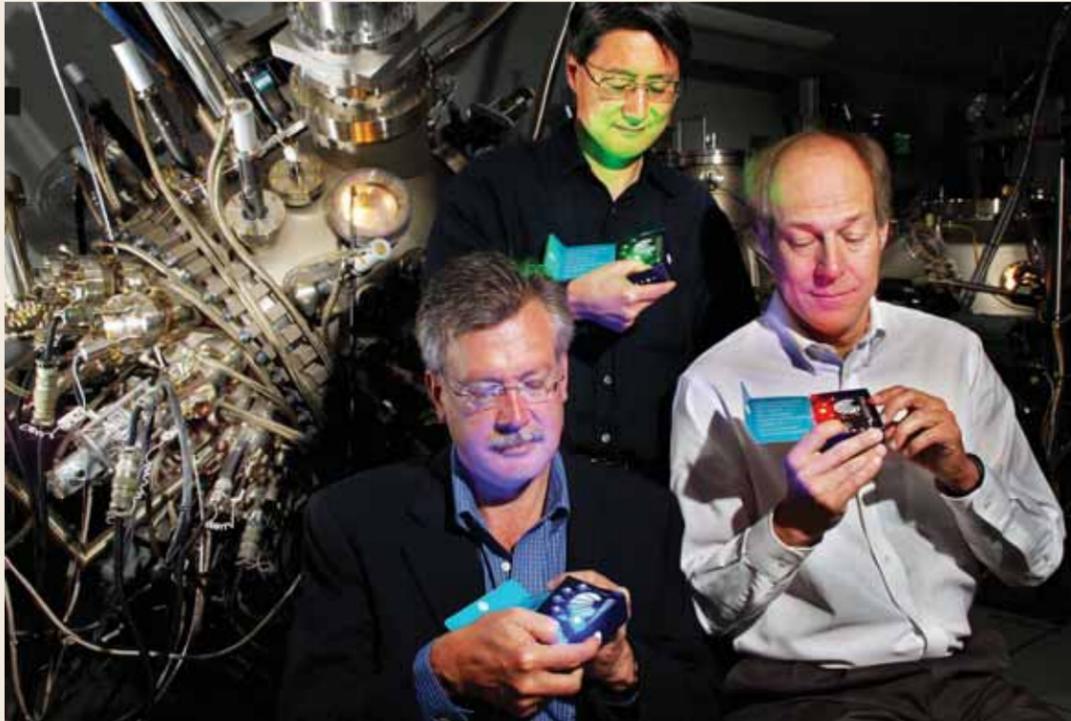


Sandia researchers awarded significant positions in DOE's \$777 million Energy Frontier Research Center program

By Neal Singer



LET THERE BE LIGHT — LED light, that is. Sandia researchers Jerry Simmons, (1120, left), Jeff Tsao (1120), and Mike Coltrin (1126), show off LED devices at their lab in Sandia's CINT facility. Jerry is leading a team that has been awarded \$18 million by DOE for advanced LED research and development over the next five years. (Photo by Randy Montoya)

Sandia researchers scored big in the \$777 million, five-year DOE Energy Frontier Research Centers (EFRCs) announced April 27 by the White House.

The overall announcement was made in conjunction with a speech by President Barack Obama at the annual meeting of the National Academy of Sciences.

Sandia expects to become home to one of 46 new multimillion-dollar centers, be a significant partner in three others, and may be involved in another four.

The winners, selected from a pool of 260 applicants by DOE's Office of Science, are expected to pursue advanced scientific research on energy.

According to a DOE news release, center selections and plans for funding "were based on a rigorous merit review process utilizing outside panels composed of scientific experts."

The centers will be situated at universities, national laboratories, nonprofit organizations, and private firms across the nation.

Sandia's Solid-State Lighting Science center, under the direction of Jerry Simmons (1120), is expected to receive \$18 million in funding over the course of five years. Mike Coltrin (1126) will be associate director and Jeff Tsao (1120), chief scientist.

Sandia expects to become home to one of 46 new multimillion-dollar centers, be a significant partner in three others, and may be involved in another four.

(Continued on page 4)

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 Sandia National Laboratories

H1N1 flu outbreak galvanizes Labs' pandemic planning awareness team

By Anita Romero

In the two weeks since the beginning of the global H1N1 (swine) flu alarm, a Sandia pandemic planning and awareness team has been meeting daily.

The team, whose focus is ensuring the health and safety of the workforce and the community, has closely monitored developments in the H1N1 flu outbreak to ensure the Labs is ready for a response.

Both public health authorities and industry have stepped up preparations, and Sandia has been engaged with these groups.

The pandemic planning team was convened early last week by Sandia Continuity
 (Continued on page 4)

Continuity of Operations (COOP)

DOE Order 150.1 Continuity Programs requires sites to have a plan in place to ensure that mission essential functions continue to be performed during a wide range of emergencies including localized acts of nature, accidents, technological, or attack-related emergencies. The COOP Plan is triggered by changes in emergency levels, such as the current World Health Organization (WHO) category for pandemic illness.

Closer to a hydrogen car Cy Fujimoto's more durable, flexible hydrocarbon polymer electrolyte membrane could be key



CY FUJIMOTO demonstrates his new flexible hydrocarbon polymer electrolyte membrane, which could be a key factor in realizing a hydrogen hybrid car. (Photo by Randy Montoya)

By Chris Burroughs

Sandia researcher Cy Fujimoto (6338) may hold one of the keys to making hydrogen hybrid cars a commercially viable transportation option. It's a new type of hydrocarbon polymer electrolyte membrane (PEM) he invented that shows great promise in being as durable and able to perform as well as current commercial state-of-the-art PEM materials made out of perfluorinated polymers.

A proton exchange membrane fuel cell converts chemical energy into electrical energy. In the case of a hydrogen fuel cell, hydrogen and oxygen are converted to water and produce electricity and waste heat.

"What is interesting is that while most hydrocarbon membranes are significantly cheaper to produce and manufacture than perfluorinated polymers, they do not typically last as long or perform as well as perfluorinated membranes under dry conditions. Our current hydrocarbon membrane appears to do both," Cy says.

The lack of reliable PEMs that work well in both dry and humid environments has been one of the impediments to hydrogen hybrid cars reaching the marketplace.

"The findings have been quite intriguing and may impact the future of hydrogen cars," Cy says as he reflects on recent tests where the Sandia polymer outperformed

(Continued on page 5)



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Family Day 2009 • May 16

Pull-out section on pages 6-7 features activities list, safety notes, gate map, and more

That's that

It's been a full decade since the last one, but Family Day finally returns to the New Mexico site on May 16 (barring any last-minute disruption caused by that pernicious H1N1 bug). The last time we did this, some of our colleagues were just entering eighth or ninth grade. Since Family Day 1999, a lot of Sandians have put in a pretty decent percentage of a career here. More than 3,500 Sandians have been hired at the Labs in the 10 years since we did a Family Day. The last time we did this, we were 50 years old. Now we're 60.

Do you remember, before you hired on at Sandia, what an aura, what a mystique, this place held? Because we come to work here every day, we tend — as people will — to take Sandia for granted. But for those who don't work here, believe me, there's still a cachet about the Labs. Maybe it takes an event like Family Day, something that lets us see our workplace through fresh and even astounded eyes, to remind all of us why we signed on to this outfit in the first place. Check out our center spread in this issue for a pretty complete list of Family Day activities. You'll be impressed — all over again.

* * *

While I'm on the subject, let me make another point. There's one big concern that everyone needs to be ultra-aware of: A lot of Sandia's Tech Area 1 is an active construction site right now. Our safety folks and Facilities people have worked with our contractors to ensure the environment on Family Day is as safe as it can possibly be, but ultimately, safety for you and your guests is largely in your hands. Stay on marked sidewalks and walkways. Don't let your younger guests get away from you. Use common sense and good judgment. Be safe, have fun, and take pride in showing off our workplace to your friends and family.

* * *

Hope I don't start a generational war here, but I bought my first personal computer back around 1980 and have been using computers for work and play on a daily basis ever since. I have an attic full of old Apple IIs, Commodore 64s, Tandys, and TI-99/4s. Whenever I see a vintage computer at a yard sale or flea market, I just can't resist buying it. (I'm convinced they'll be worth something someday. My wife indulges me.)

What brings this to mind is a story we had in our last issue of the *Lab News* (April 24) about Generation Y, the generation my own kids belong to. Gen-Yers have been referred to as "digital natives"; they don't really remember a time when there wasn't an Internet or a Google.

There's something in the term "digital natives," though, that rubs me wrong. Implicit in it (at least to my ear) is the idea that those of us who came along before the 1980s somehow just don't get it, are uncomfortable with and maybe even feel threatened by an increasingly digital world, an information-based, open source society. And that's just not true. The modern, PC-based, code-driven, digital world, after all, was invented by baby boomers. Bill Gates was born in 1955, as was Steve Jobs. Woz was born in 1950. They were building on work done by people like Gordon Moore, Alan Turing, and even former Sandia Labs Director Morgan Sparks, all members of the greatest generation.

If those born since the mid-1980s are digital natives — and how can one dispute that? — then those who came before are the digital pioneers. The natives really had no choice about the world they were born into; the digital pioneers did have a choice. And the choices they made have brought us inexorably — perhaps inevitably — to the connected global community. To, yes, Twitter.

See you next time.

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

Employee death

John Wirsbinski's true love was his family

Colleagues remember friend as energetic out-of-the-box thinker of great enthusiasm and a mischievous streak

John Wirsbinski (0412) died April 24. He was 40 years old and had been at Sandia for 13 years.

"John was a boss' dream worker," says his boss Brad Mickelsen (0412). "He was one of the most proactive, organized people I ever knew. He thought and acted far above his age, he was a joy to work with. He was the department's big-picture thinker. He understood the need to put everything in a systems context.

"I always marveled at his energy levels," adds Brad.



HUSBAND AND FATHER, COLLEAGUE AND FRIEND — John Wirsbinski touched the hearts and imaginations of all who knew him, but his first love was for his family, wife Shasta and twins Collens and Lauren.

"John was like a kid in a candy store. He could never get enough; always open to taking on new things. I always got nervous when he came into my office with a smile on his face, as it usually meant he had volunteered for yet another activity."

Ready to jump on any problem

Brad Altman (0412) says the word that comes to mind when he thinks about John is warrior. "He embodied the sense of the word in everything he did," says Brad. "We were both martial arts instructors from totally different schools, but had great similarity. He was always ready to jump in on any problem or situation and get a team to work together."

Colleague Carla Ulibarri (6414) recalls John's fun, mischievous side.

"There was nothing too hard to solve, too large to climb, or too easy to make fun of. He had a devilish sparkle in his eyes. You were never quite sure if he was being serious or pulling your leg — it was usually the latter. He had a wonderful mind that was able to synthesize disparate information into a coherent package and then verbalize the message for others to understand.

"John loved to talk," adds Carla. "I found him amusing, compelling, and worth listening to. He would say things that were intentionally inflammatory just to get into a discussion — he loved verbal battle."

Kerrin Barrette, a former PhD student intern, says John had a quick, insightful mind that could grasp, distill, and articulate the most complex security and engineering concepts.

"He was a true out-of-the-box thinker," says Kerrin. "His intellect was keen and incisive. He continually challenged us to think differently. I think differently because of John. Our world is a better, safer place because John Wirsbinski was here for a brief time."

John's colleagues remember a serious, passionate, positive, mischievous young man with contagious enthusiasm.

His coworkers knew how much he loved his family. They were his true love, he lived for them.

'Marvelous, simply marvelous'

"I'm as happy as if I were in my right mind," or "Marvelous, simply marvelous" were his patent responses when asked how he was doing.

Smiling John, as he was called by some of his coworkers, could always see the bright side to anything. "He was the life energy of our department," says Barbara Bauer-Bass (0412).

With his masterful approach he would dance through complex, diverse, and divergent perspectives, says Cheryl Schuster (0412).

"Tim McGraw song's, 'Live Like you were Dying,' describes John," says Liz Gallegos (0412) ". . . and then I loved deeper and I spoke sweeter, and I watched blue eagle as it was flyin' — that was John!"

"His task in life was to help others live life to the fullest — just as he did," says Carla. — Iris Aboytes

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Sandia/California starts a Habitat habit

By Patti Koning

What do you get when you combine more than 40 hardworking Sandians, four consecutive eight-hour days of physical labor in grueling heat, countless nails, boards, and blisters? One house — fully framed!

On April 18-21, a team from Sandia/California took part in Habitat for Humanity East Bay's Earth Day Build-A-Thon, the largest such event in the organization's history. The Sandia team and hundreds of other volunteers framed 20 homes on Edes Avenue in Oakland, giving Habitat East Bay a good start toward its goal of building 200 homes within the next five years.

"Framing this many homes would take us two to four months," says Krysta Morgenthaler, Habitat East Bay's director of fund development and communications. "The Build-A-Thon gives a huge boost to our construction efforts."

The weather posed an additional challenge — the average temperature in Oakland during April is typically in the mid-60s, but during the four-day Build-A-Thon, a heat wave hit California. The temperature in Oakland



A TEAM OF SANDIA VOLUNTEERS hoists a wall into place during the Habitat for Humanity Earth Day 2009 Build-A-Thon in Oakland, Calif.

a home of your own. At the end of the day, I felt really good about what we'd accomplished."

Larry learned of the Habitat Build-A-Thon effort several years ago after Roger Everett (8237) put him in touch with Bob Hoffman, a member of Habitat East Bay's board of directors. Since retiring in 2002, Roger has been involved in many construction projects through Habitat and the United Methodist Committee on Relief (UMCOR). Along with John Van Sycoc (8942), Alec Willis, and Anton West (both retirees), he's traveled to

the New Orleans area seven times over the last five years and once to Galveston, Texas, to help with rebuilding efforts.

"I enjoy construction work and helping people. They often have no insurance or assets, so they wouldn't be getting back into their homes if it weren't for volunteers," Larry says. "We could end up like that if we have a major earthquake in the Bay Area."

Larry and his wife Dale have worked on several smaller Livermore Habitat developments. When he heard of the Earth Day Build-A-Thon, he immediately decided to pull together a Sandia team. "I reached out to Chuck because we're friends with similar interests and I needed someone with the right corporate contacts," says Larry.

Chuck is senior manager of the information technologies group and knows a lot about building a house — he put himself through college with his own construction company. "We built everything from subsidized houses to custom homes all over the Pacific Northwest," he says. "As soon as the school year finished, I'd be out building houses all summer."

Larry and Chuck have both worked at Sandia since the 1970s and became friends in the late 1990s when they worked on the Extreme Ultraviolet Lithography (EUVL) project. Once they committed to the Habitat build, the rest of the team fell quickly into place. Laura Plosser (8960) was the behind-the-scenes organizer who managed Sandia's volunteers and kept everyone on track.

David says the experience helped build a sense of community within Sandia. "I got to interact with people I normally never come into contact with, and most of the time, we never talked about work," he says. "It's a way of branching out and makes you a little bit prouder to be a Sandian."

Sandia California News

was pushing 90 on Sunday and Monday (the record, by the way, is 97). The organizers kept the volunteers cool with plenty of water breaks, mister tents, water games, and those rainbow-colored popsicles.

Larry Carrillo (8237) and Chuck Oien (8940) organized the Sandia team and worked all four days of the event. It turns out, working for Habitat is something a lot of people have always wanted to do, but just needed a nudge. "I've wanted to work with Habitat for years," says Dr. Stephanie Ball (8527). "These guys made it so easy."

"It was really an awesome experience," says David Franco (8114). "It was a great change of pace from day-to-day work to spend the day outside creating something of value. There is really nothing like having



LARRY CASTILLO scales new heights.

Thanks to everyone who participated in the Earth Day 2009 Build-A-Thon:

Heidi Ammerlahn (8962)	Ming Lau (8237)
Stephanie Ball (8527)	Leticia Longoria (8243-1)
Steve Carpenter (8945)	Will Loo (8244)
Larry Carrillo (8237)	Jessica Matto (8524)
Dan Chavez (8243-1)	Mike Neuman (8237)
Mike DeVay (8237)	Curt Nilsen (8200)
Katherine Dunphy-Guzman (8114)	Kelly Nykodym (8524)
Steve Eisenbies (8237)	Chuck Oien (8940)
Roger Everett (8237)	Devon Powers (8529)
Dave Franco (8114)	Elliot Proebstel (8965)
Ann Harren (8226)	Howard Royer (8238)
Tammy Kolda (8962)	P. Spraggins (Sandia spouse)
Jane Ann Lamph (8243)	Derek Young (8229)
	Frank Zendejas (8625)

David learned about the Build-A-Thon through Sandia's Hispanic Leadership Council (HLC). He notes that the HLC is trying to work outside Sandia more and have an impact on the local community. In addition to David, HLC members Frank Zendejas (8625), Leticia Longoria (8514), and Dan Chavez (8243-1) worked at the Build-A-Thon.

Sandia was a sponsor of the Earth Day Build-A-Thon and each volunteer was asked to raise \$200 per day worked to help defray the material costs. Many volunteers far exceeded this amount; in fact, Sandia was the top fundraising team.

Most of the work on the Habitat houses will be done by volunteers. Habitat has developed an organizational structure to enable non-skilled volunteers to be involved. Two construction site superintendents supervised the entire build and each house had its own house leader, who are often retired builders (or in today's economy, laid-off builders and construction workers). Each house also had three crew leaders, who are typically AmeriCorps members or volunteers with a few builds under their belt. Both Roger and Chuck served as crew leaders because of their extensive experience.



CHUCK OIEN at the Habitat worksite.

"The house-framing activities at the build site were very well organized. For folks with little to no experience, like me, the more skilled volunteers did a great job of letting us help while learning a couple of new tools and tasks," says Heidi Ammerlahn (8962). "I also became quite proficient at wielding a push broom."

Gaining construction experience is a side benefit to being a Habitat volunteer. Steve Eisenbies (8237) estimates he's volunteered for Habitat on 20 different occasions. Years ago, he spent his 9/80 days working on Habitat projects in Pittsburg and Livermore. "I liked doing it, plus I learned a lot about construction. The weekday builds have smaller groups working on very specific items, so you can really learn a lot," he says. "My dad used to volunteer with Habitat when I was a kid in North Carolina."

Now that the framing is complete, work on the 20 houses will continue through the end of the year. Wednesday through Saturday of most weeks, smaller teams will work on roofing, siding, painting, finish carpentry, and other tasks to get the houses ready for move-in at the dedication in December.

Larry says he plans to help out at the site on a monthly basis to see it grow. And, he, Chuck, and many of the other volunteers are looking forward to working on the next Sandia Habitat team. "I hope Sandia/California will sponsor more events like this one. I would definitely participate in the future as well," says Heidi.



THE BUILD-A-THON SITE on Edes Avenue in Oakland.

Going green: Sustainability a Habitat value

Sustainability is an important part of Habitat for Humanity East Bay's mission. The homebuyer program is set up to enable the buyer to succeed, with no down payment, zero percent interest on the loan, and the mortgage payment set at no more than 30 percent of the buyer's income.

The homes are built for maximum energy efficiency with whole-house fans, fiber-cement siding, energy-efficient lighting, low-e windows, photovoltaic panels, and passive solar roof overhangs, among other features. For most Habitat homeowners, this results in electricity bills of \$5 or less a month (in fact, many homeowners are billed on an annual basis rather than monthly because their bills are too low to warrant the expense of mailing and processing).

The Edes site, in Oakland, Calif., will have 54 homes by the end of 2010. Twenty-six homes were

completed in the first three phases, which began in 2006. The 2009 build will complete another 20 homes, with the remaining eight to be finished next year.

Three of the existing Edes homes were certified LEED (Leadership in Energy and Environmental Design) Gold. One home of each model (two-bedroom, three-bedroom, and four-bedroom) was submitted for certification.

Developed by the US Green Building Council (USGBC), LEED is an internationally recognized certification system that measures sustainability, water and energy efficiency, CO₂ emissions reduction, improved indoor environmental quality, and materials and resources used, among other metrics. Certification levels include standard, silver, gold, and platinum. "We're aiming for platinum certification on this new build," says Morgenthaler.

Random drug testing update: Six months of screening, no positives

By John German

After six months of random drug testing of Q- and L-cleared members of the workforce, it looks like Sandians are a livin' right bunch.

More than 1,800 screenings have been performed since the program began on Oct. 13, 2008. During that time no employee or staff aug contractor has had a positive result for illegal drug use.

That's well below the average for US workers of about 5 percent; at that rate, some 90 people would have tested positive by now. It's also well below Sandia's initial estimates, based on results at similar companies and laboratories, that as much as 2 percent of the workforce might test positive for illegal drug use.

Half of the 469 Sandians who voted in a *Lab News Interactive* poll in December 2007 got it right, predicting a 0 to 1 percent rate of illegal drug use.

"This is one time when having nothing positive to report is a good thing," says Deb Menke, manager of Healthcare & Support Services Dept. 3334. "It says a lot about us. We clearly are an exceptional group."

DOE expanded the definition of Testing Designated Positions in September 2007 on the basis that all workers holding Q or L clearances have the potential to significantly affect the environment, public health and safety, or national security.

Screening center moved

Deb thanks Sandians for their patience during the initial months of the screenings, and for their feedback, which has resulted in some key changes. Most important, she says, is that the screening center in Albuquerque has recently moved from its former location in

Research Park to Sandia's Medical Clinic (Bldg. 831) north of Tech Area 1.

It's a better location for a number of reasons, she says. Most important is the convenience for many people. Transportation to the screening center was sometimes an issue, especially for those who work in Tech Areas 3, 4, and 5 and who ride the bus or a bike to work.

Still, she says, starting the program at the off-site location was necessary to understand just how disruptive the screenings — up to 30 per work day — were going to be to the Albuquerque clinic's day-to-day business. By now it is clear the operation can be conducted in the midst of the clinic's other routine business, she says.

Misinformation persists

A few challenges remain, however. The staff's number one problem is the misperceptions of Sandians selected for screening, Deb says.

Here are a few common myths, followed by the facts:

Myth: It's the screener's fault – Some people come to their screening angry, perhaps about the disruption to their work or the implied mistrust of the workforce, or for other reasons. That's understandable, she says. Same-day reporting for a drug screening is an added complication to many people's already complicated days.

But too often, visitors to the screening center take their frustrations out on the technician conducting the screenings. Random drug testing of cleared DOE workers is federal law, and it is a condition of maintaining a security clearance at Sandia. The technician is doing his or her job, which is helping Sandians fulfill the requirements of maintaining their clearances.

She reminds those selected for screenings that Sandia's Code of Ethics and Business Conduct requires

Sandians to treat all members of the workforce with dignity and respect. Sandia's goal is to maintain a professional work environment that is free from threats, bullying, and abusive or intimidating conduct.

Myth: Once I am selected, I won't be selected again until next year – DOE requires random drug screenings for 30 percent of the cleared population per year, with replacement. Replacement means that as soon as you are selected for a screening your name is placed back into the selection pool. Statistically speaking, more than 500 people are likely to be selected two or more times in a 12-month period, and 50 people are likely to be chosen three or more times. An unlucky few could be selected four or more times.

Myth: There are good reasons not to report – Once you have received a verbal notification of selection during work hours, you must report to a screening center the same work day (for workers in Albuquerque and Livermore) or within 24 hours (for those at remote sites or on travel). No excuses can be accepted for failure to report to a screening center. Failure to report must be treated as a positive test result.

Myth: Only illegal drugs are being screened – DOE requires testing for the illegal use of drugs. The screenings test for marijuana, cocaine, opiates, phencyclidine, and amphetamines. Some prescription drugs fall in these categories. It is illegal to use drugs prescribed to another person. If you are taking a prescription drug in one of these categories and you are tested, you will be asked to provide a doctor's prescription prior to the test results being validated.

For more information about random drug testing at Sandia, please see http://info.sandia.gov/Change_Sandia/change_pages/drug_testing.html.

Alternative energy research funding

(Continued from page 1)

Says Jerry, "More than 20 percent of our country's electrical energy is consumed in lighting. Solid-state lighting, a new technology that will be the focus of our research, has the potential to cut that energy consumption in half — or even more."

Investigating three areas

Center researchers expect to investigate three areas: the conversion of electrical energy to light through radical designs involving luminescent nanowires, quantum dots, and hybrid structures; energy conversion processes in photonic structures smaller than the wavelength of the light they create; and understanding and eliminating defects in the semiconductor materials that presently limit solid-state lighting efficiency.

The work is projected to include collaborations with scientists at Rensselaer Polytechnic Institute, the University of New Mexico, California Institute of Technology, Los Alamos National Laboratory, Yale University, Northwestern University, the University of Massachusetts-Lowell, and Philips Lumileds Lighting.

Sandia also expects to receive \$7.75 million as a significant partner in an EFRC led by the University of Texas at Austin to understand, over multiple length scales, the potential for capturing and geologically storing carbon dioxide underground. Larry Costin (6311) is lead investigator for Sandia.

Sandia expects to play a further major role in a third center established at the University of Maryland that focuses on improving electrical energy storage in batteries, capacitors, and other technologies. Nanostructured electrode components are expected to provide greater surface areas to store charge, as well as smaller path lengths for the motion of electrons and ions, thereby increasing the rate at which charges can be moved and stored. Sandia's research budget under Bob Hwang (1130) is tentatively set at \$6 million.

In a fourth major effort, Sandia will aid Princeton University on its "Energy Frontier Research Center for Combustion Science." The center aims to develop a suite of predictive computing modeling capabilities for the chemical design and utilization of nonpetroleum-based fuels in transportation. Sandia principal investigators Jackie Chen (8351), Nils Hansen, and Jim Miller (both 8353) expect to oversee funds totaling \$3.75 million.

Another \$8.25 million in total is expected to aid research in collaboration with Notre Dame for "Materials Science of Actinides," with Sandia principal investigator May Nyman (6316); the University of Arizona's Center for Interface Science on "Solar Electric Materials and Devices," with Sandia PI Julia Hsu (1114); Washington University at St. Louis' Photosynthetic Antenna

Research Center "to understand the basic scientific principles that underpin the efficient functioning of the natural photosynthetic antenna system as a basis for man-made systems to convert sunlight to fuels," with Sandia PI Jerilyn Timlin (8622); and the University of Texas at Austin for "understanding charge separation and transfer at interfaces in energy materials and devices," with Sandia PIs Julia Hsu and Kevin Leung (1114).

Says Julia Phillips, director of Sandia's Physical, Chemical, and Nano Sciences Center (1100), "Our success in the EFRC competition is a credit to the talent and extraordinary efforts of many Sandians who developed the science vision for each of the proposals, linked that science to some of the nation's energy challenges, and engaged with our partners to build winning teams. My heart-felt appreciation goes to those who put in the long hours to make it happen. And of course, this is just the start of a new opportunity to render exceptional service in the national interest."

CINT capabilities tapped

Still other projects are expected to make use of nanoscience-related capabilities of the Center for Integrated Nanotechnologies, jointly operated by Los Alamos National Laboratory and Sandia.

In general, EFRC researchers are expected to take advantage of new capabilities in nanotechnology, high-intensity light sources, neutron-scattering sources, supercomputing, and other advanced instrumentation to lay the scientific groundwork for fundamental advances in solar energy, biofuels, transportation, energy efficiency, electricity storage and transmission, clean coal and carbon capture and sequestration, and nuclear energy.

Said Secretary of Energy Steven Chu, "These centers will mobilize the enormous talents and skills of our nation's scientific workforce in pursuit of the breakthroughs that are essential to make alternative and renewable energy truly viable as large-scale replacements for fossil fuels."

Of the 46 EFRCs selected, 31 are led by universities, 12 by DOE national laboratories, two by nonprofit organizations, and one by a corporate research laboratory.

Six will center on energy efficiency, six on energy storage, 20 on renewable and carbon-neutral energy, and 14 on so-called "cross-cutting science" involving, among others, catalysis and materials under extreme environments.

The criterion for providing an EFRC with Recovery Act funding was job creation. The EFRCs chosen for funding under the Recovery Act provide the most employment for researchers, postdoctoral associates, graduate students, undergraduates, and technical staff, in keeping with the Recovery Act's objective to preserve and create jobs and promote economic recovery.

H1N1 flu response

(Continued from page 1)

of Operations (COOP) coordinator Warren Cox and Michael Knazovich, manager of Emergency Plans and Support Dept. 4137 (see "Continuity of Operations" on page 1). The team has analyzed possible implications for the Labs posed by the H1N1 flu outbreak and developed appropriate responses.

The team assembled includes personnel from across the Labs: emergency management, medical, travel, custodial, communications, contracts and procurement, information technology, human resources, security and others.

Sandia's Pandemic Influenza Response Plan describes specific actions to be taken by various elements of Sandia to respond to pandemic influenza at every phase of the progression up to a pandemic, and through to recovery. The focus of the plan is to: 1) protect people and 2), continue the mission.

In the weeks ahead, the pandemic planning team will monitor developments in the H1N1 flu outbreak in its various locations and continue to communicate and coordinate with Kirtland Air Force Base and local authorities. Sandia members of the workforce are urged to take common sense precautionary measures as suggested by the CDC (see "From CDC: Everyday steps . . ." below).

For further information, visit the CDC website at: <http://www.cdc.gov/swineflu/>

From CDC: Everyday steps you can take to avoid swine flu

Take these everyday steps to protect your health:

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
 - Wash your hands often with soap and water, especially after you cough or sneeze. Alcohol-based hand cleaners are also effective.
 - Avoid touching your eyes, nose, or mouth. Germs spread this way.
 - Try to avoid close contact with sick people.
 - Do not go to work or school if you are sick.
- CDC recommends that you limit contact with others to keep from infecting them.
- Follow public health advice regarding school closures, avoiding crowds and other social distancing measures.
 - If you don't have one yet, consider developing a family emergency plan as a precaution. This should include storing a supply of extra food, medicines, facemasks, and other essential supplies.

Lab News Interactive 2.0 offers blogs, multimedia

By Julie Hall

A new *Lab News Interactive* website launched April 27 offers blogs, audio clips, and videos, in addition to an expanded number of stories from the printed edition. The new site is intended to look and function more like a news site than the previous version, while continuing to offer readers the popular poll feature and commenting on stories.

"Bloggers' Row" — a collection of internal blogs on a range of topics — is a new feature of the site. Here, readers will find four blogs on a range of topics; more are scheduled to be launched later this month. As with *LNI* stories, all the blogs invite comments.

Current blogs include:

- **Al's Blog:** Ideas that make Sandia better — Written by Chief Operating Officer Al Romig, this blog explores ideas — his and those of readers — for making operations more efficient and improving communications in the wake of numerous external and internal challenges.

- **Lean Six Sigma Secrets:** Operational excellence in the national interest — This is a team blog written by Sandia quality experts Laura Guedelhoefer (0225), Don Lifke (2712), Mike Lopez (1678), and Rick Sherwood (9514). Team members write about Lean Six Sigma rules and principles and their implementation at Sandia as well as outside the Labs. They also post book reviews and offer a "Dear Abby"-like service where visitors can submit quality-related questions to the team for advice.

- **Life on the Line:** Riding in research — Postdoc Mike Brumbach (1816), a contributing writer for *Lab News*, riffs on a variety of topics related to research and lab work. A chemist, Mike is an expert in organic photovoltaics and works primarily in materials science for understanding and developing devices related to sustainable energy technologies

- **Science 2.0:** Exploring the web, social media, and scientific collaboration — In this blog, WebCo chief web architect Joe Lewis (8944) explores emerging web technologies and trends and how these apply to scientific applications and collaboration.

The website also offers audio clips and videos. The audio segments currently posted are excerpts

from interviews conducted by *Lab News* staffers. Future plans call for producing a podcast program covering news, features, and events at the Labs. In the meantime, individuals interested in contributing audio segments should contact Bill Murphy or Julie Hall.

The videos page includes a short clip from an interview with retired Sandia cryptologist Gus Simmons with *Lab News* photographer Randy Montoya (3651), a profile of Materials Characterization Lab anthrax investigators Paul Kotula and Joe Michael (both 1822), and productions on Sandia capabilities such as the National Infrastructure Simulation and Analysis Center (NISAC), the Explosive Destruction System developed for the Army, and the refurbishment of Z, the largest producer of X-rays in the world.

Visit *Lab News Interactive* at <https://info.sandia.gov/newscenter/interactive/>.

Feedback and suggestions are welcome to Bill Murphy (3651) at wtmurph@sandia.gov or 505-845-0845 or Julie Hall (3651) at jchall@sandia.gov or 505-284-7761.



Subscribe to *LNI* updates via RSS

Readers can subscribe to RSS feeds for any or all of *Lab News Interactive's* blogs. You can also subscribe to a feed of comments posted to the blogs. The steps below are for setting up feeds to appear on your Techweb homepage.

To subscribe to RSS feeds of blog posts and/or comments using a PC:

- Navigate to the homepage of the blog you would like to subscribe to.
- At the bottom of the blog page you'll see "Entries (RSS)" and "Comments (RSS)". "Entries" refers to new blog posts while "Comments" are exactly that — comments readers have made about the post.
- Right click on the desired link and click on/select "Copy Shortcut."
- Go to the Techweb homepage.
- In upper right corner of page, click on "Add Portlets."
- Under "Portlet Categories," expand the "News & RSS Feeds" category.

- Click on "Add" to the right of the "RSS Feeds" selection.

- You'll see an orange "Portlet Added!" message.
- Click "Done."

- On your Techweb homepage you should now see a new RSS Feed box.

- Click on the pencil icon above the right corner of the box.

- Position your cursor in the "Type or paste the URL below" box and paste the copied shortcut by hitting Control-V. Type in a feed title in the box to the left.

- Click "Add" and then "Save."

- The blog name and recent posts should appear on your Techweb homepage.

To subscribe to an RSS feed of all *LNI* news stories, follow the same sequence after right clicking and copying the "Entries (RSS)" shortcut at the bottom of the *LNI* homepage.

You can also subscribe to feeds using your favorite RSS news reader. RSS functionality is also built in to several browsers such as IE7, Firefox, and Safari.

Membrane breakthrough

(Continued from page 1)

in two categories those made by manufacturers of current state-of-the-art fuel cells for automotive use.

The new PEM hydrocarbon material evolved from an earlier generation Cy and former Sandian Chris Cornelius developed five years ago that operate at elevated temperatures. The early Sandia fuel cell material, however, was not specifically designed for automotive applications. Cy is making adjustments so that it will fit automakers' needs, which include high proton conductivity at high temperature and at low water contents.

Cy anticipates that the new materials he developed over the past year and a half

will make the Sandia PEM perform better at low relative humidity. The chemistry allows him to control where and how much acid is deposited on the polymer backbone, which enables fine-tuning of the size of ion conducting channels. With larger pathways for proton movement the membranes will work better in low humidity environments.

Current acid-containing perfluorinated polymers, such as Nafion, maintain a path for protons to pass through when the membranes are hydrated. As they dehydrate, the path shrinks and becomes disconnected, restricting proton movement. The result is diminished function of fuel cells in dry desert climates like the Southwest.

Cy compares the current state of PEMs to a path in a park.

"You can be moving right along and then come to a place where the path breaks. A person walking the path can maneuver around the break and move on. Not so with protons. They come to a dead end," he says. "Automobile manufacturers want a membrane that is reliable in all environments. They can't have one that functions well in a humid climate like Miami, for example, and not work well in dry Albuquerque."

Working through Sandia's Intellectual Project Management, Alliances & Licensing Dept. 1031, Cy is collaborating with a consortium of automobile manufacturers to build the better PEM. He says a cooperative research and development agreement (CRADA) and possible licensing of the technology are forthcoming.

Before the collaboration can proceed much further, he says, he needs to come up with a way to "scale up the chemistry" so the membrane can be mass-produced at a low cost.

"We have to get the cost of manufacturing the membrane below \$25 per square meter for the method to be practical for cars," Cy says. "This is one of the biggest challenges."

Licensing Dept. working more closely with SMUs

Cy Fujimoto's (6338) membrane project is one of the first projects of a new and improved Project Management, Alliances & Licensing Dept. 1031, says department manager Mark Allen.

When he became manager about six months ago, Mark says, he wanted to try something different to make the department work more efficiently. He came up with the idea of assigning each of his six licensing executives the responsibility for specific SMUs. The licensing agents serve as a link between the SMUs, research foundations, lawyers, and potential partners.

"Historically the line people came to us with ideas for licensing and tech transfer," Mark says. "Now we are being more proactive, seeking out candidate research. We are more engaged in working with senior managers and people are eager and excited about the prospect of their inventions receiving patents and being licensed. We hope this makes for a better method of getting our research commercialized."

National walk at lunch day



SCORES OF SANDIANS, including (left to right) Rita Candelaria-O'Toole (2662), Ruth Lucero (5098), and W. Rhoda Yazza (2733), turned out to take a turn or two around Hardin Field on April 30 as part of the Labs' observation of National Walk at Lunch Day. In recent years, the half-mile circuit around Hardin Field has become a popular lunchtime destination for health-minded individuals. (Photo by Randy Montoya)



Family Day 2009 Activities



Location	Activity Description	Time	Location	Activity Description	Time
Bldg. 701/2nd floor Bldg. 802/3rd floor lobby	New ion beam lab preview Posters — counterintelligence, protocol visits, communications team items	10 am-12 pm 9 am-3 pm	Bldgs. 970/981 Bldg. 6969 (Robotics Veh. Range)	HERMES & Saturn accelerator tours Moving robots, static displays, videos, tour	9 am-3 pm 10 am-12 pm
Bldg. 804/10 Bldg. 810/Auditorium	History of information storage displays Presentation — “A Historical Perspective” by Leon Smith	9 am-3 pm 11 am-12 pm	Bldg. 983/High-bay Bldg. 9972 (south of solar tower on Lovelace Rd.) Hardin Field	Z machine self-guided tours Tour of facility for antenna & radar cross-section measurement facility Fitness events, hula hooping, meal planning, sun safety, posture assessments, blood pressure checks, CPR skills, ambulance display	10 am-1 pm 1 pm-3 pm 10:30 am-1:30 pm
Bldg. 810/Lobby Bldg. 823/Breezeway Bldg. 823/2279	Homeland security displays & demos Decontamination foam display Mid-Rio Grande interactive model to solve resource management issues	9 am-3 pm 10:30 am-1:30 pm 9 am-3 pm	Hardin Field	Community Involvement — Science activities for kids	9 am-3 pm
Bldg. 823/4037	Video of technical work by Center 6770 and others — continuous stream	10 am-2 pm	Hardin Field	Pro Force display — Tools & vehicles used by protective force on the job	9 am-3 pm
Bldg. 858EL Clean Room Bldg. 858EL/L2000	Solid-state lighting tour of MicroFab Explora Science Museum “Exploraband” performance	1:30 pm-2:30 pm 1 pm-2 pm	Hardin Field Hardin Field	Nonpoint source pollution model Classic cars owned by Sandians — held concurrently with Family Day	9 am-3 pm 9 am-3 pm
Bldg. 858EL/L2220	Hi-speed camera of MEMS shock sensor Things eye can't see (45 min. each)	10 am and 1 pm	Hardin Field	Sandia Women's Action Network Women's Hall of Fame	9 am-3 pm 9 am-3 pm
Bldg. 858EL/L2220	Scanning laser vitrometer measurements, animating data (45 min. each)	10 am and 1 pm	Hardin Field Hardin Field	Radiation Protection demo National Museum of Nuclear Science & History display	9 am-3 pm 9 am-3 pm
Bldg. 858EL/L2220	Energy harvester — how motion of shaker can be converted to energy (45 min each)	10 am and 1 pm	Hardin Field	SERP activities display	9 am-3 pm
Bldg. 860	Model, vibration, structural testing. Radiographic, ultrasound diagnostics	10 am-12 pm	Hardin Field Hardin Field	Camp Invention informational display Chuck Wagon barbecue (breakfast (lunch))	9 am-3 pm 9 am-11 am 11 am-3 pm
Bldg. 861	Thunderbird Café — Grab & Go breakfast & lunch items	9 am-2 pm	Hardin Field	Special Touch Catering	9 am-3 pm
Bldg. 890/B75B	Radio frequency demonstration	9 am-11 am and 1 pm-3 pm	Hardin Field International Pgms. Bldg.	Ben & Jerry's Ice Cream Van de Graff generator, mouse trap chain reaction simulator, Geiger counters with common radioactive sources	10 am-3 pm 9 am-3 pm
Bldg. 892/115A Bldg. 892/178	CAD/CAM open house Sandia's Past & Present — An interactive newscast	9 am-1 pm 10 am-2 pm	International Pgms. Bldg.	Technology training & demo area (www.cmc.sandia.gov/ttd-demo-area.htm)	9 am-3 pm 10 am-2 pm
Bldg. 892/183, 190, 190A, Bldg. 894/111A	Military Liaison — operational look at the enduring stockpile Sandia history exhibit, historical films, history game	9:30 am-2:30 pm 9 am-3 pm	International Pgms. Bldg. MO 303 (corner of H and 18th, east of Mo Town)	WIPP exhibit Center for Cyber Defenders demo	10 am-2 pm 9 am-3 pm
Bldg. 894/156-157	Nondestructive inspection, composites, advanced in situ sensors	10 am-12 pm	Nat. Museum of Nuclear Science & History	Recently renamed National Atomic Museum (Eubank & Southern) Show Family Day Badge, receive one free admission for each adult admission purchased (May 16-17)	9 am-5 pm 11 am-3 pm
Bldg. 895/1111 Bldg. 899/1702	Augmented Reality Training System demo Various JCEL visualization, supercomputing lectures, simulations (45 min. each)	10 am-10:30 am 9:30 am, 10:15 am, 1:30 pm, 2:15 pm	Solar Tower Throughout Area 1	Solar Tower self-paced tours Construction professionals at construction sites to answer questions	9 am-3 pm
Bldg. 959 Bldg. 960Area IV cafeteria Bldg. 967	Waste Management Facility tours Continental breakfast, lunch items Solid waste & recycling operations display (South of P Ave., across from Bldg. 956)	10 am - 1:30 pm 9 am-2 pm 9 am-2 pm			

In case of emergency, call 911 from a Sandia phone (844-0911 from a cell phone, outside the restricted areas)

REMEMBER — everyone at Family Day must be a SAFETY OBSERVER.



Catch a ride

Family Day shuttle bus route and schedule

Two shuttle buses will be available to carry Family Day goers around Area 1 and down to Area IV.

Well-marked stops, which form a loop, will be

- the southwest corner of Hardin Field,
- on H Ave. directly in front of Gate 1 and just south of Bldg. 800,
- on the west side of the Schiff Auditorium (Bldg. 825),
- in the Area IV parking lot just west of Bldg. 960, and
- in the parking lot just south of Bldg. 898 and Gate 29.

Bus departure times (which are approximate):

Hardin Field: 9:15, 9:30, 10:15, 10:30, 11:15, 11:30, 12:15, 12:30, 1:15, 1:30, 2:15 (final pick-up)

Gate 1: 9:25, 9:40, 10:25, 10:40, 11:25, 11:40, 12:25, 12:40, 1:25, 1:40, 2:25 (final pick-up)

Schiff Auditorium: 9:35, 9:50, 10:35, 10:50, 11:35, 11:50, 12:35, 12:50, 1:35, 1:50, 2:35 (final pick-up)

Area IV: 9:45, 10:00, 10:45, 11:00, 11:45, 12:00, 12:45, 1:00, 1:45, 2:00, 2:45 (final pick-up)

Bldg. 898/Gate 29: 9:55, 10:10, 10:55, 11:10, 11:55, 12:10, 12:55, 1:10, 1:55, 2:10, 2:55 (final pick-up)

The final two drop-offs at Hardin Field will be at 2:20 and 3:05.



A GROUP OF FACILITIES operations and projects leads from various areas of the Facilities Management and Operations Center 4800 meet to discuss steps necessary to ensure construction sites within the Labs' Area 1 are safe and "buttoned up" for Family Day when this first Albuquerque-based open house in about 10 years occurs on Saturday, May 16. They are (from left) Lynnwood Dukes, Walt Heimer (facing away from camera), Pat Ortiz, Anthony Chavez, Carol Bicher, Jim Smith, Jeremy Michaels, and Darell Rogers.

(Photo by Randy Montoya)

Here's a potpourri of Family Day special-attention items

Some important last-minute changes, announcements, fixes

It should come as no surprise that information about a dynamic, evolving event like Family Day 2009 is subject to last-minute changes, updates, or even corrections, while also offering some important reminders.

That is what's listed below about this event, which may be attended by 12,000 to 16,000 people on Saturday, May 16, 9 a.m.-3 p.m.

Getting onto and around base

- Be cautious while driving on Kirtland Air Force Base and observe speed limits. Also, remember that driving on base during a weekend is somewhat different than on weekdays. In particular, be aware that most base traffic lights will be on "weekend mode" — flashing yellow one way, red the other.

- Also, if you haven't done so already read the "Base Access" section of the Family Day 2009 website (http://familyday.sandia.gov/base_access). If you don't have several copies of your completed Guest Registration Form as you enter the base, things could come to grinding halt.

Construction and safety

- Don't let your guard down for a minute. Remember, every host bringing guests to Family Day will be serving not only as an escort but will be the first line of safety awareness for his or her guests. At guest registration stations large signs will remind all about safety and security requirements. Read them. Discuss the messages with your guests.

- Anticipate some street closures in Area 1. They will be well marked.

- Don't be surprised if you find that it's not possible to get from Bldg. A to Bldg. B as you normally would do.

- Some entryways for several buildings may not be available and you'll have to enter through an alternate door.

- Although most gates leading into Area 1 will be open (with the exception of Gates 2 — leading into Bldg. 802 — and 3 — just north of Bldg. 800) the Pro Force recommends several gates from a safety and speed-of-entry point of view. They are: Gate 1, just south of Bldg. 800; Gate 4, just south of Bldg. 831 (Medical); Gate 10, just south of Bldgs. 820 and 821); and Gate 29, just south of Bldgs. 898 and 897). These will be staffed by Security Police Officers and all have pass-through gates to accommodate Family Day goers with strollers and wheelchairs.

Security and being prepared

- Sandia members of the workforce planning to host a collection of family members or close friends must remember to bring their DOE-issued L- or Q-cleared badge with them. No temporary badges for hosts will be issued that day. If you forget your badge, you'll have to go home and get it before entering any Limited Areas.

- Although not required by the Family Day security/safety plan, it probably makes very good sense to — if all possible — leave things like handbags, purses, and backpacks locked in vehicles on your Family Day trek to various activities. Doing so ought to reduce the chance of someone inadvertently bringing a prohibited item — an ever-present cell phone or a tiny electronic device with recording capabilities for instance — into Limited Areas. Doing that, clearly, is a no-no.

- Family Day will end at 3 p.m. Tone alert systems located throughout Sandia buildings will offer an announcement that the open house has concluded and

participants should promptly leave Labs facilities.

- Don't forget the "Need to Know" section of the Family Day 2009 website (http://familyday.sandia.gov/need_to_know) and it's probably worth reviewing the "Registration" page (<http://familyday.sandia.gov/registration>) — to ensure that guest check-in will go a lot more smoothly.

Seeing things

- A new activity for Bldg. 858EL, Rm. L2000, 1-2 p.m., is a performance by Exploraband, which is affiliated with the Explora Science Museum. The set list for this group of community musicians includes numbers with a nice beat and a science-education theme. Seating capacity in that room is about 100. Be prompt.

- Self-guided tours of the Z machine — the world's most powerful pulsed-power accelerator — will be in Area 4's Bldg. 983/High Bay from 10 a.m.-1 p.m.

- An activity in Bldg. 823, Rm. 2279 will provide children — and perhaps adults as well — the opportunity to solve water management problems in the Middle Rio Grande region using an interactive computer model. Those who take the challenge will be able to choose various options and then see how well their solutions work at saving surface water, saving groundwater, and positively influencing cost. This educational, problem-solving activity will run from 9 a.m.-3 p.m.

- Three poster displays are scheduled for the third-floor lobby of Bldg. 802. Particularly intriguing is one focused on counterintelligence, featuring a "where and what" of the five major sites of Manhattan-era nuclear espionage in the Albuquerque and Santa Fe areas.

- Come see the Solid Waste Transfer Facility where all of Sandia's solid waste and recyclable materials are accepted and processed. The SWTF is unique in that 100 percent of waste and recyclables are screened for prohibited materials. This provides a rare opportunity to look at waste generated and learn how we can better protect the environment and conserve resources. The SWTF is Bldg. 967, which is south of P Ave., across from Bldg. 956. Open hours for this activity: 9 a.m.-2 p.m.

- The recently opened National Museum of Nuclear Science & History (formerly the National Atomic Museum) is offering a special to Family Day goers. Show your Family Day Guest Button at the door and receive one free admission for each adult admission purchased. This offer is valid on May 16 and 17. The museum, 601 Eubank SE, is open seven days a week 9 a.m.-5 p.m.

An open house, yet some things are closed and locked

Let there be no mistake, Family Day 2009 on Saturday, May 16, is an open house for Sandia's Albuquerque-based operations. But, because Sandia is after all a national security R&D facility there are important assets and information that must be protected.

So, the Family Day Security/Safety Plan (still in draft form, but in the process of receiving final approval) lists various buildings and locations that, because of the work conducted there, will not be open to any visitors.

Here is a listing of closed buildings, facilities, and locations for that day:

- 725, 751, 809, 810 CI, 810 W, 819, 831, 832, 842, 867, 868, 890 4th floor, 891 B, 894 Area 1 Hopkinson Bar Lab, 963 low bay, 965, 9960, 9990, MO307, MO324, MO325, T13, 6000 Igloos, Manzano bunkers, all SCIFs (Sensitive Compartmentalized Information Facility).

Additionally, the plan states "unless attending controlled demonstrations approved by management, guests shall not enter":

- Areas where personal protective equipment (PPE) is required due to hazards present
- Areas where dosimetry is required
- Areas with removable or airborne radiological, chemical, or biological contamination
- Areas that require any respiratory protection
- Areas where Class 3b or 4 lasers are in operation with either beam or non beam hazards present
- Areas where explosives are present, including rooms, armories, and fenced areas.
- Confined spaces
- Construction areas

Finally, the plan clearly states that "Secure Storage and Vault-Type Rooms will not be opened during Family Day."

Updates, changes, corrections

- An Area 1 map in the April 24 issue of *Lab News* indicated a "TBD" activity was planned for Bldg. 884. There now are no plans for any special activity in that building.

- That same map indicated a solid-state lighting tour would be held in Bldg. 897. The actual location is Bldg. 858EL.

- The Hardin Field guest registration check-in station will remain open until 3 p.m. All other registration stations will close as previously announced at 2 p.m.

- Although all on-site construction activities will be shut down for Family Day, plans call for construction managers/inspectors to be located at the various construction zones. They'll be wearing construction vests and hard hats and they'll be eager to tell you about their specific job or other aspects of the construction profession if you just ask them.

- Learn about nondestructive inspection of metals, composites, and advanced in situ sensors from 10 a.m.-12 p.m. in Bldg. 894, Rms. 156 and 157.

- The International Programs Building will be the site of a North America Young Generation in Nuclear/American Nuclear Society-sponsored activity, which is tailored for students. There will be a Van De Graff generator, a mouse-trap chain reaction simulator, Geiger counters with common radioactive sources, and handouts about various topics. This will run from 9 a.m.-3 p.m.

- Added to the activity list recently — from 10 a.m.-12 p.m. — is a collection of sights at the Robotics Vehicle Range. There will be moving robots, static displays, videos, and a tour. The range is headquartered at Bldg. 6969.

- New to the activity agenda will be a brief demonstration and some videos of the Augmented Reality Training System, a virtual "shoot-house" training system for security personnel located in Bldg. 895, Rm. 1111. It involves applying modern videogame technologies and immersive 3-D simulation to training security officers in close-quarters battles. Time: 10-10:30 a.m.



AREA 1'S H ST. just south of Bldg. 802 won't look like this on Family Day, Saturday, May 16 — all construction activity will be shut down — but the signs of ongoing heavy work will be very present. Facilities and construction personnel are spending a lot of time these days carefully analyzing how to prepare the area so no construction sites are the cause of accidents or injuries during Family Day. Ongoing work could result in some closed roads and walkways, but appropriate pathways will be well-marked.

(Photo by Randy Montoya)

HOLLYWOOD and science: Physics from a media point of view

Lessons in drama from the APS March Meeting

By Neal Singer

When I got off the freeway at 7:45 a.m. in downtown Pittsburgh for the American Physical Society's March Meeting — the world's largest annual physics meeting, according to the society — I followed an unclear Google direction and ended up on the wrong avenue. I had no idea where I was.

Looking around as I drove slowly down a car-jammed street, a pedestrian caught my eye. He clearly wasn't a rubber-necked sightseer. Yet he wasn't walking fast to get to his job on time, either. His hair was parted but not carefully combed. Unconcerned with style, he wore gray pants, blue shirt, brown jacket, and tan shoes with yellow rubber bottoms that caught my attention like a sign each time he stepped. He toted a small backpack suitable for a few books.

"There's a physicist," I thought obscurely. "I'll follow that guy."

The traffic and the pedestrian's pace, fortunately, were a match. When he turned onto a side street, I turned too. There I saw other people — mostly men, some women — dressed somehow similarly, walking in the same direction. Some carried the large paper-bound books often provided by societies at large meetings to list technical talks. Up ahead was the convention center.

The question that occurred to me was how do such (in general) unpretentious people get portrayed in such oddly flamboyant, sometimes unsavory roles in media?

It turns out that the APS had enough interest in these matters to devote a special section of its meeting to that. There was standing-room only in a hall that seated at least 300 people.

(For scale, consider that a group of talks on fluid dynamics simulations — of enough general interest that they became a basis of an APS-led press conference — attracted an interested audience of approximately 40.)

Here are a few facts and observations from the media session.

The National Academy of Sciences sees movies as valuable tools that only need sharpening. Disparagement, like resistance, is futile. Rather than shrugging at inaccuracies, NAS maintains an office where film producers can check science facts and even learn of reasonable scientific procedures to achieve effects they want shown.

The service offers to review scripts, provide basic fact-checking, and looks for scientists and engineers to help. Sandians interested in becoming involved in this process can email Jennifer Ouellette, director of NAS' Science and Entertainment Exchange, at jouellette@nas.edu, or check out www.scienceandentertainmentexchange.org.

According to the site, "The Science & Entertainment Exchange is a program of the National Academy of Sciences that provides entertainment industry professionals with access to top scientists and engineers to help bring the reality of cutting-edge science to creative and engaging storylines."

"What kinds of questions does Hollywood ask?" said Ouellette to her audience. "Movies are a visual medium. Unlike journalists, movie personnel want to know what you look like, what you do all day, what you wear, what your labs and equipment look like."

They may use this information to portray a scientist in casual garb using a business card to deflect a lab laser beam, instead of featuring more remote technicians in white lab outfits using more awe-inducing divertors.

"Attractive, likeable scientists, even if stereotyped, humanize the community," she said.

While several popular TV shows already use science consulting services, including the medically based show *House*, "Even wrong science can be useful to teachers," she said. "The subjects, 'Why this couldn't happen' and 'What could happen?' can be nice teaching moments."

And, said Emory University physics professor Sidney Perkowitz in a follow-on talk, "Films on science-and-society issues like genetic engineering and global warming, even if wrong, still turn out people who will eventually do the real science."

This presumes that science fiction films have an impact on the public. According to Perkowitz (sidneyperkowitz.net), who has studied science and the media, they do.

Studies have shown, he said, that embedded facts are more likely to be retained by an audience if presented as part of a colorful story.

This is a good thing, because one-third of the world's top 50 grossing films have been science-based, he said.

Since the inception of Hollywood (the industry), there have been more than 1,400 science fiction features, plus a few science-based documentaries and



A YOUTHFUL MARTY MCFLY (Michael J. Fox) receives instruction on the scientific method from wild-haired, excitable scientist Dr. Emmett Brown (Christopher Lloyd) in the hit movie *Back to the Future*. (Photo courtesy of Universal Studios)

biopics, he says. "Such films are entertaining, they make lots of money, and the special effects build imaginary worlds like no other medium can."

As an example, the Al Gore-led documentary *An Inconvenient Truth* made \$45 million, close to record for a documentary, said Perkowitz. "But the instant-climate-change fictional movie *The Day After Tomorrow* made \$540 million, reached 10 times as many people, and materially changed their attitudes toward global warming.

"Films reach million and millions in a way our APS talks and classrooms lectures can never touch. You can't ignore that," he said. "Every year the top 10 films bring in more money than the entire NSF budget."

Among well-known problems with films, he said, are that they may misstate or hype scientific facts, don't accurately portray the process and culture of science, and stereotype scientists as heroes, villains, or nerds beyond all probability.

"But we can improve how science is presented by connecting filmmakers to scientists," he concluded. Then maybe, he said, in the ideal society, "One day all films will end with this stamp: 'No scientific concepts were seriously harmed in making this film.'"

Until then, the struggle.

Volunteers are not there to edit dreams, but to enlarge them

By Iris Aboytes

Eight hundred and sixty-five Sandians reported more than 110,000 volunteer hours during the last year.

"I stand in awe," said Randy Mascorella, executive director of Special Olympics. "I am full of appreciation. I can't thank volunteers enough. We [nonprofits] could not exist without you." Mascorella was the featured speaker at Sandia's annual Volunteer Appreciation breakfast recently.

She shared a story about a little boy, related to her by the boy's mother. One day the mother heard a noise. The little boy was hitting his face against the wall. "What is the matter?" asked the mother.

"I don't like my face. I don't look like everybody else," answered the little boy.

The mother realized her son had no self-esteem and decided to get him involved in Special Olympics. She asked a neighbor who played golf if he would be her son's golf coach. The neighbor agreed, and coached the little boy.

"The state competition was wonderful," said the mother. "So many volunteers! I realized they were not there to edit my son's dreams but to enlarge them. My son received his first medal. After the competition one day I heard — whack, then whack again. It was my son practicing his golf. His coach and the



SANDIA VOLUNTEER Marianne Walck (6760), discusses a student's project during a middle-school science fair. (Photo by Randy Montoya)

many volunteers made him believe he could get better — something he had not realized before."

"Volunteers don't get to see these life-changing results," said Mascorella. "The more they give, the more they get."

By this time she had the audience mesmerized and she continued with a story of a four-week program

where 20 middle schoolers were partnered with special-needs students in their own age group. The only stipulation of the volunteers was that they accept and respect the differences in each other. Their rewards for volunteering were free pizza, popcorn, and a T-shirt.

Mascorella went to watch them bowl the first week. "They helped each other, but were bowling in silence," she says. "By the time the fourth week came, the atmosphere had changed. The bowling alley was full of 13-year-olds throwing popcorn and teasing each other. They were celebrating life."

One of the bowlers was a girl in a wheelchair. Sometime after

the bowling was over the girl received a phone call. It was her former bowling partner. She wanted to know if she wanted to 'hang out.' The girl's mother said that was her daughter's first phone call from a friend.

"Volunteers don't get to see the full value of the impact that they make," said Mascorella. "It happens later."

Jim Tegnella retires from Sandia after varied career

By Chris Miller

For matters concerning the latest technological advancements to assist America's armed forces, Jim Tegnella was your man.

Jim, who retired from Sandia on April 10, spent a career in positions held both inside and outside of Sandia devoted to ensuring the US military maintained technological superiority.



THE GO-TO GUY for matters concerning the latest technological advancements to assist America's armed forces, Jim Tegnella retired from Sandia last month. Jim was instrumental in the Martin Marietta (Lockheed Martin) bid to assume management of Sandia for DOE in 1993. (Photo by Randy Montoya)

At Sandia, Jim served as Executive VP under former Sandia President and Laboratories Director Al Narath from 1993-1995, and VP of Defense Programs, overseeing the DoD portion of Sandia's work for others from 1998-2005.

"Sandia is a unique place and I've seen it from just about every perspective," Jim said in a recent interview. "Sandia manages a balance of engineering and basic science better than just about anywhere in the country. It has developed such a diversity of sponsors and all of them think very highly of the work that Sandia does.

It has been a pleasure to serve this laboratory."

Outside of Sandia, Jim served as director of the Defense Threat Reduction Agency (DTRA), director of the US Strategic Command Center for Combating Weapons of Mass Destruction (SCC-WMD), deputy director and later acting director of the Defense Advanced Research Projects Agency (DARPA), and assistant undersecretary of defense and acting deputy undersecretary of defense in the Office of the Undersecretary of Defense for Research and Engineering. In addition, he served as Martin Marietta Corp. vice president of Engineering and vice president of Business Development of the Electronics Group. He later was VP for Business Development for the Energy and Environment Sector of Lockheed Martin Corp., and president of Lockheed Martin Advanced Environmental Systems, Inc.

Jim pointed to two major accomplishments during his years at Sandia. The first was transition of the management and operating contract from AT&T to Martin Marietta, culminating in 1993.

"As executive vice president I was responsible for the transition of the lab to Martin Marietta and Lockheed Martin stewardship and that went very well," he said. "The contract will have been in place for 18 years when it comes up for possible rebid, and that's a pretty good track record."

The second major accomplishment was the transfer in the 1990s of neutron generator production from DOE's Pinellas facility in Florida to Sandia.

Pinellas was operated by Lockheed Martin, so the transfer in essence was an internal transfer.

Jim said his tenure as VP overseeing the DoD portion of WFO marked a significant expansion of Sandia's work into other national security activities.

Jim said he and his wife plan to reside in Albuquerque. He is in the process of establishing a consulting operation, primarily in nuclear nonproliferation areas, and would welcome the opportunity to sit on both corporate and government boards.

Alternative Fuels Challenge fosters next-generation scientists and engineers

The essay question got right to the heart of the matter: "What did your team learn about teamwork and engineering while building a hydrogen fuel car?"

Students participating in the third annual Alternative Fuels Challenge were asked that question during the April 19 event.

Sandia, in partnership with Albuquerque Public Schools, Los Alamos National Laboratory, and PNM, hosted the Alternative Fuels Challenge, a hands-on program designed to encourage students to pursue science and engineering careers. The event was coordinated by Community Involvement Dept. 3652.

When the big day came, 30 teams of middle school students from around New Mexico arrived early in the morning at APS Center, ready to race their hydrogen fuel cell cars. (The teams had fabricated the cars prior to the event.)

In addition to the double-elimination race, teams competed in an essay, oral presentation, and design competition.

An expressive group of girls from Desert Ridge Middle School wowed judges with their oral presentation on "What impacts, positive or negative, might hydrogen fuel technology have on our society?" And a Sponge Bob car, using innovative materials for the

chassis and wheels, demonstrated design creativity.

Ten teams earned trophies, including Hoover Middle School (first place), Kennedy Middle School (second place), and Desert Ridge and PR Levya/Carlsbad middle schools (tied for third place).



SIXTH GRADE STUDENTS from El Rito Elementary School gather around their hydrogen fuel cell car. El Rito competed with middle schools because it has a sixth grade class. (Photo by Cheryl Garcia)

But all of the student participants are winners, says event organizer Amy Tapia (3652), noting that the Alternative Fuels Challenge provided them the opportunity to learn about engineering and alternative energy first-hand.

"Seeing the excitement on their faces when their cars win, as well as the determination to reengineer when things didn't go as expected, was inspiring," says Public Relations and Communication Center 3600 Director George Rhynedance.

And about that question posed above — "What did your team learn about teamwork and engineering while building a hydrogen fuel car?" — the team from Kennedy Middle School offered this winning response: "We worked together to design the chassis, increase the output of the fuel cell, and increase the speed of the hydrogen car. We learned to work together by sharing and improving others' ideas."

That answer gets right to the heart of the matter.

Div. 3000 VP names two new directors

Karen Gardner to head HR Center 3500; George Rhynedance to head Public Relations & Communications Center 3600

By Chris Burroughs

John Slipke, VP for HR & Communications Div. 3000, has named two new directors: Karen Gardner, director of Human Resources Center 3500, and George Rhynedance, director of Public Relations & Communications Center 3600.

"Both Karen and George bring a breadth of knowledge and experience to Div. 3000 and will be a great addition to the Sandia leadership team," John says.



KAREN GARDNER

Karen comes from Lockheed Martin, where she spent 19 years working in human resources, most recently as talent management director for the Integrated Systems and Solutions business area. She has experience in assisting development and implementation of corporate strategic plans for human resources focus items; advising management on employee

relations matters; developing and implementing HR policies; merging companies into one culture (team building); organizing retrenchment activities and mitigating legal exposure; recruitment, staffing, performance pay plans; professional training and development; EEO/AA; and organizational behavior. She also is an experienced lecturer/trainer in academic and business environments.

Over the next year at Sandia, Karen says, in support of Sandia's strategy, Center 3500 will realign to better provide support and programs that enable a world-class workforce culture. Specific attention will focus on Full Spectrum Leadership development, talent management, policies complexity reduction, performance management, and PeopleSoft version 9.0 implementation.

Karen has an MBA in management from the Graduate School of Business at the University of Wisconsin-Madison and a BSBA in human resource management from the College of Business and Administration at the University of Colorado.

George has assumed responsibility for the communications organization, which is accountable for all areas of communications, including planning and strategy, external communications, media relations, community affairs and involvement, and employee communications. He will also be responsible for Creative Arts, Video Services, and the National Museum of Nuclear Science & History.

George comes to Sandia after spending 27 years in the US Army, retiring in 2007 with the rank of colonel. He most recently was a senior communications manager with Raytheon's Network Centric Systems business. In this role George was responsible for public relations and communications planning and served as the primary media spokesman.

Prior to joining Raytheon in 2006, George was director of the Army's Public Affairs Center at Fort Meade, Md., and also worked in the Pentagon for five years as the senior public affairs officer for a DoD/interagency strategic and operational group.

George is a graduate of the US Military Academy at West Point and has two master's degrees in strategic studies.



GEORGE RHYNEANCE

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong



Marlin Kipp
35 1431



Larry Yellowhorse
35 1522



Keith Meredith
30 2734



David Faucett
25 2662



Ken Perano
25 8964



David Clements
20 2111



Steve Silva
20 6452



Ginger Hernandez
15 1732



James Jones
15 1649



Becky Krauss
15 11000

Recent Retirees



BJ Jones
25 3030



Eric Tomlin
20 5526



Jerry McClellan
16 2950

HeaRt of Sandia team leader and Former Human Resource director BJ Jones retires after 25 years

By Iris Aboytes

When BJ Jones (3030) met Orlando Lucero, a native New Mexican, at Stanford University, there was no crystal ball showing her she would marry him and move to Albuquerque. But that is exactly what happened.

After Orlando received his law degree, he and BJ moved here. Orlando had accepted a job offer at a local law firm. BJ did not have a job. His coworkers suggested Sandia was where she should work. She had never heard of Sandia but took their suggestion.



BJ JONES, Orlando Lucero, and their daughter Estrella sit for a family portrait.

BJ became a benefits administrator at Sandia, a manager in five years, and eventually Human Resources director. "I had never pictured myself as a manager," says BJ. "Other people saw things in me that I did not see in myself."

BJ retired at the end of April. "After spending almost half my life (25 years) at Sandia," says BJ, "it is time to do other things — rest, enjoy my family, and hand off my work responsibilities. I am very proud to have been in the human resources profession. I coined a phrase — that our Human Resources (HR) team was the HeaRt of Sandia.

"I have enjoyed the friendships and the good times, but there have also been challenges," she says. "Who can forget the Voluntary Separation Incentive Program from the late '90s? Or the need to communicate market-driven changes to our employee benefits programs?"

"On a personal note, I distinctly remember our daughter Estrella's second year of life. I was juggling work priorities while she fought a continuous battle with ear infections. She was at the doctor, or in the hospital for outpatient surgery, 25 times over that year. I would not have maintained my sanity without the flexibility and care from my organization and management."

BJ is incorporated in the 75th Anniversary Betty Crocker portrait. In 1996, General Mills gave the Betty Crocker image a more contemporary look. Orlando surprised her by nominating her.



CATCHING THE BEAT at a Disneyland venue during a mother-daughter trip.

"We are very excited about BJ's retirement," says Orlando. "She always cooks fabulous meals. I look forward to more of these. I am happy for her as she takes time off and looks at other fulfilling opportunities."

If you know BJ, you know Estrella is the star in BJ and Orlando's life. BJ and Estrella do their yearly serious bonding at Disneyland. "I look forward to spending more time with her," says BJ.

All Faiths Receiving Home is one of her family's favorite agencies. She will continue volunteering there in addition to working with the Board of Trustees for Bosque School and the New Mexico BioPark Society.

"Over the years I have applauded each time she was promoted," says friend Rebecca Spires (10520). "She inspired a lot of women to achieve a balance between home and work. BJ was my coach, cheerleader, and confidante. There is an empty area where a very competent woman used to be."

"I often tell people that, while you cannot choose the things that happen to you, you have absolute power over how you choose to react," says BJ. "Juggling work, family, and community can be daunting. I just try to look on the bright side of life. I hope I have been able to nurture others to do the same. Remember, we all need to laugh, live, and love — and enjoy every moment of life."



SERIOUS BONDING? BJ and Estrella call this a bonding moment.



HELLO GOODBYE — Danny Bueno (*Lab News*, Jan. 19, 2007) is retiring May 8 after six years as the manager of the popular snack shop near Gate 2.

"I have enjoyed knowing the friendly, no-nonsense, and helpful Sandians," says Danny. "It has been a blessing here. I have had no problems."

Vickie DiSanti Robertson will be taking over as manager of the shop, which has been a fixture at the Labs for decades. "Stop by and say 'hi,'" she says.

This is the first time a woman has run the snack bar.

(Photo by Randy Montoya)

Energy Bowl 2009: May bragging rights up for grabs

Effort pits Sandia, KAFB, and SSO in challenge to cut monthly energy use

Sandia/New Mexico, Kirtland Air Force Base (KAFB) and NNSA's Sandia Site Office (SSO) have just completed the first month of the 2009 Energy Bowl, a competition to reduce the most electrical energy per gross square feet during the months of April, May, and June. KAFB commander Col. Mike Duvall and Sandia President and Labs Director Tom Hunter, along with Sandia Site Office acting Manager Kim Davis, laid the groundwork for the competition when they signed a sweeping energy conservation proclamation at the beginning of the year.

During the course of the three-month competition, each month's winner earns bragging rights; the overall winner will receive an award during the July 21-22 Earth, Wind, and Sun event at Sandia/New Mexico.

Sandians have already proved that it takes a just a little effort to save lots of energy. For example, the Labs' energy use was reduced 2.16 percent on Lights



STEALTH ENERGY USERS — Much of the equipment in the typical office space continues to use energy even when you think it's "off."

Out night March 25, mostly from turning off unnecessary lighting for one night.

The typical office (see image at left) affords plenty of opportunities to save energy. For example, if you turned off your computer, LCD monitor, computer speakers, and personal printer every night, you'd save 454 kilowatt hours per year (kWh/year). If all members of the workforce did this, the Labs would reap a savings of 5,448,000 kWh/year.

According to PNM, the average home in Albuquerque uses approximately 750 kWh per month. Therefore, if all members of the workforce made an extra effort to switch off these items every night, 605 homes could be powered by the energy saved per year. Imagine what could be saved if everyone turned off their lights as well.

The energy saved by this simple effort would reduce CO₂ emissions by 10,896,000 pounds per year.

Safety sign contest honors 24 winners in Center 4800

By Chris Burroughs

Notice anything different on Facilities' trucks and other vehicles driving through the tech areas? If so, you might be taking safety just a little more seriously.

Over the past month and a half, Center 4800 vehicles have been sprouting individualized placards as



ROBERT GRIEGO (4844) stands beside a fleet pickup truck displaying a poster encouraging use of personal protective equipment.

part of a contest to see who could design the best signs encouraging safety at the Labs. The 24 contest winners were selected from 165 participants. They were recently honored with a celebration and given \$40 gift certificates to a local restaurant. All of the other people participating in

the sign competition received movie tickets or a pizza luncheon.

The contest grew out of Center 4800's Target Zero team's initiative to increase safety awareness. Jim Rush, manager of Mechanical Maintenance & FAIT/FESH Dept. 4844, spearheaded the contest initiative. With the support of Center 4800 Director Jeff Quintenz, center

employees were asked to develop slogans encouraging safety at the Labs. The slogans were put on signs for the Facilities vehicles.

"We thought we would be lucky to get 50 percent participation," Jim says. "We got 76 percent."

This included 65 entries from Custodial Services Dept. 4848, 37 from Structural Maintenance Services Dept. 4843, 33 from Utility Maintenance Services Dept. 4842, and 30 from Mechanical Maintenance Dept. 4844. One winner was selected from each team, resulting in 24 winners.

Jim says the objectives of the contest, which ended in March, were to raise safety awareness, add an element of fun to the extremely serious subject of safety, and have personalized signs vs. commercial-like signs. The department managers of Maintenance and Custodial Services developed the rules of the contest, instructing that all signs were to support positive behavior, pass the test of what if the sign appeared on the front page of the *Albuquerque Journal*, no "human-like" figures, no cartoon characters, and limited clip art.



Examples of safety slogans

- Keep us all safe
- Put all sharp items in their proper PLACE
- Don't turn off your safety switch at the end of the work day
- Safety is a way of life
- Learn it! Practice it!
- Safety Your future Depends on it

All maintenance and custodial managers, team leaders, and supervisors led by example and displayed their personalized safety slogan signs on their government vehicles. They also showcased all their employees' entries near their offices.

"The signs were creative and spread the message that safety is important at Sandia," Jim says. "This is another step in our campaign to achieving Target Zero; and we encourage other centers to have similar contests."

24 contest winners

From 4842: Tim Saenz, Ron Hoskie, Bernie Sanchez, Fred Montoya. From 4843: Lori Castillo, Jerry Crow, Woody Edwards, Ken Negus, Robert Archibeque. From 4844: Tom Rodriguez, Jennifer Standridge, Abe Trotter, Kirt Wilson, Paul Baca. From 4848: David Baca, Jeff Bibbey, Judith Gillham, Rafael Loya, Marcos Lucero, Steve Marquez, Robert Pettitt, Frank Opdyke, Trevor Trujillo, Tim West.

Earth Day 2009 reinforces message: every little bit counts



Sandia's observation of Earth Day 2009 on April 22 emphasized the theme "Every Little Bit Counts." Earth Day coordinator Jack Mizner (4131) said before the event that "every little bit you do helps, whether it's taking a cloth bag to the grocery store instead of using plastic bags or recycling."

Getting into the spirit of Earth Day (in the photo above) were landscapers Tomas Gutierrez, Richard Lucero, and Ken Negus (all 4843), showing off their reusable shopping bags. In the photo at right, Ivan Ermanoski (1114), Bob Burr (5762), and Lucille Roybal (4846) examine an LED-based light fixture that can replace a standard fluorescent light, using far less energy and lasting far longer.

More than 1,000 Sandians attended various Earth Day activities, which included a keynote speech by xeriscape designer Judith Phillips and displays by 16 green vendors. (Photos by Randy Montoya)

