DOE Secretary Steven Chu speaks at Sandia

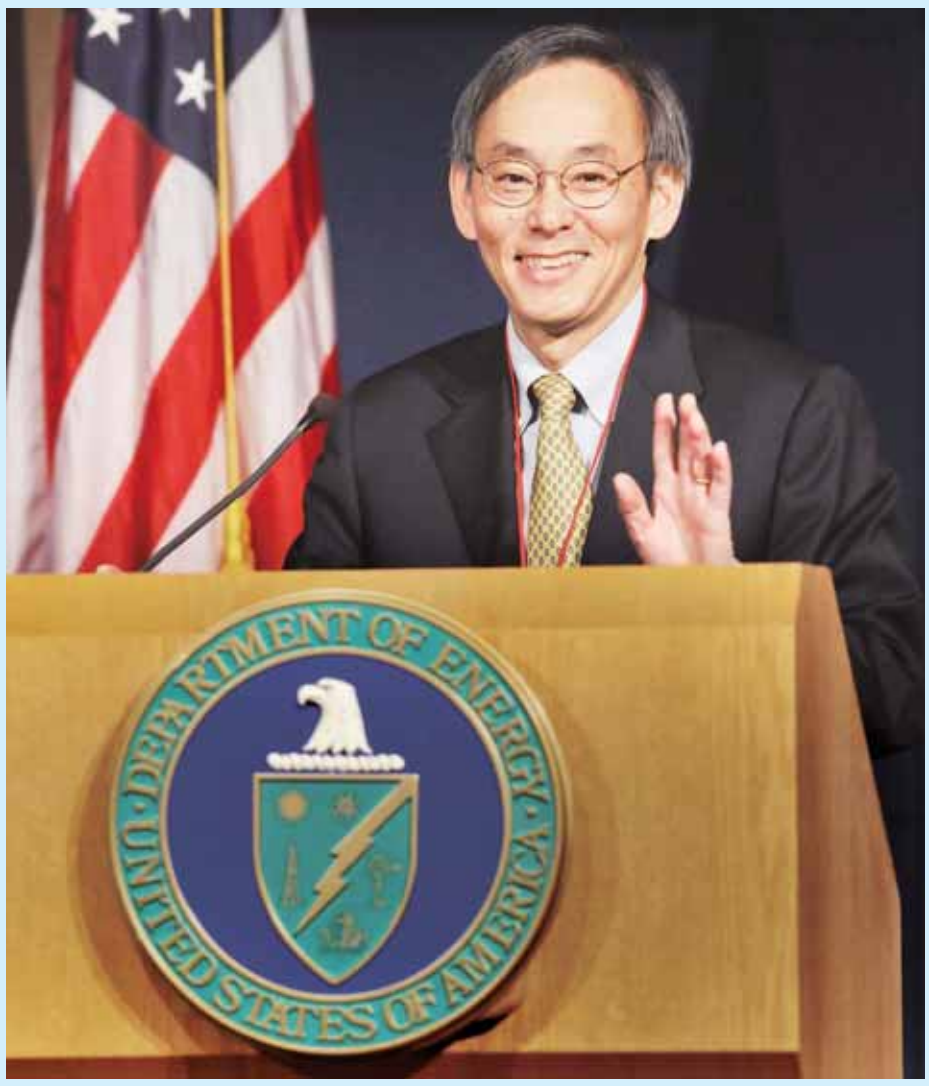
Praises nuclear defense work, advocates for more energy-related and climate-change research

By Neal Singer

There was a palpable sense of expectancy in the packed Steve Schiff Auditorium at the first Sandia public appearance of DOE Secretary Steven Chu, a Nobel laureate in physics and highly praised former director of Lawrence Berkeley National Laboratory who, improbably, is also a professor of cell and molecular biology at University of California, Berkeley.

While Sandia's researchers, technical equipment, and buildings are clearly a national asset, the general tone of media reports had been that President Barack Obama seemed focused on improving renewable energies and mitigating global climate change rather than in funding nuclear weapons projects — Sandia's historical starting point and still a large portion of its operating budget.

(Continued on page 4)



SECRETARY OF ENERGY Steven Chu during an all-hands meeting at Sandia. (Photo by Randy Montoya)

Tom Hunter all-hands:
World is changing and so must Sandia

TOM HUNTER

The world is changing and Sandia must stay ahead of the curve, said Labs Director Tom Hunter at a recent all-hands meeting at the Steve Schiff Auditorium. Story on **page 6.**

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Sandia National Laboratories

Sandia's long-running satellite programs among largest at Labs

SANDIA'S satellite ground processing station (Photo by Randy Montoya)

Thousands of people from throughout Sandia contribute to satellite endeavors

By Chris Burroughs

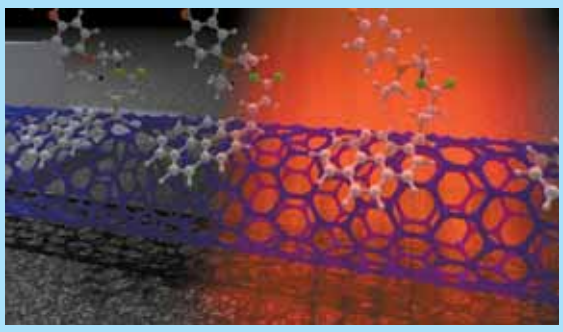
Over the past five decades Sandia has developed, fielded, and operated 140 satellite payloads without a critical mission system failure, making its satellite endeavors among the largest enduring programs at the Labs. Sandia is now on the verge of a major program deliverable that has involved hundreds of people and hundreds of millions of dollars over the past several years.

"We are proud of our satellite efforts and their contributions to national security," says Bruce Walker, director of Monitoring Systems and Technology Center 5700. "Many people from across the Labs, particularly from divisions 1000, 2000, and 5000, have contributed to these complicated programs that are built on past successes. The work they do continues to amaze me."

Today's systems, he says, draw on many unique Sandia competencies, including space system engineering, high-bandwidth data processing, advanced software development, thermal management, high-reliability software, and hardware engineering. Like other emerging technologies, the

(Continued on page 5)

Seeing the colors of the rainbow . . . on the nanoscale



TO CONSTRUCT a nanoscale color detector, a team of Sandia researchers took inspiration from the human eye, and in a sense, improved on the model. See story on **page 3.**

Connected!

Gen Y group wrangles with improving collaboration across the Labs

By Julie Hall

Connectivity is Gen Y's credo and it applies to their entire universe, including the workplace. Having grown up with the Internet, used Facebook or MySpace in college, and for whom instant messaging and texting is second nature, Gen Y expects to use similar tools at work.

Generation Y, also sometimes referred to as Millennials or Echo Boomers, consists of individuals born roughly 1978 to 1996, give or take a couple years on either side. As "digital natives" they spent their formative years with computers, cell phones, Google, and more recently, sharing information on Flickr and YouTube. Technology is an extension of themselves and they expect their workplace to reflect this.

Now, a group of primarily Gen Y scientists, engineers, laboratory staff members, technologists, and contractors at Sandia is looking at how to improve collaboration at the Labs. The goal of the fledgling effort is to look at both the cultural and technical

(Continued on page 11)

Inside . . .

Labs announces key executive changes

Rick Stulen to California lab; Steve Rottler to Div. 1000

RICK STULEN

STEVE ROTTLER

Sandia President and Labs Director Tom Hunter has announced that Div. 1000 VP Rick Stulen will assume leadership of Sandia's California laboratory (Div. 8000), and that Div. 2000 VP Steve Rottler will lead Div. 1000. See **page 2.**

Also inside . . .

Family Day 2009 • May 16

Special four-page pull-out section beginning on page 7, with maps, photos, safety notes, and more

That's that

There's a story going around the web to the effect that eating chocolate can help improve your math skills. Oh, I hope so. Turns out a study presented at the British Psychological Conference this month shows that test subjects performed better at a specific math task after drinking hot cocoa. The researchers concluded that the flavanols in chocolate are the magic ingredient. The findings, as one news account put it, suggest that students who binge on chocolate when studying for exams may gain a real benefit from doing so.

So here's a suggestion: How about scheduling SAT tests and the like on Valentine's Day?

* * *

This thing about chocolate reminds me of the scene in the old Woody Allen movie *Sleeper*. In it, Allen plays a character who's been in suspended animation for 200 years. When he wakes up, he's hungry. A health food nut, he asks his doctors for wheat germ, organic honey, and tiger's milk.

The doctors, talking later about his strange request, are amused. "Oh, yes," one says. "Those are the charmed substances that some years ago were thought to contain life-preserving properties." The other doctor is aghast. "You mean there was no deep fat? No steak or cream pies or... or hot fudge?" Replies his colleague: "Those were thought to be unhealthy... precisely the opposite of what we now know to be true."

* * *

Talk about shovel-ready. As I look out my window, the closed-off section of street between Bldg. 811 and 800 is being torn up — again. If I told you how many times that asphalt has been ripped up and replaced over the past four or five years, you wouldn't believe me, so I won't go there. I was frustrated by this for a while, but now I just smile and think of it as our own contribution to the stimulus package.

* * *

It's the economy, stupid. A soccer coach I know (who happens to have a connection to Sandia) ran into a bit of a problem. A player on her team — this would be girls in the 12- to 14-year-old age bracket — wasn't motivated, kind of dragging her heels, just not in the game. The coach, concerned by this uncharacteristic lack of enthusiasm, asked the player what was going on. And the player said, "I think it's this economy, coach; it's really got me bummed out."

* * *

Two words: Susan Boyle. Look her up on the web — on your own time. You'll probably get some YouTube hits. Watch them. You won't be sorry. And if you like what you see, two more words: Paul Potts.

* * *

How about a little word play? At a recent meeting in our front conference room a bunch of folks were talking about why a particular project was off-track. One person, very engaged in the conversation, said something to the effect that "If we don't change course right now, we're looking at flailure." I like that.

* * *

Did you know we're in the midst of an energy conservation contest with Kirtland Air Force Base and the Sandia Site Office? Read more about it on page 16. In the meantime, you can do your part to help Sandia win by turning off lights, computers, and so on when you're not using them. As this year's Sandia Earth Day slogan says: Every little bit counts. As for me, I do my part for energy conservation by staying in the dark most of the time.

See you next time.

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

Labs announces key executive changes

Rick Stulen tapped to head California Laboratory Div. 8000; Steve Rottler moves to S&T and Research Foundations Div. 1000

Sandia President and Labs Director Tom Hunter announced this week that Div. 1000 VP Rick Stulen will assume leadership of Sandia's California laboratory (Div. 8000), and that Div. 2000 VP Steve Rottler will lead Div. 1000.

RICK STULEN

In his new post, Steve will become the Labs' chief technology officer. Rick replaces Paul Hommert, who recently assumed the role of Executive VP and deputy director for the Nuclear Weapons Strategic Management Group.

"We are pleased to announce these changes to the Sandia's executive leadership team," says Tom. "Rick Stulen and Steve Rottler are both outstanding members of Sandia's executive management team and acknowledged leaders in the national security community. In their new roles, they will continue to provide significant value to the national security work we do here."

Rick has been with Sandia since 1976 and currently serves as chief technical officer and VP of Science and Technology & Research Foundations Div. 1000. In this role, he was responsible for the research and development activities of more than 1,300 scientists and engineers working in nanoscience and technology, materials science, advanced fusion and pulsed power technology, high-performance computing, radiation sciences, microelectronics and microsystems, and engineering sciences.

STEVE ROTTLER

Steve came to Sandia in 1985 and is currently VP of Weapon Engineering and Product Realization. As the chief engineer for nuclear weapons, he is responsible for leading and managing nuclear weapon engineering and production activities. Steve has served in a number of management and staff positions at the Labs and was part of a research team that developed radiation-hydrodynamics codes for national security applications.

He has also managed organizations and programs responsible for researching, developing, and applying advanced techniques in the engineering sciences, and led projects that supported the development of advanced nuclear and conventional weapon concepts.

Los Alamos National Laboratory seeks Sandians who visited TA-41

Los Alamos National Laboratory is notifying individuals of a potential health risk who may have entered its TA-41, Building 1 (commonly known as "the Tunnel"), between July 2001 and November 2008. Recent sampling conducted in the building identified the presence of beryllium on some surfaces above LANL's limit for a non-beryllium area. LANL's records indicate that Sandia workers may have entered the facility during the specified time.

LANL officials want to notify all individuals who may have visited the facility but whose names do not appear in lab records or for whom they do not have contact information. If you have questions about this notification, contact LANL's Laboratory Safety Help Desk at 505-665-7233. If you entered the LANL facility during that period and would like your name formally submitted to LANL, contact Scott Stafford (3333) at swstaff@sandia.gov. He will submit your name to LANL and LANL will contact you with additional information.

Benefits walk-in customer service center changing hours May 1

The Benefits Customer Service Center, located in IPOC, 3rd floor, Suite G, is changing its hours of service for walk-in customers. Starting May 1, the walk-in window will be open from 8-11 a.m. and 1 p.m.–4 p.m., Monday-Friday. Telephone, 505-844-HBES (4237), and online support at http://hbe.sandia.gov remain available 8 a.m.-4:30 p.m., Monday through Friday. If you have questions about this walk-in service change, contact Robert Petro (3333) at rwpetro@sandia.gov.

Sandia LabNews

Sandia National Laboratories

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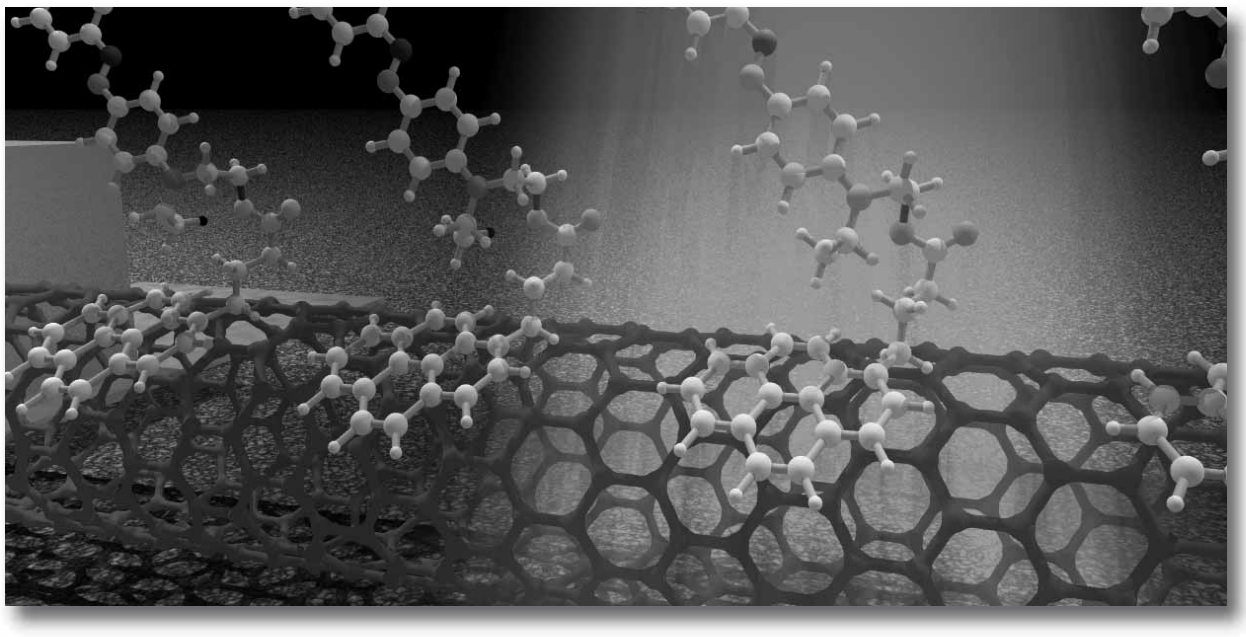


A REPRESENTATION of chromophores attaching to a transistor made from a single carbon nanotube.

Seeing the colors of the rainbow, on the nanoscale

By Patti Koning

To construct a nanoscale color detector, a team of Sandia researchers took inspiration from the human eye, and in a sense, improved on the model.

When light strikes the retina, it initiates a cascade of chemical and electrical impulses that ultimately trigger nerve impulses. In the nanoscale color detector, light strikes a chromophore and causes a conformational change in the molecule, which in turn causes a threshold shift on a transistor made from a single-walled carbon nanotube.

"In our eyes the neuron is in front of the retinal molecule, so the light has to transmit through the neuron to hit the molecule," says Xinjian Zhou (8656). "We placed the nanotube transistor behind the molecule — a more efficient design."

Detecting the entire visible spectrum

Zhou, François Léonard (8656), Andy Vance, Karen Krafcik, Tom Zifer, and Bryan Wong (all 8223) created the first carbon nanotube device that can detect the entire visible spectrum of light. The team recently published a paper, "Color Detection Using Chromophore-Nanotube Hybrid Devices," in the journal *Nano Letters*. The research has garnered attention in industry press, with stories appearing in physicsworld.com, *Technology Review*, and *Nature Photonics*.

The idea of carbon nanotubes being light-sensitive has been around for a long time, but earlier efforts using an individual nanotube were only able to detect light in narrow wavelength ranges at laser intensities. The Sandia team found that their nanodetector was orders of magnitude more sensitive, down to about 40 watts per square meter — about 3 percent of the density of sunshine reaching the ground. "Because the dye is so close to the nanotube, a little change turns into a big signal on the device," explains Xinjian.

The research is a Laboratory Directed Research and Development (LDRD) project, now in its second year, based on François' collaboration with the University of Wisconsin to explain the theoretical mechanism of carbon nanotube light detection. If you're going to work on carbon nanotubes, François is the guy to have on your team because he literally wrote the book on carbon nanotubes — *The Physics of Carbon Nanotubes*, published September 2008 (*Lab News*, April 25, 2008).

He points out that a key component of the project was bringing together the right people and equipment, as the LDRD draws upon Sandia's expertise in both materials physics and materials chemistry. In fact, when asked what the most difficult part of the project was, the different team members pointed to their counterparts in other disciplines; Andy says he felt it was the device fabrication, while Xinjian thought it was the chemical synthesis.

"This is an example of the sum of the parts being more than the individuals," says Andy.

François and Bryan laid the groundwork for the project with their theoretical research. Bryan did the first-principles calculations that supported the hypothesis of how the chromophores were arranged on the nanotubes and how the chromophore isomerizations affected electronic properties of the devices.

To construct the device, Xinjian and Karen first had to create a tiny transistor made from a single carbon nanotube. They deposited carbon nanotubes on a silicon wafer and then used photolithography to define electrical patterns to make contacts.

The final piece came from Andy and Tom, who synthesized molecules to create three types of chromophores that respond to either the red, green, or orange bands of the visible spectrum. Xinjian immersed the wafer in the dye solution and waited a few minutes while the chromophores attached themselves to the nanotubes.

The team reached their goal of detecting visible light faster than they expected; they thought the entire first year of the LDRD would be spent testing UV light. Now they are looking to increase the efficiency by creating a device with multiple nanotubes.

Larger size more practical for applications

"Detection is now limited to about 3 percent of sunlight, which isn't bad compared with a commercially available digital camera," says Xinjian. "I hope to add some antennas to increase light absorption."

A device made with multiple carbon nanotubes would be easier to construct and the resulting larger area would be more sensitive to light. A larger size is also more practical for applications.

The team is now setting its sights on detecting infrared light. "We think this principle can be applied to infrared light and there is a lot of interest in infrared detection," says Andy. "So we're in the process of looking for dyes that work in infrared."

This research eventually could be used for a number of applications, such as an optical detector with nanometer-scale resolution, ultra-tiny digital cameras, solar cells with more light absorption capability, or even genome sequencing. The near-term purpose, however, is basic science, to understand the fundamental interactions between the molecules and nanotubes.

"A large part of why we are doing this is not to invent a photo detector, but to understand the processes involved in controlling carbon nanotube devices," explains François. "We can use a nanotube to probe single molecule transformations and study how individual molecules respond to light and change shapes."

The next step in the LDRD is to create a nanometer-scale photovoltaic device. Such a device on a larger scale could be used as an unpowered photo detector or for solar energy. "Instead of monitoring current changes, we'd actually generate current," says Andy. "We have an idea of how to do it, but it will be a more challenging fabrication process.

Carbon nanotube work earns Excellence in Engineering Award

In February, François Léonard (8656) and his team were surprised at a technical review with a Lockheed Martin (LM) Excellence in Research Award for their work on an LM Shared Vision (SV) Project, Optical Detection using Carbon Nanotubes.

LOCKHEED MARTIN'S Tom Herald presents François Léonard (8656) with the Lockheed Martin Excellence in Research Award. (Photo by Dino Vournas)

"Our team is proud of this achievement because the winning team is selected based on input from peers, Lockheed-Martin and Sandia Shared Vision leadership, and Lockheed-Martin corporate engineering and technology management," says Francois. "As I told Tom Herald, Lockheed-Martin Director for the Shared Vision program, this award goes a long way in addressing a major challenge: bringing nanomaterials to technology."

The Excellence in Research Award is a point-in-time award given to Sandia and LM team members. The LM Shared Vision Leadership Team chooses the winning project after a formal technical review of all Sandia/LM SV projects and is based on demonstrated excellence in engineering with respect to cost, schedule, and performance.

— Patti Koning

Sandia CaliforniaNews

California and New Mexico

Judges sought for Intel ISEF 2009

Judges are still needed for the 2009 Intel International Science and Engineering Fair (ISEF), to be held May 10-16, in Reno, Nev.

This week-long event is the world's largest precollege celebration of science and engineering. The fair brings together approximately 1,500 high school students from all 50 states and more than 50 foreign countries, regions, and territories to compete for more than $4 million in scholarships, tuition grants, internships, scientific field trips, and three grand prizes of $50,000 college scholarships.

Major universities, government agencies, military branches, and businesses come to recruit from the best pool of future scientists in the world.

A number of student scientists from New Mexico will compete in Reno and several Nobel Prize winners will address both students and judges.

Len Duda (5715) and Ted Wolff (3652) are serving as judge cochairs for Physics and Astronomy and Animal Science, respectively, and are recruiting judges for these categories. However, prospective judges can sign up for any of the fair's 17 scientific disciplines where they have a particular expertise and interest.

If you are interested in becoming a Grand Awards judge at the 2009 Intel ISEF in Reno, sign up at: www.ISEFNevada.com/judge.php

Grand Awards judges will need to be available on site the afternoon of Tuesday, May 12, and all day Wednesday, May 13.

Due to the extensive fund-raising required to host a fair, funds do not exist to cover the travel and lodging expenses of the approximately 1,200 judges needed. During the judging process, a lunch and dinner are provided for judges on both Tuesday and Wednesday. In addition, a breakfast is provided on Wednesday morning and a judge's social will be provided Wednesday evening.

Chu visit

(Continued from page 1)

The question of where the Secretary stood on these matters was of urgent concern for his audience (which included Lawrence Livermore and Los Alamos national laboratories, to whom the talk was videocast).

Chu provided a road map.

He enlisted his audience's sympathies by immediately apologizing for any inconvenience to Sandians caused by his presence — "I know these visits cause a lot of dust to rise and I apologize for that" — and then displayed a letter "which you know far better than me" from President Truman to the president of Bell Labs with the appropriated phrase that has become Sandia's motto: ". . . you have here an opportunity to render an exceptional service in the national interest."

He also declared he had "a special place in my heart for Sandia Labs" because for many years it was run by Bell Laboratories, where Chu did much of the work that eventually led to his Nobel Prize.

He described an early wartime image of hastily erected LANL buildings as "that special government laboratory architecture — you have to pay extra for that." The insider remark provoked a ripple of laughter.

More seriously, he said that huge problems that cut across many disciplines are "very difficult to work on at a university" but are perfect for "team science that lies at the heart of all our national laboratories."

In terms of nuclear danger, he said, quoting President Obama, that "strangely, while the threat of global nuclear war has gone down, the threat of nuclear attack has gone up."

Due to terrorist groups and rogue nations, he said, the US nonproliferation role has become even more critical, as has stockpile stewardship.

Because resumed nuclear weapons testing might stimulate a new arms race, he said, the ability of national security labs to maintain a "safe, secure, and reliable nuclear stockpile" is critical.

"If we don't [maintain the scientific talent and scientific infrastructure of the nuclear labs], we may be forced into a position where we must resume testing," he said. "So these missions will continue into the future, as long as other countries have nuclear weapons."

That said and his alignment with the Labs established, the Secretary then pivoted the direction of his speech, and for the next roughly 47 minutes of his 56-minute address, discussed how to bring to bear Labs expertise against the country's most recently defined twinned enemies: reliance on nonrenewable (and often foreign) fuel sources, which he called the Energy Challenge, and the threat of global climate change.

He compared the world to the RMS *Titanic* heading for an iceberg. Some watchmen spotted the iceberg in the distance, he said, but they were ignored. The question now, he said, is to determine if we'll hit the iceberg head on and sink, or swerve enough to suffer only a glancing blow.

An unconstrained release of CO_2

A terrible problem could occur if continued warming and disappearance of arctic ice means that "great quantities of trapped methane and CO_2 in the frozen tundra" could be released into the atmosphere. "We don't know how much carbon is out there, but the amount of carbon could exceed what we put out as humans — it could be an unconstrained release," he said.

To those unperturbed by study after study from country after country showing rising world temperatures on land, air, and water, with the biggest crunch coming in the northern hemisphere, Chu presented a graph showing a steady temperature rise for more than a century and what appeared to be a very slight diminution in the past few years. "That's the downturn," he said dryly.

In terms of energy applications, the Secretary mentioned desirable improvements in battery efficiencies, computationally designed diesel engines aided by data from Sandia's Combustion Research Facility, and went into some detail about the amount of innovation necessary to create energy-efficient buildings, which currently consume 40 percent of US energy, he said.

Through redirecting computer software that the national labs are good at creating, he said, "we could create the Prius of buildings."

He envisioned the creation of small technical teams, "unafraid to fail," to explore many bold ideas. His advice was to fail quickly, if failing was the only remaining option, and move on to the next idea. Top scientists still working in the field should provide oversight to these groups.

Physical, Chemical, and Nano Sciences Center 1100 Director Julia Phillips, who knew Chu when both worked at Bell Labs, says, "He understands what resources and teams the DOE labs can bring to bear on national problems. I have every confidence he'll set attainable goals in directions that will help Sandia researchers continue to provide remarkable service to the nation."

DIV. 1000 SANDIA VP RICK STULEN, left, explains Sandia's core capabilities to Energy Secretary Steven Chu, center, as Sandia President and Labs Director Tom Hunter, right, looks on. Secretary Chu visited Sandia April 10. In addition to receiving a number of high-level briefings, Chu conducted an all-hands meeting for NNSA lab employees and met with members of the news media. Among elected officials joining Chu on the visit were US Sen. Jeff Bingaman (left of Tom Hunter), and Albuquerque Mayor Martin Chavez (beside Bingaman).

(Photo by Randy Montoya)

Taking on the complexity beast . . .

New simplified interaction with corporate requirements data

Corporate Policy System launched April 20

You know that complexity beast? The one Labs Director Tom Hunter and Chief Operating Officer Al Romig have been talking about? The thing that complicates your life at every turn, making everything more difficult than it needs to be? Well, if you've been a regular user — or even a casual one, for that matter — of the Labs' Corporate Business Rules (which includes the Corporate Process Requirements, or CPRs), your life is about to become easier — maybe even a lot easier — and a good bit less complicated.

Why? Because the CPRs, as of April 20, have largely been morphed into new Corporate Policies, Processes, and Procedures, known as the Corporate Policy System. The transition from CPRs is part of a larger effort addressing the Labs' Corporate Business Rules, of which the CPRs are a big part, and improving the information technology backbone is another.

Phil Newman, senior manager in Requirements Management Dept. 9003, last December took over the lead to finalize and roll out the new system, which is enabled by both a database and a website.

An easy transition from CPRs

As Phil explains it, virtually every element in the old CPRs exists within at least one of the Corporate Policies, Process, or Procedures. On the website, there's a job aid that maps the CPRs to their place in the new system. If you've worked with CPRs, it'll be an easy transition.

THE THREE-LEVEL Corporate Policy System

With a nod to the complexity beast, writing, reviewing, and approving the new language, working it into a new format, and mapping from the old CPRs was no trivial task. Nor was integrating the data into a new user-friendly and intuitive web-based tool. Some things just aren't simple.

In the new Corporate Policy System, the information about each policy, process, and procedure is presented in a common format, notes Phil. That standardization is intended to make it easier for users to find the information they need. And, Phil says, the standardization approach also makes updating information easier, too.

"If you're updating a process or a procedure," Phil says, "the common-look-and-feel templates we've created help walk you through the process, ensuring that you include the information you need. And that drives simplicity."

The Corporate Policy System is based on a three-level hierarchy that is perhaps easier described than defined. For example, one of the nine policy areas in the Integrated Laboratory Management System (ILMS) is corporate governance. Underneath that policy in the hierarchical structure are six processes: (1) Establish the decision-making framework; (2) develop and implement the strategic plan; (3) communicate; (4) establish employee and business conduct rules; (5) ensure quality; and (6) assure, assess, and improve performance.

Under each of those processes are a number of procedures. Procedures are where you find the required activities within new step-action tables. For example, under the process called communicate, there are procedures pertaining to communication inside the Labs, outside the Labs, and specifically addressing news media interactions.

Now you know who to call

All of these elements are easy to find. And here's something that ought to help simplify things: Each process has an associated flow diagram and each procedure has identified a procedure manager and subject-matter expert (SME); if you need clarification about an issue, now you'll know who to call.

Phil says the new system has been two years in the making and has involved at one time or another people from all across the Labs, including SMEs, policy analysts, technical writers, programmers, users, legal, audit, and other key stakeholders. The two-week beta test at the end of March resulted in more than 1,000 unique visitors and surfaced a number of user-interface issues, most of which the team addressed by the April 20 roll out.

The new Corporate Policy System, says Phil, is incorporated fully within ILMS and supports the Labs' current effort to become ISO certified. (ISO-9001 certification is important as the Labs expands its customer base; many customers, including a growing number of government customers, not only expect, but require ISO certification.)

Ultimately, Phil says, the Labs' goal is to integrate Work Planning and Control requirements into the system. At that point, he says, Sandians will be able to locate descriptions of the Labs' operational activities from the corporate down to the organization levels.

In the meantime, Phil says the information technologies that support the system will continue to evolve. "As far as I'm concerned, our work only began with the release of Phase 1 on April 20. There are still a lot of refinements and enhancements we want to work into the system."

Check out the Corporate Policy System yourself at http://policy.sandia.gov.

Note: ES&H and mission execution policy areas are accessible through the system, but their business rules will not follow the new three-level structure until September.

Labs' satellite program a critical mission for decades

(Continued from page 1)

systems have grown in size, complexity, and mission importance with each new generation.

"The complexity and sophistication of the newest systems constantly challenge Sandia's engineering and management talents," says Mike Vahle, director of Systems Mission Engineering Center 5500. "Through the years Sandia has pushed the state-of-art in space-based instrumentation and ground-based command, control, and processing, which is why customers have continued to trust us with important projects."

Current satellite programs have budgets that rival investments made in programs like MESA (Microsystems & Engineering Science Applications).

Role began with Vela program

Sandia's role in space began with the Vela program of the 1960s, a result of a nuclear test moratorium of 1958 and the Limited Test Ban Treaty of 1963. Vela was designed to detect testing in the atmosphere and space. Los Alamos and Sandia national laboratories both had roles in Vela. Also, Sandia and Los Alamos jointly developed and installed atmospheric and space nuclear burst detectors and logic systems on Air Force space satellites.

After Vela was fully approved in 1961, Sandia became responsible for power handling, logic and data storage systems, ground checkout equipment, and computer analysis of data coming from detectors designed and built by LANL. In addition, for the later eight Vela satellites, Sandia designed and built the various optical detectors and optical burst locators that have become, with exponential complexity, the mainstay of the programs supporting the US Nuclear Detection System (USNDS) mission.

Following Vela's successes, payloads on two other

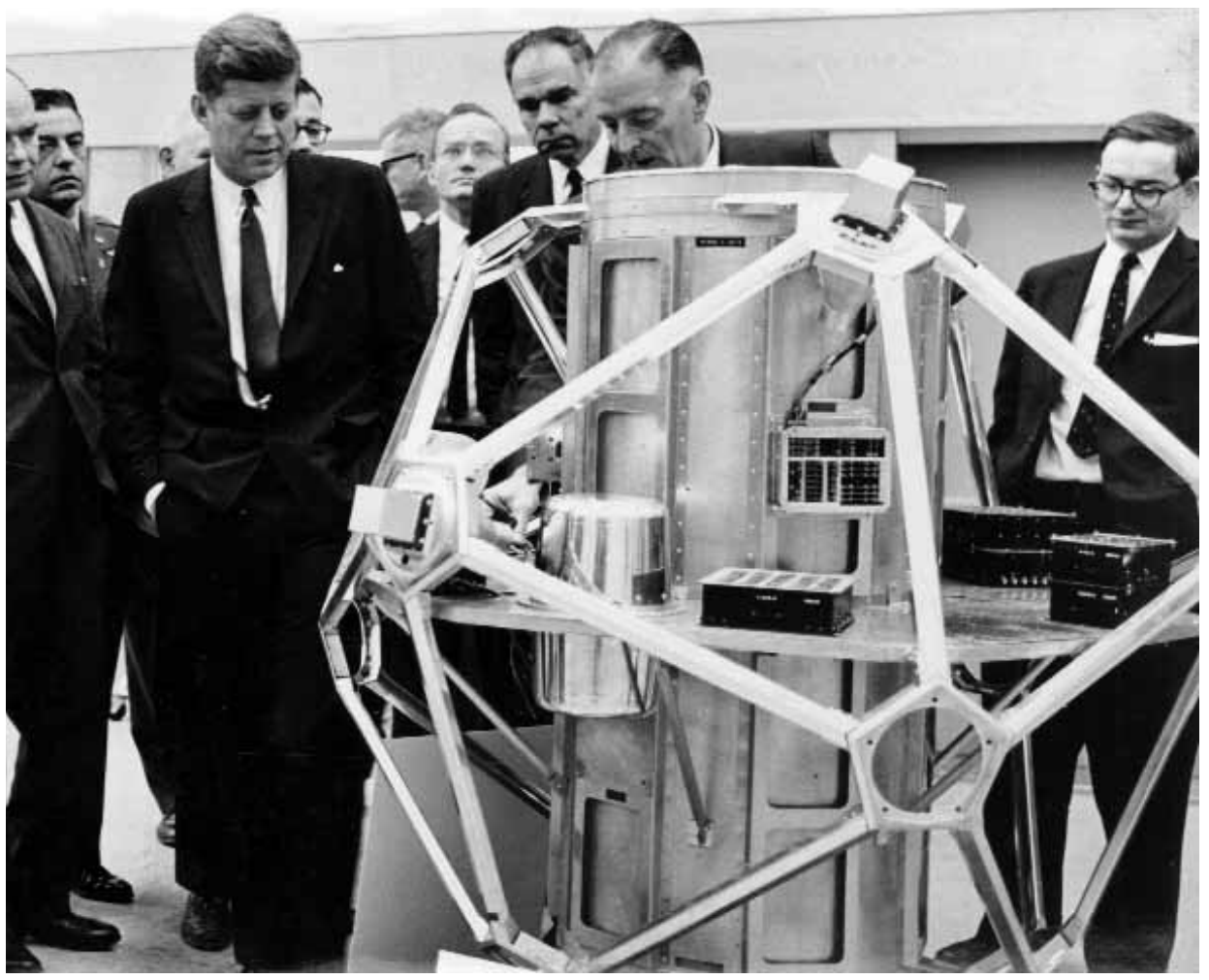
MUSEUM PIECE — For many years, Rick Holman (5528) maintained a satellite museum in Tech Area 4. The museum, featuring many Sandia-related displays, was recently dismantled.

"bread and butter" satellite programs — Defense Support Program (DSP) and Global Positioning System (GPS) — employed hundreds of people throughout Sandia, Bruce says. Sandia and LANL designed payloads to be flown on both systems. For the GPS satellites, Sandia continues to design the sophisticated optical radiometers, power systems, and data processing logic as well as radiation-hardened, large-scale integrated circuits. Sandia also provides the essential payload testing, system integration, launch support, and orbital technical systems for these payloads.

Four decades, 23 DSP launches

The DSP satellite systems have flown for nearly four decades with 23 launches; the first was launched in November 1970 and the last in November 2007. The DSP USNDS packages, which incorporated novel, state-of-the-art designs, leveraged other space-based designs and have provided nuclear burst detection, nuclear burst location, and various space and Earth environment monitoring data.

In support of space-based resources, large-scale



ON A VISIT TO SANDIA in 1962, President John F. Kennedy inspects the Vela satellite package designed at Sandia for the detection of atmospheric testing. Visible behind the satellite are national security advisor McGeorge Bundy (right), Sandia president Siegmund Schwartz (directly behind the Vela satellite) and, behind Schwartz, Glenn Seaborg, chairman of the Atomic Energy Commission, the predecessor organization to the Department of Energy. (Photo from Sandia archives)

ground-based processing systems — designed, built, and maintained by Sandia — have provided the essential interface for customers and analysts in numerous agencies and departments.

Through the years Sandia has been involved in numerous satellite initiatives. For many, Sandia added experimental and operational packages to existing payloads. In the case of the MTI (Multi-Spectral Thermal Imager), Sandia was responsible for the entire satellite, doing all the design, assembly, system integration, and construction work, as well as supporting launch of the satellite and providing integral parts to the ground processing system.

Complex systems

All of these projects involved the development, deployment, and operation of very complicated systems that have extensive hardware and software elements both on the ground and on orbit. That complexity has implications for the engineering administrative and management talent required, the underlying physical and information technology, the extraordinary level of reliability required, and the need for extended operations in very extreme environments.

Mike notes that current projects require sophisticated equipment. To meet these needs two buildings were renovated. A Class 100 clean room integration facility was created in one building while another building was modified to create a facility for the development and testing of large, high-performance computing systems.

Jerry McDowell, VP of Defense Systems & Assessments Div. 5000, says satellite sensor programs are "vital to Sandia's future."

"The paradigm of strategic national security is changing, and space will grow in importance as a leverage point for our nation's enduring security," Jerry says. "Success with these programs demonstrates that Sandia's engineering, science, and technology base is strong and relevant to the new challenges we face and that Sandia can deliver products.

"Remote sensing and verification is the new face of Sandia. Staff from across the Labs combine talents from multiple disciplines to deliver real capability for decision makers. It's an exciting time in the Defense Systems and Assessment SMU [Strategic Management Unit], and I applaud all Sandians who are forging a 'new order for the ages' by their successful work on our ongoing sensor programs."

TITAN IV ROCKET launches the DSP-22 early warning satellite Feb. 14, 2004, at Cape Canaveral Air Force Station. Sandia has long played a critical role in the DSP satellite program. (Photo courtesy US Air Force)

Sandia hopping robots to bolster troop capabilities

By Michael Padilla

Sandia's hopping robots may soon be in combat.

Boston Dynamics, developer of advanced dynamic robots such as BigDog and PETMAN, has been awarded a contract by Sandia to develop the next generation of the Precision Urban Hopper.

When fully operational, the four-wheeled robots with one mighty leg will navigate autonomously using their wheels and will jump onto or over obstacles when they meet them. The hopper will be able to jump more than 25 feet into the air, says Jon Salton (6473), program manager.

FIELD TEST — Jon Salton, left, and Steve Buerger (both 6473) put the Precision Urban Hopper through its paces. (Photo by Randy Montoya)

"The Precision Urban Hopper is part of a broad effort to bolster the capabilities of troops and special forces engaged in urban combat, giving them new ways to operate unfettered in the urban canyon," says Jon.

The development program, funded by DARPA, DoD's advanced technology organization, has a nine-month design phase followed by a nine-month build phase, with testing and delivery in late 2010.

As part of the ongoing DARPA project, Sandia developed the shoebox-sized, GPS- guided, unmanned ground robots.

Their demonstrated hopping capability allows the small unmanned ground vehicles to overcome up to 30 obstacles that are 40-60 times their own size. Hopping mobility has been shown to be five times more efficient than hovering for obstacles at heights under 10 meters, which allows longer station-keeping time for the same amount of fuel.

The wheeled robotic platform adapts to the urban environment in real time and provides precision payload deployment to any point of the urban jungle while remaining lightweight and small. Researchers addressed several technical challenges, including appropriate management of shock forces during landing; controlling hop height from varying terrain including concrete, asphalt, sand, and vegetation; and controlling landings to limit tumbling.

An overall goal of the robots is to decrease the number of causalities in combat. To that end, the hopping robots will provide enhanced situational awareness for shaping the outcome of the immediate local combat situation, says Jon. Their compact, lightweight design makes them portable, and their semiautonomous capability greatly reduces the workload burden of the operator.

In addition to providing military assistance, the hopping capabilities of the robots could be used in law enforcement, homeland security, search and rescue applications in challenging terrain, and in planetary exploration, says Jon.

HOPPING PREP — Sandy Sanzero, Jon Salton, and Steve Buerger (all 6473) put some finishing touches on hopping robots. (Photo by Randy Montoya)

"We are delighted to win this project and get a chance to work with Sandia on such a novel and potentially useful robot," says Marc Raibert, president and founder of Boston Dynamics. "The program gives us a chance to apply our special brand of advanced controls and stabilization to a system that can help our warfighters in the near future."

Tom Hunter: Sandia's role in a changing world

First all-hands meeting since November draws near-capacity crowd at Steve Schiff Auditorium

By Chris Burroughs

The world is changing and Sandia must stay ahead of the curve.

That was the gist of Sandia President and Labs Director Tom Hunter's comments at an all-hands meeting April 7 at the Steve Schiff Auditorium.

"Think about how different the world is from what it was in November," he said. "The stock market went down to 55 percent of its value. Trillions of dollars have been lost in people's retirement funds. We've seen enormous unemployment in places. We saw Russia invade Georgia. The housing market is radically different. People can't get loans when they need them. We have a new president. The national debt has risen $2 trillion dollars since two years ago. . . . These are unprecedented times. These are rapid changes. No one in our generation has seen anything like this before."

More agile, less complex

But just as the world is changing, Sandia must change, Tom noted. In particular, the Labs must be more agile, less complex, more secure in its values, and more committed to the nation and local community.

Over the past five years, he said, Sandia's work has gone from 60 percent nuclear weapons-based to about 40 percent. But Sandia has been able to cope because it has been the Labs' strategy to diversify its work.

Also, through the decades, the "complexity beast" has grown and now is "alive and well in the Labs." There are duplications of work that must be eliminated, and everything needs to be simplified.

"Each and every one of us has to work diligently to counter it [complexity beast], identify it, and overcome it," Tom said.

Despite all the changes in the world and at the Labs, Tom said Sandia can point to many accomplishments over the past year. It was the first time in two decades a nuclear weapon, the W76, was refurbished through the Life Extension Program and recertified for the stockpile. The Z machine continues to break new records. There were advances in computer modeling. New coatings were developed for the strong link. Sandia's synthetic aperture radar (SAR) is being used all over the world. Sandia conducted the first-ever large-scale liquefied natural gas (LNG) fire test on water. The Emergency Management Program is making huge strides. Sandia/New Mexico contributed $3.7 million to United Way, and Sandia/California contributed $250,000 —more than in any other year. The Labs is working with Kirtland Air Force Base to conserve energy. And for the third year in a row Sandia received an overall "outstanding" rating on its FY08 Performance Evaluation Report from NNSA, the highest rating possible.

LABS DIRECTOR TOM HUNTER

Tom reminded people attending the all-hands event that these successes, as well as those from the past six decades of the Labs' existence, will be recognized this year as Sandia celebrates 60 years as a national laboratory with a series of activities, including Family Day at Sandia/New Mexico and an event to be held later this year in Washington, D.C.

"I marvel at what's happened in 60 years, particularly in the last half of the last century," Tom said. "By any measure, we have been very successful. It's been a proud history."

He added, "The changes we have seen [to date] might seem dramatic but they are small compared to what we will experience over the next decade. The country is fundamentally changing what it does and how it does things."

The armed services, institutions, energy supply, and intelligence community will need to be secure, and it will fall in part to Sandia to ensure that security.

"We have to figure out ways to make these contributions," Tom said.

No hiring freeze in place

Other topics Tom addressed included:

• Sandia is continually learning from the Oct. 9 incident at Sandia's 10,000-foot sled track that resulted in a contractor suffering a broken leg and burns. The Labs is establishing new safety procedures and reflecting deeply on how to work safer.

• With the changing economy, Sandia will most likely be asked to do even more to help the community, above and beyond its large contributions to United Way and other local charities.

• Sandia needs to think seriously about the future, looking at "our labs, our costs, dealing with a different image of the Labs, and developing future leaders from throughout the Labs."

• The only stimulus money Sandia will probably receive for waste cleanup will be for the Classified Waste Landfill. Estimates are that Sandia will receive $50 million for this endeavor.

• Sandia isn't likely to adopt a different workweek schedule — closing every Friday like some companies are doing as a cost-saving measure. Tom anticipates 9/80 workweeks to continue, but says they could be in jeopardy if people abuse them.

• A possibility exists that there will be a competition for Sandia's contract in 2013. Lockheed Martin would most likely be a bidder.

• No hiring freeze is in place. Due to a large hiring effort in October, hiring has slowed down in recent months. However, the general plan is for the workforce to remain in the high 7,000 range. It is expected that some 200 new people will be hired this fiscal year.

• Sandia's pension fund was depleted by nearly a billion dollars last year, going from some $4 billion to $3 billion in assets due to the slump in the economy. As a result, for the first time in 20 years Sandia is paying money into the pension fund.

Family Day 2009

A lot of this and that to do at Family Day 2009

And, time to show off your work, see what others are doing

Maybe you're one of those 3,500 or people now working at Sandia in Albuquerque who weren't around for the most recent Family Day 10 years ago. Maybe you're one of those "glad the wait is over" folks.

No matter who you are, this year's open house event — Family Day 2009, Saturday, May 16, 9 a.m.-3 p.m. — should have a little something for everyone.

For instance, on Hardin Field — a kind of event hub — you'll find activities with a family and kid focus. Those include things like fitness activities, community involvement organization hands-on science activities, and a Camp Invention informational display.

Also at this locale: opportunities to learn about the Dream Catcher Science Program (by the American Indian Outreach Committee) and the MANOS Science & Engineering Program (by the Hispanic Outreach Leadership Committee).

And being held concurrently with Family Day right next to Hardin Field — on 7th Street just east of the field — there will be a classic car show featuring vehicles owned by Sandians.

Food will be available for purchase on Hardin Field, in the Thunderbird Café (Bldg. 861) and in the Area IV cafeteria.

Some other attractions at various places throughout the Labs' various sites include: tours of the HERMES and Saturn pulsed power accelerators, Homeland Security program displays and demos, a cyber defenders demo, JCEL visualizations, non-destructive inspection demos, and tours of the solar tower and the antenna and Radar Cross Section measurement facility.

Video Services also will present "Sandia's Past & Present — An Interactive Newscast by Video Services."

Some of these activities will run continuously throughout Family Day. Some will take place at specific times only.

That means it's important to check out the activities timeline on the Family Day website http://familyday.sandia.gov/activities/.

Important tips for Family Day hosts

Guest registration: If haven't done so already, download and complete the Guest Registration Form. Find it at http://familyday.sandia.gov/registration. Follow the directions carefully. Note that you do not need to send the completed form anywhere. **You do** need to bring multiple copies of the registration form when you come to Family Day. The form will serve to help you at base entry gates, and at the several guest registration stations once you're on base. In fact, check-in station workers must retain one copy of the form.

Getting inside Limited and Property Protection areas: Once hosts have checked their guests into the guest registration stations on Family Day, provided a copy of the registration form to station workers, and kept another copy for themselves, guests will receive Family Day 2009 buttons. It will then be possible to enter the various areas that are open through gates that are operational for Family Day. Current plans call for all Area 1 gates to be operational. Also, Security Police Officers will be present at gates 1 (just south of Bldg. 800), 4 (just south of Bldg. 841), 10 (just south of Bldgs. 820 and 821), and 29 (just south of 898 and 897) to assist Family Day goers with strollers and wheelchairs.

Important note: *There are two steps to complete registration. First, hosts need to download and fill out the online Guest Registration Form. Hosts also will use that form to complete registration when they arrive at the Labs on Family Day itself.*

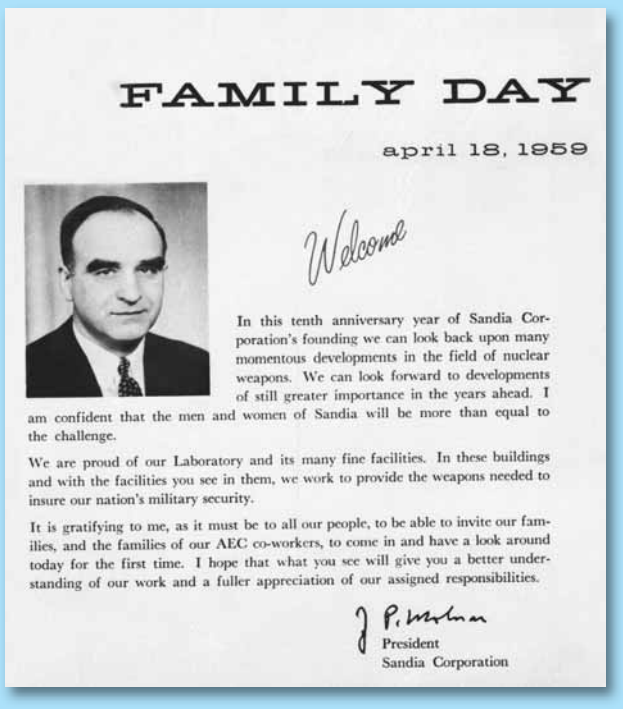
Base access: Bring guests onto Kirtland Air Force Base in your vehicle. If you have more guests than will fit in one vehicle, one of your guests can drive a separate vehicle that must be immediately behind you as you enter the base.

In each vehicle there will need to be a copy of the Guest Registration Form. Three base-controlled gates — Wyoming, Gibson, and Truman — will be open throughout the day, as will the Sandia Contractor Gate (from 8 a.m.-4 p.m.). It is a short distance south of the Eubank Gate, which will be closed.

Parking: Follow normal parking regulations, reserving medical and visitor spaces for those who need them.

Safety and security first: Hosts of Family Day guests have special safety and security responsibilities. Hosts should carefully review the safety and security pages on the Family Day website (http://familyday.sandia.gov/). Remember that cameras, cell phones, MP3 players, computers, and pets are not allowed inside technical areas.

Also keep a vigilant eye out for safety hazards your guests may not be trained to quickly recognize. Make sure you and your guests dress for a range of weather conditions, bring water so you can stay hydrated, and wear closed-toe shoes. If an emergency does occur, call 911 (from a Sandia landline phone) or 844-0911 (from a cell phone you have kept outside of any tech area).



FAMILY DAY

april 18, 1959

Welcome

In this tenth anniversary year of Sandia Corporation's founding we can look back upon many momentous developments in the field of nuclear weapons. We can look forward to developments of still greater importance in the years ahead. I am confident that the men and women of Sandia will be more than equal to the challenge.

We are proud of our Laboratory and its many fine facilities. In these buildings and with the facilities you see in them, we work to provide the weapons needed to insure our nation's military security.

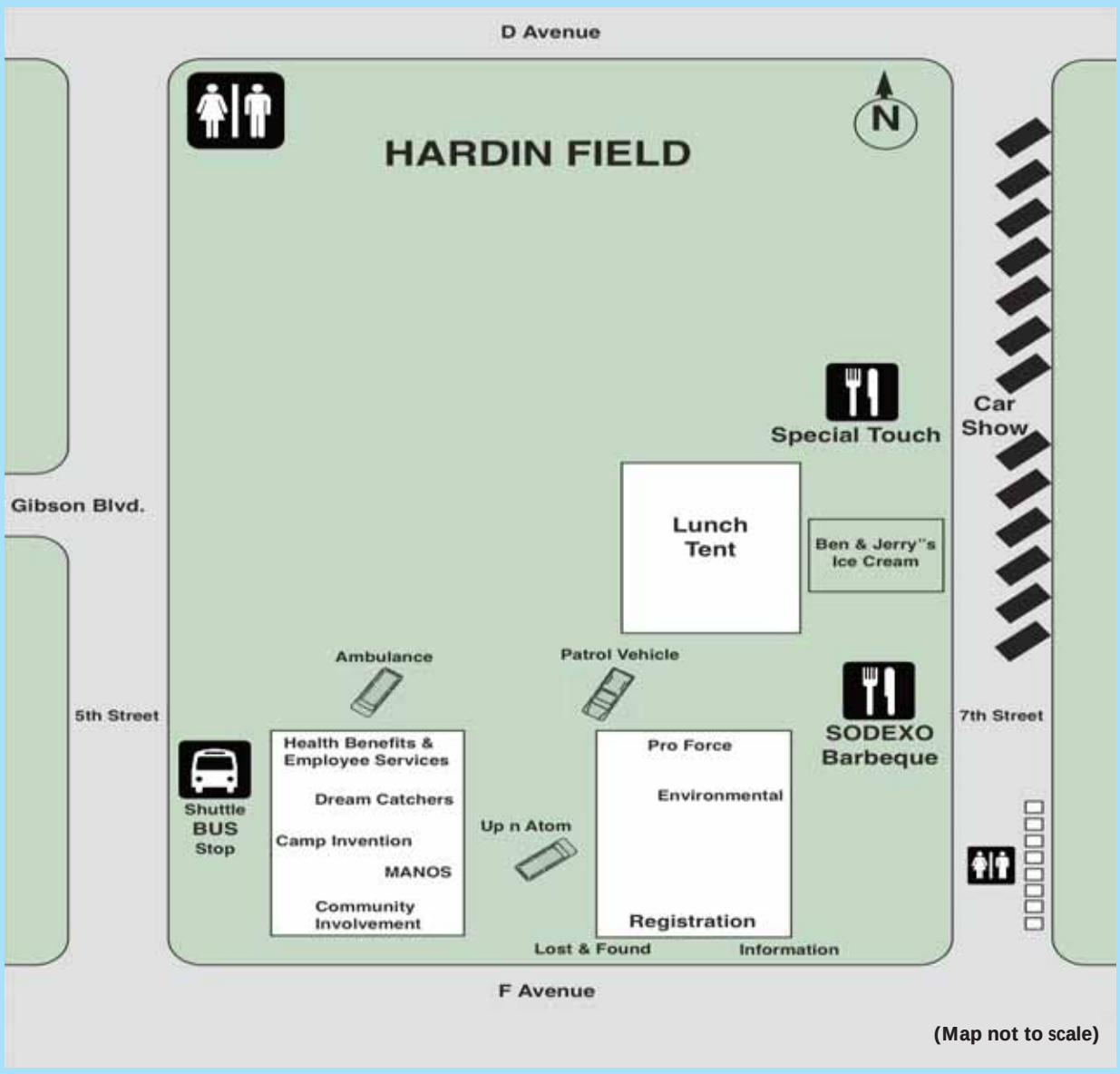
It is gratifying to me, as it must be to all our people, to be able to invite our families, and the families of our AEC co-workers, to come in and have a look around today for the first time. I hope that what you see will give you a better understanding of our work and a fuller appreciation of our assigned responsibilities.

J. P. Molnar
President
Sandia Corporation

SANDIA'S FIRST FAMILY DAY in observance of its 10th anniversary occurred in mid-April 1959. Participants received this printed greeting from J. P. Molnar when they arrived.
(From *Lab News* Archives/Negatives, April 18, 1959)

Don't forget . . .

Save this four-page pull-out and bring it with you to Family Day. It will be helpful!

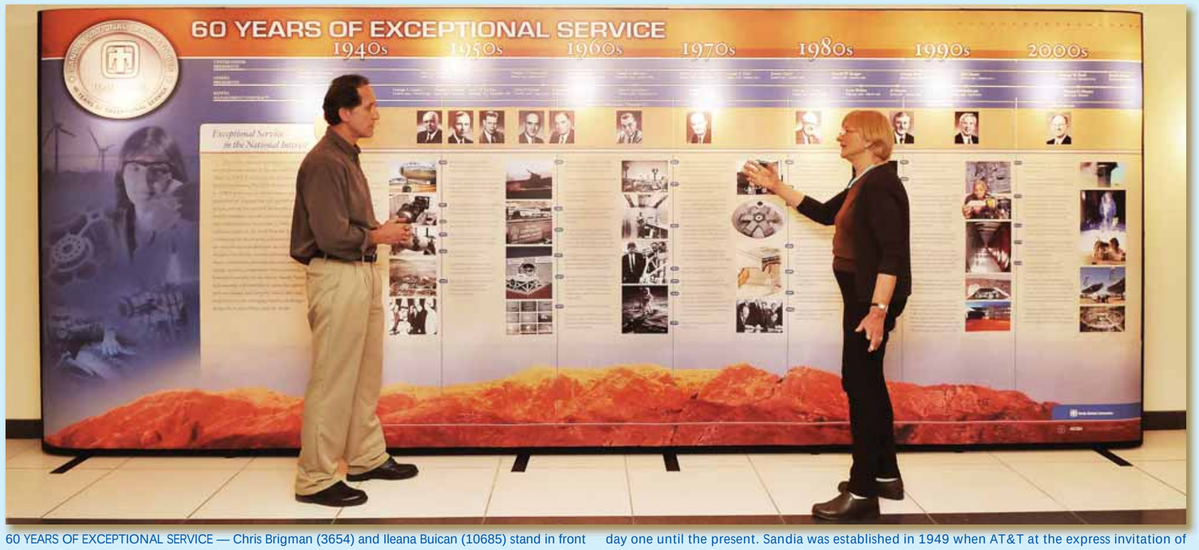


(Map not to scale)

In case of emergency, call 911

from a Sandia phone
(844-0911 from a cell phone, outside the restricted areas)

Remember: Safety begins with you!



60 YEARS OF EXCEPTIONAL SERVICE — Chris Brigman (3654) and Ileana Buican (10685) stand in front of a new Sandia exhibit they created that honors the Labs and documents some key achievements from day one until the present. Sandia was established in 1949 when AT&T at the express invitation of President Harry S. Truman assumed management of the Laboratory. (Photo by Randy Montoya)

It was safety then, it's safety now for Family Day

Every host who will be bringing guests to Family Day 2009 and serving as an escort has a key responsibility that must not be forgotten. You are responsible, as part of your escorting duties, to do all you can to keep your group safe. Simply put, safety at Family Day begins with you — the host.

That holds whether you have one guest or the maximum of eight.

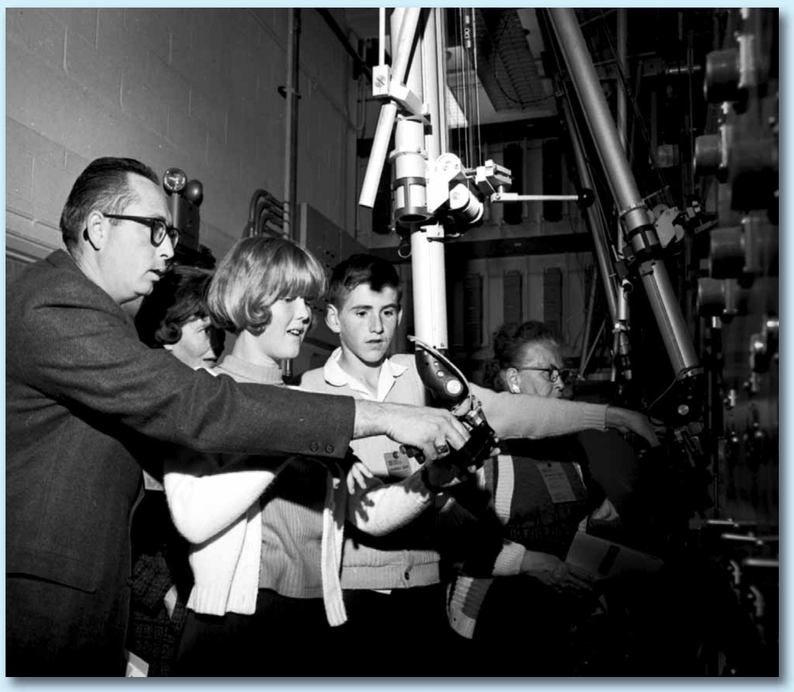
But this responsibility and those you own in the area of security aren't new.

Here is part of what the *Lab News* printed in its April 17, 1959, edition, just one day before the Labs' first-ever Family Day.

"Every employee…has an important stake in the success of our first (and perhaps our last) Family Day…. The actions of every individual should contribute to the success of the occasion and should not detract from or interfere with anyone else's enjoyment. This means that employees are honor bound to follow the rules set forth in the instructions, which accompanied the ticket applications."

Some of those 1959-vintage rules — applicable still today although not necessarily expressed in the modern-day vernacular:

- ***In moving about the Area, observe normal safety and sanitation practices. Put trash in receptacles. Report any unsafe conditions.***
- ***Do not bring cameras, firearms, or pets with you.***
- ***Urge women in your family to wear comfortable, low-heeled shoes. Bring strollers for small children if it is not convenient to leave the little ones at home.***
- ***Don't talk about classified activities. There must be no relaxation of security measures….***
- ***Family Day is <u>your</u> day. Let's all help to make it a successful and memorable occasion.***



THE HANDS-ON MANIPULATOR at the Sandia Engineering Research Facility (SERF) proved to be both interesting and challenging for this family during Family Day 1962. More than 300 families toured Area 5 that day.

Memorize important Family Day dos and don'ts

Recipe for a smooth day

Because it is so difficult to predict attendance at an event like the upcoming Family Day 2009 on Saturday, May 16 — the first such open house in Albuquerque for a decade — it probably is prudent to commit a number of important dos and don'ts to memory so that things run as smoothly as possible.

This applies not only to hosts but also to guests. So, if you're a member of the workforce who will be hosting some of your family and friends, don't be shy about sharing the material below with them.

Here is listing of keys to a successful day. They appear because many people are asking about these topics or they relate directly to safety and security.

1. Do not bring cell phones or any other prohibited items into any Limited Areas or Property Protection Areas. Pay special attention to items like iPods or MP3 players, PDAs, recording equipment of any kind (remember some cell phones and MP3 players also record), controlled substances like intoxicants, illegal drugs, and associated paraphernalia), cameras, and pets. See entire list at http://familyday.sandia.gov/security.

2. For Family Day 2009 there is no guest age minimum or maximum. That means an infant is welcome, a toddler is welcome, a grandparent is welcome. This is a key distinction between the upcoming open house and something like Take Our Daughters and Sons to Work Day.

Remember, in fact, that this year's Take Our Daughters and Sons to Work Day is being incorporated into Family Day 2009.

3. You need to complete the Family Day 2009 Guest Registration Form before coming to Family Day 2009. Download it at www-irn.sandia.gov/corpdata/corpforms/4500fam.doc.

4. Do not send your completed form anywhere. Do bring at least two copies of that completed form with you. It will serve you well while entering Kirtland Air Force Base; a copy must be provided to workers at guest check-in booths.

5. Family Day 2009 begins at 9 a.m. and concludes at 3 p.m. That means all hosts and their guests must head toward their vehicles for departure no later than 3 p.m.

6. If you want to enter a Limited Area or Property Protection Area you must have reported to a check-in station and obtained visit buttons no later than 2 p.m.

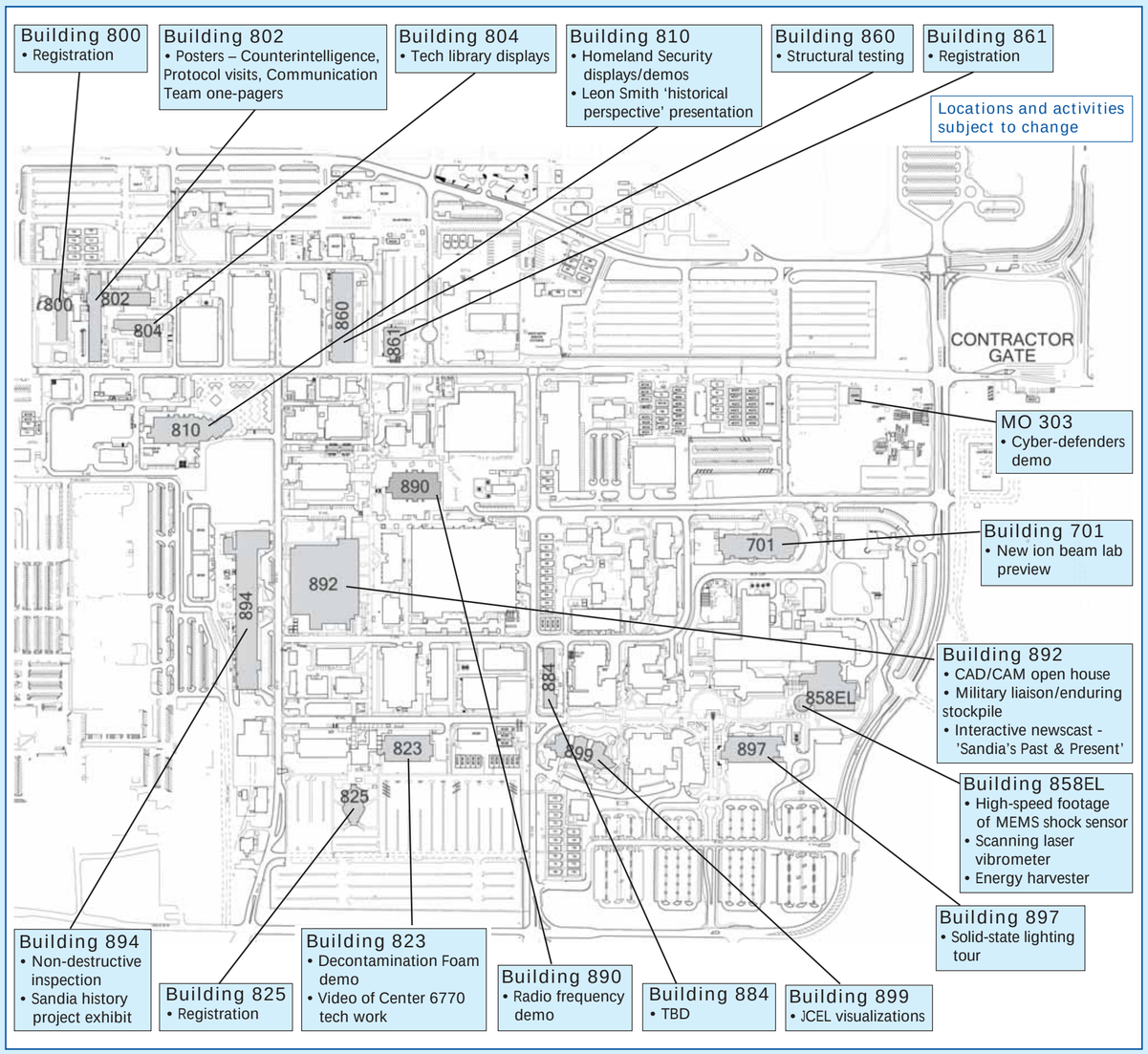
7. Family and friends who are guests must be US citizens.

8. Bring plenty of water, dress for the weather, and wear appropriate, closed-toe walking shoes and sunscreen.

9. Supervise children at all times.

10. Always maintain visual contact with your guests.

11. You can escort a maximum of eight guests (including infants and young children) at one time.



So, what's been happening since the most recent Family Day?

A year-by-year walk through time

2000 Work on microelectromechanical (MEMS) technology research expands, pushing ever-smaller chip features to the atomic scale.

2001 A Sandia-developed decontamination foam is used to neutralize anthrax in buildings on Capitol Hill.

2002 The Sandia/New Mexico Department of Health Rapid Syndrome Validation Project (RSVP) deploys a system in southern New Mexico to quickly detect disease outbreaks.

2003 The National Infrastructure Simulation and Analysis Center, which evaluates national preparedness and security issues using expertise from Sandia and Los Alamos, becomes part of the Department of Homeland Security.

2004 Using a unique laser-based, soot heating technique, a team measured "real world" particulate emissions from a vehicle under actual driving conditions.

2005 President George W. Bush visits Sandia to sign into law the Energy Policy Act of 2005 and to review the Labs' state-of-the-art energy systems.

2006 Sandia/University of New Mexico experiments involving single-cell organisms in nanostructures go into the International Space Station so researchers can investigate the manner in which living cells placed in nanostructures apparently direct the creation of nano compartments.

2007 The MESA (Microsystems and Engineering Science Applications) project achieved major milestones, including startup of the MicroFabrication Facility and new Microsystems Laboratory.

2008 A refurbished Z, Sandia's pulsed-power accelerator, provides data to simulate effects of nuclear weapons, to study conditions surrounding black holes, and to possibly unlock the secrets of controlled nuclear fusion.

2009 An in-depth study by Sandia and General Motors Corp. has found that plant and forestry waste and dedicated energy crops could sustainably replace nearly a third of gasoline use by the year 2030.

Leon Smith to offer 'historical perspective' presentation

One of Sandia's originals

A pioneering weaponeer around these parts when Sandia was born, Leon Smith will offer his popular "A Historical Perspective" talk in the Bldg. 810 Auditorium (CNSAC) at 11 a.m. on Family Day.

Alert: this facility seats just over 100, so it might be wise to get there early.

Leon, who retired in 1988, will discuss his membership on a seven-member fuzing group assigned to the US Army's 509th Composite Bombing Group. He also will recount the group's experiences on Tinian, the island used to launch the two atom bombs that ended World War II, and where the group prepared Little Boy and Fat Man for delivery.

Also on tap are comments about Leon's role as the weaponeer for the first post-World War II nuclear test, the Able drop of Operation Crossroads in 1946.

He will close by addressing the question, "How did you feel when the bomb was dropped on Hiroshima?"

Among his early '60s Labs contributions — they remain part of the nuclear weapons complex fabric— were leading Labs projects aimed at providing the environmental sensing device (ESD) and permissive action link (PAL) components that would play a major part in the revolution in national commitment to nuclear weapons Safety, Security, and Use Control.

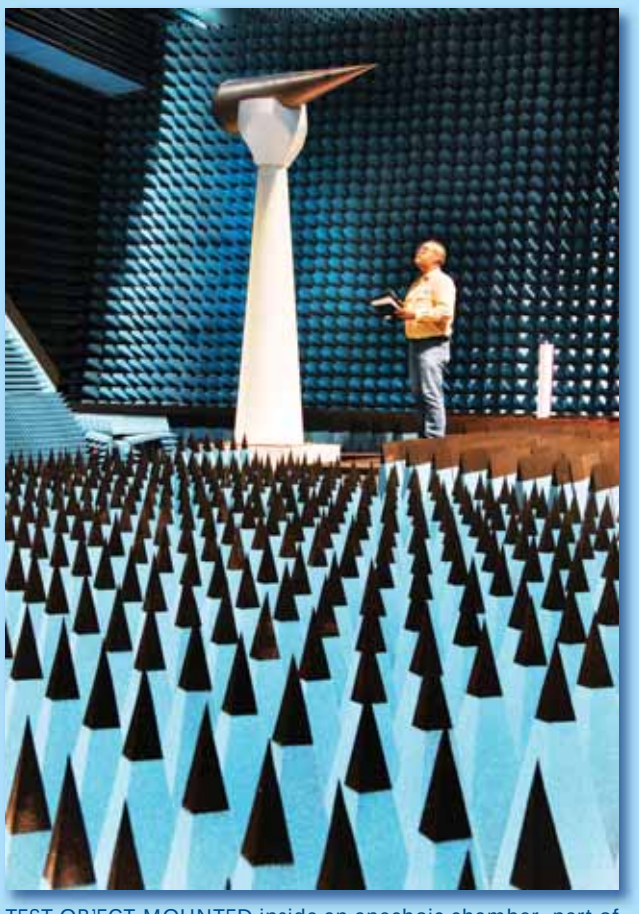
Pay a visit to the 60th anniversary 'guestbook' webpage

Document your memories

An anniversary is a time for recollecting and documenting special memories so it's not surprising that as part of the Labs' recognition of its 60th anniversary year, there is a website dedicated to letting Sandians write and share an account of a particularly rewarding, moving, or even funny experience they've had during their Sandia tenure.

So, consider taking advantage of this opportunity — you could even write a poem of your special Sandia memory — and post something on the 60th anniversary "guestbook" site at http://60years.sandia.gov/guestbook.

FAMILY DAY 1972 – This family gathers around a computer terminal typical of the early '70s.



TEST OBJECT MOUNTED inside an anechoic chamber, part of Sandia's Facility for Antenna and RCS Measurement (FARM), which is located in Bldg. 9972, south of the Solar Tower on Lovelace Rd. It will be open for a Family Day tour from 1-3 p.m. (Photo by Randy Montoya)

REMEMBER — the first line of safety begins with you — the host

Extra details about some Family Day activities

Variety to suit just about any taste

If you're looking for a broad variety of things to do at Family Day on May 16, you might want to check out these:

• Bldg. 892/115A, 9 a.m.-1 p.m., **Computer Aided Design/Manufacturing (CAD/CAM) Open House:** Tony Trujillo (2992) says, "Come explore the world of 3-D design and manufacturing as we demonstrate some of the latest computer aided design (CAD) tools available. We'll also discuss alternative manufacturing options, from hardware built in a machine shop to plastic models on a 3-D printer."

• Bldg. 892/178 (Video Services Studio), 10 a.m.- 2 p.m., **Sandia's Past & Present – An Interactive Newscast:** See various Sandia technologies and interaction with the video (through a green screen) as a newscaster, such as weapon technologies, F4 crash test, micromachine dust mite video, rocket launches, energy, robotics, and so forth.

• Hardin Field, 9 a.m.-3 p.m., **Pro Force Display:** See tools and vehicles that enable the Labs' Protective Force to get their work done. **Nonpoint Source Pollution Model:** Learn what pollution is and where it can originate.

• MO 303 (on corner of H and 17th streets), 9 a.m.-3 p.m., **Center for Cyber Defenders (CCD) Demo:** "Learn about activities aimed at securing Sandia's information systems and how cyber defenders address homeland security and national security needs," says Bob Hutchinson (5629).

• International Programs Building, 10 a.m.- 2 p.m., **Technology Training and Demonstration Area -Tour and WIPP Exhibit:** Learn about technologies that can be applied to a variety of global security concerns. Major areas of applications on display include nonproliferation, combating terrorism, international security and arms control.

• Solar Tower, 11 a.m.-3 p.m., **Solar Tower Tour:** See solar technologies and listen to explanations by some of the nation's leading experts in this technology. Observe new dish-engine systems, hear about the rotating platform used for testing new components, walk through the heliostat field, and visit the solar furnace.

• Bldg. 894/111A, 9 a.m.-3 p.m., **Sandia History Exhibit, Sponsored by Recorded Information Management Dept. 9532:** Myra O'Canna (9532) says, "The Corporate Archives and History Program will have an exhibit, fact sheets on Sandia's history, handouts on records management, and information about careers as an historian and archivist. Historical films about the Labs will be playing and there will be a history game."

BLDG. 858EL'S MicroFab will host a solid-state lighting tour for Family Day 2009 from 1:30-2:30 p.m. DOE Secretary Steven Chu recently visited there as well. (Photo by Randy Montoya)

RENDERING OF A SIMULATED jet fuel fire in a cross wind displayed at the JCEL (Joint Computational Engineering Lab). Located in Bldg. 899, there will be JCEL visualization shows during Family Day at 9:30 a.m., 10:15 a.m., 1:30 p.m., and 2:15 p.m. (Photo by Randy Montoya)

Get to know your Family Day 2009 website

Your attendance at Family Day 2009 on May 16 could be difficult to pull off smoothly without spending some quality time on the event's website http://familyday.sandia.gov.

Right off the bat, you've got to go there to download the required Guest Registration Form and find out how many copies of that form to bring with you to the event.

If you are interested in participating, as a gratis volunteer worker, you need to register for that as well via the website — see the "Volunteer" tab at the top of the page.

Quite frankly, there are items that hosts must remember in order to help this first open house in a decade to be as safe, secure, successful, rewarding, and hassle-free as possible.

For example, hosts — and guests for that matter — need some details that are, designed to help secure quick passage through base gates. There are maps to review in case you see an advertised activity that interests you but at a unfamiliar location.

In order to pack the most information, learning, and sharing into your time at Family Day, you'll want to review the very detailed "Activities" section of the website.

Generation Y

(Continued from page 1)

aspects of how Sandians collaborate (or don't), how collaboration can be improved, and, ultimately, provide Sandia leaders with clear definitions of the cultural and technical barriers to collaboration, says Pete Oelschlaeger (1012), leader of the effort, which he dubs "CONNECTED: Generation Y on Collaboration."

Voice of a generation

"We're going to be the voice of a generation that that huge boomer bump can listen to," Pete said at the group's Feb. 12 kickoff meeting, referring to a chart showing the large percentage (about 61 percent, as of November 2008) of baby boomers at Sandia. (Another 3 percent are categorized as "traditionalists" — born 1927-1945.)

> *"I think there's curiosity and profound interest in what young people have to say at this lab."*
>
> **— Pete Oelschlaeger (1012)**

"I think there's curiosity and profound interest in what young people have to say at this lab," he said.

United by common experience

Pete says the effort is not intended to exclude members of other generations, "but rather trying to capture and maintain a consistent generational voice." The commonality among members, Pete says, is familiarity with technology and an expectation of easy access to information.

The groundwork for the kickoff meeting was laid last year. Pete, a Gen Y technical staff member with a computer science and engineering background whose work helps leaders define direction and strategy for the Science, Technology, and Engineering SMU, wanted to do some kind of project related to Gen Y. His manager, Randy Watkins (1012), helped him focus on issues related to collaboration, a problem that impacts not only Sandia but the broader external science and engineering community as well.

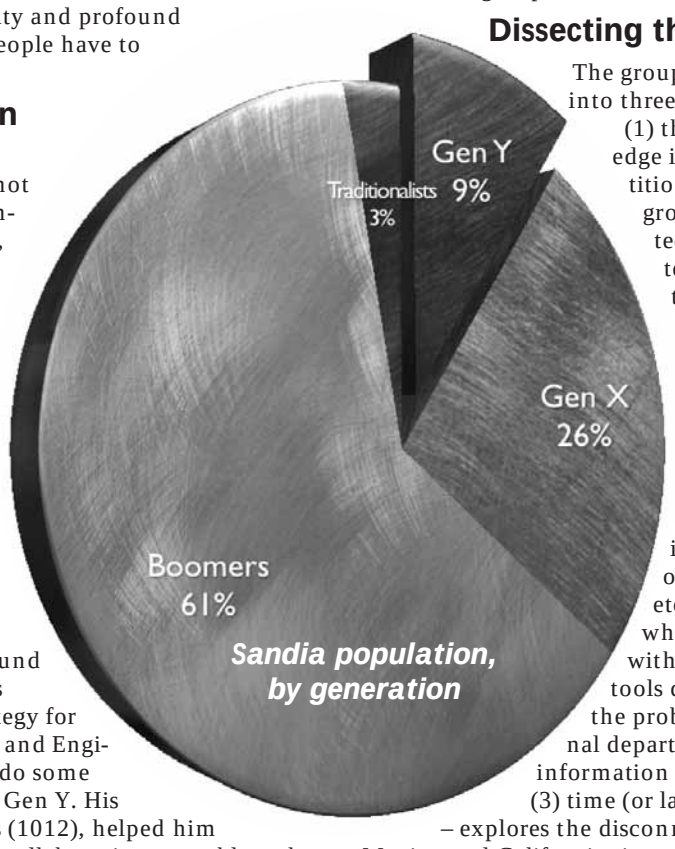
Though collaboration is certainly a Labs-wide issue, unique opportunities exist for ST&E because of the diversity of our research areas, our objective to connect science with mission areas, and the potential positive impacts increased collaboration could create, Randy says.

"There are really some clear generational gaps," Pete says. Helping to improve collaboration is an area "where we as early career people may be able to have an impact across the lab," he says.

Gen Y is poised to make a "firm statement" about how collaboration at Sandia can improve because of "our shared experiences, breadth of knowledge, and our high level of comfort with new technology and different ways to share information."

At the February meeting, Pete and copresenter Mike Kline (3554) set the context with a multimedia presentation outlining the scope of the project and highlighting generational differences in the workplace. All approximately 900 Gen Y Sandians were invited, with about 100 attending in New Mexico and California (via videolink). Since then, a core group of about 50 has indicated willingness to continue working on the project, with a rotating subset of 15-20 who regularly attend the group's lunch meetings.

Dissecting the problem



The group broke the problem down into three broad categories:

(1) the concept that knowledge is power – refers to competition among and between groups at Sandia; "overprotection" of information; tendency toward duplication of effort rather than building on previous results; "mental Rolodexes" of long-term employees that exclude by not including newer hires as potential collaborators

(2) gaps of understanding across job functions, organizations, generations, etc. – explores issues such as whether lack of familiarity with new technologies and tools drives decision making; the problem of out-of-date internal department webpages and other information

(3) time (or lack thereof) and efficiency – explores the disconnects between the New Mexico and California sites, the issues of lack of time and encouragement for collaboration and sharing, the difficulty answering the simple question "Who does what?" at Sandia, and the shortcomings of Sandia's internal search capability.

Having a "Google-like" search is one basic, universal expectation of members of the group, Pete says. "It's difficult to find information we produce internally," he says. A Sandia search capability that would allow people to easily find relevant information would alleviate the need to create other, more complex solutions, he adds. The difficulty new employees have in finding people with specific expertise for projects is an often-raised issue at new-hire meetings, he says.

He supports the efforts by WebCo's California contingent to launch an internal Facebook-like application called Thunderbook. Thunderbook, targeted to launch this summer, will be repository of information about Sandians' fields of expertise, interests, publications, and projects. Each Sandian will be able to enter his or her own information.

> *"Let's instead build a digital Rome . . . some central repository of knowledge so that when our corrosion experts are retiring it doesn't matter if you have access to the corrosion SharePoint or not."*
>
> **— Pete Oelschlaeger**

But for Pete and others one key question still remains: What will Sandia do after the launch of Thunderbook to ensure its adoption and success?

"These tools will improve our ability to share information only if we have a culture that supports the idea that sharing information and collaborating is actually a good thing," he says.

Improving collaboration and knowledge sharing is especially important as the "silver tsunami" — the impending deluge of baby boomers hitting retirement age — strikes Sandia, he says. A tremendous amount of knowledge will be walking out the door, and having a new staff member "shadow" a longtime employee for a few days can't possibly capture that knowledge and experience, he says.

The proliferation of SharePoint sites for sharing information within groups has created the problem of "walled gardens, where there's rich information inside of them but no linkages between them.

"Let's instead build a digital Rome . . . some central repository of knowledge so that when our corrosion experts are retiring it doesn't matter if you have access to the corrosion SharePoint or not," Pete says.

Next steps

Now that the CONNECTED group has explored each category in depth, the next step is to explore and propose solutions, says Pete. Proposed solutions likely will not consist of recommendations for specific software applications, although that is a possibility, he says.

> *"It's just important to remember that while technology is going to be important it's no silver bullet."*
>
> **Pete Oelschlaeger**

The "product" of their efforts will likely be a report, which Pete says he hopes is just a starting point, a "launchpad" for an ongoing "conversation" within Sandia about the broader issue, potential solutions, and how this fits in with lab goals. For example, improving collaboration at the lab would seem to be a good fit with cost austerity efforts and Chief Operating Officer Al Romig's challenge to "slay the complexity beast" because of its ability to improve productivity and organizational efficiency, he says. Pete says the group will judge its success on the impact it has with lab leadership. However, he cautions against viewing the solution as purely a technological one.

"It's just important to remember that while technology is going to be important it's no silver bullet," Pete said at the kickoff meeting. While he acknowledges the necessity to protect certain information and to take into account "need to know," he says "We need to think about . . . how do we start to move that cultural meter from strictly need-to-know to need-to-share?"

Sandia, University of Texas at Austin sign research MOU

Defense Systems and Assessments Div. 5000 VP Jerry McDowell, right, on March 3 signed a memorandum of understanding with University of Texas at Austin (UTA) VP for Research Juan Sanchez. The intent of the MOU is to foster a greater partnership between Sandia and UTA and provide the basis for interactions and collaborations between individual staff and faculty at Sandia and UTA.

These interactions may include joint research projects, short-term visits of staff, faculty, and students to Sandia and UTA, and development of joint proposals.

Also present from Sandia at the MOU signing were Engineering Sciences Center 1500 Director Art Ratzel and National Security Studies Dept. 245 Manager Mark Ladd. For more information about the MOU, contact Mark Ladd.

Business plan competition winners have Sandia connections

By Julie Hall

The top two winning business plans in the 2009 University of New Mexico Technology Business Plan Competition have strong Sandia connections.

The first-place winners — a team of three MBA students at UNM's Anderson School of Management — developed a plan for commercializing MicroHound™, a handheld explosives detection system developed at Sandia.

SANDIA RESEARCHER Dave Hannum (6418) shows members of the New Mexico National Guard how to use the explosives sniffer Hound II, a predecessor to the current generation Microhound™. (Photo by Randy Montoya)

The second-place winner, Jacques Loui, is an employee in SAR Sensor Technologies Dept. 5345 and a student in UNM's Executive MBA program. He came to Sandia in 2006 as a Truman Fellow. He won the $10,000 TVC Lockheed Martin Prize for his plan for Eco-Jardin, a high-tech hydroponic and organic indoor production and retail facility centered in a planned community.

The winners were honored at an award ceremony April 3.

Eleven teams and more than 30 students participated in the fourth annual competition. Students from the Anderson School, the School of Engineering, the Law School, the School of Medicine, the College of Fine Arts, the College of Education, and the School of Architecture & Planning presented their work to judging panels composed of venture capitalists, bankers, attorneys, accountants, technologists, and entrepreneurs. Technology Ventures Corp. and Lockheed Martin are among the sponsors of the competition.

MicroHound

First-place winners Ryan Olcott, J.B. Tuttle, and Robert Virden received the $25,000 Michael Gallegos Prize for Entrepreneurship for their plan for commercializing MicroHound. In developing their plan, the students consulted with two of the inventors of the MicroHound detector system. Project lead and senior engineer Kevin Linker and Charles Brusseau (both 6418) shared with the students the underlying technologies, capabilities, and operational aspects of the system.

MicroHound is a handheld device capable of detecting trace amounts (billionths of a gram) of explosives. It can be used for sniffing out hidden explosives in courtrooms or schools, or at entry points to screen people or parcels. The technology also has applications in narcotics detection.

MicroHound includes 10 Sandia patented technologies, including a "preconcentration technique" pioneered and patented at Sandia in the mid-1990s that has enabled the development of several highly sensitive explosives detection systems, including the walk-through portals at airport security checkpoints.

Sandia licensing executive Paul Smith (1031) also assisted the students and said that although they have not shared their business plan with him, he is eager to see their ideas for commercializing the MicroHound detector. The plans are the property of the teams who develop them. As part of their prize, the winning team also receives access to up to $1,500 in legal services, which could be used to explore business opportunities in connection with their business plan.

JACQUES LOUI

Eco-Verde/Eco-Jardin

Jacques Loui was the only individual winner in the competition. His plan details the concept of Eco-Jardin, a community-centered high-tech organic hydroponic facility owned by parent company Eco-Verde. Eco-Jardin would produce high-quality organic fruits and vegetables using hydroponics.

Jacques explains that he is not trying to sell the technology but rather maximize the value of the produce the technology produces by packaging and promoting the social aspects of the entire growing and buying experience. He likens the facility to a "Starbucks for organic produce."

"Starbucks did not invent coffee. But they did provide convenience and a lot of added value to the product," he says. "We are going to do the same things Starbucks does but for organic vegetables."

In addition to offering organic produce, the facility would include a café and would offer "soil lots" for lease to the community for gardening. On-site gardeners would maintain the lots and provide expert gardening advice.

Jacques says his idea arose from his difficulty in finding inexpensive, fresh, organic produce in Albuquerque. He also wanted to pursue something that satisfies the requirements of his entrepreneurship class and would not present any conflict of interest with his Sandia work.

He says he will use the $10,000 prize money to improve his business plan but that now is probably not the best time to start a business due to the state of the economy and because he likes his job a lot at Sandia.

"I am thrilled to get the award but at the same time I didn't expect it," he says.

Sandia, Mesalands Community College sign agreement to jointly research new wind energy technologies

MOU is first ever between a two-year college and national laboratory

By Chris Burroughs

In the first arrangement of its kind between a national laboratory and a two-year college, Sandia and Mesalands Community College in Tucumcari, N.M., recently signed a memorandum of understanding committing the two organizations to cooperate in enhancing the college's training program and developing and evaluating new technologies in the area of wind energy.

A FRESH WIND — Energy, Resources, and Systems Analysis Center 6300 Director Steve Roehrig, right, and Mesalands Community College President Phillip Barry after signing a wind energy-related memorandum of understanding. The MOU is the first ever between a national laboratory and a two-year college. (Photo by Randy Montoya)

The MOU encourages Sandia and Mesalands' North American Wind Research and Training Center (NAWRTC) to share resources and collaborate in exploring better turbine operations and maintenance, reliability of turbine components, and repair methods.

Much of the research will be centered on a 1.5-megawatt (MW) wind turbine installed at NAWRTC, a new $7 million facility for training wind energy technicians and performing operations and maintenance research.

"This MOU will help Sandia reach one of our wind energy goals — removing barriers for industry through workforce development," says Jose Zayas, manager of Sandia's Wind Energy Technology Dept. 6333. "We want to foster a passion for wind energy at community colleges and universities that we hope will result in necessary training for the next generation of a qualified workforce that can further develop and support this industry."

Jose anticipates that jobs in the area of wind energy will expand over the coming years and that programs like that at Mesalands will help fill the void for qualified workers. In 2008, wind accounted for approximately 30 percent of the new power-producing capacity added to the national grid; more than 8,300 MW of wind capacity was installed in the US, bringing the total capacity to 25,170 MW.

Signing the MOU were Phillip Barry, president of Mesalands, and Stephen Roehrig, director of Sandia's Energy, Resources, and Systems Analysis Center 6300.

"This is an historic moment for our college," Barry said at the signing. "The college initially seized the opportunity to establish the center [NAWRTC], and now with this MOU we can work with Sandia to help build a new green economy."

Feedback

Why must we remove federal credential from its holder on base entry?

Q: *I just obtained my new federal credential. One requirement of its use is upon entering KAFB [you must] remove it from its protective case, hand it to the guard, then return it to the case. It seems to me that all of this fumbling with the badge while driving a car is like sending a text message while driving. Very dangerous. In my case, riding my bike, I must stop, remove gloves (in cold weather), fumble with the badge, put it back, put gloves back on, then proceed. I estimate this takes about three times as long to get through the gate, slowing down the whole process, forcing others to wait in line with their engines burning yet more gasoline. The whole process seems unnecessary. The guards can inspect the badge adequately while in its case, resulting in a faster and safer entry to KAFB. Why is this procedure required?*

A: The badge checking process is consistent with what we have done in the past. The reason for the procedure is the guards have to physically touch the badge, to insure it is not doctored in some manner, for example a picture taped over the real owner's picture.

They also are required to check the back side of the badge to insure it is a true credential not just a laminated copy of the front side of someone else's badge. Neither of these can be done adequately with the badge in its case. Most folks with the new badge are able to slip the badge out of the holder quickly and easily, there is a thumb hole in the front and back of the case that makes it very easy. We have not noted any delays coming through the gates because of the new badge. Putting the badge back in its case can be difficult if driving, so should be done with safety a prime consideration. We have to pull the badges out of the case to swipe into the limited areas, and put the badges back in the case once through a turnstile, and this can be tricky while still keeping eyes on path, so it is better to stop a moment and put the badge into the holder.

— Samantha Flores, manager, Personnel Security Dept. 4233

Solar Cities shine

Solar America Cities convention draws full house

By Neal Singer

It was clear at DOE's second annual Solar America Cities (SAC) conference, held March 30-April 2 in San Antonio, Texas, that the planning departments of many US cities are relying on Sandia and other national labs for their solar expertise, and that the labs are responding.

One measure of the meeting's importance to cities is that the mayors of San Antonio, Pittsburgh, Berkeley, Santa Rosa, Austin, and Ann Arbor participated in a conference roundtable discussion.

SAC — the outgrowth of an idea sketched on scrap paper at 30,000 feet of altitude by soft-spoken DOE program director Tom Kimbis — surprisingly does not fund breakthroughs in solar technologies.

Instead, it focuses on grunt work — helping city offices surmount technical, financial, bureaucratic, and public relations difficulties that, flying under the radar of the ordinary citizen, are widely considered the principal culprits delaying installation of municipal solar systems in the US.

To overcome these problems, the program created so-called Solar Tiger Teams populated by engineers and technicians from Sandia and Oak Ridge national laboratories, and the National Renewable Energy Laboratory; the technical company CH2M Hill; and New Mexico State University and Florida Solar Energy Center (or FSEC) at the University of Central Florida. The teams provide technical support to designated cities struggling to increase their solar energy facilities.

Team personnel — subject-matter specialists from throughout the labs — are selected for their expertise and for their ability to work independently.

"Our aim is to make solar mainstream," says Vipin Gupta (6337), overall team lead of Sandia's participation, who says that "personal commitment to solar energy as a potent future energy source is a desirable attribute for Tiger Team members."

The teams form, disband, and re-aggregate with their membership altered to handle particular problems.

The San Antonio meeting brought together 157 solar workers representing SAC cities and relevant agencies, as well as some Tiger Team members. "Some," because limited space coupled with intense municipal interest meant that half the Sandia tiger team members voluntarily gave up their places to those they consider crucial in moving solar forward: the decision-making employees of the 25 solar cities.

"All these people are dedicated," Kimbis told the *Lab News*. "There are solar conventions that draw a thousand people but 90 percent of them are tourists. One-hundred-fifty-seven people came here but they're not tourists. They're leaders in the field. And there were no no-shows. We have reps from every one of the 25 solar cities. And they're not out by the pool, they're at the talks. Listen to the [audience] buzz when each talk ends."

"Our concern isn't just aiding the adoption of linear technical solutions but facilitating the advance of a kind of giant solar entity moving forward among the population, expanding as it goes," Vipin said impressionistically.

According to Julia Hamm, executive director of the Washington, D.C.-based Solar Electric Power Association, while only 500 megawatts of photovoltaic solar power were installed in total in the US through 2007, the major utilities have announced their intentions of installing more than 2000 megawatts by 2013. "This is definitely a trend [not a blip]," she told the Lab News. "We are just at the beginning of major utility announcements [regarding solar]."

"IMAGINE A WORLD where people are contributing more energy than they're consuming. I believe that's a possibility using solar," says Frank Peters (0425), who describes himself as "a student of alternative energy and a Solar Tiger 'cub.'" Above, in a short course in the HVAC room of the San Antonio Hyatt, Frank learns about challenges in solar energy implementation.

Tiger Team efforts

Finally, a branch of DOE has made the old adage come true: We're from the government, and (if you're trying to move solar forward) we're here to help you.

Cities need help because buying and installing rooftop photovoltaic equipment is not exactly the same as going to AutoZone to buy and install, say, a battery in an automobile.

Issues include simple but nonobvious problems like "training the trainers" to turn out local installers for solar products, Dick Fate (6473) told his convention audience. Dick, Tiger Team lead for Sacramento and Houston, said that "solar equipment can be produced many places in large amounts. But skilled labor isn't produced on high-speed assembly lines. That's local."

In general, he told the *Lab News*, "I meet with personnel in each of these cities and talk about issues and problems in advancing solar. I have them list and prioritize, then search our institutions to find the people most able to solve those problems."

There are many ways to move solar forward, he's found. "If folks don't have to plop down money up front, you'd help people not as affluent," he said of typical photovoltaics that cost $20,000 to install.

Because of the cost, "Most of us don't put photovoltaics on our roofs, even though it would pay for itself in 15 years," he says. "But [city of] Berkeley folks got bond money so that people can repay a loan as part of their tax bill over many years." Theoretically, at least, "your energy bill would be equal to the bond payment." Tiger Teams are spreading this idea to other Solar America cities, he says.

Other innovative financing ideas include a power purchase agreement so that a city doesn't have to "fork more than $10 million to install 5 megawatts of solar," Dick says. It works like this: an independent company builds the solar plant, takes advantage of tax credits the city can't use, and sells energy to a city at a flat rate for a set time period. "The city's happy, the company's happy. Sacramento is about to do this," he says.

In another case, San Francisco performed a solar mapping project that identified 1,500 sites with great solar possibilities, says Johanna Partin, Renewable Energy Program manager for the Department of the Environment of the city and county of San Francisco. "We offered free solar cost assessments, but the consultant company was not as responsive as we needed it to be."

So she turned to the Tiger Teams. In three days, she said, an eight-person Tiger Team led by NREL and Sandia's Ed Baynes (6418) "knocked out 40 of the 100 assessments we needed to jumpstart the program" by analyzing system size, materials needed, and wiring capabilities.

In Madison, Wis., Kay Schindel, an engineer in that city's Department of Public Works, could handle some aspects of evaluating solar proposals, but not all of them. For those, he was appreciative of Tiger Team help, led by Beth Richards (6313).

Among the team's successes was a streamlined process for gaining permits for roof-mounted solar.

"City inspectors have in the past required that a professional engineer approve each installed system," says Beth. "The team, with expertise from structural engineer Tom Bosiljevac (4849), is responding by developing a 'cookbook' approach for categories of systems, along with a training program for installers. This will preclude 'reinventing the wheel' at each installation, add rigor to best practices, and suggest guidelines on a national level."

A list of participating SAC cities can be found at solaramericacities.energy.gov.

Not as many problems as Job's, but close

More and more cities — but particularly Solar America cities — are requiring that new and renovated facilities include a certain percentage of self-generated power using renewable technologies. The technical problems in satisfying these requests by using solar are many.

Determining a building's latitude, roof angle, and direction of course are important in determining how much sun a collector can expect to "see." But how much sunlight is expected in each of the four seasons when factoring in estimates of rain, snow, fog, and other solar impediments? How much wind will buffet an array, or snow cover it? How far back from the roof and how far apart should the panels sit so firefighters have unimpeded access, should they need it? Or window washers, who put up roof stanchions to hang ropes over the side of the building?

Do proposed equipment and installations meet area building codes and OSHA requirements? What specifically are those codes and requirements?

Local installers need to know to avoid microwave installations and hospital exhaust vents, and the proper clothing and tools to wear on roofs.

Computing the estimated life of the collector and its payback time (energy costs saved) are important. But if large panels are installed to hasten payback, is the building's wiring system up to handling the wattage produced by the collectors at peak times? Or, in the contrary situation, is the installed or proposed electrical breaker system oversized, taking up more room and costing more money than necessary? And how do low-income people get access to solar, since they can't afford the upfront costs and yet it's to society's benefit to move people of all income levels off fossil fuels? Can this social problem be solved technically through design of a large collective solar facility that rents its output to individuals, avoiding start-up costs for the poor?

And perhaps most important, how to convince utility companies — oriented toward what one workshop participant respectfully described as "safe, reliable, affordable power" — to try a new source of power generation?

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong

Raymond Ng
40 8248

John Anthes
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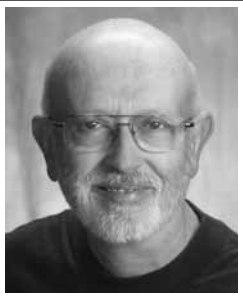
Kit Schmitz
35 8236

Recent Retirees



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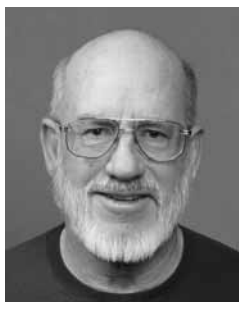

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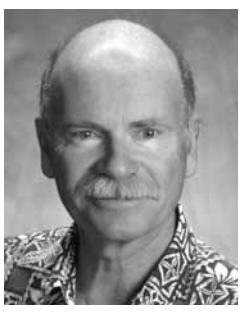

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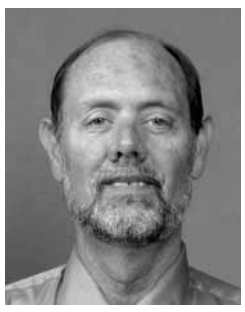

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Charles Brusseau
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Jodi Case
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Katherine De Jong
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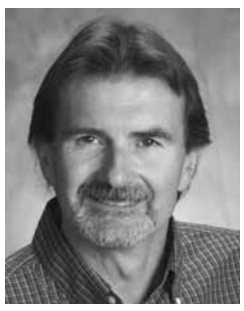

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Walter Gill
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Pat Gronewald
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Len Lorence
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Cory Ottesen
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Ken Perano
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N. Glenn Rackley
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Beth Richter
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Howard Royer
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Carl Skinrood
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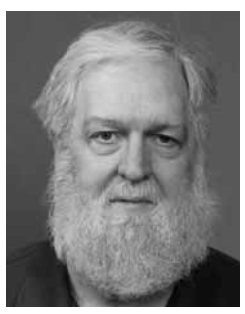

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Rick Contreras
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Sue Goudy
20 5417

David Humble
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Roy Jorgenson
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Randy Peterson
20 6430

Theo Pope
20 8949

D. Mike Ramirez
20 1384

Amy Tapia
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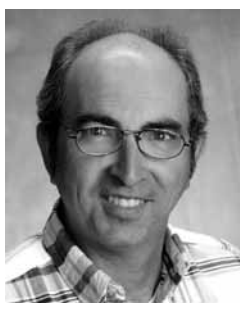
Michael Wilson
20 6322



Tom Zifer
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Lori Montano-Martinez
15 2555

Jean Grumblatt Pena
15 5528

Martin Sandoval
15 6751

Joe Simonson
15 1716

Craig Taatjes
15 8353

D. Greg Tipton
15 1523

Sandia Classified Ads

MISCELLANEOUS

HOT TUB, Coast, 6-person, 2 pumps, 38 jets, volcano jet, waterfall, fiber lights, $8,000 new, asking $3,200 OBO. Royce, 710-6859.

RADIAL SAW, Craftsman, Acra-Arm, 10-in., $65; Kenmore propane gas grill w/cover, $125. Paulson, 256-1994.

MACHINE SHOP EQUIPMENT: 3 lathes, various sizes, w/tooling tools, bits; bandsaw, sanders, misc. tools. Pitts, 345-2158.

BED COVER, retractable, 6-ft., Pace/Edwards, fits '01-newer Toyota Tacoma, aluminum, waterproof, paid $800, asking $350. Dobbs, 286-3838.

RECLINER, La-Z-Boy Luxury-Lift, w/massage & heat, mauve fabric, excellent condition, new $1,150, asking $850. Reis, 856-1138.

CANOPY BED, single, w/matching dresser & hutch; Kimball upright piano; white antique sewing machine w/cabinet, http://ticadine.com/4sale/. Widler, 715-6981.

SONY TV, 32-in. flat screen, analog, 3-1/2 yrs. old, excellent condition, $100. Harris, 858-0667.

PATIO FURNITURE: 54-in. round table, 6 chairs, rocker, loveseat, yellow & white, $250. Sutherland, 345-1183.

LOWREY ELECTRONIC ORGAN, Parade, some repair needed, make offer. Dossey 821-8997.

DRYER, Whirlpool, front-load, electric, Duet Sport, excellent condition, Energy Star, $300. Patrick, 265-4569.

TV, Phillips Magnavox, 36-in., P-I-P, SAP 2000 model, beautiful picture, pick up in Santa Fe, $250. Luna, 505-438-3818, ask for Ernest.

GAME CUBE, w/3 controllers & 5 games, $60; trampoline, great condition, you haul, $75. Hawkins, 293-3445.

PORTABLE DISHWASHER, Frigidaire, Ultra Quiet 3, <5 mos. use, 25"W, have photos, great condition, $100. Biedermann, 650-804-6393.

PET BIRD MART, April 25-26, National Guard Armory, 600 Wyoming NE, birds, cages, toys, food, http://nmbirdclub.org. Bullington, 505-220-7113.

TANDEM STROLLER, Graco, blue, compatible w/SnugRidge infant car seats, $50; Costco toddler car seats, $25. Kettleborough, 293-4503.

STYROFOAM PACKING POPCORN, 10 large recycle bags, $4 ea. Anderson, 232-2167, smander37@gmail.com.

MOWER, 21-in. cut, 4-hp, $30; Portacrib, $20. Hall, 298-8617 or 681-5170.

STRIP SHREDDER, $15; Kodak 4200 carousel slide projector w/tray, $10; both excellent. Bisbee, 293-0356.

COLOR PRINTER, Canon S820, great condition, $40. de la Fe, 505-615-4685.

WASHER, Kenmore, front load, '08 model, lightly used, paid $1,100, asking $675; mattress, king size, box spring & frame, $575. Doolittle, 681-9408.

LAWNMOWER, electric, w/grass catcher attachment, runs great, good condition, $45. Reynolds, 299-7204.

HONOLULU VACATION, awesome getaway, 1 wk., 2-bdr., 1 block from beach, $750. Varoz, 831-6093.

MOUNTAIN BIKE CRANKS & bottom bracket, Shimano, new, $75. Raether, 505-363-1631.

PLAY SET: swings, monkey bars, wavy slide, turbo slide, fort, playhouse, need 20' x 25' space, http://www.playnix.com/swings.htm, $1,000. Maze, 298-0617.

GRANDFATHER CLOCK, new, Howard Miller Benjamin, Keiniger movement, cable drive, $2,690 retail, asking $1,420. Holzmann, 294-5204.

TOMATO SELF-WATERING PLANTER, 4-gal. water reservoir, smooth casters, perfect for small garden, new $146, asking $75; Trolley, $30. Cronin, 299-6747, ask for Maxine.

RECEIVER-AMP, Technics SA-GX303, Technics 5-disc CD deck, Technics dual cassette deck, Sansui speakers, $150/all. Fink, 286-1858.

PRIVATE PILOT TRAINING KIT, Jeppesen GFD & Jeppesen instrument/commercial manual, $200. de Aragon, 259-2527.

WELDING ROD, ~1/2 50-lb. box of 6011 1/8 rod, $40 OBO. Lesperance, 615-2850.

MINIATURE POODLE PUPPY, male, brown, has 1st & 2nd shots, located in Santa Fe, $500. Castillo, 505-984-1674.

EXTERNAL HARD DRIVES: single USB base w/hot-swappable 30 & 40 GB modules, perfect for backup/safe-keeping, $40 OBO. Cocain, 281-2282.

ANALOG TV, Toshiba, P-I-P, new-in-box, $250; patio set, like new, $150. Green, 898-3791.

SPEAKERS, KLH stereo, 2, $20. Steiner, 401-8114, ask for Harry.

TROLLING MOTOR, Minn Kota, 50-lb. thrust, $155; electric lawnmower, Black and Decker, $45; push reel-type lawnmower, $35. Aragon, 888-3473.

MOUNTAIN BIKE TIRES, 2, nylon, almost new, 26x1.95 in., w/tubes, $10 ea. Diegle, 856-5608.

ENGLISH IVY ROOTED CUTTINGS, free. Horton, 883-7504.

MARIACHI GUITAR, nylon string, made in Mexico, good condition, w/case, $80. Osuna, 505-363-4124.

PRESCHOOL CARNIVAL & SILENT AUCTION, May 2, 11 a.m.-2 p.m., Church of the Good Shepherd, 7834 Tennyson NE. Giberti, 856-1005.

COLONIAL DINING TABLE, w/4 chairs, w/complementary sofa table, from Old El Paso, paid $1,690, asking $950. Lackey, 281-9773.

SPRING FLING, 4 Hills Country Club, Sun. 4/26, 10:00 a.m.-5 p.m., gifts & services, just in time for Mother's day. Hlava, 265-4178.

BOOKCASE, oak, 48" x 38" x 12-1/2", good condition, $45; kitchen pot rack, chrome & wood, 30" x 15", good condition, $25. Laird, 766-7696.

CRIB, light wood coloring, mattress not included, great condition, photos available, $80. St. John, 400-9168, ask for Trish.

UTILITY TRAILER, 77x14TA, 7000-GVWR, 2-in. bulldog coupler, electric brakes, ramps, spare tire, $1,200. Tribble, 604-3480.

CAPTAIN'S BED, oak, twin, w/mattress, excellent condition, $200; Weider weight bench, w/attachments, excellent condition, $40. Baney, 294-8970.

GLIDER CHAIRS, 2, w/ottomans, $125 ea.; 2 bar stools, $25 ea.; tin art mirror, $50. Gurrieri, 856-1688.

MEN'S GOLF CLUBS, right-handed, WilsonX^3 Advantage, 3 iron PW, driver 5W, putter & bag, $110; "Star Wars Millennium Falcon", '08, new, $150. Hennessey, 915-241-8634.

SOFA & LOVESEAT, neutral colors, good condition, call for photos, $350/both. Gallegos, 505-804-1985.

LAWN MOWER, power drive, rear bag, $115; rotary fertilizer spreader, $15; 10-drawer top tool box, $100; car bike carrier, $20. Gluvna, 884-5251.

UTILITY TRAILER, tandem, 8' x 16', 3K (3,000 lb.) axles, 18-in. side rails, drive-up back gate & front storage box, $950. Colborg, 604-4915.

TRANSPORTATION

'93 CADILLAC DEVILLE, 4.9L V8, AC, PW, PD, PS, white exterior, blue leather, low miles on tires, runs well, book $2,485, make offer. Risenmay, 293-0471, ask for Matt.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:

- **EMAIL: Michelle Fleming (classads@sandia.gov)**
- **FAX: 844-0645**
- **MAIL: MS 0165 (Dept. 3651)**
- **DELIVER: Bldg. 811 Lobby**
- **INTERNAL WEB: On internal web homepage, click on News Center, then on *Lab News* link, and then on the very top of *Lab News* homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.**

Ad rules

1. Limit 18 words, including last name and home phone (If you include a web or e-mail address, it will count as two or three words, depending on length of the address.)
2. Include organization and full name with the ad submission.
3. Submit ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. One ad per issue.
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active Sandia members of the workforce, retired Sandians, and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. We reserve the right not to publish any ad that may be considered offensive or in bad taste.

'70 CLASSIC MINI COOPER S Mk II, 1275 cc engine, tires Yoko 009 Minilite wheels, recent wet suspension recharge, $7,777. Larsen, 292-7896.

'04 SUBARU IMPREZA WRX, 2.0L, see Craigslist ad at https://accounts.craigslist.org/post/shwpst?pii=1112245205&db=lv. Caton, 379-4823.

'85 DODGE PICKUP, 4x4, new engine, transmission, battery, distributor, alternator, good tires, tool box, $2,500. Cline, 203-2536, ask for Mike.

'95 SUPRA SE, black, 124K miles, clean title, upgraded sound & speakers, great condition, $15,000. Cornejo, 505-238-1049.

'93 SUBURBAN 1500, 4WD, PW, PL, tilt, cruise, AM/FM/CD/cassette, alarm, 210K miles, $3,500 OBO. Perlinski, 286-5633, evenings/weekends.

'06 CORVETTE 3LT, 6-spd., 6-disc/MP3, Bose sound, new tires, original owner, 58K miles, excellent condition, <book, $25,000. Weston, 350-7059.

'02 MAZDA PROTÉGÉ 5, AT, PW, sunroof, 6-disc changer, 87K miles, $6,400. Moriarty, 280-2499.

'08 NISSAN SENTRA, gray, 9271 miles, excellent condition, $16,000. Rice, 352-8827.

'04 SUBARU OUTBACK, L.L.Bean edition, 6-cyl, twin moon roof, On-Star, extra wheels & tires, 95,548 miles, $9,950. Lambert, 281-5798.

'02 BUICK RENDEZVOUS CX, FWD, new tires, 56K miles, excellent condition, $6,725 OBO. Rex, 505-463-8454.

'01 FORD EXPLORER XLT, 4WD, AT, many options, beige, excellent shape, very clean, $5,400 OBO. Mileshosky, 463-9468.

'01 BMW M3, 6-spd., loaded, silver/gray, dealer serviced, only 43K miles, immaculate, must see, $25,000. Sedillo, 792-5569.

RECREATIONAL

PONTOON BOAT, 24-ft., fold-down roof, 115-hp merc, winter cover, complete canvas enclosure. Ross, 575-550-6366 or 505-553-3135.

'05 HOMESTEAD STARCRAFT TRAVEL TRAILER, 30-ft., stainless appliances, sleeps 10, great trailer, $18,000. Jaramillo, 505-232-3442.

'06 KAWASAKI NINJA 650R, black, alarm, windscreen, 4K miles, view at craigslist.com, $4,850. Dominguez, 328-7562, grtkatana@comcast.net.

WIND SURFING BOARD, Fanatic, 2 sails, w/all gear, used only 1 season, $450. Wright, 296-3850.

'97 COLEMAN SANTA FE POP-UP TENT CAMPER, stove, refrigerator, water tank, sleeps 6, $1,750. Detry, 856-2999.

SAILBOAT, w/trailer, 13-ft., Cyclone, used 5 seasons, garaged 15 yrs., sail perfect, excellent condition $1,500. Woods, 720-8492.

'06 HONDA CBR600F4I, low mileage, good comfort for sport bike, perfect condition, $5,500. Delgado, 440-8599.

REAL ESTATE

3-BDR. HOME, 1-3/4 baths, 2-car garage, refrigerated air, xeriscaped/putting green, hot tub, alarm, Spain/Juan Tabo, $199,000. Maddox, 298-3815.

2-BDR. HOME, 2-baths, 1,180-sq. ft., 2-car garage, new floors, new appliances, huge workshop, corner lot, Los Lunas, $119,900. Yates, 550-0371.

3-BDR. HOME, 2-1/2 baths, ~1,700-sq. ft., corner lot, cul-de-sac, landscaped, Unser/Arenal, www.HomesByOwner.com/42812, $170,000. Armijo, 459-5547.

WANTED

ROOMMATE, Juan Tabo/Indian School, private bath & living area available, $600/mo. Daigneau, 505-220-3301.

MOVING BOXES, all sizes. Collins, 832-5292.

LARGE DOLLY, w/belt & tightener, for moving refrigerator, other large appliances. Hawkinson, 281-1281.

GOOD HOME, male tabby, fixed, 9 yrs. old, very loving & kid friendly. Lawson, 505-244-3537.

ROOMMATE, 4-bdr. home, 3-1/2 baths, washer/dryer, internet, cable, Alameda/Louisiana, no pets, no smoking, $450/mo. + utilities, available 5/1. Casias, 463-0069, ask for Adrian.

Basil Hassan named to AIAA board

Basil Hassan, manager of Computational Thermal and Fluid Mechanics Dept. 1541, has been elected to the board of directors of the American Institute of Aeronautics and Astronautics (AIAA), the professional society that represents an aeronautics and space community of more than 30,000 members.

BASIL HASSAN

Basil will occupy the position of director-technical of engineering and technology management for a three-year term and will be responsible for overseeing technical direction of a group of technical committees in the areas of management, systems engineering, multidisciplinary design and optimization, history, economics, and others.

The activities of the group include sponsoring timely technical conferences, publishing important technical papers and standards, and recognizing technical excellence.

Basil was appointed by the board to serve in this role for the past year when the position was vacated by the previous director. Basil also serves as the deputy vice president for Technical Activities. As part of the duties for both positions, Basil is active in working with the rest of the volunteer leadership of AIAA in setting the technical direction of the institute.

Basil is currently an Associate Fellow in AIAA and has been an active member for more than 25 years. He was a recipient of the 2008 AIAA Sustained Service Award and has been involved in AIAA technical activities via a variety of leadership positions since 1993.

NNSA, MESA cited by DOE for project management excellence

DOE has recognized NNSA for project management excellence for three projects this year, including Sandia's $500 million Microsystems and Engineering Sciences Applications (MESA) project. Other projects cited in the recognition were the National Ignition Facility (NIF) project at Lawrence Livermore National Laboratory, and the B-3 building project at NNSA's North Las Vegas, Nev., facility.

The three projects were singled out by the Secretary of Energy as examples of successful management of taxpayer dollars and national security needs.

"As we move the nuclear security enterprise into the 21st century," said NNSA Administrator Thomas D'Agostino, "Congress and the public need to know that NNSA is spending taxpayer dollars wisely, and meeting its national security mission."

Sandia's MESA project received the Secretary of Energy's Excellence Award for demonstrating exceptional results in completing the $518.5 million project $50 million under the original approved budget and three years ahead of schedule. The MESA facility is used for the design, integration, prototyping, and qualification of microsystems into weapon components, subsystems, and systems in the US nuclear weapons stockpile.

2009 Energy Contest is on

Back in January, Sandia President and Labs Director Tom Hunter, NNSA Sandia Site Office acting manager Kim Davis, and 377th Air Base Wing Commander Col. Mike Duvall signed an energy conservation proclamation committing their organizations to display leadership in preserving natural resources and reducing energy consumption. Their combined statement was "We charge every member of the Kirtland community to ensure our mission success by minimizing energy use and reducing waste at every opportunity. Together we will secure America's future."

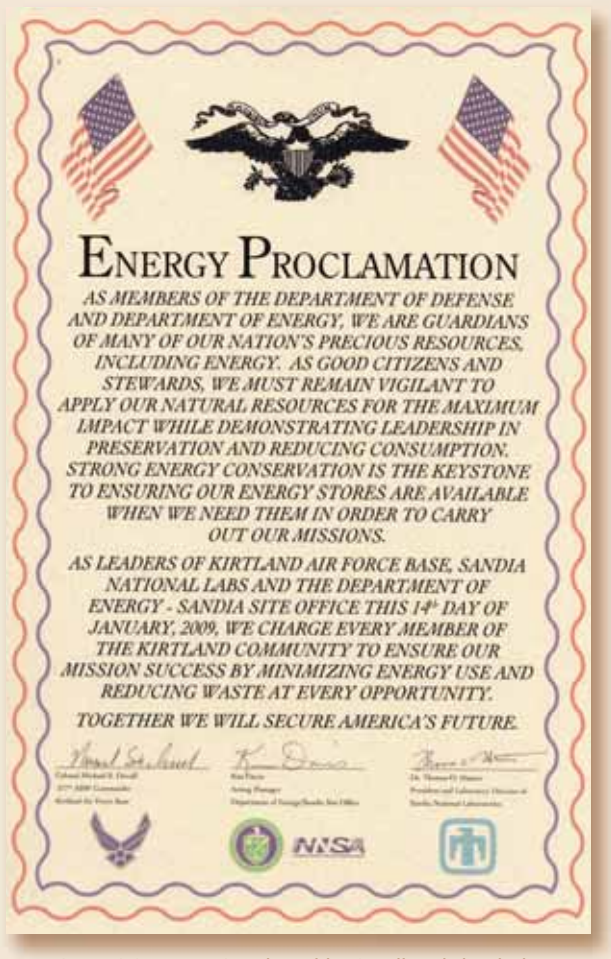
That's how the 2009 Energy Contest was born. Dubbed the "Energy Bowl 2009" by Sandia's KAFB competitors, the contest pits Sandia, DOE/SSO, and the Air Force against each other to see who can decrease their energy use per square foot the most compared to the same period last year.

SANDIA PRESIDENT and Labs Director Tom Hunter, Sandia Site Office acting manager Kim Davis, and Col. Mike Duvall, Commander of Kirtland's 377 Air Base Wing, sign 2009 Energy Proclamation. (Photo by Randy Montoya)

Beginning this month, the organization with the highest percentage decrease will get to carry around the 2009 Energy Conservation trophy and be granted bragging rights for the next month. The loser will be saddled with the dreaded energy hog. The competition will run for three months ending June 30, so be careful how you brag, since April's winner can become May's energy hog if they slip up. The overall winner will be announced at the joint Sandia/KAFB Earth, Wind and Sun event on July 21-22.

So what can you do to help? The initial Lights Out campaign (March 25) showed how easy it is to save energy without impacting Sandia's mission. Labs-wide, Sandia's energy reduction was 2.16 percent, mostly from turning off unnecessary lighting for one night. A large number of buildings showed reductions of more than 10 percent, and a few of our smaller buildings saved almost 50 percent. All lab personnel are encouraged to turn off printers, computers, speakers, fax machines, copiers, and other phantom loads at the end of each work day and work week, including 9/80 Thursdays. Turn off lights in offices, conference rooms, and common areas when not occupied, even for short periods of time. With a few simple steps, Sandia can bring home the trophy.

More about the energy contest in upcoming issues of the *Lab News*.



ENERGY PROCLAMATION

AS MEMBERS OF THE DEPARTMENT OF DEFENSE AND DEPARTMENT OF ENERGY, WE ARE GUARDIANS OF MANY OF OUR NATION'S PRECIOUS RESOURCES, INCLUDING ENERGY. AS GOOD CITIZENS AND STEWARDS, WE MUST REMAIN VIGILANT TO APPLY OUR NATURAL RESOURCES FOR THE MAXIMUM IMPACT WHILE DEMONSTRATING LEADERSHIP IN PRESERVATION AND REDUCING CONSUMPTION. STRONG ENERGY CONSERVATION IS THE KEYSTONE TO ENSURING OUR ENERGY STORES ARE AVAILABLE WHEN WE NEED THEM IN ORDER TO CARRY OUT OUR MISSIONS.

AS LEADERS OF KIRTLAND AIR FORCE BASE, SANDIA NATIONAL LABS AND THE DEPARTMENT OF ENERGY - SANDIA SITE OFFICE THIS 14th DAY OF JANUARY, 2009, WE CHARGE EVERY MEMBER OF THE KIRTLAND COMMUNITY TO ENSURE OUR MISSION SUCCESS BY MINIMIZING ENERGY USE AND REDUCING WASTE AT EVERY OPPORTUNITY.

TOGETHER WE WILL SECURE AMERICA'S FUTURE.

ENERGY PROCLAMATION signed by Sandia, Kirtland Air Force Base and NNSA's Sandia Site Office.

Creating a recycled, cost-friendly lab

One department's answer to austerity challenge . . .

Can going green and cutting costs go hand in hand? Absolutely.

Take, for example, the case of Satellite Payload Development Dept. 5335. When the group needed a new light electric laboratory, the approach it took proved to be friendly to both the environment and the bottom line. Using almost 100 percent recycled, environmentally friendly purchased, or green materials, the new lab was up and running in just one month at an estimated savings of $100,000 compared to a "new" lab.

"When we first started out to set up the lab," says Brett Eller, who headed up the project, "vendor procurement was significantly slowing the process. We decided to go with as many recycled and reclaimed products as possible, which we thought would save us time and give us a secondary budget benefit.

"The results were staggering. The lab opened in one month and many thousands of dollars were saved," says Brett.

"As department manager at the time, I definitely appreciated that we were able to get the lab operational so quickly and cheaply," says Matthew Brown, now manager of High Integrity Software Systems Dept. 2622.

So how did Dept. 5335 manage this two-fer?

Going to Reapp for items like lab benches, workstations, a flammable chemical cabinet, and other office furnishings and accessories saved the department about $40,000, says Brett. "And the Reapp yard items were available immediately."

Then there were the "garage sales." By acquiring used items from other labs, the department saved an additional $50,000.

Next stop was the Chemical Exchange Program.

"We bought zero chemicals for the laboratory," Brett says. "Every chemical was found through the chemical exchange or transferred from other organizations." Total savings? Thanks to the Chemical Exchange Program: around $1,000.

Finally, says Brett, "There were only a few items that we had to purchase, and when we had to buy, we purchased green products as much as possible."

The laboratory continues operations today using as many recycled products as possible.

"If we can get it for free, we use it," says manager John McBrayer (5335). "And we keep waste — thousands of pounds — out of our landfill in the process. If it can be recycled, we recycle it. Every scrap of paper, cardboard, and metal is recycled. Rarely are the lights or any unneeded equipment left powered on, our lights-out policy saves every day."

Cost Austerity: It's for everyone

The Sandia Cost Austerity Program has taken some bold leaps to assist in the Labs pension fund contributions and is continuing to move forward. Specifically the program is:

- Gathering cost-savings data from all divisions across Sandia
- Gathering ideas and agreed upon reductions from all divisions
- Implementing an employee suggestion program for all employees to submit their ideas on how the Labs can save money
- Promoting cost austerity through a wide variety of communication techniques such as *Lab News* articles on successful initiatives, *Sandia Daily News* notices, and using the TechWeb's Something to Think About to share cost savings ideas.

The opportunity is there for each and every Sandia employee to do his or her part to assist with cost austerity. To submit ideas, read stories on cost austerity, and gather some useful tips for how you can contribute, visit the Cost Austerity SharePoint website, at https://sharepoint.sandia.gov/sites/Austerity_Program/Ideas

CHEAP GREEN — When Dept. 5335 needed a new light electric lab it turned to recycled materials and equipment, resulting in a facility that cost an estimated $100,000 less than a lab using all new equipment. (Photo courtesy of Dept. 5335)