

Sandia preemptive spark helps find intermittent electrical short circuits in commercial airplanes

Finding a short before it finds you helps make aircraft safer

By Neal Singer

Airplane travelers addicted to worry sometimes fret about an engine failing or a wing falling off, but they rarely stress about wiring. But they might — if they knew there are miles of aging wiring, intertwined like spaghetti, behind the side panels of a commercial airliner's fuselage. An intermittent electrical short due to frayed insulation can make lights blink or air conditioning falter, or even cause fatal crashes, as with flights SwissAir 111 or TWA 800.

The challenge to engineers is how to locate a wiring fault before — not after — it becomes a problem. That's quite a trick. Sandia researchers believe they have helped achieve a solution.

The newly patented method — called PASD, for Pulse Arrested Spark Discharge — relies on a Sandia specialty called pulsed power, developed over decades of research. Usually the public thinks of this research — if it thinks of it at all — in terms of Sandia's massive Z machine, which sends great bursts of electrical current down conduits as big around as a horse's girth.

But the PASD device in its experimental state was only the size of a small refrigerator.

Now, licensed in late April to Astronics Advanced Electronic Systems of Redmond, Wash., and combined with that company's other patented test methods, it's the size of a small suitcase. It can be plugged into aircraft-installed wire harnesses, 40 wires at a time, to check them for the very small insulation breaks associated with intermittent faults.

These sporadic short circuits occur where two exposed conductors, or a conductor and aircraft frame, make temporary contact during flight. Vibrations caused by turbulence may cause wires to touch, interrupting power to

(Continued on page 4)



SPARKING THEIR INTEREST — Mike Dinallo and Larry Schneider (left) prepare to employ the PASD diagnostic on a wiring bundle in the cockpit of a retired Boeing 737 at Sandia's FAA Airworthiness Assurance NDI Validation Center.

(Photo by Randy Montoya)

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Sandia applies a surety approach in creating solutions to energy challenges

Energy: It's everywhere, but we must get better at harnessing it

By Chris Burroughs

With concerns that energy use will rapidly increase over the next several years while fossil fuels diminish, Sandia is looking at a new way to meet growing energy challenges — energy surety.

"We have taken our surety know-how and applied it to energy," says Rush Robinett, senior manager of the Energy and Infrastructure Futures Group 6210. "By doing this we are looking at what energy practices can best answer our current needs while not making compromises for future generations."

Rush, together with Margie Tatro, director of Energy, Infrastructure & Knowledge Systems Center 6200, and others in the center designed the new model and detailed it in a recently-released SAND report, *Toward an Energy Surety Future*.

Energy surety takes an integrated approach to achieving safety, security, reliability, recoverability, and sustainability objectives for the nation's

civilian and military energy systems. Patterned after Sandia's many decades of applying surety principles to weapon systems, the approach includes choosing the best mix of fuels and applying conservation principles to all steps, starting with energy production and ending with final use, even using what would normally be characterized as waste heat and mass.

Margie notes that in developing the energy surety approach, "the sustainability model was the most difficult to create because sustainability was not a system requirement in the original weapons system surety approach."

The energy surety approach is part of Sandia's effort to support DOE's National Energy Policy goals, which include diversifying the country's energy mix and reducing dependence on foreign petroleum; reducing greenhouse gas emissions and other environmental impacts; creating a more flexible, more reliable, and higher-capacity

(Continued on page 4)



(Photo by Randy Montoya)

Sandians among 1,502 NWC workers affected by NNSA computer breach

Approximately 350 members of the Sandia workforce, both employees and contractors, were among the 1,502 individuals whose Social Security numbers and other personal information were compromised in a hacker attack on an NNSA computer network.

In addition to the Social Security numbers, personal information taken from the NNSA system included names, level of security clearance, when that clearance was last updated, and a code identifying where the affected individuals work.

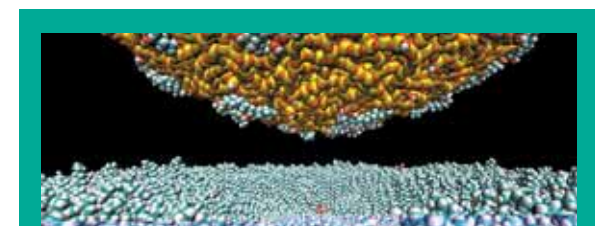
By the end of last week, the affected Sandians had been notified and advised of measures they should take to minimize the risks associated with the incident.

DOE officials said the attack began two years ago, but was not discovered until more than a year later. It was another eight months before NNSA began notifying affected employees.

In a LINTGRAM distributed to Sandia

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Information security is an 'unending race.'
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Eliot Fang finds truth — and beauty — in modeling and simulation: Page 7



Stoked! Sandia's weapon-developed foam may be salvation of surfboard industry.
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Tom Hunter and other execs raise visibility of ES&H and security with periodic walkthroughs.
Story on page 8.

What's what

In case you missed the announcement, TEDS was upgraded last month to change due-date assignments for all the courses we are required to take online. The new system assigns due dates based on the original due date, rather than on the date you completed the course, as the old system did.

Previously, if you were notified, say May 1, 2006, that you had to complete a course by July 1, and you completed it that same day, the old system would assign May 1, 2007, as the date by which you had to check that box next year. Under the new system, using the same dates as examples, if you completed the course May 1, TEDS would assign you the same completion date – July 1 – for the next year. Therefore, no penalty for being conscientious.

If you were diligent and not careful, under the old system, you'd take the course test on time the first time, then be notified 11 months later and take it on time, then 10 months, then nine, and so forth. Pretty soon, you'd be taking the test twice the day before yesterday.

The change is welcome.

* * *

Daimler Chrysler CEO Dieter Zetsche hinted strongly recently that his company would start selling its little two-seater runabout Smart Car in the US soon, to compete with other manufacturers of small, fuel-efficient cars.

Nerdy Steve Urkel, played by the still-alive actor Jaleel White, in the sitcom "Family Matters," drove one of that genre – a BMW Isetta, much narrower at the rear than the front, with a single door that was the entire front of the car. And his was a refinement of the original Italian version that was powered by a two-stroke engine. Think outboard motor or lawnmower.

Imagine the "newthink" such a transition will require of American drivers, happy with behemoth SUVs and king-cab, long-bed pickups (try getting around one of those in the parking lot!). We also like lots of "stuff" that minicars don't have: headlight wipers, windshield wipers that turn on automatically when the car senses rain, heated steering wheels, swiveling headlights that illuminate the curved road ahead of you, etc., etc.

There's no question that we are very spoiled about the comfort level of our cars and effecting such a change will take a marketing campaign to challenge even Madison Avenue. And there's no question that we should all be willing to give up some of our car comfort to help reduce our energy consumption. No question about it.

But don't even think about taking my heated seats away from me.

* * *

Preparing for a sailing trip recently, I googled for charts and found the following:

"Our search engine is very particular, it only likes whole words that are spelled correctly. So if you don't get the result you're looking for, try it again a little differently or just contact us directly."

Not particular enough to know the difference between "your" and "you're" it seems.

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

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Paul Robinson honored with ANS Nuclear Statesman award

Former Labs Director and President C. Paul Robinson has been awarded the Henry DeWolf Smyth Nuclear Statesman Award at the American Nuclear Society's annual conference, held this year in Reno, Nev.

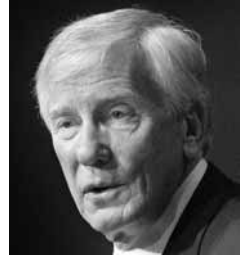
An ANS news release on the award notes that Paul was recognized for his "outstanding and statesman-like contributions to the many aspects of nuclear energy activities."

The ANS news release cites milestones in Paul's 40-year career: Head of the Los Alamos National Laboratory nuclear weapons program; nuclear industry executive during a stint in the private sector; chief negotiator and head of the US delegation in vital — and successful — US/USSR nuclear testing talks; director of Sandia; and highly visible and proactive leader of international initiatives to advance nuclear power generation for the 21st century.

Established by ANS and the Nuclear Energy Institute in 1972, the Henry DeWolf Smyth Nuclear Statesman Award commemorates Smyth's life and work. Smyth was a Princeton physicist who played a major role in the development of atomic energy and its subsequent use.

Upon receiving the award, Paul said, "Henry Smyth combined strong leadership with scientific knowledge to create sound US and international nuclear policies. He also earned a reputation for swimming upstream against the political forces of his day to accomplish his work. Those same aims have set the directions for my own career, including opposition to some of the political juggernauts of our times. I am thus greatly honored to be included among those who have received the Smyth medal."

The 10,500-member American Nuclear Society is a professional organization of scientists and engineers devoted to the applications of nuclear science and technology. Its members come from industry, academia, and government.



PAUL ROBINSON

Vic Chavez named to UNM's Anderson Schools hall of fame

Vic Chavez (10222) was inducted into the University of New Mexico's Anderson Schools of Management Hall of Fame May 4.

One of seven honorees selected for their professional success, contribution to the community, and ongoing commitment to education, Vic joins a distinguished roster of leaders from New Mexico and around the country.

"I'm proud to represent both Sandia and the community in receiving this recognition," Vic says. "I hope this only encourages more people to give back to the community."

Vic serves as manager of the Small Business Initiative, New Ventures, Entrepreneurial, Regional Economic Development and Small Business Advocacy programs at Sandia's Office of Advocacy and Small Business Development.

Vic founded the New Mexico Small Business Assistance Program, which has helped more than 800 businesses throughout the state, and is responsible for the development and implementation of the Native American Initiative, which brings together the Navajo Nation, the US Department of Energy, and Sandia.

Chavez is a graduate of the UNM and received his master of business administration (MBA) degree from the Anderson Schools in 1999.

— Darrick Hurst



VIC CHAVEZ

Congratulations

To Jeri Timlin (8332), on the birth of her daughter Kaylena Rae Timlin, April 7, 2006.

Wipeout? Not. Sandia's TuffFoam™ churns up waves of interest — and agreements — from domestic surfboard makers

Loss of traditional foam sources akin to removing lumber from housing industry, says surf sage

By Nancy Garcia

When the main manufacturer of blanks used for surfboard construction, Clark Foam, closed shop last year, the nation's \$200 million surfboard manufacturing market appeared headed for a wipeout.

Hearing the news, LeRoy Whinnery (8778), who describes himself as "a warm-water surfer" (as opposed to his wife, whom he says "will surf anywhere"), believed he just might have a solution — a foam initially developed to protect sensitive equipment from harsh mechanical environments, TuffFoam™.

Now two licensees are evaluating the Sandia-developed foam for this use and scores of inquiries are being explored about this field and other uses, including insulation and structural core applications.

The material is a water-blown close-cell rigid



TIMELY – In the foreground is a small version of a surfboard blank made from TuffFoam™. (Photo illustration by Randy Montoya)

polyurethane foam that features formulations with densities as low as 2 pounds per cubic foot.

News of TuffFoam being considered as a potential replacement for surfboard manufacturing spread rapidly through news agencies, television, magazines, newspapers, and trade journals since the licensing opportunity was announced in February.

"It can be used for thermal and electrical insulation, and potentially as a core material for the automobile and aerospace industries," says Scott Vaupen, who began the commercialization effort in Business Development Support Dept. 8529, where Jim Wilhelm is now handling TuffFoam agreements and inquiries. Jim points out the material is unique in its ability to withstand high-rate impact without fracture or loss of structural integrity. In addition, it's also being considered for use as industrial thermal insulation for liquefied natural gas storage tanks.

Clark Foam closed its doors suddenly late last year, citing the impact of ever-tightening environmental regulations on the manufacturing of their polyurethane surfboard blanks. The move led to near-panic, particularly in California, by manufacturers and sellers of surfboards who fear they will not be able to find the high strength-to-weight ratio surfboard blanks necessary to make the boards. Surf historian Matt Warshaw, in an article in the *Santa Barbara News-Press*, said "it's the equivalent of removing lumber from the housing industry."

Largely due to its low density, Sandia's TuffFoam might very well fit the bill as a drop-in replacement material. A key feature of TuffFoam is that it does not contain toluene diisocyanate (TDI), the chemical used in the production of the polyurethane foam surfboard blanks that is most



MATERIALS RESEARCHER LeRoy Whinnery poses with two TuffFoam™ samples. Originally created for the National Nuclear Security Administration to protect sensitive electronic and mechanical structures from harsh environments, the foam's properties may be ideally suited for surfboard blanks and other applications such as car bumpers and airplane wings. (Photo by Bud Pelletier)

problematic with respect to environment regulations. Another attractive feature of the Sandia product is that all of the chemicals used to make TuffFoam are commercially available in commodity quantities. The material is currently formulated to be processed in a batch mode, but the processing schedule can be modified for machine mixing or injection molding.

So, will a foam developed for America's nuclear weapons program save the American surfboard industry? Maybe. Leroy hopes so.

"Yeah, I'm really looking forward to surfing on a TuffFoam board," he says. "That would be pretty awesome."

Sandia California News

Feedback

Will Sandia raise education reimbursement to keep pace with tuition hikes? Why can't I use government employees for 'customer feedback' in my PMF?

Q: Considering the fact that colleges and universities have periodically raised tuition fees over recent years, is Sandia going to increase the annual tuition assistance reimbursement limits accordingly?

A: It is a fact that the cost of higher education continues to increase at a rapid pace; however, Sandia is not planning to increase the annual tuition assistance reimbursement limits.

Tuition assistance, which is a benefit at Sandia, must remain available to all employees who meet the eligibility criteria. Based on Corporate Education's budget analysis, increasing the reimbursement ceilings would greatly reduce the number of Sandians supported through the Tuition Assistance Program.

It is the responsibility of an employee to ensure he or she selects a school that is within the reimbursable limits, or to realize that if a higher-cost school is selected, anything over the cap limit becomes the employee's responsibility.

The Tuition Assistance Program has a FY2006 budget of \$1.2 million, and Corporate Education does not foresee a budget increase for FY2007. The Tuition Assistance Program is funded through the indirect loads that are applied to all direct projects at Sandia. Raising assistance limits

would require increasing the indirect loads, thus causing costs to all direct projects to increase, or reducing other services provided by IES to fund the higher budget. Neither of these scenarios is likely in light of the corporation's budget projections for the next several years. — BJ Jones (3500)

Q: I read the just-issued guidance from Kim Adams on Performance Management and need clarification on the topic of customer feedback. The guidance states, "it is inappropriate for managers and employees to ask for customer satisfaction information from a government employee, as we do not have, individually, an official relationship with the government." Some of my employees spend 100 percent of their time on Work For Others where government employees are their direct and paying customers. As a manager, I have always sought input from these customers. It is a key component of the performance evaluations for my staff. I don't understand why we are being prohibited from seeking this crucial input from our customers on employee performance. Please help to clarify this puzzling restriction.

A: We recognize the importance of customer feedback on how we, as a Laboratory, meet our customers' requirements. However, it is important that Sandia clearly maintain the responsibility to

hire, manage, and direct its workforce. Soliciting feedback from government employees on a Sandian's performance can create the appearance that the Sandian is a government employee and/or the appearance of bias on the part of the government. SSO has acknowledged this conflict, and in accordance with our contract, has directed its workforce and other federal employees to respectfully decline providing performance feedback on an individual Sandian. Similarly, Sandia is asking its managers and employees to not put a government employee in an awkward position by asking for performance feedback on a specific employee or group of Sandia employees.

However, it is acceptable to solicit customer response as to whether Sandia (not specific personnel) is meeting project requirements through such means as a customer satisfaction survey. Consequently, the challenge for the manager is to take this corporate feedback and combine it with other considerations such as quality of work, interpersonal skills, teamwork, communications, innovativeness, productivity, motivation, dependability, analytical skills, etc., to evaluate his or her employees on an annual basis.

— BJ Jones (3500)

PASD

(Continued from page 1)

sensitive electronics and possibly damaging wires. These conditions are tricky to diagnose when the aircraft is on the ground because the shorting wires often will have shifted back to a non-short state. Sometimes these breaks can barely be seen by the naked eye because missing insulation may be the size of a pinhole, or nearly invisible like a fine cut from a razor blade. Traditional wire-test systems have great difficulty finding these faults.

Location method simple

PASD locates faults by a method simple to understand at its basis.

What Sandia has done, under project lead Larry Schneider (1650), is send a high-voltage pulse down the wire. The pulse is very brief (nanoseconds — a nanosecond is a billionth of a second) so the energy is very low.

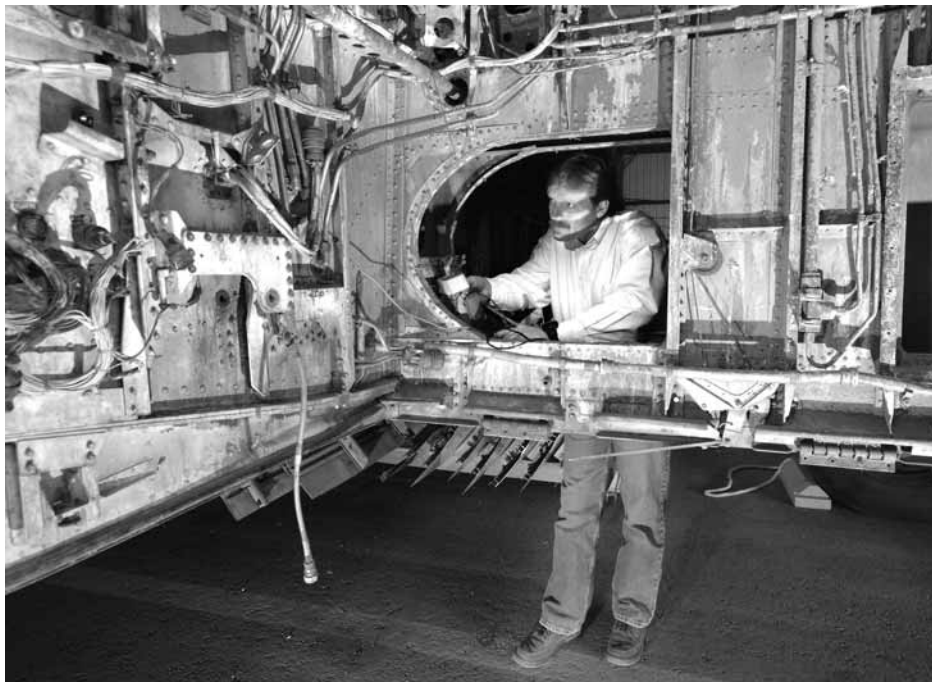
The situation is analogous to a waterfall — very high, higher even than Niagara Falls — with only a trickle of water going over it, and even the trickle lasting for only a fraction of a second. Water will certainly fall far and fast, but the tiny amount arriving at the bottom will cause only a tiny splash — not enough to do damage.

But because the voltage is so high, the little bit of harmless energy will jump like a rabbit from the smallest insulation break to the bulkhead or to another nearby damaged wire. That jump — like static electricity leaping from hand to door-knob — in effect lights up the damaged spot like a tracer bullet at night lights up on its trajectory to a target. The amount of time it takes for the current to return to its source is analyzed by the automated test-set to tell within inches how far the break is from the test entry point.

The simple method should make it financially feasible for airlines to quickly diagnose and locate intermittent faults that have plagued the industry and cost millions of dollars in lost revenue due to aircraft downtime.

Is the technique in reality more complicated than that? You bet. That's why the National Nuclear Security Administration and the US Navy supported the research, followed by the Federal Aviation Administration, to the tune of about \$2 million. It's why it took two years for Astronics to adapt it to its suite of tools, called (fittingly) ArcSafe, a method developed over four years of research to locate wire breaches with the potential for electrical shorting. ArcSafe is expected, by the way, to be on the market by September.

"Rather than ripping apart the fuselage for



KEVIN HOWARD prepares to acquire PASD data on electrical wiring in the wheel well of a retired Boeing 727. (Photo by Randy Montoya)

access to a faulty harness that may run the length of the plane, airline mechanics will be able to use this new tool to efficiently locate and repair the fault," says Larry.

Says Astronics team leader Mike Ballas, "We really value PASD technology. We licensed it, turned it into a practical portable test unit targeted for the aviation industry to find intermittent faults, and we believe it's the best way now to do the job. It's a nice complement to our patented technology."

Says Robert Pappas, the Federal Aviation Administration's project manager for aging aircraft research and the first to recognize the value of Sandia's original research proposal in 1998, "It would have been unfortunate if PASD had been developed and then remained stuck in a lab. Integration of the technique [with those of Astronics' ArcSafe] is a real success story."

Faults detected early

"Rather than reacting to a problem, these systems can find a fault before it manifests into a catastrophic event," says Larry, who predicts PASD will one day become a final test for the wiring harnesses of passenger cars and new homes, as well as for military tanks and the hard-to-reach wiring behind the steel bulkheads of submarines.

There'll be problems, just the same, in getting the method accepted, says Mike Walz, current FAA overseer of the project. For one thing, he says, "What PASD looks like is an electrostatic discharge [ESD] — something aircraft manufacturers work hard to keep out of their wiring system."

One researcher responds with humor, "PASD is a little like homeopathy: Uncontrolled ESD can

kill you, but a little bit can help cure you." (Homeopathy holds that dangerous material, extremely diluted in solution, can be helpful in healing.)

Other problems involve the varying resistance of wires over long distances, called electrical impedance, particularly in the branched wiring systems prevalent in aircraft. This was a problem for earlier versions of ArcSafe, which used a DC current to detect breaks. Varying impedance meant it was difficult to accurately locate an intermittent fault, since electrical return signals were inconsistent, especially on complex wire geometries. Still, the DC method is most effective for identifying ordinary faults and has been retained for quick fault screening. To enhance its fault-locating ability, a new Astronics method allows the PASD pulse to ride upon the DC current like a rider on a horse. The DC current provides support for the high-voltage pulse, which then can be effective even a hundred feet from its starting point in accurately locating critical

breaches in wire insulators, even those occurring on branched wire harnesses. The distance to a fault is computable, regardless of changes in impedance produced by the wiring as it reacts to the PASD pulse at various voltage levels.

Insulation defects hard to find

"Wiring insulation grown defective over time can cause malfunctions or even fires, but is devilishly hard to spot and even harder [once spotted,] to [exactly] locate," says Larry. "Other methods have faltered when confronted with the varying impedances of bundles of wires, or the difficulty of providing the exact location of the defect as wiring bundles branch into other bundles. This nondestructive, inexpensive method not only detects cracking or pinholes but also is able to pinpoint the defect's precise location to facilitate wire replacement."

The actual location of the defect may require examining several possible branches since the same distance-to-short may exist along several paths, but the problem is minor compared with the alternative.

The hybridized system is an improvement because of its greater robustness on complex systems.

The technique probably would be best used to check those wiring subsystems that are known problem areas, says Larry. To check all the wiring in a plane might take several days.

Involved in the project over the years for Sandia have been Mike Dinallo, Steve Glover, and Gary Pena (all 1654), Kevin Howard (1653), Tom Lockner (5445), and John Barnum (6452).

"We're advertising the system now and we'd love to take orders," Mike Ballas says.

Energy surety

(Continued from page 1)

US energy infrastructure; and improving efficiency and productivity.

For the past 100 years this country has been largely dependent on liquid fossil fuels — especially petroleum — for transportation, electricity, and even food production.

Lack of energy isn't the problem

Today, with the price of oil becoming unpredictable, together with increased energy consumption worldwide — particularly in China and India — and oil being concentrated in volatile countries, it's time to manage our fuels better, Rush says.

"Energy is all around us — just look at the power of hurricanes and tsunamis," Rush adds. "It's not the lack of energy that's the problem, it's a knowledge shortage of how to manage and harness that energy. We believe the energy surety approach is the best way to do this. If we don't follow this model, the whole world, including the

US, could find itself living a lifestyle of the Third World."

A three-step approach

The SAND report outlines a three-step strategy for moving toward better matching of energy resources with energy needs.

The first step is to squeeze every unit of available energy from the current supplies. This goes beyond the implementation of higher-efficiency electricity-consuming devices (lighting, appliances, and motors) and vehicles (diesels and hybrids) to include waste-to-energy options such as the extraction of methane from landfills and the conversion of biomass wastes to liquid fuels. Making better use of limited fossil supplies will allow the country to "buy time" while it moves down the path towards energy surety, Margie says.

Holding the world's population to a level that the earth can sustain and capping energy demand at some point are also parts of Step 1. To address demand, consumer needs for energy must be reduced. The traditional view of an expanding world population and economy must level off or it could surge to the point of "resource exhaus-

tion, social upheaval, disease epidemic, and then collapse," notes the SAND report. An ultimate plan must have some commitment to hold growing populations in check.

A final part of the initial step is to limit the use of fossil fuel resources — although the magnitude of potentially recoverable fossil fuels may never be known. Conservation must be a major part of the surety plan.

Storing energy a critical component

The second step involves storing energy for later use when there is no wind, the sun is obscured, or an energy supply is disrupted. Currently, energy storage techniques are used in limited ways, ranging from battery-powered units to managing brief interruptions to the Strategic Petroleum Reserve. Examples that could provide expanded energy storage include solar production of hydrogen for fuel cells, solar-powered conversion of carbon dioxide and water to liquid fuels, and energy storage from solar thermal collectors.

Step 3 is to learn how to reproduce the sun's fusion process on earth in a safe, secure, reliable,

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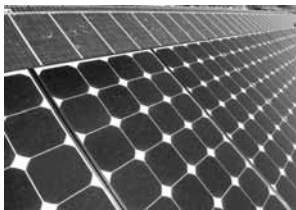
Researchers apply energy surety to military bases

Proposed microgrid uses small power-generation units close to where people live, work, use power

By Chris Burroughs

A Sandia research team headed by Dave Menicucci (6217) has taken a Labs-developed energy surety model to a tangible level by applying it to military bases.

The team, working with the US Army, is looking at how military bases can improve energy generation and transmission through a new system called the Energy Surety Microgrid.



PHOTOVOLTAICS

"In today's grid system, power generators [coal, nuclear, gas] are located far from the load — the place where people live, work, and use power," Dave says. "This requires much distributed wiring and has a potential for power disruption."

What the microgrid team envisions for military bases is an energy surety system that uses more small generation units and storage near the load and less generation at big plants. It can operate with or without the grid. In addition to being smaller, the power generators would integrate a diversified fuel mix, include secure on-site fuel storage, and apply sustainable technology, such as renewable energy.

Rush Robinett, senior manager of the Energy and Infrastructures Futures Group 6210, says this model is "like back to the future."

"Military bases used to comanufacture energy in the same area as is proposed here," he says. "Now most are totally dependent on the grid for power."

Funding for the project comes from the US Army and the internal Sandia Laboratory Directed Research and Development (LDRD) program.

Energy systems with high levels of energy surety must be safe — safely supplying energy to

end users; secure — using diversified energy sources; reliable — maintaining power when and where needed; sustainable — being able to be maintained indefinitely ("indefinite" is based on the American Indian definition of seven generations or 200 years); and cost-effective — producing energy at an acceptable (and preferably lowest) cost.

Existing grid

Dave says the current grid system meets some of these criteria, while the proposed microgrid system for military bases would meet all.

"The existing [grid] system is generally safe and secure," Dave says.

"The generation and storage are reliable. The problem comes from the fact that generators are far away from people and the power has to be transmitted through thousands of miles of lines."

If any of these lines go down, either through an act of nature or terrorism, power will be disrupted and the country's national security could be threatened.

Dave also asserts that current generation methods are not sustainable.

"It's not that we are running out of oil and coal, it's that we can't predict the cost, implying that we can't afford it," he says. "The demand for more fuel from China and India are driving prices up. There are also limits to where we can drill."

While the cost-effectiveness of the current generation system is OK, Dave anticipates it may not stay that way for long.

Microgrid

The team believes the solution is what they are researching for Army bases across the country — a microgrid that reduces the single points of failure by cutting down the number of transmission lines.

In looking at the five criteria of an energy surety approach, the microgrid meets all. It is safe — it's not introducing any new dangers. It's secure because it uses a diverse mix of fuels — solar, wind, and

oil. It's reliable because it uses a variety of types of generators. There is a redundancy of generation and storage. It's sustainable because it is using renewable energies. And, it is cost-effective because it uses energy sources that are readily available and appropriate for the site. (An example is that solar could be used in the Southwest and wind along the nation's coastlines.)

Army & Sandia

Dave says there are two reasons Sandia paired with the Army in planning microgrid systems at military bases. Sandia is a national security laboratory and the team members, most of whom have been in the armed forces, understand how the military operates.

The research team is now working with the Army to develop an energy surety microgrid for a soon-to-be selected military base. They are resolving such issues as where to put the smaller generators, how much storage is needed, and microgrid control.



JERRY GINN displays some of Sandia's battery storage capability. Energy storage is an integral part of the Energy Surety Microgrid. (Photo by Bill Doty)

Next spring a test military base will be determined, and a microgrid system will be installed and tested.

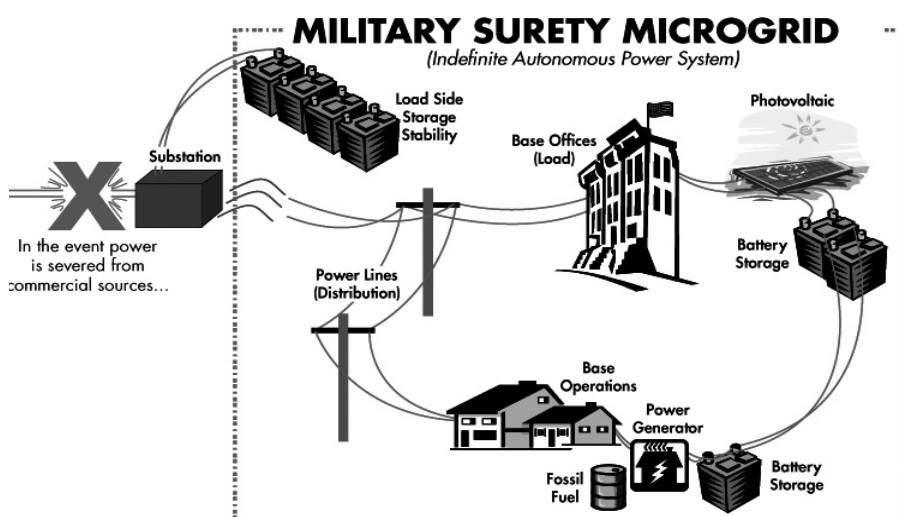
"The ultimate goal is to have microgrids at all military bases in the country and eventually in civilian communities," Dave says.

Team members

The Energy Surety Microgrid development team is multidisciplinary and includes people from various organizations inside and outside Sandia. Team members include John Stevens, Jerry Ginn, Abbas Akhil, Aaron Murray, Dan Brown (all 6217), Tom Corbet (6222), Laurence Phillips (5615), Sig Gonzalez (6216), Tom Byrd (6216), and Juan Ortiz-Moyet (6217). The four principal researchers are Dave Menicucci (6217), John Stevens, Abbas Akhil, and Jerry Ginn, with Abbas as the official principal investigator. Also involved are New Mexico State University, and the US Army Corps of Engineers Construction Engineering Research Lab.



WIND ENERGY



THE ENERGY SURETY MICROGRID for military bases would be an energy system that uses more small generation units and storage near where people live, work, and use power and less reliance on big remote plants. (Graphic by Tom Salazar)

Energy surety

(Continued from preceding page)

and sustainable way. "Though we do not know if fusion can succeed as a practical terrestrial energy source, we believe that its promise is worth extensive investment," the SAND report says.

"While it might not be possible to fully accomplish all the goals in the energy surety model, striving toward them is far better than blindly marching toward energy depletion, environmental exhaustion, and esthetic despair, only to discover that the scarce remaining resources are inadequate to meet needs," Rush says. "The big question now is how to make this happen in the real world. The driver may very well be people's pocketbooks, caused by highly unpredictable fuel prices, coupled with increasing threats of terrorism."

Sandia to host sustainable energy forum June 28

Sustainable energy: More than the phrase *du jour*, it may be the key to breaking the nation's dependence on unreliable sources of energy. What's it all about? Sandia is hosting a free public forum on sustainable energy Wednesday, June 28, 7-9 p.m. at the University of New Mexico Continuing Education Conference Center, North Building, Room C.

John Kelly (6870), Debby Tewa (6218), and Jose Zayas (6214) will discuss the background and the future potential of sustainable energy sources. The forum will include presentations on nuclear energy (by John), solar energy (by Debbie), and wind energy (by Jose).

Information security is an 'unending race' and Sandia's goal is to stay ahead, says Chief Information Officer Ken Washington

By Charles Shirley (4343)

Public interest in information security peaks when something bad happens in cyberspace. Nothing focuses the public's attention on this issue like newspaper headlines that millions of names have been grabbed off a stolen hard drive or that thousands of names have been hijacked from a computer on a network.

Well, that "something bad" happened to 350 or so Sandians recently. They were among the roughly 1,500 individuals from across the nuclear weapons complex whose Social Security numbers and other personal information were stolen from an NNSA computer by a computer hacker.

Among cyber security specialists, the need to prevent this kind of event is constantly in mind.

"We can't promise theft of personal information from Sandia computers will never happen, but we do everything we can to keep the probability low," says Sandia Chief Information Officer Ken Washington (4600). "Staying in front of hackers is an unending race. We think we're ahead, and we intend to keep it that way."

As with any topic related to security, Ken notes, it's counterproductive to say much about how prepared you are, because part of successful security is keeping opponents in the dark. Nor is it wise, he adds, to say how much Sandia knows about potential threats, other than that

they range from wanna-be amateur hackers to well-qualified, well-equipped professionals around the globe.

Ken says Sandia has made many improvements over the past few years, is in the process of making others, and is constantly looking at still more actions to protect its systems from intrusion and its information from unauthorized access.

"Our network architecture is designed to make information available where there is legitimate need and to 'wall off' unauthorized users," he says. "It's a more sophisticated network structure now than just a few years ago, and the improvements haven't stopped."

At the same time, Ken acknowledges, Sandia can't control what happens elsewhere.

"I feel very bad for the people whose personal information was stolen," he says. "I don't want to minimize how serious that is, and how worried they are right now. I also want to assure everyone that we are moving as swiftly as possible to provide information to help the affected Sandians deal with this unfortunate situation."

Sandia is taking a number of steps to minimize its cyber exposure and maximize the ability to safeguard Sandians' personal information. Among them:

- A transition away from using Social Security numbers to the use of employee identification numbers;

"I don't want to sound like I'm giving a feel-good message at an inappropriate time, but I do think our people need to understand that we're paying attention."

Sandia CIO Ken Washington

- An increased use of encryption software for sensitive information;
- Implementation of two-factor authentication, which entails the use of both a password and a second (usually tangible) object such as insertion of a smart card into a card reader;
- Speedier deployment of security patches, small bits of code that "patch" security holes exploited by hackers.

These are just a few examples of how Sandia is constantly improving its information and network security, says Ken. "I don't want to sound like I'm giving a feel-good message at an inappropriate time, but I do think our people need to understand that we're paying attention."

"One of Sandia's strengths is that it has a culture that respects security," he says. "More than any specific technology, that's our most powerful protection."

Computer breach

(Continued from page 1)

employees (as well as to NNSA employees, who are the normal recipients of these periodic messages), NNSA Administrator Linton Brooks apologized for the delay in getting the word out to employees.

While explaining in the note that there were mitigating factors affecting the timing of the employee notifications, he concluded by stating that "All of you deserved better. I am working to fix our procedures so that such an inadvertent delay cannot happen again. . . . I apologize for our failure."

Labs VP of Security and Information Div. 4000 Ron Detry says Labs' senior management has been involved in a hands-on way in addressing the situation and is deeply concerned over the seriousness of the matter.

"I'm sure everyone at the Labs is concerned about what has happened. I share their concern. We're working within Sandia and with DOE to determine the best course of action both to inform and assist the people who are affected and to minimize the chance of future incidents."

Identity theft prevention resources

Note: Sandia Chief Information Officer Ken Washington and OPSEC Manager Reggie Tibbetts offer the following suggested actions to all employees, including but not limited to those affected by the recent breach of the NNSA computer system.

Because this theft resulted in the compromise of Social Security numbers, we recommend that affected individuals consider a number of measures to protect their identity, such as those provided in the following web resources.

- Federal Trade Commission national resource for identity theft protection: <http://www.consumer.gov/idtheft/>
- Web resources for NM identity theft protection: http://www.ago.state.nm.us/know/idtheft/idtheft_pyfit.htm
- Web resources for CA identity theft protection: <http://www.privacy.ca.gov/cover/identitytheft.htm>

Links to a few specific files:

- How to "freeze" your credit files: <http://www.privacy.ca.gov/sheets/cis10securityfreeze.pdf>
- Top 10 tips for identity theft protection: <http://www.privacy.ca.gov/sheets/cis1english.pdf>
- What to do if your personal information is compromised: <http://www.privacy.ca.gov/financial/sbfs021205.pdf>

"Many of these tips are useful reminders to us all," says Ken, "but particularly relevant to the individuals affected by this particular theft."

"We very much regret the inconvenience and any harm this unlawful attack on the DOE computer system may cause any member of the Sandia workforce."

Labs honors Sandians who have served in active military roles since 9/11



Over the past several years, the nation has called a large number of Reserve and Guard forces to serve active tours of duty, sometimes in combat zones in Afghanistan and Iraq and sometimes in supporting roles to forward deployed soldiers, sailors, and Marines. Sandians, as a cross section of society, have been amply represented in those call-ups. During a recent ceremony at the Steve Schiff Auditorium, Sandians who have served tours since 9/11 were honored. Some of them are pictured here. Those in the photo are, from left, Robert Wright; Tony Teague; Michael Dominguez; Joe Maez; Tom Schonborg; Joe Barela; Larry Schoof; Craig Walker; Pablo Montoya; Andrew Kazensky; and Carmelo Anaya.

(Photo by Randy Montoya)

'Prettier world' of simulations gets results at nanoscale, Eliot Fang tells MRS audience

By Neal Singer

Taking issue with the perception that computer models lack realism, Sandia manager Eliot Fang (1814) told his audience that simulations of the nanoscale provide researchers more detailed results — not less — than experiments alone.

His invited talk was delivered to members of the Materials Research Society at its recent semi-annual general meeting.

Eliot derided the pejorative "garbage in, garbage out" description of computer modeling — the belief that inputs for computer simulations are so generic that outcomes fail to generate the unexpected details found only by actual experiment.

Eliot, manager of Sandia's Computational Materials Science and Engineering Department, not only denied this truism but reversed it.

"There's another, prettier world beyond what the SEM [scanning electron microscope] shows, and it's called simulation," he told his audience. "When you look through a microscope, you don't see some things that modeling and simulation show."

This change in the position of simulations in science — from weak sister to an ace card — is a natural outcome of improvements in computing, Eliot says. "Fifteen years ago, the Cray YMP [supercomputer] was the crown jewel; it's now equivalent to a PDA we have in our pocket."

No one denies that experiments are as important as simulations — "equal partners, in fact," says Julia Phillips, director of Sandia's Physical, Chemical, and Nanosciences Center.

But the Labs' current abilities to run simulations with thousands, millions, and even billions of atoms have led to insights that would otherwise not have occurred, Eliot says.

For example, one simulation demonstrated

that a tiny but significant amount of material had transferred onto the tip of an atomic force microscope (AFM) as it examined the surface of a microsystem (see image below).

"The probe tip changed something very, very tiny on the surface of the material," says Eliot. "It was almost not noticeable. But the property of the surface became very different."

Laboratory observation couldn't identify the

that coat surfaces, Eliot says, "We find that when we compare our simulation models with data from the experiments, we get a more complete understanding."

Says Sandia Fellow and materials researcher Jeff Brinker, "We use simulations quite a bit in support of Sandia's water purification program and the NIH Nano-Medicine Center program. In all these cases I'm working with theorists and

modelers to guide the design of synthetic nanopores so as to develop transport behaviors approaching those of natural water or ion channels that exist in cell membranes."

How is this understanding achieved?

Models computationally link a variety of size and time scales to create an experimental design.

"We use as much experimental information as possible to validate our methods," says Alex Slepoy from Sandia's Multiscale Computational Materials Methods. "The trick is picking a correct modeling strategy from our toolbox of methods."

Asked whether simulations are merely more complex versions of what a graphic artist produces — a product of the imagination, in short, that cannot accurately produce new details — Slepoy provisionally entertains the idea: "A graphic artist has to make choices that are somewhat subconscious: what size objects to represent, how close in to zoom, what details to include and exclude, and are there people out there who liked what he drew. So do we."

"But there the similarity ends.

For us in computer simulations, the questions are more technical: Does the modeling strategy agree with experiments and is it consistent with established models? Does it have mathematical consistency?"

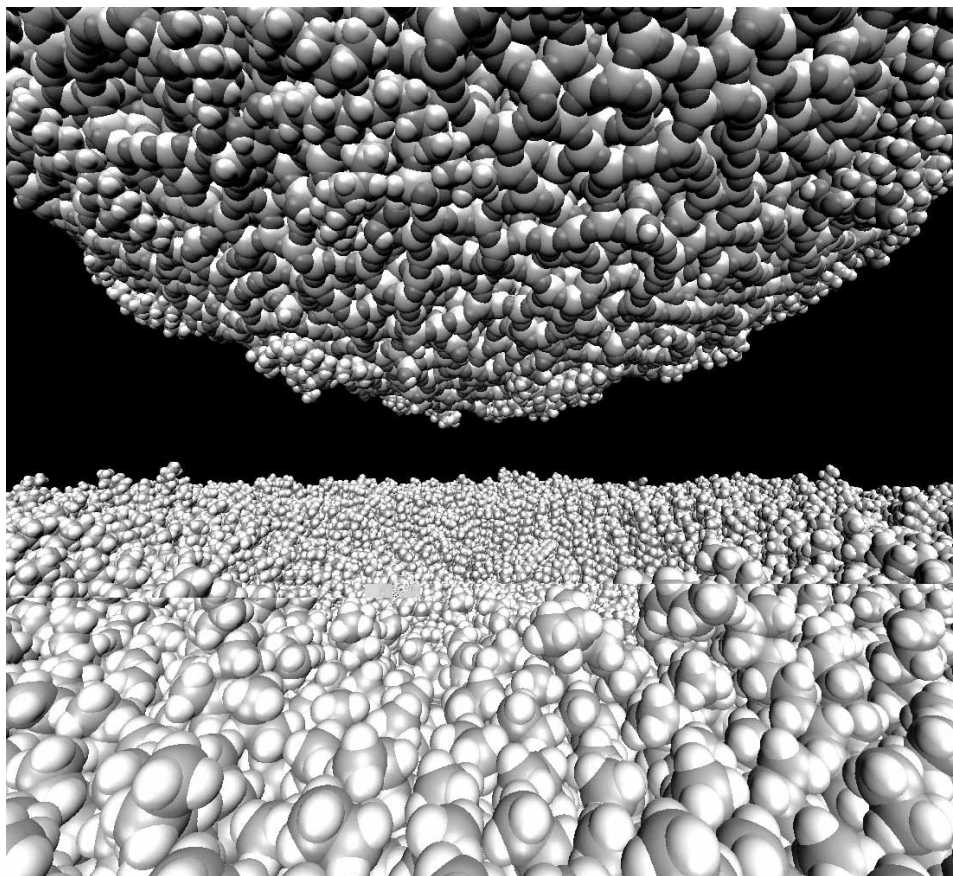
A further advance in accurate model development, he says, is that "now we're developing automated methods to tell us whether we've satisfied [accuracy] requirements, rather than doing that by just manually looking at results. The method automatically tunes the model to satisfy the entire set of conditions as we know them."

There is also the matter of cost, says Eliot: "With smart people developing numerical methods, models, and algorithms to use computers to study real cases, we find we can rerun calculations merely by changing computer parameters. Thus the cost to push science forward is much cheaper than running experiments — particularly in nanoscience, where the realm is so small that experiments are difficult to perform, testing devices are not available, and data acquisition is a challenge."

For all these reasons, he says, "This is why at CINT [the Sandia/Los Alamos Center for Integrated Nanotechnology], theory and simulation is one of its five thrusts. People view modeling and simulation as a critical component of nanoscience."

"We need to sit back and put our mindset in a different mode," he told his audience. "We're all too busy doing [laboratory] research [instead of considering] how we can leverage resources to push our science to the next level."

Modeling tools include: meso-scale (an intermediate resolution capability functioning between the atomic and macro scales), classical atomistics (classical force-field theory), Density Functional Theory (a one-electron approximation of quantum theory, where an electron interacts with atoms but not with another electron), and the full quantum model (electrons interacting with other electrons and four or five ions).



TO THE POINT — Rendering of simulations demonstrates significant transfer of material to the probe tip of an atomic force microscope. (Nanosimulation by Michael Chandross)

cause of the property change, but computer simulations provided a reasonable explanation of the results.

As for predicting the reliability of materials

Sandians help celebrate Juneteenth



JUNETEENTH FREEDOM DAY — A number of Sandians were among the several hundred local area residents who celebrated Juneteenth last weekend at the Thomas Bell Community Center and Park on University SE. Juneteenth is the oldest celebration commemorating the end of slavery in the US. It is observed as a day to reflect on the significance of June 19, 1865, the day on which the message of freedom and abolition reached the western states and territories. It is also a day to celebrate the importance of Americans of African descent as American citizens and New Mexico residents. Seen here with Mary Juzang of Excel Educational Enterprises (seated center) are (clockwise from Juzang) Sandians Delvin Wood (4233), Tameka Barrentine (6225), and Sandra Foster (4338). (Photo by Johnathan Huff, Intel Corp.)

Execs' safety & security walkthroughs: Fact and fiction

Storied inspections have mostly positive results; demonstrate commitment to ES&H/Safeguards & Security

By John German

Since April 2004 Sandia's four top execs have conducted 21 ES&H/Safeguards & Security surveillances, aka safety & security walkthroughs, of Sandia facilities. Labs President and Director Tom Hunter has personally led 11 of the inspections. The Lab News was invited to tag along with Tom on one recent surveillance.

When a group of suits including Labs Director Tom Hunter entered the normally quiet hallways of the Corporate Storage Services Dept. 10268 Mobile Offices just after 8 a.m. June 8, they were greeted with wide eyes and surprised faces.

But when Tom explained the purpose of the visit — to conduct an unannounced safety and security walkthrough of the group's facilities —

"The staff was surprised at first, but this is what we do. We have a lot of high-level visitors. This is not a put-on, not a show. I was proud that they did so well. They always do."

Dept. 10268 Manager Joe Costales

the home team hardly missed a beat. Rita Webb sat the visitors down, gave them a required safety briefing, badged them, and assigned them two knowledgeable escorts.

Rattlesnakes under the doors

Materials handlers Ed Archibeque and Norman Begay took over from there, leading the management team, all eight of them, on a tour of the materials packaging high bay and, later, into one of 19 concrete bunkers where explosives are stored.

Corporate Storage Services, which manages the site, best known as the 6000 Igloo Complex, manages and stores a variety of explosive and radioactive materials.

"One of the most common hazards we have here is rattlesnakes under the doors," Ed cautioned as he pulled open a creaky steel bunker door.



SIGNAGE — Tom Hunter talks with Ed Archibeque (10268) about proper signage outside the Corporate Storage Services packaging center.



SURPRISE WALKTHROUGH — Labs Director Tom Hunter (facing away, left) talks with Mike Dominguez (10268) as the other participants in a June 8 walkthrough look on. Since October 2005 Sandia's four top execs — Tom and Deputy Labs Directors John Stichman, Joan Woodard, and Al Romig — have conducted 21 such surveillances.

(Photos by Bill Doty)

The Corporate Storage Services team got high marks in nearly every area. The department's safety metrics were posted on hallway bulletin boards. Its staff is knowledgeable about Behavior-Based Safety (BBS, see below), four staff members are trained BBS observers, and one is on the Labs' BBS advisory committee. Team lead Mike Dominguez left an ISO 9000 training class to join the tour.

Tom and the surveillance team were impressed.

"What we look for is engagement," says Tom. "Are staff members knowledgeable, invested, and aware of their work and its hazards? Do they have a sense of control over and responsibility for their own and others' safety? Are they part of the bigger picture?"

"The staff was surprised at first, but this is what we do," said Dept. 10268 Manager Joe Costales after the visit. "We have a lot of high-level visitors. This is not a put-on, not a show. I was proud that they did so well. They always do."

Most walkthroughs unannounced

The majority of the walkthroughs are unannounced, says Craig Nimmo (12003), division security/ES&H coordinator for Sandia's Executive Office. Most locations are chosen randomly, although some are chosen because of past problems.

Tom shoots for two surveillances a month. He has been known, when time allows, to randomly select and inspect a second facility on the trip back from a planned surveillance, Craig says.

"The purpose is not to go out there and find problems," he says. "The purpose is to have

another set of eyes on processes and operations, so in case an organization missed something or gets complacent about a hazard, it can be resolved."

The visits also demonstrate, he says, "that Sandia's executive management, along with its other priorities, has a strong commitment to ES&H."

Poor housekeeping — general messiness, clutter, or haphazard work space organization — is the number one type of finding. Improper hazard signage on doors and containers is another common deficiency.

More positives than negatives

Several months ago a walkthrough resulted in a work stoppage, ordered by the host VP, in a laboratory when the VP learned of the surveillance team's observations. The stoppage lasted two weeks, until the deficiencies were corrected. But that case is the exception, Craig says.

On balance, the results of the walkthroughs are positive, with most organizations aware of and deliberate about safety issues associated with their work, he says. Each surveillance typically results in half a dozen to a dozen minor action items and as many noteworthy practices.

Results of past surveillances are available at <http://www-irn.sandia.gov/organization/div1/esh.html>.

"There have been more positives than negatives," he says.

Tom and the other execs now carry Spot Awards — ranging from movie tickets and dinner certificates to pay bonuses — to hand out when the situation warrants.

Behavior-Based Safety defined

Behavior-Based Safety (BBS) is a systematic way to identify behaviors that prevent accidents; remind, reinforce, and refocus workers on these behaviors; and measure and manage these behaviors as leading indicators of accidents.

BBS, which supplements traditional safety programs, is proactive and focuses on behavior rather than compliance. Employees manage and run the BBS process. Trained observers watch their peers work and identify concerns. More

than 120 Sandians are trained BBS observers.

Data from observations are entered, anonymously, into a database and analyzed by the Labs' BBS steering committee, which brings concerns to management's attention.

Sandia has contracted with ProAct Safety, a Woodlands, Texas, firm, to help implement BBS. Organizations that adopt BBS achieve 60 to 85 percent reductions in injuries in three years, according to the company.

Goodbye, old friend: Sandia's ASCI Red, world's first teraflop supercomputer, put out to pasture after thoroughbred career

Participants at informal wake recall struggles and glories of nine-year run

By Neal Singer

On the table rested a picture of the deceased — a row of identical cabinets that formed part of the entity known as ASCI Red, the world's first teraflop computer.

Still one of the world's 500 fastest parallel-processing machines after all these years — nine — it was being decommissioned.

"I've never buried a computer before," said Justin Rattner, Intel chief technology officer, to 30 people from Sandia and the Intel Corp. who gathered June 12 in Room X-10 of Bldg. 880 to pay their respects. "We should go around the room so everyone can say their final farewells."

"Let's break out the beer," said one attendee, opening a bottle of water.

There was a simple white frosted cake — an abbreviated cylinder encircled near its base and top by two strings of small simulated pearls.

Topped by small pink flowers and a silver ribbon, the cake resembled a hat that could be worn by a very elderly lady, and indeed, ASCI Red was very old by supercomputer standards.

Sandia VP Rick Stulen (1000) eulogized, "ASCI Red broke all records and most importantly ushered the world into the teraflop regime. It still holds the record for the longest continuous rating as the world's fastest computer, four years running."

'Almost mystical in scalability'

Said Rattner, "There's a sense of sadness and also of satisfaction: the passing of such a great machine and the incredible affection so many of you show for this inanimate object that occupies this floor space."

"You're saying we should get a life?" quipped Bill Camp (1400). He also said that ASCI Red had the best reliability of any machine ever built, and "was supercomputing's high-water mark in longevity, price, and performance."

"It was almost mystical in scalability," said Rob Leland (4300). "All these other machines would be tailing off and Red would still be cruising along."

Rattner gave some insight into the general feeling about what was, after all, only a machine when he spoke about his own emotions when ASCI Red proved successful. "I remember, shortly after the teraflops barrier was broken," he told the group, "I would say to myself as I drove by in my car: The world's fastest computer is sitting in that nondescript building [in Beaverton, Ore., before it was moved to Sandia]. It gave me tremendous satisfaction. When Chuck Yeager cracked the sound barrier or Armstrong landed on the moon, I wonder if they had the same feeling. It is with great fondness that we say goodbye to ASCI Red. It's been a great run and we'll never forget it."

Stephen Wheat, a former Sandian who



YOU'RE STILL THE ONE — By supercomputer standards, Sandia's ASCI Red, the world's first teraflop machine, was ancient, but what a run it had! Here, designer Jim Tomkins (left) talks about ASCI Red and its accomplishments with Intel officials Justin Rattner and Stephen Wheat. Rob Leland looks on at right. (Photos by Paul Edward Sanchez, 4328)

THE PARTY WAS ARRANGED by John Noe (4328) and Jim Tomkins in conjunction with Intel and, says John, "the invaluable assistance of [executive protocol officer] Yvonne Hodges (121261)."

went over to Intel to help design the computer, said that the chip was a third-generation chip, and so the design was accomplished in only three months with great reliability. After that, Intel got out of the supercomputer business so as not to compete with customers who might want to enter.

"An indication of how good the reliability was," said Jim Tomkins (1420), "was that the hardware reliability remained the same when Sandia took it over from Intel."

The idea for the machine in the first place, as well as the programs that ran the computer near-flawlessly, were developed by Sandia over nearly a decade of leadership in massively parallel processing. Speakers at the wake gave particular credit to Jim for design requirements and Art Hale (1900) for project business leadership.

Ed Barsis had the vision

"When I saw what these guys were doing," said Mike Vahle (5500), "I decided there was a good career in designing networks to support the supercomputers that [former Sandian, ret.] Ed [Barsis] and Bill [Camp] brought here."

Others suggested that the key to Sandia's coup in fielding the first terascale system was Ed Barsis' vision and acumen in fostering the right climate at DOE.

"When we first talked about running a machine with 10,000 processors, it seemed ludicrous," Rattner said, apparently anticipating massive downtimes. But instead of 27 hours average time between hardware-caused interrupts — the figure predicted in the design phase — Red achieved an average of several hundred hours.

He praised the relationship that developed between Sandia and Intel personnel during construction of the machine and when it was deployed.

Art Hale said he noticed "a certain look" on the faces of competitors from other labs when they learned that Sandia had gotten the go-ahead

on the teraflop project.

ASCI Red first broke the teraflops barrier at Intel in December, 1996 and topped the LINPAC top-500 computer ratings seven consecutive times from June 1997 to June 2000. Originally rated at 1.6 teraflops, an Intel chip upgrade from 200 to 333 megahertz raised it to 3.1 teraflops just when it looked as though its world supremacy would be lost, said Archie Gibson (4335). It remains, nine years after it was first turned on, still one of the 500 fastest computers in the world.

One last look at the old clunker

Michael Hannah (00301), project lead until 2002 charged with keeping the machine running, walked through ASCI Red saying he "was taking one last look at the old clunker." He emphasized that the machine was not being decommissioned because of technical problems. "It's not a reliability issue, because ASCI Red is still reliable," he said. "It is about getting more bang for the buck with nine-year-newer technology and terminating significant costs in space, power, and cooling."

Jammed into the same small air-cooled building were other supercomputers, including Sandia's Thunderbird capacity supercomputer, running at approximately 60 teraflops. In a new building, next door was Red Storm, clipping along at roughly 40 t-flops.

"Having so many machines in so little space keeps us innovative," says Archie.



VP RICK STULEN and Intel designer Stephen Wheat look at the innards of an ASCI Red rack. The machine's easy accessibility made it possible to upgrade the processors, assuring it would remain one of the world's fastest computers for nearly a decade.



Guidelines updated for external web publishing

New site offers one-stop shop for new, experienced web authors

By Julie Hall

If you're new to web publishing at Sandia, want to review best practices for website accessibility, or don't know if you should refer to the California site as "Sandia/California" or "SNL/CA" on your web page, there's a new resource out there for you.

Sandia's Web Publishing Guidelines — found at <http://webguide.sandia.gov> — are a resource for anyone who publishes content on Sandia's open or restricted networks.

The site provides newbies with helpful instructions, such as for getting an account on the corporate server, viewing details of a directory, and setting up a Dreamweaver site. It also provides resources for more experienced web authors, such as Sandia's requirements for external websites, appropriate use of the Sandia logo, and the type of "cookies" allowable on the site.

The guide will replace WebMentor and the External Web Publishing Guidelines, which until now have been the publishing guides for Sandia websites.

A new feature of the site is an editorial style guide for Sandia's external web. Developed by Media Relations and Employee Communications Dept. 3651, the style guide addresses common spelling, punctuation, and style questions that arise in writing web content, such as how and when to use em dashes and whether congressional should be capitalized (it shouldn't — see style guide entry under *Congress*).

The Web Publishing Guidelines site was developed after several groups at the New Mexico and California sites interested in revising Sandia's web publishing guidelines combined their efforts. The groups included members of the Public Relations & Communications Center, WebCo, SWIFT, Human Resources, and the Technical

Stylin' — Style guide tackles common inconsistencies

Ever wonder about the difference between "compare" and "comprise" or how to correctly refer to the California site? Sandia's new Web Editorial Style Guide has the answers. Go to <http://webguide.sandia.gov> and use either the alphabetical or topic listings to look for answers to your vexing style questions.

The basis for the guide was the *Sandia Lab News* style pages, which have been around for more than 15 years and address capitalization, punctuation, usage, and other style issues that commonly arise in publishing Sandia's employee newspaper.

The Web Editorial Style Guide expands on this, making modifications where appropriate for the web. The guide also used other sources, including the *Associated Press Stylebook* (35th ed.), *Chicago Manual of Style* (15th ed.), *Merriam-Webster's Collegiate Dictionary* (11th ed.), and *Wired Style* (1999).

Many entries came about by compiling and resolving inconsistencies found on many upper-level Sandia web pages.

Here's a sampling of questions the guide addresses:

1. On the web, what is the correct way of referring to Sandia's site in Livermore, California?

a. Sandia/CA; b. SNL/CA; c. Sandia/Livermore; d. Sandia/California

2. True or False. It's OK to use WSMR on the website because everyone knows what it stands for.

3. True or False. Words should be capitalized if you want to give them more emphasis.

4. Which of the following demonstrate proper use of hyphens?

a. state-of-the-art laboratories; b. illegally-parked cars; c. world-class scientists and engineers; d. a and c; e. none of the above

Answers:

1. (d)

2. False — Many acronyms and initialisms that are familiar to a Sandia audience do not mean anything to those outside Sandia (by the way, WSMR stands for White Sands Missile Range).

3. False — Capitalization should be limited to proper names, titles when preceding a name, and other situations as described in the style guide.

4. (d) Use hyphens in compound adjectives belonging together but not in compound adjectives ending in *-ly*.

Library at Sandia/New Mexico and the Public Relations & Strategic Communications group in Sandia/California.

"Sandia's website is its 'face' to the external world. It's important for us to present a cohesive, consistent website to our many audiences, and this guide is designed to help do just that," says Chris Miller, manager of Media Relations &

Employee Communications.

The guide is also helpful to those publishing on the SRN. "The SRN is a critical information source for laboratory operations and information," says Carla Scott of SWIFT. "As the volume of content on Sandia's Restricted Network grows, we feel it is important to provide clear, relevant guidance for its web authors."

Labs Security Police Officers compete with the nation's best



THE SANDIA/KAFB TEAM competes in a pistol-shooting exercise (above) and a physical fitness challenge during the recent SPOTC competition. (Photos by Bill Doty)

A team comprising three Sandia and three Kirtland Air Force Base Security Police Officers (SPOs) competed last week in DOE's Security Protection Officer Training Competition (SPOTC).

The annual competition, hosted by the DOE's Central Training Academy in Albuquerque, lasted four days, June 11-15. It included individual and team events in pistol, long rifle, and physical fitness.

"It is quite demanding in that 100-degree heat," says Protective Force Manager Bill Weiland (4211).

Team members included Lt. Christopher Duran (4211), Adam Ortiz (4211), Mike McKinnis (2915), Nathan Mallory (KAFB), Michael Mojonner (KAFB), Brandon Jackson (KAFB), and team coach Lt. Tommy Serna (4211, did not compete).

Events included shooting competitions, both stationary and under tactical

situations — such as shooting on the move and entry into a "shoot house" — as well as relays involving sprints, situps, pushups, and squats.

Seventeen federal and contractor SPO teams from across the nuclear weapons complex, as well as from federal and local law enforcement agencies, competed.

The team was selected following tryouts among SPOs who responded to an interest letter.

Although the team did not receive any awards, its members performed admirably, says Safeguards & Security Center 4200 Director Mike Hazen.

"I am so proud of our team," he says. "There is no doubt in my mind or anyone who watched them train and participate knows that these warriors represent the best of our two organizations."

— John German



Former president of IEEE Computer Society says it never occurred to her not to get involved

Sandia computer scientist Guylaine Pollock's love of computers dates back to toddler years

By Chris Burroughs

In 1999-2001, when Sandia computer scientist Guylaine Pollock served as president of the prestigious international IEEE Computer Society, she was treated like a queen.

From a private tour of Peter the Great's palace, to dinner at the teahouse patronized by Henry Kissinger, to hosts ordering one of everything on the menu for her to sample at an elite restaurant, to assistance by a butler at a palatial hotel, Guylaine appreciated the numerous opportunities to gain insight into various cultures of the world.

"That was one of the most exciting periods in my life," Guylaine says. "I traveled to Russia, China, Hong Kong, Japan, Brazil, Argentina, Chile, Mexico, the Virgin Islands, Canada, Ireland, England, France, Romania, and Austria, to name a few, and discovered the tremendous following the IEEE has throughout the world."

Getting to that point was the culmination a lifelong love of computers that started when she was a toddler.

Guylaine calls herself one of the first computer babies, having grown up with computers before most people ever heard of them. Her father was an early computer scientist who started in the field in the 1950s. In the 1960s he worked on the Apollo space missions at NASA's Johnson Space Center in Houston.

"I remember as a little girl playing on the key-punch machines in the college computer center and falling asleep on the floor in the shadows under the computer tables while my father worked," Guylaine says.

When she was four, Guylaine became the mascot of the Pasadena (Texas) High School computer club for which her father served as advisor. Club members dressed her up in a refrigerator box decorated to look like a computer. Costumed in the box, she rode a float in the school's homecoming parade, where she was supposed to throw candy at the crowd. But instead of throwing the candy, she wound up eating most of it.

At the age of six Guylaine taught the Hollerith computer code to her first-grade class, and at 12 she audited her first college FORTRAN class. (Her father taught the course at Navarro College.) When she was 14, she met Rear Admiral Grace Hopper, the "Mother of Cobol," for the first time. Hopper gave Guylaine a "nanosecond" — a wire the length light can travel in a second — which

further inspired her to pursue a career in the computing field. At 17, while a high school junior, Guylaine taught a credit-accruing basic mathematics class at the local college before heading off to college herself after her senior year, graduating as valedictorian of her high school class.

She pursued a BS in computer science/mathematics from East Texas State University (ETSU) and a PhD in computer science with a minor in operations research from Texas A&M University. Throughout her college years, she was frequently the only woman in many of her major and minor classes, which was OK with her.

While at A&M, she was approached by AT&T recruiters. AT&T tracked her for five years. When she was getting ready to graduate with her PhD in 1985, the company talked her into interviewing at several AT&T locations, including Sandia.

"I already had several job offers," Guylaine says. "But I agreed to make a one-day stop at Sandia on my way to another interview. I arrived at night and woke up in the morning to discover Albuquerque was located on the side of a mountain."

She liked Sandia and Albuquerque so much she agreed to take the job at the Labs. She's been here ever since.

Today, Guylaine's work focuses on software surety and security issues for US critical infrastructures, as well as other software aspects, including systems analysis. She also conducts information technology (IT) risk assessments.

Shortly after joining Sandia, Guylaine became involved with the IEEE. Over the years she served in many elected and appointed volunteer roles within the organization — positions such as vice presidents for conferences and tutorials, treasurer, awards chair, and society ombudsman. In 1998 she won an international election to serve as the IEEE Computer Society president in 1999-2001.



GUYLAINE POLLOCK is both a talented computer scientist and a concert pianist. (Photo by Randy Montoya)

When asked why she was so active in the IEEE, she said, "Bottom line, it never occurred to me to not participate. I have always considered being active in one's professional organization an important part of being a professional."

She says participation in IEEE also helped her develop skills that "better enabled me to pursue Sandia's mission per management's encouragement."

Piano second love

If computers are Guylaine Pollock's first love, her second is piano. She's been playing piano since she was in the third grade and has taken 11 years of piano lessons stringing into adulthood. She plays concert-level piano and in the past has received several standing ovations while performing.

She was awarded a music scholarship upon graduation from high school that she used at Navarro College and East Texas State University. She is just six hours short of a minor in music on her BA.

While not all computer scientists are pianists, Guylaine sees a definite correlation between piano playing, mathematics, and computer programming.

"Numerous abstractions, patterns, and fractional components are used a lot in each of these areas," she says.

Guylaine still plays regularly and is now working on Gershwin's *Rhapsody in Blue*.

Dave Chacon makes quick visit to Sandia before returning to Afghanistan



CONGRATULATIONS TO DAVE — Dave Chacon, right, (4324) is welcomed back to Sandia by Bob D'Spain, center, and Phil Cox (both 4329), left, after a year in Afghanistan where he serves in the US Army Reserves attached to Seventh Special Forces Group. He was home for a quick two-week visit and returned last week to Afghanistan, not expected back until Labor Day. Dave was recently promoted to lieutenant colonel. Here he attends the annual Department 4324 summer picnic.

Retiree deaths

Eugene H. Copeland (age 85)	April 26
Alice L. Brinkley (81)	April 28
Ann E. McFarland (92)	April 28
Luciano Chavez (88)	May 1
Jeanette M. Brennessel (79)	May 3
John J. Sarkis (69)	May 4
Ann R. Hawk (83)	May 8
Paul D. Merillat (56)	May 12
Gerald W. Van Gundy (97)	May 15
Wayne E. Miller (84)	May 26
Luther K. Horning (64)	May 26
Merle F. Snyder (86)	May 27
Severn Starzynski (86)	May 27

Turning Heads not *DaVinci Code* in sales numbers but very inspirational and powerful in impact

By Iris Aboytes

Turning Heads, a just-released book, might not sell 60 million copies like *The DaVinci Code* but the copies sold will hopefully make a difference in extraordinary women's lives. In the pages of *Turning Heads* are portraits of grace and inspiration. They are the photos of women who have lost their hair to cancer treatments.

Written by Jackson Hunsicker, cancer survivor, writer, and producer, the book's intent is to show that women can lose their hair and be strong, beautiful, and more importantly, give newly diagnosed women courage to deal with an insidious disease.

The women in the book come from all over the country. They include a cowgirl, a surfer, a state court justice, a nun, and a singer, among many others. Their bond: cancer.

Framed in its pages is the portrait of Sandian Becky McIntyre-Pacheco (2433). About four years ago after losing her sister to breast cancer, she was diagnosed with the same cancer. "The mammogram didn't show anything," says Becky, "but I was concerned because a mammogram had not revealed my sister's cancer." Becky saw her doctor and he found a lump.

She had a bilateral mastectomy. "I am glad I did," says Becky. "The pathologist found precancerous cells in my left breast.

"I recovered from surgery fairly well but my first chemo treatment rocked my world. I developed blood clots in my jugular, pneumonia,



SANDIAN Becky McIntyre-Pacheco after her illness.

allergy to the medication, and a staph infection. My immune system was shot, and my hair fell out."

The American Cancer Society contacted Becky about having her photo taken. She agreed and was included in the book. Fifty-nine well-known photographers donated their time to take the pictures. It was the photographers' willingness that ensured the birth of the book.

The women included in the book are not ashamed of the way they look. They are proud they are getting better and want to share how they feel and what it's been like. Says Jackson "...the next time you see a bald woman — on the street, at a party, in a store — instead of turning away, you might smile and stand up a little straighter."

Becky is back at work; her cancer is in remission. While she was going through her worst time, her son was sent to Iraq. "I was so ill," says Becky, "he was given permission to come to see me the day before he left. I told him to fight his battle and I would fight mine and we would both be fine. I am happy to say he came home safely."

The book published by Independent Publishers Group gives a portion of its proceeds toward cancer research.



A PORTRAIT OF BEAUTY — Photo of Becky as seen in *Turning Heads*. (Photo by Karen Kuehn)

BECKY WAS DIAGNOSED with dermatomyositis three years after her cancer surgery. It is a rare disease, and it is thought to be caused by the chemo drugs and infections. She is currently on injections of Methotrexate (cancer drug) to slow the disease, which causes rash and muscle weakness, but it does not seem to be working. She can no longer squat, kneel, or get into vehicles that require her to pull herself up.

"I will not let any disease control my life," says Becky. "My motto is — 'I want to live till I die.'"



This monthly column, compiled by Janet Carpenter, highlights Sandia Lab News items from 50, 40, 30, 20, and 10 years ago, but each column does not necessarily include items from each decade.

50 years ago . . . The Coronado Club celebrated its Quinquennial (five-year) anniversary with an all-day Western-theme party June 25 and the opening of the new swimming pool. . . . The *Lab News* answered a question about whether a telephone number was a Sandia Base extension or an Albuquerque number. "Here's a way to check and it's accurate in most cases. If the third digit is a 1 or 2 it probably is a Base number. A further check: If the last two digits are between 10 and 31, inclusive, it is a likely Sandia Base military phone. Between 32 and 63, inclusive, it probably is a Sandia Corp. business phone. If they are 64 or higher chances are good it is a Sandia Base residence number."

40 years ago . . . A new tape-controlled lathe went into operation in Sandia's Development Shops. "One of the outstanding features of



JOHN MALPAS using the manual override controls on the tape-controlled lathe.

the new lathe is its ability to cut a continuous variable curve without the use of a previously manufactured template." . . . A new 22-foot shock machine with unique impulse capabilities in addition to normal impact features was added to the environmental test facilities at Sandia's Livermore Laboratory. "The basic purpose of the shock testing machine is to generate shock pulses for testing components and systems to their expected environmental limits."

30 years ago . . . Sandia was directing exploration activities in the Los Medanos area salt beds southeast of Carlsbad, N.M., the site then being considered for ERDA's radioactive waste pilot plant — now open and operating as the Department of Energy's Waste Isolation Pilot Plant. A hydrological study was made of the area using separate drill holes to gain data for the calculation of possible radioisotope migration. . . . On June 8-9, Sandia successfully conducted *Da Vinci II*, a manned scientific balloon flight to determine how air pollutants change as they move through the atmosphere.



A 22-FOOT SHOCK TESTING MACHINE is checked out by A. W. Clark just prior to an impulse test in 1966.



WORKERS examine the diamond bit used for cutting cores. The drilling went to 800-plus meters so that the underlying salt beds could be evaluated.

20 years ago . . . Rosalie Crawford, secretary to the Labs' first president, George Landry, and to every president until 1986, retired after 37 years of service. Irwin Welber was the last one she worked for before retiring June 30, 1986. . . . Technology Transfer: Transparent PLZT ceramics, an electrooptical shutter technology that culminated in protective devices — aircraft windows and pilots' goggles — against thermal and flash effects of weapons was transferred from its Sandia home base to industry.

10 years ago . . . New badge readers were added during the renovation of the Bldg. 800 lobby area, replacing the old guard gate. They were "part of an effort to soften the appearance of security requirements as Sandia's mission evolved in the post-Cold War world, bringing more visitors from industry and nondefense work to the Labs." . . . The *Lab News* announced that the



BLDG. 844, one of Sandia's original buildings, meets the wrecking machine in this 1996 photo. The building was erected in either 1946 or 1947.

world's first working microelectronic device, a field effect transistor, to be made with extreme ultraviolet light was fabricated at Sandia/California. . . . One of Sandia's oldest buildings, a Quonset-style hut, otherwise known as Bldg. 844, succumbed to the efficient grip of a wrecking machine. The building was one of Sandia's original buildings and was erected in either 1946 or 1947.

Manager Promotions

New Mexico

David R. White from Manager, Data Analysis and Visualization Dept. 1424, to Senior Manager of Computer Support Unit Services Dept. 4340.

While a member of the technical staff with Dept. 1421, David performed research focused on automating the finite element hexahedral mesh generation process. He

researched additional methods for automating the meshing process while in the Doctoral Studies program for Sandia. David also led the CUBIT Mesh Generation project for two years.

As manager for the Data Analysis and Visualization Department, David directed his group in research that resulted in applications in scientific visualization for modeling and simulation, image analysis of the space shuttle wing, business and patent information visualization, and homeland security.

David received his BS and MS degrees in civil engineering from Brigham Young University in 1995 and 1996, and his PhD in civil engineering from Carnegie Mellon University in 2003.

John Bowers from PMTS, CDM Program Management Dept. 2545, to Manager of that same department.

John was hired in 2003 and has since worked as program engineer in the Concurrent Design & Manufacturing (CDM) program, where he focused mainly on the CDM components for the W76-0, W76-1, and W88 programs.

A former US Coast Guard officer, John's industrial experience is related to electronic component development and manufacturing. He worked at Custom Electronics, Inc. in Oneonta, NY, for 21 years, and was the engineering manager for the last 15 of those 21



DAVID WHITE



JOHN BOWERS

years. John is a registered Professional Engineer in Maine and New York.

John received a BS in civil engineering in 1977 from the US Coast Guard Academy. He earned his MS in industrial engineering from State University of New York, Binghamton, in 1989, and his MS in business economics from the State University of New York, Oneonta, in 2002.

Pat Milligan from PMTS, Enterprise Information Systems Development and Support Dept. 4524, to Manager of that same department.

Pat joined Sandia in 1990 as a software developer in Security Information Systems and spent 11 years as a team member and project leader on various information systems projects in a number of IS departments. He also spent four years in Corporate Outreach as a project leader responsible for programs with local business organizations, science and engineering education outreach, and outreach communications with the community.

Pat's latest assignment was as the project leader for the Partnerships, Agreements, and Licensing System (PALS).

Pat received his BA in computer science from Abilene Christian University, and his MS in information systems from Texas Tech University.

Jimmy Romero from SMLS, Corporate Contracts and Policy Management Dept. 10730, to Manager of Accounts Payable Dept. 10503.

Jimmy joined Sandia in 1998 as a buyer in the Corporate and Strategic Purchasing Dept. working with Just-In-Time. He then worked for three years as a buyer in Construction Procurement. Most

recently, Jimmy worked as a policy analyst in Corporate Contracts and Policy Management.

Jimmy graduated with distinction from the University of New Mexico with a BA in economics. He also received an MA in public administration with an emphasis in public finance from UNM.



PAT MILLIGAN



JIMMY ROMERO

Currently, Jimmy is pursuing a PhD in political science with a concentration in public policy at UNM.

Terry Cooper from SMTS, Environmental Compliance and Assurance Dept. 10333, to Manager of that same department.

Terry began working at Sandia in 2004 and has since been the Waste Program project lead for Sandia in Dept.

10339. Before coming to Sandia, Terry was the environmental compliance manager for Kirtland AFB. His work included air, water, waste, and audit programs. Prior to working at Kirtland, Terry worked at International Technology Corporation as a contractor to DOE on environmental compliance and permitting issues.

From 1987 to 1990, Terry worked for the Defense Mapping Agency as a terrain analyst with the Abrams tank program.

Terry earned a bachelor's degree in geological sciences from New Mexico State University in 1986.

Scott Ashbaugh from PMTS, Analysis and Modeling Dept. 6862, to Manager, Nuclear Material Control & Accountability Dept. 4216.

Prior to joining Sandia in 2004, Scott was an acting group leader for the Nuclear Design & Risk Analysis group and the D-Division Energy & Environment project lead at Los Alamos National Laboratory.

Scott has worked primarily in the area of nuclear reactor safety for the last 15 years, both supporting the US commercial nuclear industry and the US Nuclear Regulatory Commission. He has extensive experience in nuclear reactor severe accident analysis, DOE facility authorization basis work, and probabilistic risk assessment.

Scott received his BS in aeronautical engineering from Cal Poly, San Luis Obispo, and his MS in aeronautical science from Embry-Riddle Aeronautical University.

Steve Lautenschleger from Team Leader, Test and Assembly Lab Dept. 5423, to Manager, Range Integration and Lab Support Dept. 5423.

Steve joined Sandia in 1980 in the Design Definition department. His work there included experimental layout and design of materials testing, and lethality and counter-measures studies for early missile defense work on the initial Star Wars concept. Steve also worked a short time in nuclear weapons programs supporting the W31, B61, W79, and W82.

Steve transferred into the Aerospace Center's Large Rocket Systems department. After a promotion in 1996, Steve became Resident Range Manager of the Kauai Test Facility (KTF) in Kauai, Hawaii, serving as the on-site representative for Sandia's local interactions with the US Navy and external agencies requesting use of the DOE/Sandia facility.

Returning to Albuquerque in 2000, Steve became the team supervisor for the (then named) Aerospace Systems Development Center's Test & Assembly Lab.

He has been involved with the assembly, testing, flight certification, and fielding of programs at KTF, Vandenberg AFB, Kodiak Launch Complex, White Sands Missile Range, and other locations.

Steve received his associate degree in design engineering technology from Stark Technical College, Canton, Ohio.



TERRY COOPER



SCOTT ASHBAUGH



STEVE LAUTENSCHLEGER

Medical screenings for Cold War-era Sandia employees to be offered

DOE-funded program looks for exposure to hazardous materials, agents

Former Sandia employees will soon be able to obtain free medical screenings as part of a DOE-funded medical examination program. Eligible workers will be contacted soon on details about the screenings. The program will be available to all former workers employed at Sandia since its inception who may have been exposed to potentially hazardous agents such as asbestos, beryllium, lead, noise, radiation, solvents, and silica.

Former employees who worked at Sandia, including its facilities outside of New Mexico, will be eligible to obtain medical examinations related to these exposures. In order to focus its efforts effectively, the program is currently collecting historical information to identify work areas and jobs where workers may have been exposed to these hazardous agents.

The program is being conducted under cooperative arrangements among DOE, Johns Hopkins Bloomberg School of Public Health, and Boston University. DOE is providing funds as part of a congressionally mandated program to attend to the potential medical

needs of Cold War-era employees who may have been exposed to hazardous materials when they served at the national laboratories. Under the arrangement with DOE, the Johns Hopkins Bloomberg School of Public Health and the Boston University School of Public Health will provide the medical examination program to former Sandia employees.

Relying on experience gained from similar, successful programs at Los Alamos National Laboratory and the Nevada Test Site, experts from the two schools have begun to collaborate with Sandia and its trade unions to identify former workers who may have been exposed.

As the program's pace continues to accelerate, a variety of organizations will be contacted to help get the word out to as many former workers as possible and to encourage participation. Program announcements and updates will appear in the *Lab News* and other venues. In addition to general announcements, the program expects to begin contacting former workers directly by mail within the next two to three months.

Mileposts

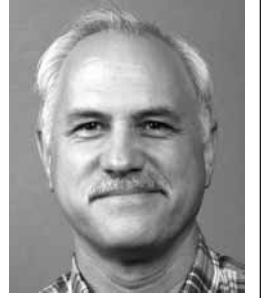
New Mexico photos by Michelle Fleming and Darrick Hurst
California photos by Bud Pellittier



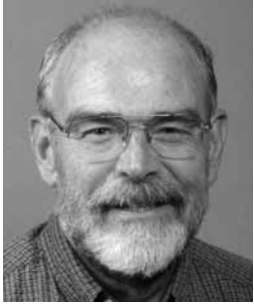
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Donald Keener
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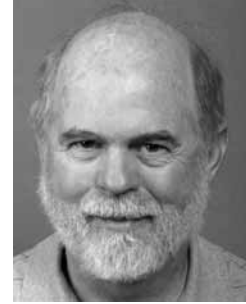
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Rod Geer
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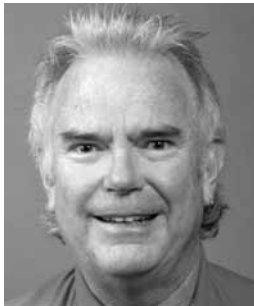
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James Campbell
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Martin Hans Imbert
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Steven Lambert
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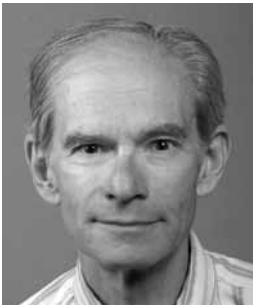
J. Michael McGlaun
30 12930



Bob Pilkey
30 8236



Jim Wifall
16 2912



Steven Weissman
30 5520



Pandora Apodaca
25 10541



David Fordham
25 243



Carmela Gallegos
25 5053



Karen Higgins
25 12905



Christi Leigh
25 6821



Ruth Llamas
25 10312



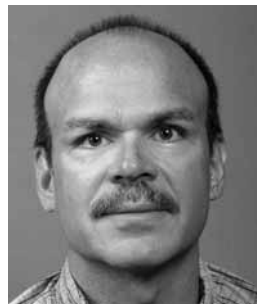
Laura Loudermilk
25 10511



Linda McNiell
25 10104



Edwin Duckett
20 2723



David Goy
20 2454



Mike Macha
20 5422



Garth Reese
20 1542



James Hipp
15 5533



John Matthews
15 5348



Richard Neiser
15 5918

Recent Retirees

! Take Note

Disabilities Awareness group to meet

Sandia's Disabilities Awareness Committee will meet July 12 to discuss issues of concerns around disabilities. The committee meets on a monthly basis and is open to all interested persons. Membership consists of Sandians who address disability awareness, education, and solving disability problems throughout the Labs. Meetings are held the second Wednesday of each month in building 823, Rm. 4255 at 11:30 a.m. Anyone with a general interest or who wants to discuss a specific disability issue is invited. For information, contact Jeneane Taylor (1300) at 845-9646 or sjtaylo@sandia.gov or Susan Carson (6143) at 845-8713 or sdcarso@sandia.gov.

Memorial to honor memory of long-time Sandia contractor, cyclist

Harry Ives, the on-site contractor who worked with Sandia's pulsed power programs for many years, will be honored soon with a memorial in the place he loved to ride his bicycle, the Rio Grande Bosque bike path.

Harry, a member of both BikeABQ (<http://bikeABQ.org>) and the New Mexico Touring Society (<http://nmts.org>), died in late 2003 as a result of a bicycle accident while commuting home from work via the South Gate.



ARTIST'S rendering of the proposed memorial.

BikeABQ, a non-profit 501(c)3 organization, is raising money for a memorial to Harry that will be constructed along the Bosque bike path. The memorial will consist of a bench plus a large vertical steel slab (a monolith) on which is laser-etched a poem, "The River Trail," that Harry wrote.

The memorial will be located in the vicinity of the new Tingley Beach fishing ponds and just south of the new Zoo-to-Aquarium train station at Tingley Beach. For information on how to help support the memorial and honor this colleague who biked to work years before it was cool, contact Mary Ann Sweeney at maryannsweeney@earthlink.net.

Team Sandia competes in Food Box-ing Olympics on National Hunger Awareness Day

By Iris Aboytes

Held on the sprawling concrete-paved grounds of Roadrunner Food Bank, 27 teams from local companies were on hand to participate in the second annual Food Box-ing Olympics.

There was excitement in the air as the temperature was in the 90s, and a spirited wind welcomed the competitors. Huge boxes containing 30 different food items for senior citizens in New Mexico awaited the athletes.

As the teams arrived they huddled together and prepared themselves mentally. Nerves were on edge as a competitor declared, "I am not even thinking about winning, I just got to live through this."

Albertsons brought five teams (all from management, including a regional manager). They planned on being triumphant. The team members wore a mix of jeans and tee shirts, and white shirts and ties; one member was obviously a butcher. He wore his white coat (For good luck?). Their Adidas and Nikes and loafers with tassels were set to accelerate at record speed.

Team Sandia arrived looking tanned, rested, and ready, wearing their Sandia Serves shirts. Their dress was understated but they were focused, methodical, and prepared. They knew this competition was not about winning and losing but about winning and winning.

The goal was simple: fill as many boxes as possible with 30 food items in a ten-minute



READY. SET. GO! — Jan Wallner, John Moya, Denise Lopez, and Lori Castillo fill boxes; at the rear, Carolyn Lucero assembles boxes. (Photo by Randy Montoya)

period. Each team had six members. One member assembled the boxes, while five pushed and filled a grocery chariot at mach speed.

Ann Perkins from the KRST-FM afternoon show sounded the horn, and the competition began. In the first heat, 183 boxes were filled. Six teams competed at the same time. Bankers removed their ties, women wiped their faces, and men took deep breaths as each box was filled. Joy

and relief were evident, and adrenaline reached an all-time high.

Team Sandia was smooth, fast, and efficient. The peanut butter tried to stick it to them, but the team rebounded with grape jelly and low fat milk. The punchy pintos were settled down by the rice. The chunky chicken was joined by the mashed potatoes. The pudding, pears, and apple sauce were balanced by nutritional bars and shakes. The pastas were not problematic as

they were bathed in the sauces.

One by one, each box was filled. The games over, 1,049 35-pound boxes were filled.

"This is about a month's supply of boxes for the food bank, but we are still only able to serve about 20 percent of seniors who need them," says Melody Wattenbarger, Roadrunner Food Bank. "It is wonderful how our community has come to respond to the needs of our neighbors."

No medals were awarded. The personal satisfaction of knowing a difference was made was its own reward. That was a medal only each competitor can award.

"It really isn't work," says team leader Pauline Bruskas (10263). "It is a lot of fun and a great opportunity to partner with other businesses in the community for such a great cause. Can you imagine how long it would take Roadrunner to fill the boxes? I'm already working on recruiting more Sandia teams for next year's event. We hope to have as many teams as Albertsons did."

Team Sandia members from 10263, Logistics, were: Manager Carolyn Lucero, Pauline Bruskas, Shannon Letourneau, Jan Wallner, Lorri Castillo, John Moya, Denise Lopez, Larry Rogers, and Raeanne Armijo.

The following companies participated in the Food Box-ing Olympics:

Mountain States Insurance, General Mills, New Mexico Mutual Group, DPI Southwest, Albertson's, Wells Fargo Bank, Bank of Albuquerque, Lovelace Sandia, Whole Foods Market, Del Norte Rotary, PNM, Sandia National Labs, AFT New Mexico (teachers union), New Mexico Business Weekly, Cardinal Health Services, University of New Mexico University Counsel, Aging and Long Term Services Department of New Mexico, The New Mexico Task Force to End Hunger, and Sysco Foods.

Log your hours, help your community

Community Involvement (3652) invites folks to log their volunteer hours in the Sandia Serves database. If you are interested in volunteering, visit the Volunteer Opportunities website and watch the *Sandia Daily News*.

To find out more about volunteering, visit <http://www-irn.sandia.gov/organization/div12000/ctr12600/ciim%20programs/volunteers/Volunteersmain.htm>

Old Mother Hubbard went to the cupboard and the cupboard was bare Roadrunner Food Bank's Food for Kids pantry program gets a boost from Division 10000 Diversity Council

By Iris Aboytes

Does this sound familiar? Your child comes home and the first thing he/she does is go to the cupboard or refrigerator, swings the doors open, and gets a snack. What happens when the doors swing open and the shelves are empty?

"Contributions to Roadrunner Food Bank drop off during the summer," says Melody Wattenbarger, Roadrunner Food Bank. "Hunger is less on people's minds during the warmer months. We associate hunger with holidays and with winter, and giving to hunger relief work always goes up during those times of the year."

The Division 10000 Diversity Council held a Food for Kids food drive in May to fill the empty shelves at Roadrunner Food Bank. The drive collected 608 pounds of food, \$454 in cash, and online donations of \$2,156. Each dollar donated converts to three pounds of food. That converts to 8,438 pounds of donated food.

The donations were given to Roadrunner in time for National Hunger Awareness Day.

"The Food for Kids program is school based," says Melody, "so it shrinks during the summer. We

keep it going as much as possible by moving it to community centers and other suitable locations."

Low-income families count on free breakfast and lunch at school to feed their children during the school year. This vital assistance is gone during the summer and already stressed families have to provide two extra meals for their children each

day. Some children get free meals through the summer food program offered in parks, but most do not, and summers end up being hungrier times for far too many families.

The rate of poverty among children under age 18 in New Mexico is 26 percent while the national average is 17 percent says Melody. In New Mexico 19.4 percent of children regularly miss meals due to a lack of income in their homes. "Nutritional deficiencies of even a relatively short-term nature adversely influence children's behavior and their ability to concentrate and to perform tasks," says Melody.

"Division 10000 Diversity Council holds a yearly holiday gift drive, and decided they wanted to do more," says Pauline

Bruskas, (10263). "Members of our team volunteered at Roadrunner Food Bank and decided to expand our community involvement and coordi-



LOAD 'EM UP — John Moya loads donated food for transportation to the Roadrunner Food Bank.

nate a summer food drive. Division 10000 employee support has been outstanding. I can't believe we tripled last year's giving. Because the division food drive has been so successful the past two years, plans are underway to have a Labs-wide drive next year."