

Leaders in Washington, at Labs working to see that worst-case funding scenario doesn't come to pass

By Bill Murphy

In the wake of continued uncertainty about the status of the FY08 federal budget, particularly as it relates to nuclear weapons work, NNSA Administrator Thomas D'Agostino last week directed labs management across the complex to begin planning for a worst-case funding scenario (defined by the House bill) that could lead to the loss of hundreds of jobs at Sandia, affecting both employees and contractors.

The impacts of the House bill would be largely in the nuclear weapons program area and in support work. Other program areas in the Sandia mission portfolio are growing, and this could mitigate some of the impact of the worst-case nuclear weapons budget reductions. Labs Director Tom Hunter has emphasized that the

contingency planning process is being addressed as a Labs-wide issue.

In a message to Sandia employees last Friday, Tom wrote, "Following Tom D'Agostino's request, Sandia will develop a plan for this worst case, but not implement it unless directed. As we size the workforce for the next year, we will, of course, account for expected attrition, the growth of our programs in many areas, and assess the size of workforce and actions needed. At this time we do not intend to change our budget plan for FY 2008."

"Though this analysis relates only to the nuclear weapons program, and other programs may be growing, we will work this as an issue for the entire laboratory."



LABS DIRECTOR
TOM HUNTER

Members of the New Mexico congressional delegation issued statements last week indicating their intent to try to avert the worst-case
(Continued on page 4)

Surf's up for TuffFoam



TUFFOAM™ named a "notable technology development" for 2007. See story on page 3.
(Photo by Randy Wong)

Sandia spearheads launch of innovative educational institute

By Neal Singer

A radically different type of science education intended to accelerate innovation and involve more US students in the study of technology — in this case, at the intersection of engineering science and nanotechnology — is the subject of a memorandum of understanding signed by Sandia with 20 industrial partners and universities.

NINE program takes wing with many external partners

The Sandia-led group, called NINE for National Institute for Nano Engineering, already has gathered industrialists, college professors, and administrators, as well as undergraduate and graduate students, to develop a novel approach to teaching

(Continued on page 5)

Sandia LabNews

Vol. 59, No. 19

September 14, 2007

Managed by Lockheed Martin for the National Nuclear Security Administration



Sun sets on Sandia Pulse Reactor

Labs leads way in NNSA Special Nuclear Material consolidation effort

By Stephanie Holinka

Its mission completed, the Sandia Pulse Reactor (SPR) rides off into the sunset, headed toward Nevada. It leaves behind the operators who say it's a bittersweet moment: They're proud of what SPR has accomplished over the past 40-plus years, but sad to see such an important part of Sandia's work and history leaving the Labs.

Sandia Pulse Reactors provided intense neutron bursts for radiation effects testing of materials and electronics. They were used primarily for narrow-pulse, high-dose-rate testing of electronic devices.

All of the SPR configurations served to verify that certain weapon parts could withstand high doses of radiation. SPR II completed its first criticality tests in 1967, and SPR III in 1975. SPR I was operated at Sandia from 1961 to 1967.

In storage for more than five years

SPR III had been in storage for more than five years before being resurrected from its in-ground storage vault for critical survivability testing for the W-76 Life Extension Program. The reassembled reactor ran in the SPR Kiva from January through September 2006, operating safely for 159 days and conducting 563 operations.

SPR III also supported the Qualification Alternatives to the Sandia Pulse Reactor (QASPR) project, which accomplished key testing and modeling milestones in FY06.

In the 132 days of tests dedicated to QASPR prior to its shutdown, SPR characterized more than 3,900 transistors. The testing included low-temperature research (20 kelvin), which advanced the understanding of neutron damage to electronics.

Researchers also used SPR in the development and demonstration of two-dimensional computa-



SHIPPING OUT — John Garcia (left) and Allan Crowder (both 1382) prepare dismantled components of the SPR for shipment to the Nevada Test Site.

tional modeling of a silicon bipolar junction transistor's response to neutron damage, a critical step to developing a predictive capability.

SPR III is being sent to the Nevada Test Site, where it will again sit in storage, awaiting a time when the nation may call it into service. Materials from SPR II will be sent to Los Alamos National Laboratory and to Savannah River National Laboratory for processing and disposition.

SPR's departure leaves an empty feeling among the staff who spent much of their careers building, maintaining, and using it in support of

(Continued on page 5)



Retiree picnic/social

It's a tradition that goes back decades: Hundreds of Sandians, whose careers spanned the years from the 1950s to the 2000s, gathered at Albuquerque's Botanical Garden for the annual retiree picnic/social. Photos on page 6.



UT System officials visit

University of Texas System Chancellor Mark Yudof and a delegation of UT System officials visited Sandia recently to review ongoing collaborations and to plan for future initiatives. Story on page 7.



54 years of service

Gordon Boettcher — who spent 54 years at Sandia and was one of the Labs' first distinguished members of technical staff — recalls a career marked by notable accomplishment. Story on page 12.

What's what

I'm not an opera fan, but I always loved listening to Luciano Pavarotti sing – solo and with two other towering tenors of his era, Placido Domingo and José Carreras. Beyond their operatic careers, they became renowned as The Three Tenors for tours and recordings they made together singing a mix of popular and operatic music.

My appreciation of his great voice was cemented a little over a year ago while two friends and I were sailing my newly acquired



MAESTRO LUCIANO PAVAROTTI in his last public appearance, at the 2006 Winter Olympics in Turin, Italy, bridged the musical generation gap with his signature aria, "Nessun Dorma," from Puccini's *Turandot*.

Morgan Out Island up the chain of Caribbean islands from Trinidad to St. Thomas. An overheating problem kept us from using the engine, so we were moving by sail only. And a lot of the time, not moving a lot because we didn't have the winds and currents we should have had at that time of year.

One day, about midway through a 10- or 12-hour stretch of being becalmed off the northwest end of Guadeloupe, the "bang-slap!" of the boom and mainsail swinging back and forth with the rhythm of the long Atlantic swells was making me mostly batty. Noting my frustration, Cap'n Dennis Wall handed me his MP3 player and said something like, "Here, listen to this. It'll make you feel better."

I listened. It was Pavarotti singing "Nessun Dorma," and it did calm my frustration – something like the "music to soothe the savage beast" syndrome, I guess. I listened to it a couple more times before the wind picked up in the late afternoon and sent us on our way again.

"Nessun Dorma" was sort of "his" song, and The Maestro sang it in a surprise appearance to close the opening ceremony of last year's Winter Olympics in Turin in his native Italy. It turned out to be his last public performance and, as always, he brought the house down.

* * *

About organization titles, OAA Cher Porter wrote, "I want to register hearty agreement with your 'keep it simple' discussion. When people ask me what I do, I tell them I'm a secretary. People know what that means. (Various) names for administrative people these days just leave more questions as to what we really do. Thanks for bringing it up!"

Well, whether you agree with her or not, Cher's opinion has to have some weight. She serves four groups as secretary/OAA – Depts. 1130, 1133, 1814, and 1816 – and that's work, no matter what you're called.

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

Sandia ranks high in pollution prevention

By Jacqueline Cieslak

Sandia employees received two NNSA Pollution Prevention (P2) best-in-class awards this year. This is the fourth year that these awards have been presented across the NNSA complex to individuals and teams.

The two awards Sandians received were in the Recycling category and the Waste/Pollution Prevention category. The recycling award went to a team of nine and the Waste/Pollution Prevention award went to an individual. Here's a brief look at what these Sandians accomplished:

Recycling award: Disassembly Sanitization Operation (DSO)

This team operation, led by Dwight Stockham (4139), began in 1998 to destroy classified material removed from the Classified Waste Landfill. Since 2004, the operation has changed to act as a service offered to Sandia organizations.

Classified material accepted for DSO is disassembled and sanitized through a variety of operations including the use of a shredder, ring mill, band saw, and/or hand tools. The material is altered and/or disassembled as much as needed to make it unclassified, eliminating the need to store it securely.

"By storing it, you have to inventory it and keep track of it, which costs," Dwight says. "We take 80 to 85 percent of that stuff and recycle it."

Most of the material the operation recycles is some type of scrap metal. Depending on what needs to be disposed, organizations within Sandia can schedule the DSO service by contacting Dwight (844-5493 or djstock@sandia.gov).

The following Sandians were part of the award-winning team: Max Saad (2732), Wayne McKenna (4139), Patrick Dotson (4139), Craig Wood (4133), David Biswell (4139), William O'Neill (4139), Lance Erickson (4139), and David Merren (4139).

Waste/Pollution Prevention award: HERMES III Waste Minimization Practices

Developed and implemented by Gary Tilley (1342), new practices and procedures with the High-Energy Radiation Megavolt Electron Source (or HERMES III) accelerator have minimized waste and saved tens of thousands of dollars.

The HERMES III accelerator is a modular, high-power, large-area, gamma-ray simulation source that has been in operation for 18 years. It requires maintenance that can create large amounts of hazardous and solid waste.

Personnel at the HERMES III accelerator have been working to minimize its waste for the past 18 years, and Gary has taken it to the next level by incorporating the following processes: sulfur hexafluoride (SF6) optimization, elimination of hazardous chemicals for parts and equipment cleaning, deionized water resin bed – extended use, and hardware reuse.

According to Gary's P2 nomination, "Instead of purchasing new equipment in an effort to enhance the process, he worked with what he had and increased the overall efficiency of the process by doing so."

Recent Patents

Note: Patents listed here include the names of active Sandians only; former Sandians and non-Sandia inventors are not included. Following the listing for each patent is a patent number, which is searchable at the US Patent and Trademark Office website (www.uspto.gov).

Michael Forman (8228): Waveguide Device and Method for Making Same (Patent No. 7,256,667)

James Tomkins (1322) and William Camp (12101): Interconnection Arrangement of Routers of Processor Boards in Array of Cabinets Supporting Secure Physical Partition (7,246,217)

Tim Boyle (1815): Titanium Alkoxide Compound (7,256,290)

Dale Dubbert (5345) and Peter Dudley (5348): Quadrature Mixer LO Suppression via DWS DAC Noise Dither (7,259,716)

Rene Shediach (8324) and Blake Simmons (8755): Reactive Ion Etched Substrates and Methods of Making and Using (7,253,008)

Sandia LabNews

Sandia National Laboratories

<http://www.sandia.gov/LabNews>

Albuquerque, New Mexico 87185-0165
Livermore, California 94550-0969
Tonopah, Nevada • Nevada Test Site • Amarillo, Texas •
Carlsbad, New Mexico • Washington, D.C.

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

Bill Murphy, Editor 505/845-0845
Chris Burroughs, Writer 505/844-0948
Randy Montoya, Photographer 505/844-5605
Mike Janes, California site contact 925/294-2447
Michael Lanigan, Production 505/844-2297

Contributors: John German (844-5199), Neal Singer (845-7078), Stephanie Holinka (284-9227), Howard Kercheval (columnist, 844-7842), Iris Aboytes (844-2282), Michael Padilla (284-5325), Julie Hall (284-7761), Rod Geer (844-6601), Patti Koning (925-294-4911), Michelle Fleming (Ads, Milepost photos, 844-4902), Darrick Hurst (intern, 844-8009), Dept. 3651 Manager: Chris Miller (844-0587).

Lab News fax 505/844-0645
Classified ads 505/844-4902

Published on alternate Fridays by Media Relations and Employee Communications Dept. 3651, MS 0165



Lab News Reader Service

The Sandia Lab News is distributed in-house to all Sandia employees and onsite contractors and mailed to all Sandia retirees. It is also mailed to individuals in industry, government, academia, nonprofit organizations, media, and private life who request it.

Retirees (only):

To notify of changes in address, contact Benefits Dept. 3332, Customer Service, at 505-844-4237, or Mail Stop 1021, Sandia National Laboratories, Albuquerque, NM 87185-1021.

Others:

To receive the Lab News or to change the address (except retirees), contact Michelle Fleming, Media Relations and Communications Dept. 3651, 505-844-4902, email meflemi@sandia.gov, or Mail Stop 0165, Sandia National Laboratories, Albuquerque, NM 87185-0165.

Employees:

To change the number of copies of the Lab News your mail stop is receiving please call Honario Anaya, Mail Services Team 10268-4, at 844-3796. At Sandia/California contact the Mail Room at 294-2427.

Web users:

The Lab News is on the Web at www.sandia.gov/LabNews.

TuffFoam still riding high as option for surfboard blanks

By Patti Koning

Even though LeRoy Whinnery (8778) has been described by ESPN's magazine as an "avid surfer," he was not in San Diego last week to ride the waves. Instead, he was at the Federal Laboratory Consortium (FLC) Far West and Mid-continent Regional Meeting to accept a 2007 Notable Technology Development Award for TuffFoam™.

"I am very honored that the efforts of the TuffFoam team have been recognized," he says. "It has been a lot of work achieving our current level of technical understanding of TuffFoam, as well as protecting the intellectual property and dealing with media and licensing requests. I am fortunate to be part of a great team where people work well together and help each other."

Greener than alternatives

The other members of the TuffFoam team are: Tim Evans (11600), Steve Goods (8758), Jennifer Hallstrom (8528), Craig Henderson (1801), Mike Janes (8528), Pat Keifer (8778), Tim Shepodd (8778), Dawn Skala (8238), Roger Watson (8758), and Jim Wilhelm (8529).

TuffFoam is a low-density, energy-absorbing foam originally conceived by Sandia materials scientists for NNSA as an encapsulant material to protect sensitive electronic and mechanical structures from harsh weapons environments. It is a water-blown, closed-cell, rigid polyurethane foam that features formulations as low as 2 pounds-per-cubic-foot density.

TuffFoam garnered a lot of attention because

Sandia California News



NICE LINES — Polymer chemist and recreational surfer LeRoy Whinnery (8778) with a new toy — a 6-foot surfboard blank made from TuffFoam™. (Photo by Randy Wong)

of its potential as a material for surfboard blanks. It does not contain toluene diisocyanate (TDI), a chemical traditionally used in the production of surfboard blanks whose environmentally toxic properties have practically shut down the industry in the US. Currently most surfboard blanks are manufactured outside the US, but LeRoy believes there is still a niche market for "green" surfboards manufactured domestically.

In the past year, the technical team has continued characterizing the mechanical properties and made comparisons to other competitive

foams, discovering that its thermal conductivity is very low. The team has also added fire retardant to the formulation. Several of the potential commercial applications either require or would benefit from the material being fire retardant.

Whether it is eventually used on the beach, in a car, on a plane, or elsewhere, the outlook for TuffFoam is good.

"We continue to get weekly inquiries about TuffFoam and recently opened negotiations with a leading manufacturer of building materials," says LeRoy.

Local team shines at National Middle School Science Bowl

Sandia has been running regional DOE science bowl since 1992; added mid-school science bowl two years ago

By Patti Koning

The competition is fierce. The questions and answers come quickly, often with all of the competitors going for the buzzer at once. It's not *Jeopardy* — although it could be, if the categories were earth science, physical science, life science, math, and general science.

Rather, it's the DOE National Science Bowl®, the only science competition in the US sponsored by a federal agency. The mission of the National Science Bowl is to encourage students to excel in science and math and to pursue careers in those fields.

Students answer questions like: "What is the name for the physical constant with a value of 6.62×10^{-27} erg seconds?" (Answer: Planck's constant) and "If the full moon rises in Nebraska at about 9 p.m., what will be the approximate time it rises the next day?" (Answer: 9:50 p.m.)

In partnership with Las Positas College (LPC), Sandia has been running a regional competition of the High School Science Bowl since 1992. Two years ago, Sandia and LPC took on the Middle School Science Bowl.

This summer the winner of the Regional Middle School Science Bowl, Newark's Challenger School, finished second in the National Middle

School Science Bowl held in Denver. Ray Ng (8940) attended that competition, on his own time, to serve as a moderator.

Ray leads Sandia's Science Bowl Committee, which also includes Martha Campiotti (8750), Karen Cardwell (8944), Annette Hoff (8947), and Dean Williams (8945).

The committee and volunteers do everything for the competition so that students, parents, and teachers just have to show up. That includes registration, setup, moderating, scoring, keeping time, posting results, resolving challenges, and feeding the competitors and their families.

Martha says she helps with the Regional Science Bowl competitions because she enjoys

working with kids, especially girls. After her own daughter was told by a teacher to stick to the regular math curriculum because her parents were not PhDs, Martha made it a point to encourage all girls to pursue math and science in school.

The Science Bowl recognizes and rewards achievement in math and science. It also brings recognition to Sandia as a partner in the community. And, says Ray, it's never too soon to be thinking about workforce development.

"We can show kids that science and math are fun and exciting. At the same time, they are exposed to what Sandia offers," he says. "The two

are interconnected — people who work at Sandia tend to find math and science fun and exciting."

In his role as a Sandia recruiter at the University of California, Berkeley, Ray has observed that students who participated in the Science Bowl remember Sandia.

Ray was part of Sandia's Education Outreach team from 1990 to 1995. In 1989, he was inspired by a talk by then-DOE Secretary James Watkins at the Lawrence Hall of Science. The message of the speech was that math and science education was hurting and that the DOE, with the greatest resources in these areas, had an obligation to help.

Last year Ray was awarded a DOE grant to fund a teacher workshop program that will bring 10 teachers to Sandia for four weeks in the summer. The program originally was to be implemented this summer but is on hold until next year due to the continuing resolution status of the DOE budget.

"The education system has needs in the areas of math and science," says Ray. "This is an area where we can help. We can't solve the problem, but we can help teachers by getting students excited and providing resources."

Ray credits the support of his manager, Chuck Oien (8940), with helping him get the grant.

"Ray has a passion for educational outreach and he dedicates a lot of his personal time to it," Chuck says. "It is important for Sandia/California to stay visible and connected, so I carved out some time from his other work for Ray to work on the proposal."

Ray's now working on another proposal for the National Science Foundation that is primarily focused on providing a sustainable infrastructure for site educational outreach. If successful, Ray just might find himself back in education outreach full-time. Until then, there are next year's science bowls to prepare for.



THE CHALLENGER SCHOOL Team won the Sandia/Las Positas College Regional Middle School Science Bowl and went on to taken second place at the National Middle School Science Bowl. (L-R) Front row: Arun Pingali, Tanay Kothari (captain), Aditya Limaye, Nikhil Desai. Back row: Raji Pingali (coach), Dipty Desai (assistant coach).

Budget planning

(Continued from page 1)

funding scenario.

The D'Agostino letter was prompted by the fact that Congress has yet to pass an FY08 budget and it is not clear that it will do so before the beginning of the fiscal year on Oct. 1. In this kind of situation, which is not unprecedented, government facilities operate under what is called a continuing resolution. By practice a continuing resolution is a funding mechanism that allows continued operation during an interval in which a new budget has not been approved by the time a new fiscal year begins; it is defined as the lowest of three proposed budgets: the House bill, the Senate bill, or the President's budget proposal.

A number of planning scenarios

In his memo to employees, Tom said: "What this means is that there is uncertainty about whether or not the Congress will act on an appropriations bill. This uncertainty then dictates that we need a plan for the worst case . . . We will, of course, be dealing with a number of planning scenarios as we go forward."

In his letter to NNSA facility managers, D'Agostino said ". . . for every budget account, we have to plan for an operation that may be the lower of the House and Senate marks in each area, as prior continuing resolutions have imposed a similar requirement to operate in this fashion pending enactment of a budget. Since we have no ability to estimate how long we may have to operate under these conditions, we have to anticipate that it will be for an extended period of time. This situation unfortunately will cause some significant impacts to our sites' operating budgets and could affect our workforce." D'Agostino directed management to share the information with employees.

The D'Agostino memo did not catch Sandia by surprise. Labs management, Tom noted in his message to employees, began contingency planning last June in the event that the House funding bill, which called for a reduction in nuclear weapons work of some \$180 million, became law.

In addition, Sandia has already been in the

process of developing a revamped internal business model that will keep indirect costs at their current level so that more of every dollar that comes into the Labs is applied directly to mission work.

June memo first addressed issue

Last June, in a previous memo to employees, Tom noted that the House bill, as it then stood, "could result in a loss of approximately 625 Sandia employees, including 400 nuclear weapons staff and 225 support personnel. In addition, this could result in the direct loss of approximately \$75-\$90 million in other essential products and services, including a loss of approximately 300 contractors, reduction in procurements, and cancellation of construction, principally within the State of New Mexico."

The current contingency planning, based on a worst-case funding scenario, could mean the loss of around \$220 million, and could, Tom noted in last Friday's memo, "possibly require a reduction of a greater number of people than reported in the June memo."

"Though this analysis relates only to the nuclear weapons program, and other programs may be growing, we will work this as an issue for the entire laboratory," Tom wrote.

D'Agostino directed Sandia and the other NNSA sites to actively collect information and prepare documents associated with the legal requirements for workforce restructuring as prescribed in Section 3161 (DOE Defense Nuclear Facilities Work Force Restructuring Plan) of the 1993 National Defense Authorization Act, the 1988 Worker Adjustment and Retraining Notification Act, collective bargaining agreements, and contracts.

1996-97 workforce restructuring

Section 3161 requirements were invoked during a previous workforce restructuring in 1996 and 1997. At that time, 800 positions in 13 job classifications were targeted for elimination; that goal was achieved without layoffs.

In his memo last week, Tom noted that Labs management has formed a team under Director Dave Carlson (0200) with members from across the laboratory to respond to NNSA's request.

"This team will look at not just the nuclear

weapon impacts but will develop a balanced plan across all programs of the laboratory which will address the '3161' required scenarios," Tom wrote.

"I know this uncertainty is unsettling for all of you," Tom wrote. "We have an obligation to be prepared for 'worst cases' like this. We also have an obligation to deliver on our commitments to all our customers. Further, we are committed to respect all our employees and we will do our best to share further information as it develops."

Congressional delegation weighs in

While labs managers across NNSA were planning for the worst, members of the New Mexico congressional delegation were vowing to do everything they could to ensure that the worst doesn't happen.

Sen. Jeff Bingaman, D-N.M., chairman of the Senate Energy and Natural Resources Committee, said last week, "We are working hard in the Senate to maintain the president's budget for the labs. I will continue working with the rest of the delegation to ensure that the labs receive the highest possible level of funding to support their critical mission needs."

Sen. Pete Domenici, R-N.M., said Labs management was acting "prudently" to prepare for a worst-case scenario, adding, "I will fight as much as I can for the funding levels in the Senate's FY2008 plan, current levels, or even the president's budget request as the appropriations cycle grinds on this month. If we prevail, the projected layoffs would be much less severe than what would occur under the House plan."

Rep. Heather Wilson, R-N.M., said, "It's clear that the New Mexico impact of the House-passed bill would be devastating to Los Alamos and would have serious impact at Sandia. I will do everything I can to stop the House bill from becoming law. The layoffs would be significant."

Rep. Tom Udall, D-N.M., represents the district that includes Los Alamos National Laboratory. He said last week, "No one wants job cuts at LANL and this should not be taken as an indication that there will be. I have been assured that as the appropriations process continues, the final conference report will fully fund the core mission of the lab."

Little vampires transfer potentially harmful disease to *Homo sapiens*

By Iris Aboytes

It's the monsoon season in New Mexico and female mosquitoes think it is time for the harvest. A new book by University of New Mexico Press, *The Mosquitoes of New Mexico*, coauthored by Sandian Ted Wolff (3652) and University of Utah professor Lew Nielsen, offers insight into these mighty little disease-carrying vampires.

Ted was born in Philadelphia and educated at Girard College, a school for orphans founded and endowed by the fortune of Stephen Girard, a French immigrant who amassed one of the largest fortunes in America before he died. Among Girard's accomplishments was the management and direction of a hospital in 1793 during the yellow fever epidemic.

"We heard many stories of how Girard built Bush Hospital and personally ministered to those who were ill when they contracted the fever," says Ted. "He had no regard for his own safety. Years later when my wife, Maria Martinez-Wolff, and I were teachers in Malaysia with the Peace Corps, we slept under a mosquito net and took anti-malaria pills for two years. We became aware of mosquito-borne diseases."



MOSQUITO RESEARCHER Ted Wolff gathers specimens near the Rio Grande Nature Center.

(Photo by Maria Martinez-Wolff)

His experience in Malaysia led Ted to pursue a master's in public health where he concentrated on medical parasitology. He returned to New Mexico and worked for the New Mexico Health Department as a medical entomologist. He was in charge of the control and surveillance of mosquito-borne encephalitis. Ted collected the data on New Mexico mosquito species at that time. His interest led him to a PhD in biology.

He invited Nielsen, now professor emeritus at the University of Utah, to coauthor the book. Ted had been Nielsen's student. "My plan was always to write a book that would provide public health professionals a clear identification guide and

account of the almost 60 species found in New Mexico," he says. "Various events in my life put the book on hold."

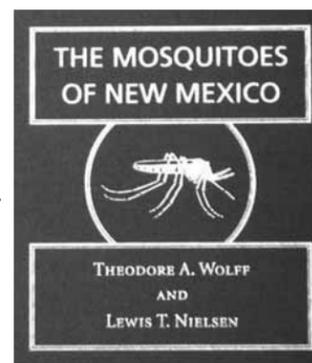
Mosquitoes found in New Mexico include the genus *Anopheles*, a carrier of malaria; *Aedes*, a carrier of several human diseases; and *Culex*, which can carry West Nile virus and other encephalitis viruses. Most of the species belong to the genus *Ochlerotatus*, some of which have been implicated in disease transmission, but

most in the genus are primarily pest species.

Ted thinks mosquitoes are complex, interesting, and beautiful under the microscope. Some of them actually look like sapphires. "If they were bigger," says Ted, "I think they would be as popular as birds or butterflies."

Ted is pleased his book is in print. His plan now is to research historical and medical records that document the existence of malaria in the pueblos and villages of New Mexico as recently as the 1930s and perhaps write another book that would appeal to the general public.

Sandia recently completed an LDRD project, Entomological Remote Sensing Model for Vector-Borne Disease Detection, to review the potential use of remote-sensing models to identify the likely habitat of certain insects, which could enable the early testing for disease and allow for timely and accurate mitigation measures. The ultimate goal was to develop a remote-sensing model using a combination of imagery and insect data to aid in the detection and mitigation of vector-borne disease (VBD). For more information contact Susan Caskey (6724) at sacaske@sandia.gov or 284-5095.



SPR dismantled

(Continued from page 1)

the nation's nuclear weapons stockpile. Darren Talley, manager of nuclear reactor facilities, says he is sorry to see SPR go. "It's a unique capability," he says. "Everyone is feeling the loss."

Among them, SPR's staff have seen more than 13,000 operations of the SPR facilities. When SPR leaves Sandia, their skill and knowledge won't travel with the piece parts to the Nevada desert.

"It's an operator's reactor," says Darren. "Each experiment changes the reactor. The operator's experience with the machine was integral to



THE SPR KIVA, home of the first experiments using the Sandia Pulse Reactor in the early 1960s.

successful operations."

Sid Domingues, a Sandia SPR operator who worked with SPR II and SPR III for more than 31

years, agrees.

"The operation of SPR was heavily knowledge-based," he says. Sid worked briefly on the rebuilding of SPR II, and served as part of the team that built SPR III in 1975. Sid is among only five people qualified to operate SPR, along with Sandians John Ford, Matt Burger, Don Berry, and the most recently qualified operator, Autumn Higgins.

In addition to the many dedicated Sandians, SPR's removal required the careful and coordinated effort of many experts in the complex, says Dave Wheeler, manager of the Sandia special nuclear materials de-inventory project. Representatives from the Nevada Test Site and Los Alamos provided expertise and equipment to streamline the process of moving and storing SPR III at NTS. Y-12 designed, tested, and manufactured the shipping containers that will hold the unique SPR parts on their way up to NTS for storage.

Categorizing and removing special nuclear material

Nuclear materials are categorized according to the amount of material at a given site, the type of material, and the "attractiveness" of the material to certain groups. Expensive measures are required to store, secure, and work with category 1 and 2 materials, such as those required for SPR's operation.

NNSA charged Sandia with removing its category 1 and 2 special nuclear material (SNM) by the end of 2008. SPR's removal propels Sandia's de-inventory project significantly forward by reducing the number of locations requiring the expensive security measures required for cat-

egory 1 and 2 SNM.

Dave Wheeler says the Sandia team intends to meet its 2008 deadline.

Sandia's de-inventory project will continue to remove the remaining category 1 and 2 materials at the Labs. When the last of the special nuclear material is gone, the highly secure area where it has been kept can become a regular limited area, which is far less expensive to protect than had been the case when the material was onsite.

The area vacated by SPR will be used for critical experiments in support of the Yucca Mountain project.

Innovation

(Continued from page 1)

nano-engineering that will complement and extend the more standard techniques of university education.

Among those involved are Corning Inc., Exxon Mobil Corp., Goodyear Tire and Rubber, Harvard University, Harvey Mudd College, Intel, Lockheed Martin, Rensselaer Polytechnic Institute, Rice University, Yale University, the University of California at Davis, the University of Florida, the University of Illinois, the University of New Mexico, the University of Notre Dame, the University of Texas at Austin, and the University of Wisconsin.

Students ranging from freshmen to advanced graduate students will be brought together from numerous universities to contribute an unusual variety of viewpoints and ideas. Integrated into research teams that encounter the entire engineering design-to-product cycle, they will experience the excitement of solving real scientific or engineering problems — or even the harder job of formulating the questions to be asked.

Not just yes or no answers

Says NINE program manager Regan Stinnett (1817), "The question isn't, how does a student deal with a question that can be answered 'yes' or 'no.' We want students to experience topics that're too big to throw their arms around. We want NINE's problems large enough that students will explore depths that will eventually lead to innovations."

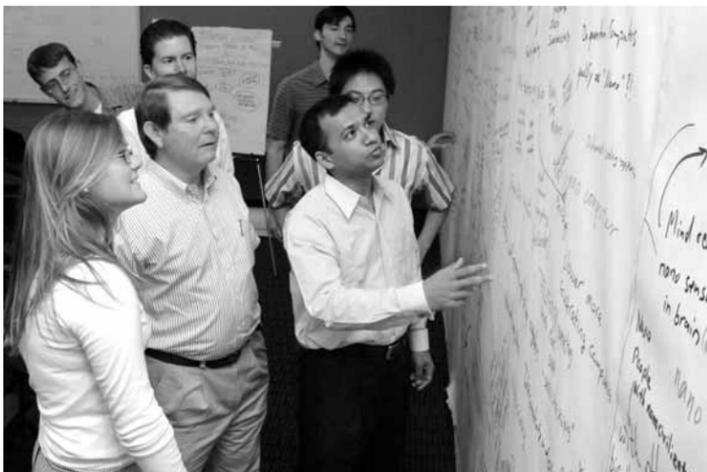
"The point is to expand the breadth of science and engineering education by transcending the boundaries and tools provided by traditional disciplines," says Justine Johannes (1810), senior manager in the Materials Sciences and Engineering Center.

Says Materials Sciences and Engineering Center Director Duane Dimos (1800), corporate lead for the NINE initiative, "Traditionally, the US has benefited tremendously from the cream of the crop of foreign students staying here after graduation. That may not continue to be the case. We need to grow our own, and they need to be more capable than formerly, to keep our place of leadership in the increasingly competitive scientific and economic world. NINE is an effort to 'raise the bar,' on the one hand, and on the other to make the attractions of science and engineering obvious to students at early stages in their careers."

The prototype institute, funded by \$7.5 million dollars from Sandia, in short is trying to determine the most effective ways to enrich science and engineering education. Students will be involved in technical collaborations that in some ways resemble the old hands-on programs of apprentices doing actual work in the presence of masters.

Freedom and responsibility

Offered the most modern instruments at Sandia to work on national-level problems, students will work with Sandians, faculty from a variety of universities, and industrial scientists from



NINE PROGRAM MANAGER Regan Stinnett (second from left) and students discuss off-the-wall problems that may eventually lead to innovations. (Photo by Randy Montoya)

leading companies. NINE students will focus on precompetitive research in an environment that allows them also to explore the commercial realities of their work through industry representatives.

Chatting among themselves in guided groups in summer sessions, students will explore the most off-the-wall nanotechnical ideas that young minds can come up with. The experience is intended to expand their technical, creative, and commercial horizons.

"NINE will jumpstart the careers of our future science and engineering leaders," says Justine.

NINE will provide financial support for students and faculty. In addition to hands-on work in technology, it will expose students to relevant topics in business, law, politics, and society through courses, lectures, and mentoring to aid their eventual success as technology employees or entrepreneurs.

Rick's views

The idea for NINE was triggered by the Committee on Science, Engineering, and Public Policy's

study, "Rising Above the Gathering Storm," says Div. 1000 VP Rick Stulen, overall leader of the NINE effort. (The Committee is a joint creation of the National Academy of Engineering, National Academy of Science, and Institute of Medicine.) The report vividly described the increasingly dismal plight of science and engineering in the United States because of the declining numbers of US citizens entering these fields and the decreasing funding for science and engineering research in the physical sciences in the US.

"We took the lead because [at Sandia] we are engineers and scientists and we take it badly that we may fall behind," says Rick. "We see a path forward for the nation in what the DOE labs can do utilizing the unique capabilities already in existence at each site. At Sandia, the nation has made an investment in high-performance computing, microelectronics and microsystems, and engineering that is unparalleled any place else in the country. The combination can accelerate innovation if we can bring the right people together."

He points to the successful Belgium program IMEC's demonstration of the power of educational partnerships in driving innovation. IMEC is founded on a tightly coupled partnership between academia, national labs, and industry. "They're spewing out patents and their students are being gobbled up by industry," says Rick. "KIST, a 10-year-old Korean program, drives the Korean economy."

While a program hosted by one lab can't hope to turn around science education, he says, there are 25,000 PhD and master's degree holders in 17 DOE labs. "If you unleash them into structured programs, it would make a huge difference," Rick says.

A NINE program at each national lab?

"We would like to see a NINE-type program at each national lab, with each lab leading in its specialty," he says. "Each would become a national innovation center."

Congressional support was demonstrated by the recent passage of the America COMPETES Act. This legislation opens use of DOE's formidable science and technology infrastructure in the service of science education. Funding is dependent upon further legislation.

Will it work? "We won't know for several years," says Rick, "but we're working hard to be an example, and we're hopeful of success that will be attractive in changing the direction of US science education as well as increasing the number of students choosing a technology future."

Retiree picnic draws more than 1,000 attendees



Photos by Bill Doty

More than 1,000 Sandia retirees and their guests attended the annual Retiree Picnic/Social on Aug. 24 at the Rio Grande Botanic Garden in Albuquerque.

There was a clear consensus among attendees that the social was a grand success. "Very well organized," said one retiree. "The atmosphere of the gardens was delightful," said another.

The annual event was coordinated by Sandy Smallwood and Diane Denney (both 3332).

Sandia Labs Director Tom Hunter attended the event and socialized with scores of retirees, many of whom had worked with Tom in various capacities over the years. (Tom himself recently marked his 40th year of Labs service; when he began his career at the Labs, many first-generation Sandians were still on the job.)

Also attending were Labs Deputy Director Al Romig, Div. 6000 VP Les Shephard, then-Div. 4000 acting VP Dori Ellis, and Div. 3000 acting VP Pat Smith. Former Sandia VPs Dan Hartley and Ron Detry were there, as well.



Sandia, University of Texas System continue to forge stronger bonds

University of Texas System Chancellor Mark Yudof and a delegation of UT System officials visited Sandia recently to review the status of the Memorandum of Understanding signed by the institutions in October 2005 and to plan milestones for the upcoming year with a focus on the pursuit of differentiating research collaborations. Yudof, (seen here to Tom Hunter's left in the center of the photograph) and the UT System delegation, joined with Sandia counterparts for a walkthrough tour of the new MESA facilities, where this photo was taken.

During the day-long visit, Sandia and UT System officials provided a series of briefings on the status of various collaborations and discussion of potential new areas for cooperative research with the ultimate goal of creating a national agenda together.

Wendy Cieslak, deputy to Science, Technology, and Engineering VP Rick Stulen, and Keith McDowell, UT System Vice Chancellor for Research and Technology, opened the proceedings with a big-picture overview of the MOU status.

Following their remarks, Sandian Glenn Kubiak, senior manager of Biological and Microfluidics Sciences (8320), and Dave Gorenstein, associate dean of research with the UT System School of Medicine, briefed the group on collaborative bioscience and biodefense research, emphasizing the status of collaborative projects with the University of Texas Medical Branch.

David Strip, a member of technical staff in Computational Biology Dept. 1412, briefed the group on a collaboration addressing national healthcare modeling. The aim of the research is to develop, distribute, and maintain a computational model capable of predicting the impact of alternative healthcare choices.

Duane Dimos, director of Materials Science and Engineering Center 1800, offered an update on the National Institute for Nano Engineering (NINE), which has been described as a new model for developing the future innovators and innovations in science and engineering through a unique partnership of government, academia, and industry (see, "Sandia



Photo by Randy Montoya

spearheads launch of innovative educational institute" on page 1).

The National Initiative for Modeling and Simulation (NIMS) aims to: Provide the infrastructure for collaborative research between computational engineers and scientists at Sandia and the UT System; address grand challenges in computational science that affect the competitiveness of the US; and enhance the educational environment. Sandians Art Ratzel, director of Engineering Sciences Center (1500), James Peery, director of Computations Computers, Information, and Mathematics Center 1400, and Tinsley Oden, associate VP of research at UT System, briefed the group on NIMS.

At the end of the day, Labs Director Tom Hunter, Chancellor Yudof, and Labs Deputy Director for Integrated Technologies and Systems Al Romig offered their insights into the status of the Sandia/UT System partnership and some perspectives on the next steps in the growing relationship.

Sandia News Briefs

Badge, Clearance, Human Reliability Program offices move offsite to IPOC

The Badge, Clearance, and Human Reliability Program (HRP) offices have moved to the new Innovation Parkway Office Center (IPOC) east of the Eubank Gate.

As of the end of last month, all badging, clearances, and HRP needs were being processed at the IPOC building.

Previously, there had been a satellite badge office for contractors; that too, has ceased operation. All contractors will continue to enter through the contractor gate, but badges are issued at the IPOC building.

For complete online information (on Sandia's internal web) about badging policies and procedures, information about access to Kirtland Air Force Base, and related issues, refer to the Badge Office website at www-irn.sandia.gov/security/program/badgeoffice. For additional information about clearances and the Human Reliability Program, refer to the internal web.

Office hours at the IPOC building are:

Badge Office:	7:15 a.m.-4 p.m. Monday-Thursday
	7:15 a.m.-3 p.m. Friday
Clearance Office:	8 a.m.-4 p.m. Monday-Thursday
	8 a.m.-3 p.m. Friday

Defense Programs Awards of Excellence ceremony set for Sept. 20

The Nuclear Weapons SMU has announced that the CY2006 NNSA Defense Programs Awards of Excellence ceremony will be held at the Steve Schiff Auditorium on Thursday, Sept. 20, from 1:30 p.m. to 3:30 p.m. Three Sandia individuals and 14 teams will receive awards. California recipients will be honored in a separate ceremony on Oct. 3. The special guest speaker will be Martin J. Schoenbauer (Acting) Principal Assistant Deputy Administrator for Military Application, Defense Programs. RSVP using the online registration form at rewards.sandia.gov/dpae. For information, contact Deanna Gomez-Dalton at 844-5259.

One man's trash is another man's treasure Sandia's Reapplication site is the ultimate garage sale — and it's free

By Iris Aboytes

Garage sale signs pepper many street corners during spring and summer months. People describe garage sales as an adventure, a treasure hunt, or a way to get needed items at a good price. For those holding a sale, it is a profitable way to clean a garage. After all, everyone is looking for a bargain.

At Sandia there is a year-round garage sale. Prices can't be beat — items are free for the taking. Sandia's Reapplication site boasts 10 acres of treasures. Imagine a garage sale with more than 8,000 participating families. Hard to beat!

Reapplication is located at the southwest corner of Harding Blvd. and East Ordinance Rd. It is currently open for browsing daily from 10 to 11:30 a.m. Winter hours will be announced in the *Sandia Daily News*. Items arrive daily. What is not there one day may be there the next.

Desks, chairs, AnthroCarts, television sets, office supplies, etc., fill the many tents, but they also have other conveniences. Have you yearned for a refrigerator? Have you wanted to decorate your office walls with masterpieces? Do you need a tool chest? How about a toaster for those fat little bagels? You need a coffee pot to go along with the bagels? Has your microwave refused to take orders? What could be more perfect? Get what you want and pay nothing, nil, nada!

Phil Rivera (102671) has chosen to decorate his office in early, and late, Sandia decor. He has a beautiful 1940s executive oak desk, matching Early American lamps, and a comfy



WELCOME TO MY WORLD — Phil Rivera, team leader for Reapplication Services, shows off some of the computers available for return to use. (Photo by Bill Doty)

chair. That is not all. He has beautiful paintings on his walls, an old scale to pique your curiosity, and various other items evoking Sandia's proud history — to die for. They are all reclamation acquisitions.

"Sometimes I turn the lights down to make it more *feng shui* [the ancient Chinese practice of placement and arrangement of space to achieve harmony with the environment]," says Phil.

Can't get to the site? Don't let that stop you — browse the Reapplication website for property-numbered assets from the convenience of your own office at <https://cfwebprod.sandia.gov/cfdocs/ReAp/templates/pgReappQuery.cfm>.

Need a part to repair a piece of equipment? Reapplication just might have it. Just think. If it is there, you won't have to order it, you can have it now.

"Reapplication is one way of reinvesting in Sandia," says Phil.

For information call Reapplication Services at 844-1629, or better yet, go window shopping.

Labs' 'secret weapon' and Lockheed Martin to break ground on Sandia's eighth Habitat for Humanity House

By Iris Aboytes

When referring to Sandia's retirees, former VP Frank Figueroa once called them "Sandia's secret weapon." Sandia's secret weapon has done it again. Spearheaded by retired carpenter/builder Irv Hall, Sandia's retirees have matched Sandia/Lockheed Martin's funding to make Sandia's eighth Habitat for Humanity House possible.

Groundbreaking for the new house, located at 4612 Don Pedro Padilla Rd. SW, will be held Sept. 15.

The home will be built for Victor and Isela Vasquez

and their children Victor, 12, Lyndsie, 11, Homero, 10, and Osiris, 5. The family currently lives with his parents and his brother and family in an older mobile home with an addition. Victor, Isela, and their daughters share one bedroom. Their sons sleep on the living room couch. Victor's brother and his family share the other bedroom. The home is in very poor condition. Victor's bedroom has no heat in the winter. They use



TURNING OVER THE KEYS — Sandia VP Frank Figueroa shares a joyful occasion with a family at a previous Habitat for Humanity home dedication.

a small heater to keep warm. Isela cooks on a butane stove part of the time. Rain, wind, and dirt seep into the home through cracks in the ceiling.

"It will be wonderful to have a new home," says Victor. "I am more concerned about the children than I am for my wife and me. Lyndsie was in a car accident and is disabled. She goes to therapy often. It is very hard for her to be around people. It will be wonderful for her to have her own quiet little space. I am looking forward to begin a new life in a new home." Victor works two jobs to support his family.

"Isela and Victor are very giving people," says the Albuquerque Habitat Family Selection Committee. "We are told by neighbors they help them by repairing cars and performing minor home repairs.

Victor works hard and teaches the children to work for what they want."

Depending on the weather and unforeseen delays, the house will take about 12 weeks to build. The target date for completion is mid December, in time for the family to spend the holidays in

the warmth of their new home.

Irv has been instrumental in building many homes, both in the US and abroad. He is quick to interject that helping people is never the work of one person. "It takes a village," he says, in this case the "village of Sandia."

"Sandians are known for responding to the needs of our community. They have a proud history of working together to make dreams come true," Irv says.

The 2007 build schedule is below. Volunteers can be Sandians, contractors, or retirees — anyone who wants to make a difference. If you need more information or want to volunteer, contact Sam Bono (3652) at 284-3226 or sbono@sandia.gov., or contact the division representative directly listed on the build schedule.

DATES	ACTIVITY	# Vol	DIV.	CONTACT
Sept. 14-15	Frame walls/ Groundbreaking	25	5000	Darick Lewis
Sept. 21-22	Finish framing walls	10	2700	Matt Reading Carrie Neugebauer
Sept. 28-29	Set trusses	25	2000	Julia Blocker Rose Torres
Oct. 5-6	Trusses/fascias	20	6000	Carmen Good
Oct. 12-13	Deck the roof	15+	10000	Ellen Wisley
Oct. 19-20	Shingle the roof	20	4000	Jeannie Bekaye
Nov. 2-3	Hang drywall	25	Open to All	Sam Bono
Nov. 9-10	Complete drywall	20	1000	Cecilia Andersen
Nov. 16-17	Install trim/doors	25	9000	Stan Hall
Nov. 30-Dec. 1	Prep for painting	15	9000	Stan Hall
Dec. 7-8	Paint	20	3000	Debra Menke (Kelly O'Bryant backup)
Dec. 14-15	Punch List/Landscaping	15	Tentative	



50 years ago . . . An 18-foot air gun has been installed at Sandia's Livermore Branch to simulate potential environmental conditions in the operation of nuclear weapons. The test device uses compressed air in place of high explosives as a propellant.

Test components, placed in the 8-inch barrel of the gun, are shot from the muzzle by a blast of compressed air released with explosive force from the



AIR GUN INSTALLED AT LIVERMORE — The test device fires projectiles at a target a few feet away at acceleration forces up to 5000 g's on impact.

tank at the rear end of the barrel. The escaping air causes a loud "pop" when the gun is fired, and subjects the projectile to acceleration forces of up to 5000 g's on impact. The projectile containing the test components is fired at a target of concrete or other materials only a few feet from the barrel of the gun. The shielded location of the device and arrangements for operating it by remote control ensure the safety of operating personnel and observers. Performance data on the tests are obtained by remotely controlled optical and electronic instrumentation.

40 years ago . . . Aerospace Nuclear Safety Department 9310 has completed a series of drop and impact resistance tests on an inert isotopic fuel capsule. The capsule is being considered for use in an advanced aircraft system. The aircraft that will carry the capsule is expected to fly as fast as two and one-half times the speed of sound and have an unrefueled range of about 10,000 miles. The corrosion-resistant capsule with its promethium fuel may be used as a heat source to maintain operational temperatures for the air-

craft's navigational system. Forty-nine rocket sled impact tests in Area III and 19 drop tests (at Tonopah Test Range) were conducted using models of the two-inch, almost spherical, capsule. The tests demonstrated that the capsules should be able to contain the fuel (keep it from scattering on impact) under all but the most adverse conditions . . . Sandia fabricated models for the drop tests and preliminary impact tests. Battelle Northwest Laboratories of Battelle Memorial Institute fabricated the fuel capsules for the final phases of the impact tests and cut the capsules into sections for study.

The studies were conducted in conjunction with Sandia's responsibilities in the Aerospace Nuclear Safety Program. Tests were conducted by Sandia's environment and field testing organizations.

30 years ago . . . Three Sandians were intimately involved with the recent attempt by Ben Abruzzo and Maxie Anderson to fly their helium-filled balloon across the Atlantic. Dick Schwoebel (5820) was the scientific advisor, Syd Parks (1739) built one of the key radio communications devices, and Jim Mitchell (3161) served as public information officer.

Last winter, Dick suggested to Maxie that the balloon they planned on was too small. Maxie challenged him to put his calculations where his mouth was, and the next thing Dick knew, he was scientific advisor. "We're all thankful now," says Dick, "that they went with a larger balloon. It provided the margin of safety they ended up needing to survive in incredibly heavy weather that forced them to abandon

the flight in Iceland last week." All three Sandians were a part of the launch crew on the Massachusetts coast. [Note: A year later, Abruzzo, Anderson, and Larry Newman crossed the Atlantic in the *Double Eagle II* helium balloon.]



LAUNCH HERE, DITCH THERE — Dick Schwoebel, scientific advisor for the recent transatlantic balloon flight attempt, pointing out the limits of the flight to Syd Parks and Jim Mitchell.

20 years ago . . . Last week *Research and Development* magazine, sponsor of an annual international search for the top 100 technological innovations of the previous year,

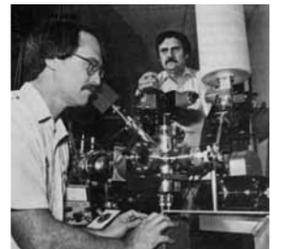
announced that two Sandia projects were among its 1987 I-R 100 Award winners. Sandia award winners are an External Micro-ion Beam Analysis (X-MIBA) system developed by Barney Doyle and Norman Wing (both 1111); and the Rapid Reduction of Nitrogen Oxides (RAPRENOx) process developed by Bob Perry, formerly 8353, now president and owner of Technor in Livermore.

10 years ago . . . Beginning next week, some airline passengers visiting the main security checkpoint at the Albuquerque International Sunport will be asked to try out tomorrow's technology for combating terrorism — Sandia's "explosives-detection portal"



Sandia's explosives-detection portal under development for the Federal Aviation Administration (FAA).

under development for the Federal Aviation Administration (FAA). The explosives "sniffer" is intended to help prevent airliner hijackings and bombings by identifying passengers and airport employees and visitors who have recently been working with any of a wide variety of explosive chemicals. The portal has been in laboratory development at Sandia for three years. The purposes of the FAA-required field tests are to gauge passenger acceptance of the technology, identify any reliability issues that need to be addressed, and optimize the detector's performance with the ultimate goal of its widespread adoption at airports across the country.



BARNEY DOYLE (left) and Norman Wing received an I-R 100 award for development of X-MIBA (shown here), an instrument for probing the near-surface region of samples of matter.

Diagnosis: tendonitis and tendonosis in both arms

Taking breaks during long hours at keyboard makes all the difference

Note: Paul Sanchez, a behavior-based safety observer in Dept. 12680, shares this account of his experience with repetitive motion injury. During the course of a year-long recuperation process, Paul says he learned a lot — the hard way — and hopes his story will help other Sandians avoid some of the mistakes he made.

A few years back, I, like many others who were working on the Yucca Mountain Project, was putting in overtime for weeks on end documenting technical and scientific studies for the license application to the Nuclear Regulatory Commission (NRC) for repository construction at Yucca Mountain. It was — it seemed — an endless amount of work with very little time to accomplish it.

One Saturday morning in Las Vegas, Nev., I came in for a group report-writing session that was to last all day. I had not been there long when somebody pointed to my right arm. When I looked I noticed that my right forearm was swollen so badly it looked like an over-inflated bicycle tube. Up until that point, I hadn't even noticed it nor did I have any pain.

The following Monday, I made a visit to my primary care physician, who in turn sent me to see an orthopedic doctor. It didn't take long for the doctor's diagnosis — tendonitis and tendonosis in both arms. The cause: repetitive mouse use and keyboarding, seven months' accumulation.

Yes, working for hours and hours without a break, which had become a weekend ritual for many of us on the project, was taking its toll. The grind seemed to be affecting the entire project — people were dropping like flies despite ergonomic training and desktop evaluations.

I started to analyze how I hurt myself and my thoughts went something like this:

Could it be I'm not taking enough breaks?

But, I might forget an important thought.

I don't think I've taken a break for a while.

Yeah, but I'd sure like to get home before 5:00 pm on Saturday.

No breaks?

I get more done and the day goes by faster if I just keep working.

No breaks?

This is the final version of the report and it has to be perfect. Just one more hour.



THAT'S BETTER — Paul Sanchez has found that using ergonomic software RSIGuard has helped him avoid a repeat of the stress injuries he suffered during a project that demanded long stretches at the keyboard.

As we all know, it isn't uncommon for motivated staff to work to difficult schedules or to naturally overwork to meet an important deadline or finish an important project.

Yes, my injuries were self-inflicted. Within a year, everybody on the Yucca Mountain Project had experienced some difficulty and was using ergonomic software.

I learned a lot during that year of recuperation. I can use a mouse with my left hand. I can get my kids to do the dishes and carry groceries. Seriously, every time a re-injury occurred, the clock would start again. The final result: My tendonosis, the more degenerative cellular condition, took a year to heal. A treatment called iontophoresis finally broke the injury/spasm cycle.

Now, as a Behavior Based Safety (BBS) observer, I know the things to look for to help coworkers avoid ergonomic injuries. I can normally identify when someone is at risk within three minutes. Even if everything looks safe, I often will remind people to assess how often they take breaks or to check how many keystrokes or mouse clicks they may do in a day. I also try to

remind workers of the human factor.

It's just a fact that if you hold any part of your body in one position for longer than an hour, you set yourself up for stiff joints, achy muscles, tendon fatigue, and ligament weakness; not to mention decreased efficiency and diminished concentration. So, I try to convince everyone I observe to take a break at least once an hour, get right up off your seat and walk around, stretch, yawn, wiggle, breathe, get the blood flowing, and stimulate the joints.

Believe me, it is worth the time and trouble. I learned the hard way that no breaks can deprive your tendons of oxygen and lead to cellular damage. Oh, I know we all have that important project to finish — one last line to get on paper to make it just right — but keep in mind that working continuously appears to be one of those things you learn not to do with time and age. I changed my behavior and swear by (and sometimes to) my RSIGuard (*Lab News*, Oct. 27, 2006). This software protects me from myself. It could protect you too. Try it!

Ergonomic resources

RSIGuard, ergonomics software that monitors your keyboard and mouse usage and reminds you to take periodic breaks, is available for download on the internal web at ergo.sandia.gov. (It's the second link on the right side of the page under the heading Job Aids.) Sandians can also schedule an in-person ergonomics evaluation by calling Maggie Ferguson in New Mexico at 845-8561 or Janet Chandler in California at (925) 294-3735. The evaluation itself is free of charge (no project/task number required) but any products deemed necessary to improve a person's ergonomic environment — special chairs, keyboards, desks, or other equipment — are usually paid for out of the employee's own departmental budget with manager approval. The ergo team recommends products and provides all information necessary to order the item (phone number, website, etc).

Peggy Warner earns major honors from nuclear records management group

Peggy Warner of Recorded Information Management Dept. 9532 has been awarded a prestigious "Lifetime Membership" by the Nuclear Information and Records Management Association's Board of Directors. The award was presented in recognition of Peggy's "exemplary service and leadership generously contributed for the benefit of NIRMA and the nuclear industry." Peggy is the 21st individual to receive this award over the 31-year life of the organization. The award was presented at NIRMA's annual business meeting last month in Las Vegas, Nev.



PEGGY WARNER

Since 1995, Peggy has served in a number of leadership capacities with NIRMA, including a stint as president in 1998-99. Peggy initiated a relationship between NIRMA and the International Atomic Energy Agency (IAEA) following her participation in 1994 and 1995 with the international group on critical documentation issues.

NIRMA President Steve Adams says of Peggy, "She has always strived to make NIRMA better and have it become what it is today and that is something that we are all very proud of."

Humor at work: Why should five-year-olds have all the fun?

By Iris Aboytes

Visiting with my three-year-old granddaughter, I ask, "Mackie, how was school (daycare) today? Who did you play with?" "I played with Maryjean," she says. "She read to me and she . . ." mumble, mumble. "Mackie, what are you taking about?" I ask. "I don't know, Nana," she answered. "I don't know what I am talking about." We both laugh.

In "Dare to Laugh", a recent presentation by Bill Resnik, he talked about children up to age five having the most fun. Sponsored by Sandia's Diversity Leadership Program, the standing-room only crowd at the Steve Schiff Auditorium welcomed Resnik to Sandia. He is a certified projects manager, lecturer, humor coach, and a practicing stand-up comedian. Resnik talked about the benefits of laughter: boosting the immune system, oxygenating the blood, reduc-



BILL RESNIK

ing pain, lowering stress, improving mood, and clarifying thinking. "Humor is the cheapest cure for a variety of workplace ills," he said. "Workplace cultures that embrace humor see more energetic teams, improved productivity, and reduced sick leave.

Did you know that the average American adult laughs only six to eight times a day? Kids five and under laugh an average of 400 times a day. They think everything is funny.

"Think of the last time you heard a five-year-old say, 'I am burned out on kindergarten,'" said Resnik.

"Laughter breaks down barriers and opens the door," said Resnik. "Just think — people laugh in the same language throughout the world. I like to think of laughter as being the shortest distance between two people."

Humor produces the same type of endorphins that produce "runners' high" after running in a marathon or New Mexicans get after eating green chile.

Resnik's parting advice to the crowd was, "Laugh at yourself most of all; laughing at others is not funny."

If you would like to view a videotape of the talk, contact Rochelle Lari at ralari@sandia.gov or Jennifer Garcia at jengarc@sandia.gov. For more information, you can email Resnick at bill@woww-productions.com.

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong



Robert Anderson
35 1821



Don Hardesty
35 8360

Recent Retirees



Fred Silva
23 10263



John Smugeresky
35 8758



Marvin Nicholson
30 4842



Sheila Akins
25 8947



William Houf
25 8757



Arvil Rhinehart
22 10264



William Kolb
25 4854



Jerome Rejent
25 1824



Georgia Romero
25 10503



Dale Walker
25 8231



Stephen LeTourneau
20 9514



Melecita Archuleta
15 2736



Tim Gilbertson
15 8226



Paul Miles
15 8362



Peter Schultz
15 1435



Rachel Drucilla Sitges
15 9538



Hilary Thompson
15 5936



Aili Ting
15 8757

Time to review dependent coverage eligibility

Note: The following information was provided to the Lab News by Sandia's Benefits organization (3332).

Open Enrollment for health benefit plans is right around the corner. From Oct. 20 through Nov. 9, Sandia employees and retirees will make their 2008 benefit decisions.

This is a good time to think about the eligibility of your dependents. You have an obligation to review their eligibility annually and advise HBE within 31 calendar days of any changes in their status. Detailed plan eligibility rules are available on the HBE website at www.sandia.gov/resources/emp-ret/emp-oe/eligibility. You can add eligible dependents to your medical, dental and/or vision plan when you first enroll in the plan or during the annual open enrollment period. You can enroll dependents during the plan year only when you experience a qualified life event, such as marriage, birth, adoption, or loss of other coverage. Refer to the Pre-Tax Premium Plan booklet for qualifying Mid-Year Election Change Events available online at www.sandia.gov/benefits/spd/pdfs/PTPP_2002.pdf or from HBE Customer Service at 844-4237.

Qualifying mid-year events require documentation, such as a marriage or birth certificate, and you must complete and submit enrollment paperwork to HBE Customer Service within 31 calendar days of the event or you will have to wait until

the next annual open enrollment period to add yourself or your dependent.

In the near future, employees enrolled in one of the medical, dental, and/or vision plans will receive an email alert to go to HR Self-Service on the internal web to validate that enrolled dependents are still eligible for coverage. Retirees will receive a letter mailed to their home addresses. If you have a domestic partner or Class II dependent enrolled, you will receive paperwork to recertify that your dependent is still eligible. To continue coverage for 2008, you must recertify your dependent's eligibility.

If your dependent is no longer eligible according to the criteria listed on the eligibility website, you need to complete the disenrollment forms (SF 4400-PKG) located on the Corporate Forms website and submit them to HBE Customer Service. You may request a hard copy of these forms from HBE Customer Service.

All employees are subject to random audits to verify dependent eligibility. The consequences of having an ineligible dependent covered and failing to disenroll a dependent within 31 days of their ineligibility are significant and could include losing COBRA rights, employment action up to and including termination for fraud, or personal liability for health care claims during the ineligible period.



**Health
Benefits
Employee Services**

Stay tuned!

Ways to learn about the 2008 Open Enrollment schedule, plan choices, costs, and eligibility include the *OE Newsletter* (which will be distributed to all employees or the retiree Open Enrollment booklet (which will be mailed to all retirees before the beginning of Open Enrollment), the OE website (www.sandia.gov/resources/emp-ret/emp-oe), and a special feature in the Sept. 28 issue of the *Lab News*.

Common misunderstandings about dependent eligibility

- Employees enrolling stepchildren not living with them — stepchildren not living with you are not eligible for coverage. Special circumstances apply for college students. Call HBE for more information. (Note: Living with you for the summer does not qualify.)
- Employees not aware that married dependent children are no longer eligible for coverage.
- Employees getting a divorce and failing to disenroll the spouse.
- Employees disenrolling the ineligible dependent(s) from his/her medical plan but failing to do so for the dental and vision plans.

If you have questions about dependent eligibility, check the HBE website at www.sandia.gov/resources/emp-ret/emp-oe/eligibility or call HBE at 505-844-4237.

Problem solving, passion for excellence were keys to success for retiree Gordon Boettcher

By Iris Aboytes

Water sprinklers form beautiful rainbows as retiree Gordon Boettcher waters his pristine backyard. "He doesn't have a single bare spot," says Eva, his wife of 49 years.

Gordon recently retired from Sandia after 54 years of service to the Labs.

Gordon was one of the first 50 Sandians to be honored as a Distinguished Member of Technical Staff for sustained outstanding performance in the design and development of vacuum switch tubes (sprytrons) and over-voltage gaps for use in nuclear weapons systems. His patented invention of the basic sprytron tube and the development of a dedicated, high-tech manufacturing facility produced more than 300,000 devices for use in the nation's defense systems. Gordon holds five patents.

After obtaining his electrical engineering degree from the University of Wisconsin, Gordon came to Sandia. He grew up in Antigo, Wis., a farming community in the potato flats. He would pick potatoes every fall. Young men in that community were getting deferments to work on the farms. Gordon's parents, William and Alta, did not own a farm, so he had to get a deferrable job after college, and get it fast. It did not take him long to get a job with Sandia.

He arrived in Albuquerque in July 1953 with one suitcase. "I didn't need ear muffs or galoshes," says Gordon. "I liked it right away." He took a taxi to the Wyoming Gate where he was met by guards in white gloves. He told the guards that he had come to work at Sandia and he was going to the Men's Dorm at 3216 A Street. "The dorm was great," he says. "There was great camaraderie."



GORDON BOETTCHER tends to his extensive flower garden. (Photo by Randy Montoya)

Getting the job done

"Galen Ford, one of my first bosses, helped me understand tube design," he says. "One of the most rewarding things about working at Sandia in the early years was the wonderful mentors. Morale was good, people helped out, and we got the job done — successfully. We were all equals. We didn't have too many rules and processes then."

"Once I went to VP Gene Reed in Mahogany Row [Bldg. 802 third floor] to explain sprytron design. He was so impressed that he worked up a sprytron presentation for the next Board of Directors meeting. There could not have been a better show-and-tell."

After a couple of years at Sandia, Gordon's military draft status went to #1A. He received his shipping out orders and notified his supervisor.

"I know he wrote a letter because I was asked many questions," says Gordon. "But that's all I knew. One day I received my draft card with a deferrable 2A. Apparently Sandia went to the Presidential Draft Appeal Board. I was shocked. People did not talk much about things then; they just got the job done."

Alas, I was left in the dust

"When I came to Sandia in 1972, Gordon and I were office mates," recalls Sandia VP and Labs Deputy Director John Stichman. "I had many chances to observe an experienced engineer in action. I was immediately impressed by how he understood his product in depth. He was in constant contact with the manufacturers, so that he understood how his design decisions affected production and how production processes affected device performance."

"With the exception of one system that is now being retired from the stockpile," John says, "Gordon's sprytrons are still a key component in every US nuclear weapon. That is a rare, perhaps singular, contribution to the nation's nuclear deterrent force."

"I recall the time when we were exploring some new system concepts in which it would be necessary to have precisely timed high-voltage switching," John continues. "All the data available seemed to show that the sprytron switch tube couldn't achieve such triggering predictability and that we would have to develop special semiconductor devices. I was charged with the latter task, but Gordon rose to the competitive challenge and achieved a 100-fold improvement in sprytron performance, which was more than enough. Alas, I was left in the dust."

Getting used to a new world

Gordon met Eva Gallegos, a department secretary, about three years after he came to Sandia. They were married nearly two years later. He and Eva have two children, Mark and Karen, and four grandchildren, Elizabeth, Brandon, and twins Erica and Nicole. "Gordon was always dedicated to Sandia," says Eva. "Occasionally on weekends he would go monitor lab activity. One of the first times we went, Gordon didn't come out till much later and the children were asleep. He came out with a big smile on his face. 'It worked, it worked,' he was saying. How can you get angry at that?"

On most days Gordon and Eva go for a 45-minute walk before breakfast. After breakfast, he enjoys a 10-mile bike ride. "I am striving to redefine my life without switch tube customers, the manufacturing facility, suppliers, and all those at Sandia who helped to make switch tubes successful," says Gordon. "It was an enjoyable 54 years. This team was an awesome collection of many dedicated talents that worked as a family."

Gordon's love of fishing has been inherited by his three-and-a-half-year-old twin granddaughters Erica and Nicole. "They actually touch the fish now, give them a kiss, and let the small ones go," he says. "Recently they caught a horny toad. Their mom convinced them to let it go."

These days his passion for switch tubes has been replaced with a passion for his grandchildren as he has become the jungle gym they love to climb.



GORDON BOETTCHER with his dog Smokey. (Photo by Randy Montoya)

Feedback

Q: Is it true that decals are no longer required on vehicles? Sandia Daily News made a statement around March this was going to be so for Kirtland personnel and Sandia would let us know if they were going to follow with this requirement. Never read any follow up.

A: A special SDN article was sent to all Sandians on May 3, 2007. Effective May 1, 2007, Kirtland AFB no longer requires vehicle base decals to access the base. Therefore, Sandia will no longer require vehicle base decals to access the base. The Air Force is requiring a government-issued ID — DOE Standard Badge, military ID, Common Access Card (CAC), etc. — to access the base. Note: CAC are identification cards that are issued by the Department of Defense (DoD) to military personnel and DoD civilian employees only. Sandia employees and their spouses/family members are not authorized to obtain a CAC identification.

After the events of Sept. 11, 2001, security was changed to require 100 percent ID card checks of drivers at base gates. Since checking IDs is a more effective means of granting access to the base, requiring vehicle decals has become redundant.

Removal of your current vehicle base decals is recommended. If you remove the vehicle base decal, you are not required to return it to the Badge Office, but dispose of it appropriately so it could not be reused. (Decals usually crumble when they are

scraped off, but if yours doesn't, just cut it up and throw it away).

Retiree Access: With the elimination of base decals, retired employees only need to show their retiree identification card to obtain access to the base.

KAFB vehicle insurance: A reminder that if you are stopped while driving on KAFB and you are unable to produce proof of vehicle insurance, your vehicle will be towed, according to the Air Force security forces. Also, as with other traffic stops, a citation will be issued if the driver cannot produce a valid driver's license or current registration. Questions about this should be directed to Lisa Kaneshiro (4233-1) at 844-3495 or lakanes@sandia.gov. Do not contact KAFB directly.

Bernalillo County emission testing: Currently, vehicle emission testing is verified prior to issuance of a base decal. As of Jan. 1, 2004, vehicles that are more than four years old, registered in Bernalillo County or commute into Bernalillo County 60 or more days per year are required to have emissions tests. For additional information about that, check this city of Albuquerque vehicles FAQ website.

So, will you have to prove this to anyone in order to get on base? Air Force security forces conduct random checks, and during those checks they can ask for proof of emissions.

Individuals whose vehicles are registered in Bernalillo County are not required to have a separate emissions certificate in their vehicle. Vehicles that are registered in Bernalillo County have proof of emissions on the registration.

— Sally Uebelacker (4230)