



IF THE SANDIAS ARE COVERED IN SNOW, can the holiday break be far behind? *Lab News* photographer Randy Montoya hustled out to the Sandia foothills after last week's dusting of snow, capturing the photo above while there was still some white stuff on

the ground. According to *The Old Farmer's Almanac*, the winter of 2007 is shaping up to be colder than normal with near-normal snowfall. Precipitation will be above normal in central New Mexico. The coldest temperatures will occur in early January.

The need for speed: Moving people to work and work to people quickly and efficiently

Managed Workforce Transition process underway

By John German

The times they are a-changin'.

Put simply, Sandia has more customers than ever before and they are demanding faster turnaround. There are more programs too, and many of them are smaller and more transitory than in Sandia's past. No longer can Sandians expect to spend a career working in just a few programs.

This means Labs employees need to be ready to move to where the work is, and the Labs needs to get better at shifting talent more quickly and efficiently, according to a recent letter from Labs President Tom Hunter to all Sandia managers.

The Nov. 16 letter described a new process, Managed Workforce Transition (MWT), designed to move people to work and work to people rapidly and more efficiently. All managers were asked to share the details of the process and discuss local workload and staffing status with their staffs by Nov. 30.

"Today, there is no doubt we are in the midst of a rapidly changing national security environment," Tom's letter said. "Consequently, we must strengthen our ability to move . . . with more agility. This is likely to be a

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22,000 feet, 11,000 kids: Sandia's Shoes for Kids program marks 50th birthday



50 years ago, a couple of Sandians decided to do something special for Christmas — instead of buying each other gifts, they'd buy shoes for needy children. Their generosity touched something in their colleagues, and what started out as a small gesture has become a treasured tradition. See **page 12** for a story and photos about this year's shoe fitting.

Also inside . . .

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Sandia LabNews

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Sandia research to focus on early detection of harmful algal blooms



AMANDA JOKERST injects a sample into a handheld microseparations platform for analysis. Amanda and others at Sandia aim to optimize the microseparations process for a subset of relevant toxins found in harmful algal blooms and establish the laboratory-based protocols for sample preparation. (Photo by Jeff Shaw)

By Mike Janes

Researchers Todd Lane and Victoria VanderNoot have been awarded a research grant to develop a technology to detect deadly toxins from harmful algal blooms (HABs). The funding is provided by the Cooperative Institute for Coastal and Estuarine Environmental Technology, a partnership of the National Oceanic and Atmospheric Administration (NOAA) and the University of New Hampshire.

Todd and Victoria, a molecular biologist and an analytical chemist, respectively, are both in Biosystems Research Dept. 8321 at Sandia/California. In addressing the HAB problem, they will employ laser-induced fluorescence and other separation methods inherent in Sandia's μ ChemLab™ (MicroChemLab) technology.

Along with a small team of Sandia colleagues and external collaborators, they have commenced with the research, which could lead to longer-term funding after the initial "proof of principle" work has been completed.

Harmful algal blooms are widely acknowledged to be a severe coastal

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What's what

The eight days of Hanukkah begin Dec. 16, winter solstice is Dec. 21, Christmas is Dec. 25, Kwanzaa's seven-day observance begins Dec. 26, and there are just two weeks left before the Labs shuts down for the weeklong winter break. Three of these have fairly well defined constituencies: Hanukkah and Christmas are religious in nature, observed by adherents of those faiths, and Kwanzaa is an African-American celebration of traditional African values such as family and community responsibility.

The other two are for any and all of us. The winter solstice is the shortest day of the year and beginning the next day, days lengthen and lighten (for which, thanks to all deities, cultures, ethnic groups, and whatever other groups you'd like to include!). And a loud and heartfelt "Yeeeeee-haaaa!" from all of us to DOE, NNSA, Kiwanis, the YMCA, SPEBSQSA (look it up), and whoever else we can thank for the winter break.

Thinking about these holidays and religious observances reminded me of something Ben Stein said about this time last year. If you don't know who Ben Stein is, he's the guy in a current advertising campaign for Alaskan seafood, who urges you in his distinctive delivery to "Grab a fork and eat all you want. There's a lot more out there." (<http://www.alaskaseafood.org/>).

But he's more than a quirky comedian. He's also a lawyer and a one-time speech writer for Presidents Richard Nixon and Gerald Ford. And last year he was serious in a CBS Sunday Morning Commentary (<http://benstein.com/121805xmas.html>), noting that he is not offended when people wish him a Merry Christmas, despite his ancient Jewish lineage. "And it does not bother me even a little bit when people call those beautiful lit-up, bejeweled trees Christmas trees," he went on. "I don't feel threatened. I don't feel discriminated against. That's what they are: Christmas trees."

Maybe we could – at least at this time of year – turn on a little internal translator that ciphers Merry Christmas, Happy Hanukkah, Happy Solstice, Happy Kwanzaa, or whatever someone wishes us into whatever works for us, and smile and return the wish. But whatever you do, don't forget a big "Yeeeeee-haaaa!" for DOE and all the rest!

* * *

This is a wrap for me. Sort of. I'm pulling the plug on full-time work and retiring. Sort of. I'll be spending a lot of the cold months on a dandy sailboat now tied up at Island Moorings Marina in Port Aransas, Texas, and eventually destined for points farther south and east and west. New Mexico's home, though, and I plan to be here during hurricane season. Fair winds and following seas are great; strong winds and churning seas are not.

This space will pass along to *Lab News* editor Bill Murphy, although I'll be back under my other hat – editing the *Sandia Daily News*. So, it's not a real "goodbye," just sort of a "see ya."

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



BEN STEIN

Employees invited to public speaking workshop Dec. 11

Session offers secrets to effective communication

Richard Greene, renowned communication coach and author of *Words that Shook the World: 100 Years of Unforgettable Speeches and Events*, will conduct a communication workshop for employees on Monday, Dec. 11, 9-10:45 a.m., at the Steve Schiff Auditorium.

The first-come, first-served session is for Sandians interested in developing their public speaking and communication skills.

Judy Case (12117), who originally invited Greene to Sandia, says he was well received as a featured speaker at Sandia's 2006 Fall Leadership Forum (the annual Labs-wide meeting of directors and above).

"He was very engaging," she says. "Several people stayed after his session to talk with him personally."

The purpose of the Dec. 11 session, Judy says, is to "whet the appetites of potential Sandia leaders and help them see the possibilities" of effective speaking and communication.

In his presentation, "The five secrets of the world's greatest communicators," Greene will cite several current and historic examples of notable speeches and orators as he shares secrets of effective public speaking.

Greene will be a major contributor to a new communication module that will become part of Sandia's leadership learning program, says Judy.

An attorney by trade, Greene left his practice to share his communication strategies around the world. He has conducted more than 100 international lecture tours, and has commented on national television as a political speech analyst for media groups such as MSNBC and Fox News.

More information about Richard Greene is available at www-irn.sandia.gov/newscenter/workshop/richard_greene.html.



RICHARD GREENE

Lab News publication note

As has been the practice of the *Lab News* for many years, there will not be an issue published the week before the winter break. The *Lab News* will resume its normal biweekly publication schedule with an issue on Jan. 5. The deadline for classified ads for the Jan. 5 issue will be noon on Dec. 15.

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LOCKHEED MARTIN

Nominations sought Jan. 9-29 in Labs' 14th annual Employee Recognition Awards program

The Employee Recognition Awards (ERA) program is a way for Sandians to recognize individuals and teams whose work or contributions in support of Sandia's mission and values have been exceptional. Take this opportunity to acknowledge a deserving individual or team. Nominations will be accepted from Jan. 9-29.

The ERA program recognizes excellence in four categories. Three recognize individual accomplishments:

- The technical excellence category recognizes individuals whose innovative science and predictive, science-based engineering capabilities contribute to the transformation of Sandia's business practices and provide solutions to national security problems.
- The exceptional service category recognizes those who are distinguished by their commitment and efforts to enable others to succeed.
- The leadership category cites those who demonstrate exceptional creativity, courage

and integrity in leading others to the successful accomplishment of Sandia's works.

The team category recognizes teams whose exceptional achievements are critically enabled by teamwork and model the value of people working together toward a common goal.

Nomination forms with detailed instructions will be available from Sandia's internal web home page or at www-irn.sandia.gov/era/07era.htm. The website will be available Jan. 9. Each division has an ERA coordinator who is also listed via the link above.

Any current, regular Sandia employee may nominate individuals or teams. A separate nomination form must be submitted for each individual and team nomination. A combined total of 122 individuals and teams will receive corporate Employee Recognition Awards.

ERA individual winners and designated representatives from winning teams will be recognized at the Corporate Employee Recognition Night Banquet on July 21.



Algal blooms

(Continued from page 1)

resource management issue, adversely impacting virtually every coastal region. Current methods for detecting the poisonous toxins characteristic of the blooms are cumbersome, require either expensive reagents or animal testing, or are unable to quantify toxins — critical information for managing shellfish beds. The technologies under development at Sandia would eliminate these problems.

“Today’s standard detection methods, frankly, are too slow and labor-intensive,” says Todd. “By the time the process is complete, it’s too late — the shellfish beds are already toxic.” The ability to quickly sample organisms low on the food chain, Todd says, can provide an early warning system to help protect communities from exposure to toxins.

Current methods for detecting the poisonous toxins characteristic of the blooms are cumbersome, require either expensive reagents or animal testing, or are unable to quantify toxins.



SANDIA RESEARCHERS Todd Lane and Victoria VanderNoot are leading an effort to detect deadly toxins from HABs. The project employs laser-induced fluorescence and other separation methods inherent in Sandia’s μ ChemLab™ device, examples of which are seen here. (Photo by Jeff Shaw)

Most algae not harmful

Most species of algae are not harmful and actually serve as the energy producers at the depths of the food web. The dense patches (or “blooms”) that sometimes accumulate near the surface of the water, however, can produce potent neurotoxins that are then transferred through the food chain, accumulating in zooplankton and

shellfish, eventually harming or even killing marine mammals and humans that consume tainted shellfish.

The Sandia research will focus on enhancing

“Today’s standard detection methods, frankly, are too slow and labor-intensive. By the time the process is complete, it’s too late — the shellfish beds are already toxic.”

Researcher Todd Lane

the early-warning capability of detection. It is expected to lay the groundwork for the development of a reliable, cost-effective prototype to simultaneously analyze multiple HAB toxins in phytoplankton and shellfish in the field. Todd and his colleagues will aim to optimize the microseparations process for a subset of relevant toxins, and establish the laboratory-based protocols for sample preparation.

Goal: Develop lightweight devices

The long-term goal, should the initial phase of the Sandia research go as planned, is to develop small, lightweight devices that could be fielded by oceanographers and marine biologists as part of their regular monitoring systems.

In addition to Todd and Victoria from Sandia, collaborators include Donald Anderson, a senior scientist and director of the Coastal Ocean Institute, Woods Hole Oceanographic Institute; and Gregg Langlois, marine biologist at the California Department of Health Services.

The technologies developed under this effort will be equally well suited to detecting algal toxins in freshwater sources and complement other ongoing research at Sandia. Sandia’s water initiative (www.sandia.gov/water), for example, strives to increase the safety, security, and sustainability of water infrastructure through the development of advanced technologies that create new water supplies, decrease demand through water-use efficiency, and provide decision-informing tools to the institutions responsible for balancing supply and demand.

Sandia California News

Jess lives: Latest version of popular productivity-boosting software tool is released for licensing

By Mike Janes and Nancy Garcia

A powerful new version of Sandia’s popular Java rule engine Jess has just been released for licensing.

Jess originated as a minor component of an information security project, and is now among one of Sandia/California’s most successful intellectual properties.

The programming environment is especially suited to problems that resist being reduced to rote computation and are best described by expert knowledge and “rules of thumb.” Those questions might include: “Is our network under attack?” “Is this document fraudulent?” “How should we schedule our resources?” says the developer, Ernest Friedman-Hill (8964).

Jess has been popular in the finance, insurance, security, transportation, and manufacturing sectors, as well as government and academia.

“Programming with rules allows software to express real-world concepts in a natural, expressive way that helps business and IT professionals collaborate in bringing enterprise applications to life,” says licensing lead Craig Smith (8429). Jess 7.0 includes new tools, improved features, and enhanced performance that allows users to manage and control business rules in an enterprise environment.

Among Jess’s new features is an integrated development environment (IDE) that increases programmer productivity and enhances collaboration. The IDE is based on the award-winning Eclipse™ platform (www.eclipse.org) and features tools for creating, editing, visualizing, monitoring, and debugging rules.

Jess is the only enterprise-capable rule engine to offer both the convenience of an IDE, and an unprecedented level of flexibility and openness. This makes it easy for developers to add the power of heuristic rules to applications that run on everything from handheld devices to enterprise servers. Jess supports the industry-standard JSR94 Java Rule Engine API as well as its own rich interface. Rules can be written both in its own expressive rule language and in XML.

Sandia receives about 25 inquiries a day about this software, which has

already been licensed in earlier versions by companies ranging from startups to Fortune 50 companies. Jess (along with the textbook *Jess in Action*) is also used as a teaching tool at hundreds of universities around the globe.

Binary-only versions of Jess are available on a 30-day trial evaluation basis. Commercial, internal, government, R&D and no-fee academic/student use requires a license. To learn more about Jess, please visit <http://herzberg.ca.sandia.gov/jess>.



All about Jess (from the website)

The Java Expert System Shell (Jess) is a tool for building a type of intelligent software called expert systems. An expert system is a set of rules that can be repeatedly applied to a collection of facts about the world. Rules that apply are fired, or executed. Jess uses a special algorithm called Rete to match the rules to the facts. Rete makes Jess much faster than a simple set of cascading if/then statements in a loop. Jess was originally conceived as a Java clone of CLIPS, but nowadays has many features that differentiate it from its parent.

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Managed workforce transition process

(Continued from page 1)

long-term trend at the lab that will require all of us to be more flexible and adaptable to current work assignments.”

Growing mismatches

The MWT process was conceived by a team of senior managers from across the Labs that was formed by the executive office to address growing mismatches at Sandia among budgets, workloads, and people. (See “Sandia’s FY07 situation in a nutshell” below.)

Esther Hernandez (3010), deputy to the VP for Human Resources, who headed the team, says historically some 1,000 people are in transition at Sandia each year — including people in the process of retirement, new hires coming into the organization, employees moving to new programs, and those accepting new work assignments.

This year is no different, she says, except that the Labs needs to become faster and more efficient in the way it adapts to mission changes. In many companies, such rapid staffing adjustments are routine. Sandia hasn’t needed such agility in the past, she says.

MWT is designed to be a sustained process that can be applied this year and in future years as needed, Esther says.

Elements of MWT

Here are the basic elements of the MWT process, and their expected FY07 timing:

- Nov. 16-Dec. 22 — Efficient movement of people through the existing post-and-bid process to organizations needing additional staff.
- Jan. 4-25 — Line managers, directors, and VPs assess remaining staffing shortages and overages, identify positions available for reassignment, and document remaining staffing needs. Line organization assessments are reported to Human Resources.
- Jan. 25-Feb. 2 — Corporate review of organizations’ staffing assessments.
- February — If staffing mismatches remain, senior managers participate in an MWT “brokering meeting,” at which opportunities to move individuals

to organizations needing people are identified and transfers are made on the spot, with concurrence of the individuals being transferred.

“Executive management fully believes the Labs will resolve mismatches through the MWT process,” says Esther. “However, termination could become necessary in the event that an employee’s skills do not match current or foreseeable mission needs. Every year a few people are terminated when their skills do not match; FY07 is expected to be no different.”

More details about the MWT process — including a frequently asked questions document — are posted at www-irm.sandia.gov/ilms/leadership.html.

Tom’s letter ended this way: “It is our intent to handle these adjustments smoothly. This will require individuals to be flexible and willing to move within the lab . . . With our strong commitment to our people, and with your commitment to flexibility, I believe this lab can adjust rapidly in a way that sharpens its focus on the mission of providing exceptional service to our nation.”

Sandia’s FY07 situation in a nutshell

Tom’s letter to managers about the new MWT process said Sandia is well-positioned at this time. Specifically for FY07, the letter said, he anticipates the following situation:

- Sandia’s final FY07 total budget is expected to be similar to last year’s.
- Sandia’s total staffing is expected to be about 8,500 FTEs (full-time equivalents), down from 8,600 in FY06.
- Normal attrition (expected to be about 400 people this year) will take the Labs below this target. Thus, Sandia will continue to have a hiring program comparable to FY06.
- There are no plans for incentives to employees to reach the Labs-wide staffing target.
- After taking project attrition rates into account, approximately 100 FTEs will need to move from indirect and nuclear weapons programs.
- Programs in the Integrated Technologies and Systems SMG (Strategic Management Group) are expected to grow by more than 200 FTEs.
- Laboratory Directed Research and Development (LDRD) will grow by nearly 20 FTEs.

‘Deeply impressed’ DoD official praises Sandia-sponsored homeland security program for teens in Needles, Calif., as best in nation

By Noel Fletcher

The nation’s best homeland security program for high school students: That was how one top Department of Defense official described a unique Sandia-sponsored educational endeavor in which students grapple with answers to realistic life-and-death scenarios.

The one-year educational program was created by John Taylor, Sandia manager of the Integrated Technologies and Systems Strategic Office, for high school students in his hometown area of Needles, Calif. It involved three phases during which students learned about issues for first-responders and homeland security, how to apply

emergency plans to three case studies, and an emergency exercise that becomes a national event when a small plane crashes into the Hoover Dam.

“I’ve met with high school students before but this program with Sandia Labs is the best ever,” said Paul McHale, Assistant Secretary of Defense for Homeland Defense at the DoD. “I’ve been deeply impressed by the scenarios and student responses.”

Seventeen-year-old student representatives Emily Blair of River Valley High School in Mohave County, Ariz., and Rolland Hartwick of Needles High School travelled to the Pentagon to present their findings from the emergency exercise to McHale. They were joined by John and

“I’ve met with high school students before but this program with Sandia Labs is the best ever.”

Paul McHale, Assistant Secretary of Defense for Homeland Defense

two teachers.

What surprised the students most from this innovative learning experience, McHale asked after their presentation. The students said they were surprised by out-of-the-box responses to problem-solving such as an idea for government officials to distribute watermelons to ease a water shortage.

“We’re not creative enough to provide watermelons,” McHale laughed, “but we do provide tankers of water as we did with Hurricane Katrina.”

McHale noted that the DoD must carefully consider what role the US military should play in civilian operations involving homeland security. Terrorism involving weapons of mass destruction is the single most likely characteristic of a situation apt to get a DoD/military response to a homeland-security incident, he added. Otherwise, the DoD is more likely to play a supporting role to state and local first-responders.

McHale recommended that Sandia’s program be extended to other schools and students.

“This program is beneficial to every high school in the nation. The fact is that there are transnational terrorists who seek to do us harm, and given the opportunity, they will use weapons of mass destruction to try to kill Americans in a brutal way as they did on Sept. 11,” he said, adding that anticipating these events is the key to defeating them.

“These are very realistic threats, and I think although it is sobering to consider them, it is also essential that we think realistically not only about the threats we face today, but the kinds of terrorist threats that we will likely face over the next several decades.”

Feedback

How many Sandians telecommute?

Q: One way to significantly reduce US dependency on foreign oil would be to increase the number of individuals who telecommute (when job duties allow). Is Sandia management taking a progressive approach and considering this as a serious option? It would seem that if everyone in the US who commutes to an office daily and who could perform their job duties from their home could do that, the lower consumption of fuel would totally alleviate our dependency. An additional advantage would be that energy would be saved in not maintaining full-time offices for the same number of individuals. Maybe by rethinking how we live and work, we can affect our country’s economic outlook and save our precious resources for future generations. What percent of the Sandia workforce telecommutes each week?

A: We currently have more than 200 telecommuters with about a third of them student or part-time Sandians. Our corporate policy, CPR300.6.30, “Telecommuting,” www-irm.sandia.gov/hr/policies/Benefits/Time/telcomut.htm, states that regular and temporary employees can telecommute provided that the criteria for the job and for the employees are met and agreed upon by the employee and his or her manager. We are

seeing more employees telecommuting, but ES&H, computer security, and physical security are corporate issues that need to be addressed. Changes to all these related corporate policies are forthcoming due to Sandia contingency planning. If you have telecommuting questions, talk to your manager to determine if this is an option for you; and at any time, contact Mae Lambert (3554) at 845-2322 if you have questions about the telecommuting process. — BJ Jones (3500)

Q: Lockheed and Sandia are going to be (or already started) using Travelocity services. From my personal experience with Travelocity, I know that their call centers are located in India, a sensitive country. Isn’t it a bit odd that foreign nationals from a sensitive country might be arranging travel for all of Sandia official business?

A: Lockheed Martin has negotiated a contract with Travelocity Business, which has call centers in San Antonio and Southlake, Texas, exclusively. Should you need additional information, or a personalized presentation about the conversion to Travelocity Business, please call the Travel Helpline-845-YESS.

— Barbara Cochrane (10507)

Innovative engineers are the underappreciated backbone of the economy, MIT administrator says

If they're so valuable, how come they ain't rich? He has a plan

By Neal Singer

At a widely attended meeting — though it was held at 6 p.m. with no food provided — last Tuesday night in Boston, the director of MIT's Washington office raised provocative questions about the role of engineers in society and how to elevate that role by working to change government policies and broaden engineering training.

The sometimes splashy presentation by William Bonvillian at the semiannual meeting of the Materials Research Society opened with a few inflammatory remarks such as, "Engineers saw what happened at the [MIT] Rad Lab and Los Alamos — engineers were secondary, and the scientists, especially physicists, were in charge of the two greatest engineering projects of the 20th century [radar and the Manhattan Project]. Engineers know they can never let this happen again."

But if his later discussion was less provocative, it was no less thought-provoking.

"Staggering numbers of technically trained engineers around the world will dwarf the number that the US can produce," he said. "Engineers could become a commodity product." That is, just as cheap goods can be made by workers on low salaries in China, large numbers of well-trained engineers working for low salaries in distant places could lower the value of an engineering degree in the US. First-world industry giants already are opening research laboratories in formerly Third-World countries, where engineers command a fraction of the salaries American engineers expect, he said.

Also, while technology-related innovation is responsible for more than half of US economic growth, he said, "if innovation is a source of

"Staggering numbers of technically trained engineers around the world will dwarf the number that the US can produce. Engineers could become a commodity product."

growth, others can replicate the model."

Adding to these difficulties, though DOE and NSF funding have recently increased, US government spending for the physical sciences has remained level or declined in the past decade — "not what you want to see in a country dependent on innovation for its economic success. As innovation becomes more important, we won't be able to support it."

Finally, growth of an elderly population will ratchet up government spending on Medicare, Medicaid, and Social Security so high that little will be left for research dollars.

"Raising taxes won't be enough to fix the problem," he said, "nor will curbing the 'big three' of waste, fraud, and abuse."

The problem for engineers has been exacerbated, he said, by recent historical events. "The physical sciences were on autopilot during the Cold War," he said. "They never had to build an advocacy group."

The life sciences, on the other hand, developed "a well-organized advocacy system that included industry, researchers, medical centers, universities, and most important, grassroots patient groups."

What then is needed?

Engineers need, among other things, deeper engagement in the funding process, rising research productivity, and a broadening of educational outlook.

About government, he said, "Good ideas mean little in politics without ongoing advocacy. Physical scientists and engineers need to get involved on the legislative side to drive change."

They need to smooth the pipeline that produces marketable products. "We need to increase innovation velocity and, most important, improve the hand-off," he said. "We have to fix the pipeline model."

And engineers need business and public policy courses, with perhaps "professional scientist" degrees awarded. These would be a kind of MBA degree specifically granted engineers and scientists.

"It used to be that major companies were run by lawyers," he said. "We're starting to see Fortune 500 companies run by engineers."

The question, he said, is whether "US scientists and engineers can be educated to cooperate in building complex systems in a disciplined mix to produce both products and services. Can they assemble innovative system components and snap together all the Legos?"

"What's going to be in the future engineer's toolset?"

Sandia was a founding member of the MRS, which is the largest materials science and engineering organization in the world. Five Sandians have served as presidents of the society. The group's current vice-president is Los Alamos National Laboratory manager and former Sandian Alan Hurd; its treasurer is Julia Hsu (1114). Many Sandians present technical papers at MRS meetings; a number have won awards and high honors.

Two Sandians named organization fellows

Greg Hebner elected APS Fellow

Greg Hebner (1128) has been elected a Fellow of the American Physical Society's Division of Atomic and Molecular Physics. Greg's citation is for "investigations of, and contributions to, the science of atomic and molecular processes in plasmas through development of innovative optical, microwave and RF diagnostics."



GREG HEBNER

Greg earned PhD, MS, and BS degrees in electrical engineering from the University of Illinois in 1987, 1983, and 1981 respectively.

After a postdoc appointment at Sandia, he joined the Labs full-time in 1989.

In 2004, Greg was named manager of Lasers, Optics, and Remote Sensing Dept. 1128. In addition, he is the program manager for the THz LDRD grand challenge.

Division 10000 safety challenge

In support of Facilities Management & Operations Center's Behavior-Based Safety Program, employees were challenged recently to observe their director's and senior manager's practice or behavior that put them at risk for a slip, trip, or fall. Things to watch for were keeping their eyes on the pathway, using hand rails on stairs or ramps, staying on designated walking paths, etc. VP Frank Figueroa (10000) and other directors in his organization decided to extend the safety challenge across the division from Dec. 1-Feb. 28. And, says Frank, "If you are the first to observe a participating manager in your center — or me — not practicing safe behaviors, we will sincerely thank you for your feedback and take you to lunch."

Greg's research has focused on the study of high-electron-density plasma sources for use in material processing, dusty plasmas, and advanced diagnostics development.

Greg is a Fellow of the American Vacuum Society and was awarded the AVS Plasma Science and Technology Division Plasma Prize in 2002. He is a senior member of the Institute of Electrical and Electronics Engineers, and a member of the American Physical Society.

Jim Miller named AAAS Fellow

Jim Miller of Combustion Chemistry Dept. 8353 has been named a Fellow of the American Association for the Advancement of Science (Section on Chemistry). The citation for Jim's appointment reads: "For seminal contributions to the field of combustion chemistry, particularly for combining theory and modeling incisively in the study of combustion-generated air pollution."



JIM MILLER

Jim received his bachelor's degree from the University of Cincinnati and his PhD from Cornell in 1974. He has been employed at Sandia/California since his degree.

He was part of the founding staff of the Combustion Research Facility in 1980 and has had the DMTS title since 1989. A more complete bio about Jim and his accomplishments was published in the Sept. 29 issue of the *Lab News* (page 3) in an article about him receiving the Bernard Lewis Gold Medal from the Combustion Institute at the 31st International Combustion Symposium held in Heidelberg, Germany.

This year's AAAS Fellows were announced in the News & Notes section of the Nov. 24 issue of the AAAS-published journal *Science*.

Feedback

How come I can't use my Sandia employee ID to enter KAFB?

Q: On several occasions recently, base gate guards have rejected my Sandia picture ID card as an acceptable ID for entry into Kirtland. Is this a new policy? Did I miss an employee communication on this policy change? If so, what is the purpose of the Sandia ID?

A: The DOE/Sandia badge is the only accepted form of identification for Sandians to use for entrance to KAFB by agreement with KAFB Security Forces and Sandia's Badge Office. About two years ago, KAFB officials implemented a process to reduce the number (about 85 at the time) and variety of forms of identification accepted for entrance to KAFB. By agreement, the DOE/Sandia badge is the only accepted form of identification verifying an individual's identity and affirming the person is on official business and requires entrance to the base. In addition, Homeland Security Presidential Directive #12 (HSPD-12), which is applicable to all federal agencies, requires a single, national form of personal identification, for entrance to any Federal Installation. This may, in the future, require a change to the current base entrance agreement. For now, DOE Notice 206.3, Nov. 22, 2005, states, "DOE Federal and Contractor Employee Badges have been determined to be the Department's Federal agency identity credential in compliance with HSPD-12." Our DOE badges are not to be used outside of DOE facilities for other than government purposes. The Sandia ID card is used to identify the holder as a Sandia employee and should be used for other than government purposes, such as using it to get a discount at an airport parking facility or similar commercial establishments. — Ed Tooley (10855)

Anatomy of an Emergency

Sandians remain safe to achieve mission success

Help is dispatched within a minute

A 911 call comes in to the Emergency Operation Center (EOC). It is answered by a Communications Coordinator (CC). The CC interviews the caller, and determines the nature and severity of the emergency through a series of predefined questions. Sandia communicators are trained to ask callers the crucial questions necessary to dispatch help.

Based on the emergency, an Incident

Commander (IC), Emergency Response Team, paramedics, and others as needed, can be dispatched within one minute of the call.

Once responders are dispatched, CCs remain in radio contact with the IC, documenting the event and assisting the IC with additional resources needed in the field. The IC meets with the 911 caller and determines the seriousness of the accident.



Story by Iris Aboytes
Photos courtesy of
Emergency Management

The alarm goes off and you tumble out of bed. What will today bring? Traffic isn't too bad as you head to your office. When you get there, you read your email and check your calendar. Sure enough, you have a dental appointment at 10 a.m. and a meeting in another building at 1:30 p.m. It's a good thing you packed a lunch.

Before you get started, the Tone Alert Radio (TAR) signals an emergency. Soon after the first alarm, another alarm goes off, and a disembodied voice tells you to shelter in place. Great! How long will this take? You have appointments.

A delivery truck loaded with hazardous gas cylinders is at the loading dock of a Sandia facility. While accepting receipt of the delivery, the Sandian at the dock smells something funny; it seems to be coming from one of the cylinders. Based on facility procedures, the worker does not attempt to find the source of the leak, if it is a leak, but calls 911 and reports the incident.

A Communication Coordinator at the Emergency Operations Center (EOC) receives the call. The caller is interviewed with a prepared list of questions to ensure the first-responders know as much as possible about the event before they even arrive on the scene. The information is immediately related to the Sandia Incident Commander (IC) and emergency responders.

Before deploying to the scene, the IC requests weather information to determine the safest route; he doesn't want to drive through a plume of gas. The information and other resources help him determine immediate protective actions for onsite personnel, neighbors on and adjacent to the Sandia site, and the general public. The protective actions can be modified as circumstances dictate.

Once the Incident Command Post is established at a safe location, the IC meets with the building owner and the 911 caller. He assesses the situation and determines the best way to ensure the safety of the building residents. The IC directs security personnel to establish a cordon around the facility to make sure others do not inadvertently cross into the hazardous area. Members of the Protective Force establish and enforce the cordon.

Based on pre-established reference material, the IC

categorizes the event as a hazardous materials operational emergency. (His decision is based on the extent of the gas release.) He requests staffing of the Emergency Operations Center (EOC).

A few minutes later, you receive an emergency message through *Sandia Daily News*. There is a gas leak in an adjoining building and Sandia Emergency Management is working to make sure no harm comes to employees. How long will this take? You have a dental appointment in an hour. What is really happening?

The IC evaluates the event and prepares to have the entry team enter the dock area. The entry team, composed of hazardous materials technicians, moves in and relays information on the leaky cylinder.

Once the leak is stopped or contained and the gas dissipates, the emergency is terminated. The IC notifies the EOC, employees are released from protective action, and everything returns to normal.

It is afternoon by the time you are notified that the danger is over and you are no longer required to shelter in place. You are a little bugged, but what can you do? You reschedule your appointments and continue with your work.

At the dinner table that evening you relate your day's activities to your family. It was stressful and frustrating and you were not able to get very much accomplished.

At another home, the Sandia IC sits at the dinner table with his family. He relates what his day was like. "I upset some folks today," he says. "We had a gas leak, and I had to order a shelter in place. It messed up a lot of plans and a lot of people grumbled, but what can you do? It was a dangerous situation. Still, I understand where they're coming from. People at Sandia are focused on mission success, and it's hard for them when anything gets in their way."

The IC thinks to himself about the different teams that made it possible for members of the workforce to go home safely, among them the communications team, building evacuation team, paramedics, emergency response team, consequence assessment team, the facilities organization, and the Pro Force. He shakes his head. It was OK that some members of the workforce were frustrated. The important thing was that no harm came to them. They were able to go home and be with their families. We did our job.

Sandia paramedics respond to 340 calls a year

Sandia has nine paramedics with three on duty at all times, two on Fridays. One of the paramedics is a retired paramedic/firefighter, seven also work with the Albuquerque Fire Department, and one is an Albuquerque ambulance paramedic. A Sandia doctor is on call at all times.

"If I get sick or hurt, this is the best place to be," says Deb Rivera (3331) the paramedics' coordinator. "Our paramedics have extensive emergency medical experience and attain site-specific training once at Sandia. They are on standby for every major Sandia event."

"We respond to about 340 calls a year," says Deb. "Some of these calls require transporting Sandia patients to an area hospital. Others we bring to Medical."



Incident Commander takes charge

In an emergency, the Emergency Operations Center calls an Incident Commander. Based on the type of call, known hazardous materials in the area, and wind direction and speed, the IC goes to the scene.

Upon arriving at the incident, the IC assesses the situation by working through checklists (hazardous materials "bibles" that list hazardous materials and their potential threat to human life), emergency action level tables, and protective action plans. Command operations are established. If additional security forces are necessary, the IC contacts the Protective Force shift captain.

The IC determines any protective actions to be announced via Tone Alert Radios (TAR). TAR alarms communicate instructions to building occupants (building evacuations teams receive more detail) to either shel-

ter in place or evacuate.

The table, action plans, and decision aids help determine the type and extent of protective actions to implement for onsite personnel.



During an actual emergency, compliance with the shelter-in-place order is for the protection of the affected onsite personnel and is a requirement of CPR400.1.1, ES&H Manual.

The IC directs mitigation of the emergency at the scene. If the Kirtland Air Force Base Fire Department is involved in the response, the Sandia IC works with KAFB in a unified command.

The Incident Commander at this time may direct the staffing of the Emergency Operations Center (EOC). The IC remains on site until the emergency is resolved, and everyone gets the all-clear sign.

Sandia Emergency Response Team (HazMat)

The Sandia Emergency Response Team (ERT) is the operational section of the Emergency Operations Department, under the leadership of the Incident Commander. Job No. 1 for the team is the safety of members of the workforce. They respond to all Sandia emergencies. With their expertise in hazardous materials response, confined space rescue, and emergency medical services, they have the ability to respond to and address any serious emergency.

They strive to take proper action in any emergency to ensure members of the workforce can get back to their mission and work safely and without unnecessary delay.



Emergency Operations Center (EOC)



The EOC team members are paged and arrive at the EOC (Bldg. 801S, basement) as quickly as they can. The EOC has six primary positions that are filled during an emergency: (1) Emergency Director, the delegated representative of Sandia during an emergency response and in charge of the overall response, (2) Administrative Finance Chief, who manages all administrative and financial activities associated with the incident, (3) Security Advisor, (4) Emergency Public Information Officer, (5) EOC Coordinator, and (6) two DOE/NNSA representatives who keep DOE/NNSA headquarters informed of the emergency situation.

In addition to the EOC staff, the Consequence Assessment Team (CAT) is paged to assist with modeling any hazardous material releases. The CAT provides information to the IC and EOC personnel. The EOC can also request assistance from various subject-matter experts.

Sandians, public kept informed

In an emergency, on-duty members of the Labs' Emergency Public Information team are paged to report to the EOC. The EOC is where

information concerning an emergency is gathered and verified for accuracy.

A Media Relations Center (MRC), may be activated to handle calls from Sandians and the media. It is also the location for press conferences during which EPI team members or other Labs officials speak to reporters about the emergency. EPI team members in the EOC prepare and get approval for employee messages distributed through *Sandia Daily News* and for news releases disseminated from the MRC.



Packaging group: Have expertise, will advise

Marking more than 30 years of service to the weapons community

By Darrick Hurst

When people hear the term “packaging” used to describe a process associated with nuclear weapons components, they may interpret it as it applies in everyday life — preparing a product for shipment so that it arrives at its destination undamaged.

“While there are some similarities to the more familiar meaning, attention to packaging during nuclear weapons development is far more extensive than simply preparing for shipment,” says Ron Hartwig (2100).

For nuclear weapons, packaging is the umbrella under which a broad spectrum of potential damage and degradation mechanisms are identified and addressed early in the development process. Examples of packaging disciplines might include such things as corrosion prevention, soldering, welding, bonding, material compatibility, and encapsulation for both high-voltage containment and mechanical robustness, says Ron.

For more than 30 years, the Packaging Advisory Board (PAB) has been on-call to guide engineers in identifying and addressing packaging issues. The PAB takes an in-depth look at the product designs, and explores the adequacy of packaging requirements, approaches to packaging qualification, and the influence of both manufacturing and logistical environments on packaging. The PAB also looks at the potential effects of aging, and the implications for ultimate disassembly and disposal at end of life.

The panel, which consists of people from Sandia and Honeywell-Federal Manufacturing and Technology’s Kansas City Plant, offers engineers a broad range of expertise in areas ranging from elastomers, adhesives, and metallurgy, to various metal joining processes, corrosion phenomena, and stress and thermal analysis.

Team members

Presently, the PAB consists of: Marcus Craig (5752) and Steve Lott (2614), co-chairs; Mike Kelly (2453), secretary; Ron Hartwig (2100), design review coordinator; Doug Adolf (1821); Rob Sorensen (1823); Bob Chambers (1526); Dick Salzbrenner (1820); John Emerson (2453); John Smugeresky (8758); Bob Sanders (Kansas City Plant).

Additionally, the PAB is a resource for subject-matter experts in a variety of areas, such as radiation hardness and RF packaging, who participate in reviews as appropriate.

“Our review board really provides a valuable service,” Ron says. “Not only are we positioned to bring materials and process experts together to provide in-depth formal reviews, but we can facilitate the identification of subject-matter experts early in a product’s development to better enable product teams to avoid packaging-related weaknesses.”

The board was established in 1972 to study encapsulation and high-voltage containment issues in electronic subsystems — particularly firing sets.

By 1975, the PAB had become an on-call entity assisting engineers with packaging. The original goal of the PAB had grown to include packaging issues associated with neutron generators, radars, testers, microcircuits, interconnects, contamination, metallurgy, and a variety of organic materials. Today, the PAB continues to provide on-call assistance with packaging issues.

“Essentially, we’re providing a ‘life-cycle’ perspective,” Ron says. “We make available the technical understanding of the processes that go into designing components. Ultimately, this provides for a more robust product overall.”

Most recently, says Ron, the PAB has performed in-depth packaging reviews for numerous components under development for the W76-1 and W80-3 programs.

While the board has focused on packaging issues related to nuclear weapons components, the PAB can also provide assistance to Sandia projects outside the nuclear weapons program, particularly those where attention to packaging design issues are essential for a project’s success.

“Many of our customers have expressed a satisfaction with how easy we make it for them to access our expertise in the various stages of design,” Ron says. “A key feature of our review



PACKAGING ISSUES — Ron Hartwig (2100, center) discusses component packaging issues with John Williams (2123, left) and Gary Randall (2619). (Photo by Bill Doty)

process is the up-front planning and preparation we conduct with the product teams. This ensures that our customers feel our work has been effective.”

The PAB has produced documentation pertaining to specific packaging issues, and has contributed technical papers to professional organizations such as the Institute of Electrical and Electronics Engineers.

In 1994, the PAB published a design guide with information on packaging topics such as high-voltage containment, solder joint design, encapsulation, and designing for manufacturability and reliability. The PAB is currently creating an updated edition of the guide, scheduled for completion this fiscal year.

“Our greatest priority is to ensure that the stockpile is known to be safe, secure, reliable, and effective,” Ron says. “I believe this shows in the service we provide to the Laboratory.”

People interested in the PAB can visit the board’s new website at pab.sandia.gov. The website lists contact information for conducting packaging reviews and for connecting with subject-matter experts in packaging-related areas.

Labs making strides in pedestrian safety efforts

Steps taken to curb unsafe situations and behaviors

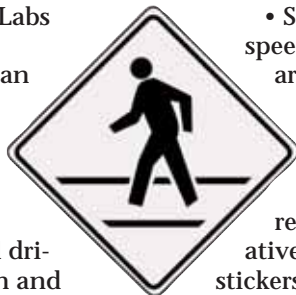
What with construction projects across the Labs in full swing and more than the usual amount of traffic — a lot of it related to that construction — moving around the campus (even in the tech areas), Sandia is making pedestrian safety a high-priority concern.

Over the past few months, the Labs has initiated a number of efforts to improve and communicate pedestrian safety enhancements at Sandia.

Those efforts have included a poster/advertising campaign to remind Sandians to “watch out for each other.”

Other communications remind drivers to be mindful of speed limits in and around the technical areas, remind pedestrians to use designated walkways, and to be just as careful of traffic in the tech areas as they would be on a city street. (Those tech area fences don’t protect pedestrians from carelessness or the consequences of inattention.)

The goal of the campaign is to make Sandia a “pedestrian friendly” environment in which everyone — drivers and pedestrians alike — understands that they are responsible for the safety of one another.



The pedestrian safety effort is more than a simple information campaign:

- The Civil Engineering department is continuously conducting walk-arounds to determine the need for more signs, additional pedestrian crosswalks, and more traffic control and other safety devices.

- Safety Engineering has acquired a speed monitor trailer that is posted around Tech Area 1 to remind drivers to maintain a safe speed. Additionally, electronic message signs around the area remind drivers to obey speed limits and to respect pedestrian right-of-way. Creative Arts has developed static cling stickers to be attached to the windshields of all Sandia-owned vehicles. They will also be printing and distributing 1,000 OSHA “Safe Driving Practices for Employees” QuickCards. The cards will be handed out to all drivers at Gate 10, including construction contractors and other visitors.

Pedestrian safety is not only a part of traffic safety (which includes motorists and bicyclists), but is also important in the Labs campaign to eliminate slips, trips, and falls accidents.

Feedback

Reader asks for speed bumps on K Avenue

Q: The speed limit on K Avenue is 15 mph. This street passes directly across the exits from two gates in front of the construction for Bldgs. 703 and 701, and as a result gets significant pedestrian traffic. Unfortunately, the workers who drive down that road ignore that sign and go much faster — in some cases 30 mph or more. This is extremely dangerous. Would it be possible to put some speed bumps or something like that on that road to prevent this and help improve the safety of the individuals who walk out of the gates? While this area is currently being monitored by one of the leave-in-place radar devices, and has in the past had an occasional security vehicle posted in the area, the problems persist. Passive means of discouraging people from speeding through do not appear to be working (at least they haven’t yet).

A: We also are concerned about pedestrian safety in this area. We believe that the Tech Area Expansion project currently underway will eliminate the need for adding speed bumps since K Avenue will soon become a dead-end street at Bldg. 954. This should significantly reduce the volume of traffic and hopefully the speeding in this area. Traffic Safety will consider adding speed buttons in the roadway to alert drivers of the pedestrian crossings once construction is complete.

— Willie Johns (10322),
Sandia Traffic Safety Committee

Changing, staying the same: Some of both in *Lab News/Daily News* readership survey results

By Rod Geer

The more things change — as in, let's say, a transformation at Sandia National Labs — the more things stay the same — as in, the general opinions readers hold about the *Sandia Lab News* and *Daily News*.

That's what an analysis of the recently conducted *Lab News/Daily News* readership survey reveals. The bottom line, but very simplified result: Overall, neither publication scored quite as well as in the previous (2003) survey (although the differences were mostly minuscule), but many more survey takers still give the *Lab News* and the *Daily News* a healthy thumbs up than a roasting.

A randomly selected group of 1,500 Sandians was asked to take the survey online at surveymonkey.com during the first half of November; 507 completed it. The high response rate — 34 percent — coupled with the demographic accuracy of the sample enhances confidence that the survey results provide a true picture of employee impressions of these publications.

For example, Division 1000 comprises a bit more than 16 percent of the workforce, while about 15 percent of the returned surveys were from people in that organization. Similarly, about 13 percent of Sandians are members of management at one level or another. So were about 12 percent of those responding to the survey. Just under a quarter of the workforce has been at the Labs for less than five years; almost 27 percent of those responding fit into that category.

Favorite elements: Milepost and retiree photos

As has been the case for just about as long as these surveys have been conducted, Sandians say their favorite part of the *Lab News* remains not the words printed, but the pictures of people appearing in Mileposts and Recent Retirees sections.

Although those Mileposts and Recent Retirees mugs remain the most looked at parts of the *Lab News* — almost 80 percent responded that they carefully peruse these sections — there was some significant shifting of the most-read story types. For the 1997, 2001, and 2003 surveys "HR-related" stories showed up as either the third- or fourth-most read items. For this survey those stories dropped to 11th.

Stories focusing on administrative and Labs management matters dropped from eighth on the list in 2003 to 14th for this survey. But, stories about employees receiving awards jumped from 13th in 2003 to sixth for this survey.

Other story types or sections in the top 10, according to this year's survey takers: 2-Feedback column; 3-classified ads; 4-annual "Labs Accomplishments" special issue; 5-tech stories; 7-historical stories; 8-employee profiles/features; 9-annual "State of the Labs" interview; 10-"This Month in the Past" feature.

SurveyMonkey opens new analysis capabilities

New for this year's survey, thanks to capabilities in the SurveyMonkey web-based tool, was the ability to easily filter results in order to spotlight significant differences in responses based on where employees work (organization or site), time on the job, or work category (technical or administrative, for instance).

Some of the curiosities that filtering revealed:

- 64 percent of employees with five years of service or less scored *Lab News* as excellent or very good, while 81 percent of employees at the Labs more than 20 years scored it that way. [Note: We hadn't been tuned in to this demographic wrinkle, which seems to us to be significant. It's something we'll need to think about and figure out how to address. And we probably wouldn't have known about it without having conducted the survey.]

- 74 percent of employees stationed at Sandia/New Mexico scored *Lab News* as excellent or very good, while 76 percent of employees at the Sandia/California site scored the paper that way, despite the fact that the majority of the articles focus on New Mexico-based activities. [Note: That's nice to know, and gratifying to think we're valued as much at our California site as we are at "home."]

- 74 percent of the "administration/support" sample gave the *Daily News* an excellent or very good rating, while 50 percent of "managers" responding judged it to be excellent or very good.

- 26 percent of the "administration/support" responders said the Feedback program is "always useful," but just 10 percent of the "manager" group gave the same response.

Adhering to its stated principles

A new question this year asked Sandians to comment on how well they believe the *Lab News* is adhering to its stated principles. Those principles and the average score based on a 1-5 scale, with 5 being best:

- Write honestly and directly with minimum of jargon — 4.20
- Use an informal, reader-friendly style — 4.26
- Discourage tendency of sources to "preach" to employees — 4.01
- Avoid buzzwords and latest trendy "business-speak" — 3.95
- Emphasize substance — 4.04

★ **Average — 4.09**

Another new item asked what sort of additional or special material those taking the survey would like to see if the *Lab News* were to augment its print version with an enhanced web presence. Among the seven suggested ideas the two most favored — and by significant margins — were "around-the-complex summaries" (mentioned by 53 percent of those responding) and "photo essays/slide shows" (mentioned by 46 percent). Use of podcasts (downloadable audio files that can be stored on and listened to on computer or a portable MP3 player such as an iPod) were at the bottom of the preference list with less than 10 percent indicating an interest in them being part of a web-based augmented *Lab News*.

Selected survey results are below. For complete summary results see the online PDF file at www.sandia.gov/LabNews/In11-24-06/LNsurvey.pdf. For open-ended comments, special filtering of results, and other survey detail, contact Rod Geer, 505-844-6601 or wrgger@sandia.gov.

In general, how do you rate the <i>Lab News</i> ? (percentages rounded)					
	2006	2003	2001	1997	1995
Excellent	20	23	21	22	18
Very Good	54	57	52	51	50
Good	21	18	23	23	30
Fair	4	1	3	4	2
Poor	0	1	1	0	0

In general, how do you rate <i>Sandia Daily News</i> ? (began in 1996)					
	2006	2003	2001	1997	1995
Excellent	17	31	31	13	n/a
Very Good	49	47	44	31	n/a
Good	28	18	21	44	n/a
Fair	5	3	4	11	n/a
Poor	1	1	1	2	n/a

On a scale of 1-5, 5 being highest, rate the <i>Lab News</i> in terms of the following attributes: (not asked in 1995)					
	2006	2003	2001	1997	1995
Readability	4.21	4.36	4.30	4.15	n/a
Credibility	4.25	4.34	4.23	4.08	n/a
Relevance/usefulness	3.82	3.88	3.86	3.63	n/a
Timeliness	4.03	4.08	4.05	3.82	n/a
Thoroughness	3.88	4.05	3.86	3.77	n/a
Photos/Illus.	4.28	4.37	4.19	4.13	n/a

From one end of the spectrum to another — A sampling of verbatim comments

Some of the open-ended comments that readership survey takers offered are intriguing. Some cause head scratching. Either way, the collection reveals the diverse set of communities and opinions found at Sandia National Laboratories.

A peculiar, but healthy characteristic of Sandians is their ability to consistently hold significantly divergent views. One Sandian wrote, for instance, "*Sandia Daily News* is an easy and quick way to get reminders and updates of what is going on in Sandia daily life. I use it everyday." Another wrote, "Sometimes the *Daily News* is the only notice that I get about events . . ."

Also offered: "I rarely read [the *Daily News*] and find it kind of annoying." "The *Sandia Daily News* is easily bested by the *National Enquirer*."

"I appreciate the simple 'text' format [of the *Daily News*] without the additional graphics and other fluff many other emails have. This makes it quick to load and easy to read regardless of the computer I'm using."

But another commented, "The format is very unpleasant."

"Sometimes when an event is happening, the day is given, but not the exact date. A day and date would be helpful."

"The NB and Wry Bye sections are often offensive and serve no real purpose."

On the other hand: "I like the humorous sayings in NB and Wry Bye."

"Timeliness is much improved with earlier posting time than previously achieved."

"I've noticed over the past few years that there seem to be fewer items about the latest obscure award won by this or that person, and I appreciate the decrease."

About *Sandia Lab News*:

"Years ago, *Lab News* would run a reader's favorite recipe column. Got some great recipes this way that are family favorites."

"I think you do a good job of relating the science in minimal jargon terms. But when it comes to

management discussions or interviews or management feedback, the words are frequently meaningless."

"At times, the informal, reader-friendly style is very '50s-ish. Very corny."

"A good job adhering to its principles."

"Stay with the hard-copy in the present form. Don't become just another web-based document."

"It's unbiased, factual, personable, great pictures, not too technical."

"Sometimes the *Lab News* is just a mouthpiece for the official management viewpoint, verging on propaganda."

"I use the *Lab News* as a recruiting tool. The stories must be objective, relevant, and interesting. You succeed in these areas. Each article speaks to the audience on a professional level but in an understandable way. With the speed of changes in technology, communicating to a technical and a technically challenged audience at the same time is difficult."

— Rod Geer

This month in the past

50 years ago . . . Five Sandia Employees Retiring at Close of 1956 — As 1956 draws to a close, five more Sandia Corporation employees are retiring, bringing the total number of retirees to 28 — all men. With the total increasing steadily, more interest is developing in retirement plans and the Corporation is striving at the same time to make the transition from an eight-hour working day to a more leisurely pace easier for employees. All except three of the Sandia men now retired are covered under the Corporation's retirement plan, administered by the Prudential Insurance Company. Their annuity is based upon the amount the employee paid into the plan plus a substantial contribution by the Corporation to the fund.

40 years ago . . . Lab Experimenters Return After Highly Successful Eclipse Studies — Flying scientists, rocketeers, and members of Sandia's diagnostic aircraft team returned to the Laboratory last week after conducting solar eclipse studies off the coast of Brazil last month. Experiments aboard the aircraft were designed to gather data on the sun's corona and on the interactions of solar emanations with the earth's upper atmosphere.



THE DCU-201 controller, the first PAL/AMAC controller to incorporate CMOS integrated circuits.

30 years ago . . . Improved Controller Developed — Sandia has completed development of a new and improved PAL/AMAC controller for the Air Force. The DCU 201, like earlier PAL/AMAC (Permissive Action Link/Aircraft Monitor and Control) controllers, is mounted in the cockpit of an aircraft carrying nuclear weapons. It allows the pilot to lock or unlock the bomb, safe or pre-arm, and monitor the status of certain bomb options. And it allows these functions to be performed with even greater safety than before. One of the advanced features of the DCU 201 is that it is the first controller to provide a unique coded pulse input to a hard link pre-arm switch in the weapon (older weapons used a DC signal to pre-arm). The DCU 201 is also the first controller to use custom designed CMOS Large Scale Integrated (LSI) circuits — seven of them, each containing approximately 1,250 transistors.

20 years ago . . . Senior Fellow Post Established — President Irwin Welber has announced the creation of a new and prestigious position, that of Senior Fellow, for MTS Sandians. The position was established "to recognize a very limited number of technical professional staff who have demonstrated continuing contributions of truly exceptional breadth, depth, and creativity in fields impacting the technical mission of the Labs," according to the Small Staff guidelines on

the new post. "I'm pleased to announce that the first Senior Fellow recipient is Gus Simmons [manager of Applied Mathematics Dept. 1420]," said Irwin.

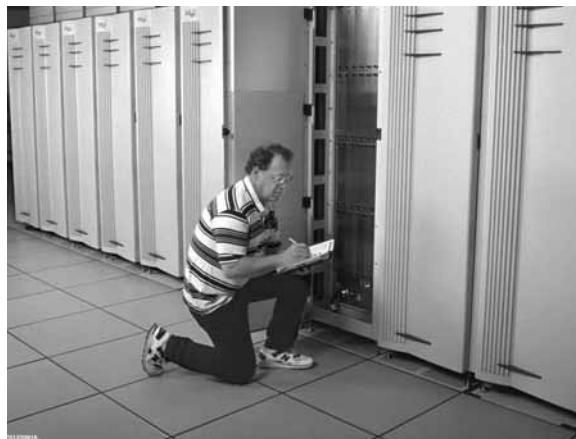
10 years ago . . . Sandia Helps Break the Supercomputing Speed Barrier — Achievement of the computing milestone of one trillion operations per second (one teraflops) was announced at a news conference Monday in Washington by DOE Secretary Hazel O'Leary, with a live audio link to Sandia and Intel. The milestone was demonstrated Dec.



GUS SIMMONS, Sandia's first Senior Fellow.

11 to DOE and Sandia officials in Beaverton, Ore., on an Intel massively parallel computer developed under direction of DOE for the Accelerated Strategic Computing Initiative (ASCI). The teraflops computer, now the fastest supercomputer in the world, is being moved in sections from Oregon to Sandia/New Mexico over the next few months. . . . Japanese industry turns to Sandia to test nuclear reactor containment building safety — It didn't go bang; it went whoosh. And it did it right on cue. Engineers from International Nuclear Safety Dept. 6403 last week demonstrated that a one-tenth scale model of the steel containment vessel used in Mark II-class commercial reactors can withstand pressures significantly higher than they are designed for. The test conducted

in a specially designed concrete fragment barrier, showed that the 19-foot-high scale model, built at Hitachi Works in Japan, withstood pressures of almost 700 pounds per square inch (psi) before springing a leak, six times its scaled design basis of about 112 psi. Even more significant, says project manager Mike Hessheimer, the test served as real-world validation of Sandia's computer models of the vessel's behavior under pressure.



ASCI RED, the world's first teraflop computer.

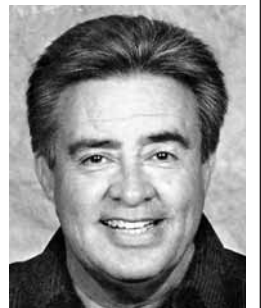
Recent Retirees



Brien Bopp
40 2916



Paul Dressendorfer
28 8331



Leroy Perea
35 1535



Angie Black
21 10263



Pat Barthelmes
25 2613

Retiree death

Walter Hall, oldest retiree, dies

Walter Hall, Sandia's oldest retiree, passed away in Oregon on Nov. 25 at the age of 104. Walter started work at Sandia in 1947 and retired as a department manager in 1967. His wife of many years passed away in 1993. According to his son, Robert, Walter remained as sharp as a tack and was still helping his son design equipment until just a few weeks ago. Walter is survived by Robert and a daughter, Marianne.

Manager promotions

Melissa Eakes, from SMLS, Compensation Dept. 3511, to manager of that same department.

Melissa began her career with Sandia in 2004 and has spent her time in human resources and specialty compensation.

She has a BA in international relations from Pepperdine University and an MBA from the University of New Mexico Anderson School of Management.



MELISSA EAKES

Evelyn Serna, from Administrative Team Lead, Intelligent Systems and Robotics Center, to manager of International Physical Protection Operations Dept. 6037.

Evelyn began her career at the Labs in 1993 as a team lead in Capital Accounting Services Department, where she worked for four years. She then became team lead in the Licensing and Intellectual Property Department. Four years later, Evelyn took the center business administrator and administrative team lead positions in the Intelligent Systems and Robotics Center for another four years before accepting her current assignment.



EVELYN SERNA

Evelyn has a bachelor's degree in business with a concentration in accounting and an MBA with a concentration in tax accounting, both from the University of New Mexico. She also holds a CPA license in New Mexico.

Sandia hosts Software Quality Assurance Subcommittee session

Best practices. It's a DOE/NNSA priority to ensure that the labs in the nuclear weapons complex are not only embracing industry-standard best practices, but also cooperating with each other to share those practices throughout the complex. To that end, Sandia's Weapon System & Software Quality Dept. 12321 recently hosted a Software Quality Assurance Subcommittee (SQAS) Work Group Forum.

Attendees included representatives from across the DOE nuclear weapons complex, as well as representatives from the UK's Atomic Weapons Establishment (AWE).

Joe Schofield, process management officer in Information Solutions and Services Center 4500, opened the forum with a presentation about Sandia's approach to software engineering excellence. He discussed how Sandia is implementing DOE Order 414.1C, Quality Assurance Management System Guide.

Following Joe's talk, representatives from each site discussed the status of their respective efforts to develop and implement a software quality assurance program applicable to nuclear safety management.

Following those formal presentations, a number of work groups addressed issues such as: applying agile methods to weapons/weapons-related software; software in the Life Extension Program; and software inventory.

Brainstorming sessions developed task items that may evolve into future SQAS initiatives.

SQAS meets semiannually; it has two core members per participating site but there is no limit to the number of personnel participating from a site. Contact David Peercy at depeerc@sandia.gov or Maria Armendariz at mearmen@sandia.gov for information concerning SQAS participation.

Sandia's Christmas story celebrates 50 years

Story by Iris Aboytes
Photos by Randy Montoya

Imagine more than 11,000 pairs of shoes going to 11,000 needy children. That is how many have been donated by Sandians through the Shoes for Kids Program, which this year celebrates its 50th anniversary. What began as a holiday gift exchange between two scientists has become a Sandia tradition. Instead of giving gifts or cards to one another, they decided they would spend their money to benefit others less fortunate.


You may have read some of the stories. The little boy who would not select a pair of shoes because he thought the supply would

run out and there would be no shoes left for his little sister. The red-haired little girl, her face peppered with freckles, who wanted a pair of Cinderella shoes. Then there was the boy whose worn shoes resembled pieces of leather held together by his will.

At one of the shoe fittings this year, the children were full of energy and mischief. Who would guess these children also participate in the Roadrunner Food Bank backpack program, which identifies and assists children who take home food in their backpacks to carry them through the weekend.

Last year employees and retirees donated more than \$19,000. How many children will get new shoes this year?



**Donations should be sent to:**
Shoes for Kids Fund
Sandia National Laboratory Federal Credit Union
Acct. #223180
P.O. Box 23040, Albuquerque, NM 87191-0500
Or call 293-0500 to make a transfer
Online: 223180, 90-01
The Shoes for Kids account remains open throughout the year.

