & Information Technology* magazine. She says she found her voice in management. "My style is consultative and situational," she says. "I am not afraid to make a decision after I have received the best set of information. My people are fantastic; their input is invaluable. I find the best decision leading to the best result comes from considering a variety of viewpoints and perspectives. I love my job."

Eunice came to Sandia 28 years ago after receiving her Bachelor of Science degree in civil engineering from the University of Kansas. She came to Sandia for the One Year on Campus program. "There was no way I could afford to go to Berkeley on my own," she says. "That program was a dream come true." She was able to earn her undergraduate degree by working at Southwestern Bell designing cable throws.

Through the effort of her bosses, she came to Sandia on a site visit. She loved it. She had read about the

mighty Rio Grande and was anxious to see its power. "It was July and there was no water," she laughs. "I was so disappointed, but it didn't matter, I had fallen in love with Sandia."

"I have changed careers four times," she says, "but I am still not building bridges."

She began her Sandia career modeling targets for weapons systems. "Exploratory Systems was a great place to learn the 'hows' of R&D," she says. "That was followed by an assignment to DOE to support the Historically Black Universities and Minority Institutions Cooperative Agreement. I learned about federal regulations and how to build partnerships with universities. The highlight of this assignment was winning a Black Engineer of the Year Award."

She rejoined a technical team to build a risk analysis tool for the Hanford site. "This was my first experience with my software being used outside of the Labs for a non-R&D application," says Eunice. "It was a small team that had huge impact. That work was recognized with a President's Quality Award." The last change was into management.

Her life seems so different from growing up. Her dad was a career Air Force noncommissioned officer. Her parents had high expectations for their family. "My wonder years coincided with a turbulent time of our nation," she says. Her love of math kept her connected and away from stressful times. For Eunice the only option was a college education. Motivation came in different ways. "At my dad's suggestion (insistence) I worked as a maid for the summer after high school. He wanted me to understand my options."

At Sandia Eunice has developed an increased self awareness. Hard work does pay off. "I do not want my staff to miss opportunities," she says.

Hiking helps Eunice stay balanced. "My goal is to hike in all the major national parks," she says.

UHC on-site representative available for appointments

Are you enrolled in the UnitedHealthcare medical plan? If so and if you have a question about a claim or bill or need help locating a doctor, there are avenues to help you get the information you need. First step: Call the 800 number on the back of your UHC identification card. If you need additional help, call Beth Ann Seng, the UHC on-site representative. HBE Customer Service at <http://hbe.sandia.gov> or 505-844-HBES (4237) will put you in touch with her. Seng is available for appointments; her on-site hours are Monday-Thursday, 9 a.m.-3 p.m., at the New Mexico IPOC Building, 1611 Innovation Parkway SE, 3rd floor. Walk-ins are welcome, but appointments ensure that your time and travel to IPOC are well-spent. UHC members outside Albuquerque can request a phone appointment.

More UnitedHealthcare news . . .

Would you rather use the Internet than the telephone to ask a question or seek information?

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For a list of FAQs, refer to this website: https://www.myuhc.com/content/myuhc/Member/Assets/Pdfs/Consumer_FAQs.pdf.

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