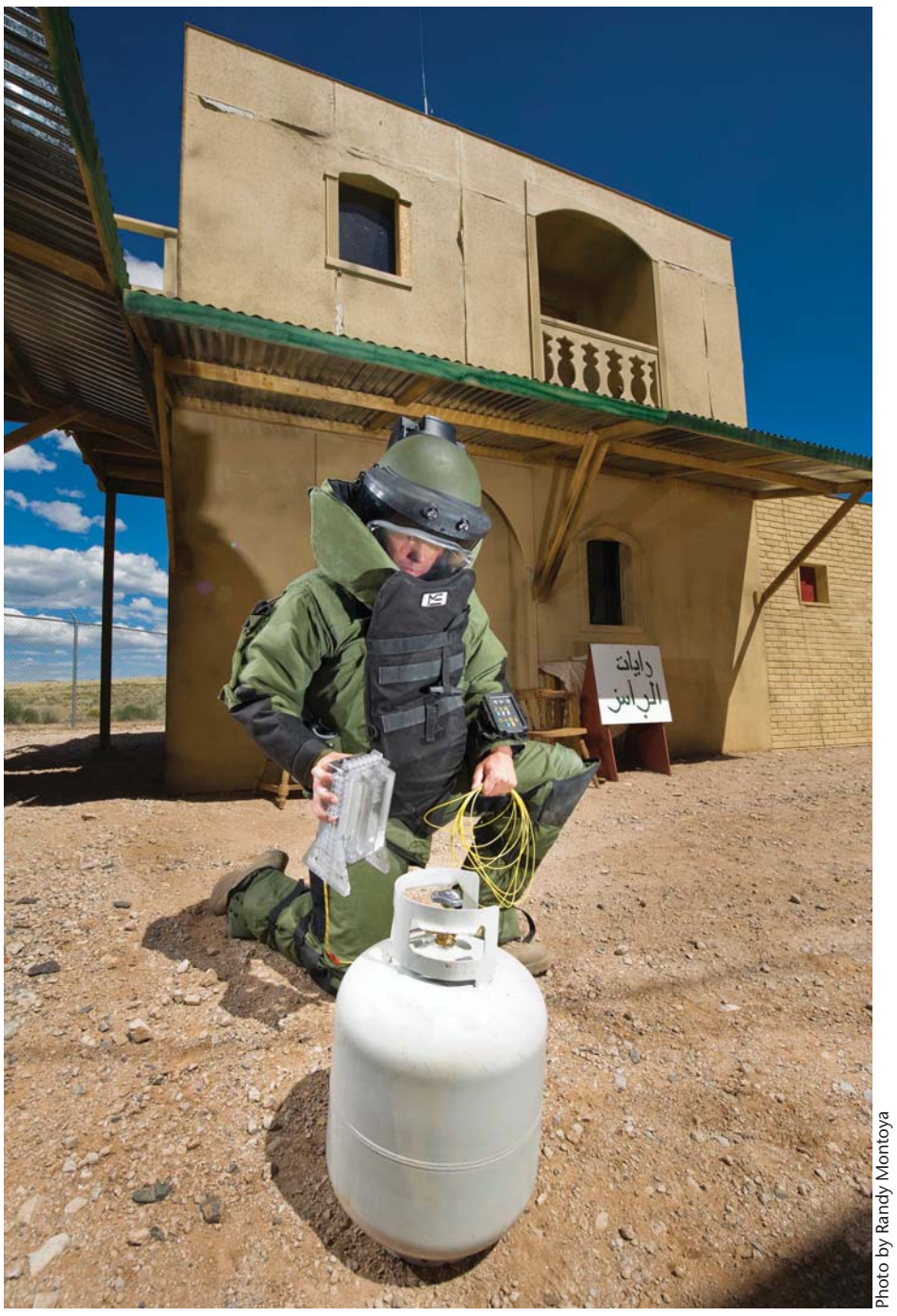


Photo by Randy Montoya

Sandia device helps US troops in Afghanistan disable deadly improvised explosive devices

By Heather Clark

A device developed by Sandia researchers that shoots a blade of water capable of penetrating steel is headed to US troops in Afghanistan to help them disable deadly improvised explosive devices, or IEDs — the No. 1 killer and threat to troops in Afghanistan, according to the Pentagon.

Sandia licensed the patent-pending technology to a small minority-owned business, TEAM Technologies Inc. The Albuquerque-based company made its first shipment of about 3,000 new water disruptors to Afghanistan this summer.

"The fluid blade disablement tool will be extremely useful to defeat IEDs because it penetrates the IED extremely effectively," says Greg Scharrer, manager of the Energetic Systems Research Dept. 5916. "It's like having a much stronger and much sharper knife."

Soldiers who had served in Afghanistan and Iraq field-tested the device during training at Sandia and suggested improvements while the product was being developed.

The fluid blade disablement tool was invented by Steve Todd, a mechanical and materials engineer with extensive Navy experience fighting IEDs, Chance Hughs, a retired Navy SEAL explosives expert on contract to Sandia, and mechanical engineer Juan Carlos Jakaboski (now in 5917), who at the time worked in the Energetic Systems Research department, for an NNSA sponsor.

The portable clear plastic device is filled with water and an explosive material is placed in it that, when detonated, creates a shock wave that travels through the

(Continued on page 7)

JUST SO — Airman 1st Class Patrick Connolly of Dayton, Ohio, demonstrates the placement of a water disruptor developed at Sandia near its target in a simulated village used to train soldiers heading overseas. (Photo by Randy Montoya)

Sept. 11, 2001, 8:46-10:28 a.m. EDT

- World Trade Center, New York City, N.Y.; Pentagon, Arlington County, Va.; a farmer's field in Shanksville, Pa.
- 2,997 killed, including 411 rescue workers
- 6,000+ injured
- First US response: Passenger uprising on United Flight 93

Sandia LabNews

Vol. 62, No. 17 September 10, 2010

Sandia National Laboratories

Managed by Lockheed Martin for the National Nuclear Security Administration

LEDs promise brighter future, not necessarily 'greener'

Historical record suggests cheaper light may encourage more use

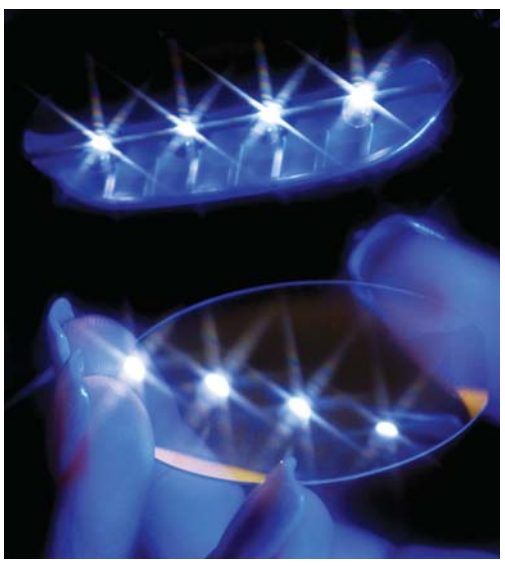
By Neal Singer

Solid-state lighting pioneers long have held that replacing the inefficient Edison light bulb with more efficient solid-state light-emitting devices (LEDs) would lower electrical usage worldwide, not only decreasing the need for new power plants but even permit some to be decommissioned.

But in a paper published Aug. 19 in the *Journal of Physics D*, a band of leading Sandia LED researchers argue for a wider view.

"Presented with the availability of cheaper light, humans may use more of it, as has happened over recent centuries with remarkable consistency following other lighting innovations," says lead researcher Jeff Tsao (1120).

More light — the ability to work past sunset, indoors or outdoors — has clearly increased personal and societal outputs.


LEDs will revolutionize the way we light our world. (Photo by Randy Montoya)

Jeff says, "That is, rather than functioning as an instrument of decreased energy use, LEDs may be instead the next step in increasing human productivity and quality of life."

The assumption that energy production for lighting will decline as the efficiency of lighting increases is contraindicated by data starting with the year 1700 C.E. Those figures show light use has remained a constant fraction of per capita gross domestic product as humanity moved from candle to oil to gas to electrical lighting. Thus the societal response to more efficient light production has been a preference to enjoy more light, rather than saving money and energy by keeping the amount of light produced a constant.

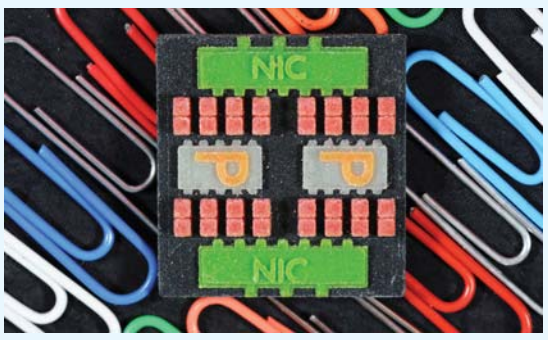
"Over the past three

(Continued on page 5)

NNSA Defense Programs AWARDS of EXCELLENCE

Five Sandia individuals and seven teams were selected to receive NNSA Defense Programs Awards of Excellence at ceremonies this year in New Mexico on Aug. 17 and in California on Aug. 18. The awards honor exceptional contributions to the stewardship and management of the nation's nuclear weapon stockpile. See **pages 8-9.**

Inside



and . . .

The coming change in health care benefits:

TAKECHARGE

HEALTH PLAN administrators selected; **open enrollment** for employees and retirees. See **pages 10-12** for more.

That's that

Where were you when the twin towers of the World Trade Center were attacked?

A lot of things have happened in my life in the nine years since 9/11, but I don't remember a single day in those intervening years with the same clarity that I remember the early morning hours of Sept. 11, 2001. I don't remember last month as clearly as I remember 9/11.

It was one of those occasions — they seem to happen once or twice in a generation — where we collectively experience a jarring temporal disconnect: Time slows down and everything snaps into sharp focus. When these extraordinary events occur, your brain processes everything; every little detail looms large, as though something in your subconscious is saying: Remember this; this is important.

So I remember. I remember driving in to work that day, listening to Larry Ahrens, who at the time was the popular morning talk host on KKOB-AM. He mentioned a news item about an aircraft striking the World Trade Center, speculating — like most of us, probably — that it must have been some sort of freak accident.

Between the time I pulled into the parking lot and the time I walked into my office, a second plane struck. When I heard that, of course, the curtain dropped and the reality set in: We were under attack. All of us gathered around a fuzzy-pictured little TV set, watching with grim fascination, absorbing everything. As we watched, the towers collapsed, first one and then the other. We watched as reports came in about the Pentagon attack and we learned of the crash in Shanksville, Penn. Each new development seemed more extraordinary than the last. We called our loved ones: Are you okay? Did you see that? Wasn't your sister supposed to be flying today?

I'll never forget that day. And I'll never forget my darkest thoughts on that day: These guys will hit us again. These guys will nuke an American city. These guys will keep coming at us. I leave it to others to debate the merits of the wars in Iraq and Afghanistan and the long twilight war waged in the shadows, winning fights we never hear about. But this much is sure: At a cost of several thousands of American lives, we have not been hit again at home. And nine years ago, I wouldn't have bet a plugged nickel on that. And for that, I am grateful for and humbled by the price that's been paid on our behalf.

* * *

A couple of weeks back, on a camping/sailing trip to Heron Lake State Park in northern New Mexico, I hooked up with Jim Rea, a retired Sandian who was a colleague and friend to Sandia pioneer Glenn Fowler, who passed away in June. Jim, who was pulling his three-day duty as dock-sitter at the New Mexico Sailing Club marina, took a few minutes to show my wife and me around the *White Bird*, the sailboat he and Glenn owned and sailed together.

During the tour, when I commented on the pristine state of the 40-year-old boat, Jim pulled out a three-ring binder and said "Take a look at this; this was Glenn's work." The binder's front cover said: "Stowage Plan and Inventory." Jim flipped it open and let me scan the pages. A line drawing showed the location of every stowage locker on the boat — under the seats, over the sinks, below the cockpit, behind the companionway, beneath the V berths. Each locker was labeled: A-1, A-2, B-1, and so on. On subsequent pages was a spreadsheet-based inventory listing every single item on the boat, which locker it was stored in, when it was brought aboard, when it was last replenished. After absorbing this amazing feat of organization — and this was for Glenn's hobby, remember — I said to Jim, "This is the kind of person you want in charge of your nuclear weapons program, isn't it?" To which Jim replied, "That was Glenn; he thought if something was worth doing, it was worth doing right and doing all the way."

Before we said goodbye, Jim showed me one more thing, the entry in the boat's log for June 8: "Glenn Fowler died today. He will be missed, but his spirit will always sail with the *White Bird*."

See you next time.

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

TVC seeks Sandians' business ideas for Equity Capital Symposium

TECHNOLOGY VENTURES CORPORATION

Technology Ventures Corporation (TVC) is seeking business plans and executive summaries from Sandia researchers interested in commercializing their technology and presenting their ideas at the 18th annual Technology Ventures Equity Capital Symposium, May 18-19 in Albuquerque.

The symposium connects new and expanding technology companies with venture capital and other equity investors.

Interested researchers should contact TVC now for free help developing their business plans in preparation for the symposium. The submission deadline for the plans is Jan. 7.

Researchers can meet the TVC team to find out how TVC can help create, start, or grow a technology company. TVC will hold an event for interested researchers in Bldg. 897, Rm. 1010, 11:30 a.m.-1 p.m., on Thursday, Sept. 23.

In January, TVC will review submitted business plans and select 15 to 20 to present to investors at the symposium. Preference will be given to plans based on technology developed at DOE national laboratories or research institutions.

TVC is a nonprofit, charitable foundation funded by Lockheed Martin and DOE to commercialize technologies and create jobs. TVC has helped form 110 new business, created nearly 13,000 jobs, and has helped its client companies obtain $1.08 billion in investments.

For more information or to RSVP, visit www.techventures.org or call Michelle Mang at 843-4110.

Feedback

Questions about the new timesheet application

Q: *Timesheet question: Can functionality be added to the timesheet application to allow employees to enter brief word descriptions for project/tasks [P/Ts] as was done in the past timecard application? I understand there are reasons not to reinstate the old profile approach, but the loss of my personal descriptions to go with P/Ts makes filling out my timecard a more time-consuming task and more prone to error-making.*

A: Thank you for your question. One of the primary goals of implementing the Time and Labor (T&L) application was to make it as "vanilla" as possible. We struggle at Sandia with the time application because we "marry" the project management requirements for P/T charging to timekeeping. It is therefore difficult to find an application that would accommodate both the requirements of payroll application as well as what is needed for project accounting. As a result, we have the existing T&L application, as the old legacy system was a home-grown system (ETK) that was written in C-language and is no longer supported. The T&L system does allow the employee to pull in project and tasks from a prior week to ease the burden of keying in the information each week, but does not have the delivered capability to also pull in description information. The programmers are investigating the ability to implement a future enhancement that would provide WBS information, but it will not be an immediate enhancement. Communication will be sent out if it will be implemented at some future date. In the meantime, please refer to the Dept. 10502 website under ETC100 for guidance on pulling in P/T information from a prior week, or you can also click on the help button in the T&L application. *— Donna Kao, 10502*

* * *

Q: *Is there something they can do to the new timesheet charging so you can enter your time daily, as in old system? It is very easy to forget an hour or so taken for last-minute PTO, VAC, etc.*

A: Thank you for the question. Not only is it OK to enter your timesheet daily, we would really prefer that our workforce do that. Submitting a timesheet daily does not prohibit the in-putter of timesheet from subsequently going in and putting in time every day. It does not trigger a correction until either the manager approves the time, or the time span has rolled to the following week and a correction is entered. So to answer your question, yes, please enter your timesheet daily. Thanks again for the question.

— Donna Kao, 10502

Sandia Lab News

Sandia National Laboratories

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

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

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

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Mobile computing emerges at Sandia

Researchers can benefit from rapidly expanding world of mobile platforms, some say

By Mike Janes

Though government-issued BlackBerrys have been a staple at Sandia and other government agencies for years now, web-based mobile computing platforms are still a largely untapped resource for Labs researchers and scientists. The potential for such devices is enormous, particularly those features that directly support the Laboratory's scientific work.

That's the assessment offered by Sandia/California's Joe Lewis (8944) and Carmen Pancerella (8958) in a recent position paper they coauthored titled "Mobile Applications at Sandia." In the paper, Joe and Carmen examine mobile computing in an enterprise and scientific context and make recommendations on how to approach mobile, web-based computing capabilities from a strategic standpoint. They include several case studies and examples of how mobile computing can have an impact for the Labs in the short or even immediate term.

"We see mobile as an emerging platform that has a prominent place in the future of Sandia's information technology and research areas," says Joe. "Eventually, this is where many of us are going to do the majority of our work. It's worth exploring mobile computing right away."

Accessing the web from mobile devices has exploded globally, particularly since Apple Inc.'s launch of the iPhone in 2007. Though the iPhone has led the charge, other devices and operating platforms such as the Google Android are making gains. Collectively, mobile web devices are expected to overtake desktop platforms by the year 2015, Joe and Carmen say.

The trends don't suggest a fad that will go away any time soon. "Web access on mobile devices will soon no longer just be an interesting extra feature checkbox on a phone advertisement," says Carmen. "It will be the dominant platform." As a sign of the times, Carmen points out that many websites such as Digg.com, the *New York Times*, and SFGate.com have recognized the trends and have repurposed their web content for mobile devices.

Fun, yes, but it's all about the science

"There are numerous areas where Sandia can benefit from mobile computing," Joe and Carmen say. In the short term, they say, the Labs could explore the refactoring of existing web applications for mobile devices, such as building a mobile TechWeb portal or redeveloping oft-used web applications such as timesheets, expense reports, and site maps. Some efforts to refactor these applications for mobile devices are already underway.

Joe and Carmen say the real untapped application space for Sandia is in the scientific and national security arenas.

"Mobile smartphones come equipped with many sophisticated data-gathering systems, and at the same time, are excellent devices for data distribution," says Joe. "Scientists can leverage these features to turn mobile devices into a powerful research platform."

Today's smartphone features, he says, offer a number of potential applications in the science and research space, including crowdsourcing, data gathering and measurement, live recording of events, geolocation, serious gaming, ability to collect data from sensors, and critical real-time information distribution to first responders and decision-makers.

Emerging tablet devices such as the Apple iPad offer much of the smartphone functionality and convenience with increased screen space, making it an excellent choice in many cases for inputting and visualizing data in field work and laboratory contexts. A pilot is currently underway at Sandia to evaluate this technology and its technical compatibility with Sandia's infrastructure. In addition, Department 8949 is leading another pilot that allows users to install a client on their personal smartphones for secure access to Sandia email, calendars, and contacts. (Marcia Jacobs welcomes queries from members of the workforce interested in participating in that pilot. Contact her at 925-294-1586, email mjacob@sandia.gov).

Current mobile web applications enable scientists to browse and search through scientific literature and live news feeds, allowing them to conduct research while on the road or away from their desks. Physicsworld.com, for instance, has a mobile web "front end" that allows users to download physics news articles to a mobile device.

Other mobile apps are even more geared toward the science community, Carmen says, with tools such as unit converters, timers, genetic decoders, 3D molecular viewers, scientific calculators, portable weather stations, and GPS-enabled maps of the night sky.

Joe and Carmen acknowledge that Sandia's culture of security — and the very real vulnerabilities that exist with mobile web platforms — will make it a challenge to completely embrace mobile applications. "The fast-moving computing environment in which we live will require a similarly nimble and creative security approach," says Joe.

Still, they say, the benefits of mobile computing are simply too vast to ignore.

"Sandia can choose to adapt to this new environment, or it risks lagging behind," says Joe. "But the fact is, the lab's approach to mobile computing will continue to impact recruiting, staff retention, productivity, and even the core scientific work we do at the lab. Mobile, web-based computing is here to stay."

RDCDS as scientific case study

The Rapidly Deployable Chemical Detection System (RDCDS) is a DHS-funded Sandia project that has been deployed to various high-profile events and locations with large congregations of people (such as sporting events or political conventions). The RDCDS provides early warning of an attack from either chemical warfare agents or toxic industrial chemicals.

An important new component of the system is a mobile client that allows first responders in the field to receive critical information, such as map data, details on the sensors at any given node on the system, and live surveillance video fed from cameras mounted atop each node in the deployment.

The RDCDS command center can distribute text-message alerts to security team members. Using their mobile devices, team members can not only view and respond to urgent messages at a moment's notice, they can monitor and control the entire RDCDS sensor network from their mobile device.

The mobile client is also fitted with a list of situation contacts to enable easy communication with other agencies (local law enforcement, public health officials, etc.), and the mobile client features a reference database of chemical and biological agents built in to help first responders make critical decisions based on the situation at hand.

The mobile client is web-based, leveraging existing smartphone capabilities with no additional software installation.

"This new mobile interface has greatly expanded the applications where the RDCDS system can be used, since it means we can now do long-term deployments that don't require us to be on site to monitor things," says Nate Gleason (8125), who serves as RDCDS program manager in support of the DHS program. "It's allowed us to put the data and the situational awareness produced by the system directly into the hands of first responders. It integrates not just detection information, but other data and resources that the responder would need to make the right kinds of decisions."

Sandia CaliforniaNews

General Motors' executive director of North America Science Laboratories visits Sandia/California

GARY SMYTH, General Motors' executive director of North America Science Laboratories, visited both Sandia/New Mexico and Sandia/California in mid-August to explore further partnership opportunities in GM's quest to create more energy-efficient automobiles that can run on a portfolio of alternative energy solutions. In California, he toured the Combustion Research Facility and shared his company's vision in a talk entitled "The Future of Personal Transportation."

(Photos by Dino Vournas)

Senator Bingaman presents no-nonsense speech at Sandia energy security colloquium

By Neal Singer

New Mexico Sen. Jeff Bingaman, chairman of the US Senate's Energy and Natural Resources Committee, an advocate for the Labs, and, in his remarkably down-to-earth presentation, an enemy of hype, spoke for 25 fact-filled minutes at one in a series of energy-security colloquiums sponsored by Div. 8000 VP Rick Stulen's Energy, Climate and Infrastructure Security Strategic Management Unit.

The senator, whose trademark delivery involves the low-key explanation of complex issues, opened by saying he would discuss three matters relating to energy, and he did. These were reducing foreign oil imports, reducing greenhouse gases caused by transmission and use of energy, and creating sustainable American jobs.

Criticizing the Senate several times during his speech for not moving ahead with more forceful measures, Bingaman said that while foreign fuel imports in recent years have been reduced, this was not because of policy measures but because of the global economic downturn. Small overall increases in US fuel production also helped.

He mentioned three policy actions he expects to improve transportation efficiency. These included a fuel efficiency increase in CAFE standards starting in 2011, expected to raise American fleet mileage to at least 35.5 mpg by 2016 (a target date moved up by the Obama administration from 2020). Also, domestic production of alternative fuel like ethanol (aided by tax breaks and favorable legislation) was increasing. Third, the substitution of electricity for gasoline, again aided by congressional support, was aiding construction of advanced battery manufacturing plants and more electrical charging stations.

However, while improved fuel efficiency would help lower imports, and the electrification of transportation would also help, by far the largest source of greenhouse gases — about 40 percent, he said — arises from electric power production itself. Of that, coal is responsible for 33 percent, natural gas 6 percent, he said.

"Given that Congress has proven incapable of taking the bold action that many advocate to reduce greenhouse gases, it's more and more likely that strong action will come about through EPA's Clean Air Act," he said. The administration, the senator said, is formulating a process to deal with power plant carbon emitters that will be felt first on new power plants and on major upgrades on old plants. Despite strong pressure from coal-producing states, he said, "I do not expect President Obama to sign a moratorium on such EPA regulation."

As for jobs, he said, clean-energy manufacturers will create new jobs, but where will they be? Germany and China have been leaders in new energy technologies. Subsidies for solar by the German government created a market for solar panels. China's standard for automobile fuel economy is more stringent than the newest US restrictions. While important US steps, including tax incentives and funding from the Recovery and Reinvestment Act, have helped create advanced battery manufacturing facilities, there are not enough to compete with some of leading nations in the world market. One concrete step Congress could take would be to pass an additional $5 billion in tax credits for companies that locate in the US.

NEW MEXICO SEN. JEFF BINGAMAN in a speech at Sandia lays out his ideas about how the nation can tackle daunting energy-related challenges. (Photo by Darrick Hurst)

Bingaman sees a need for "sustained domestic demand to create a market pull to complement production push." He said the country needs to put a price on carbon-based technologies: "If it costs more, the market will use low-carbon technologies."

He said that "putting together policies will not be easy in the face of budgetary stringency we expect in coming years and the lack of political will to address climate change."

He praised congressional action in health care reform and financial regulatory reform, but said, "We have not had the same success in areas of energy independence and climate change." It's likely, he said, that more substantial legislation would have to be made by a new congress.

To a question from a Sandian who asked why the government doesn't focus its efforts as pointedly as the 1960s program to reach the moon, Bingaman replied the issues currently facing the country were more diffuse and involved the integration of the private and public sectors of the economy, so that the situation today was not amenable to the focused solution of the moon project.

He praised DOE's top administrators as "the strongest technology team we've ever had leading the DOE."

DARPA selects Sandia to design new supercomputer prototype

By Stephanie Hobby

Sandia has been selected as one of four institutions to develop new supercomputer prototype systems for the Defense Advanced Research Projects Agency (DARPA). To meet the increasing advanced computing needs for DoD, DARPA launched the Ubiquitous High Performance Computing (UHPC) program.

The goal of the UHPC program is to overcome current limiting factors, such as power consumption and architectural and programming complexity, by developing entirely new computer architectures and programming models. The aim is to produce a more energy-efficient computer that delivers 100 to 1,000 times more performance and is easier to program than current systems.

"We are thrilled that our team was chosen for this important work," says James Ang, manager of Scalable Computer Architectures Dept. 1422. "We are interested in designing a high-performance computing system that we will want to use to address our mission objectives, and we look forward to meeting this challenge."

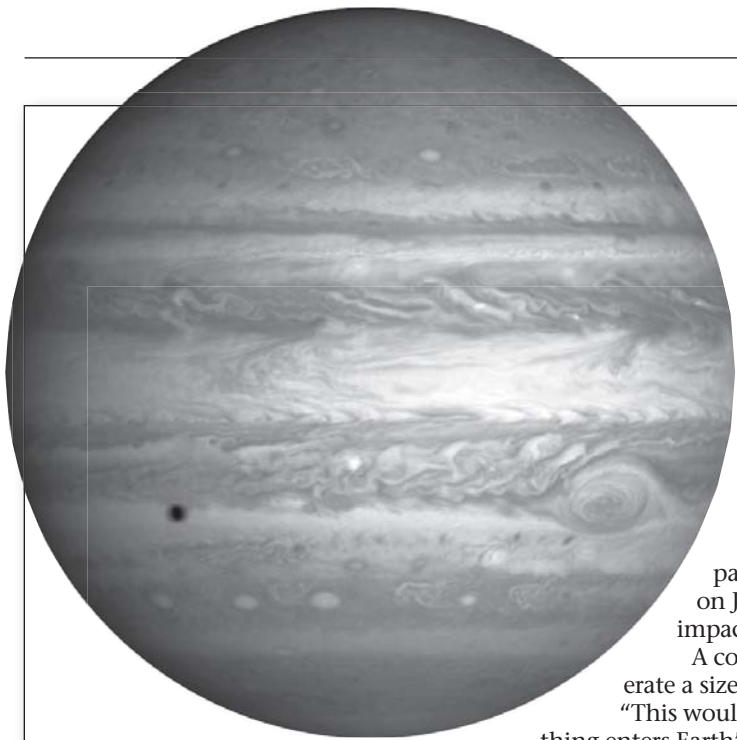
To accomplish the mission, Sandia is leading a team of industry partners, including Micron Technology Inc. and LexisNexis Special Services Inc. Academic partners include Louisiana State University, University of Illinois at Urbana-Champaign, University of Notre Dame, University of Southern California, University of Maryland, Georgia Institute of Technology, Stanford University, and North Carolina State University.

Sandia will provide technical expertise and leadership to all aspects of the project, including high-performance computer architecture, algorithms development, supercomputing, system software, programming methods, applications, microelectronics in 3-D packaging, and silicon photonics.

For the past 30 years, advances in computing capabilities have followed Moore's Law, which states that every two years, the number of transistors that can be placed on an integrated circuit will double. Smaller feature sizes can be driven at faster clock speeds, albeit at the cost of increased energy and power usage. About five years ago, the microprocessor industry ran into many of the practical limits of electrical power that can be consumed on a single processor socket. This led to the introduction of multicore processors, driven at constant clock speeds. While the theoretical peak performance of multicore processors is still improving in accordance with Moore's Law, the realized real application performance is not keeping pace, and is in fact lagging further and further behind. The goal of the UHPC program is to maintain the performance potential indicated by Moore's Law by addressing the technical challenges of power and energy, programmability, and dependability.

"Today's computational paradigm is approaching hard energy and power limits," says Richard Murphy (1422), the project's principal investigator. "UHPC is the only program intended to solve the problem by fundamentally enabling a new model of computation that will not only be more energy efficient, but will improve system scalability, resilience, programmability, and security. This is a chance for Sandia to help revolutionize the entire field of computing, and we are honored to lead a team of powerful industry partners and distinguished researchers in academia to address these challenges."

Sandia researchers say they expect their prototype to be complete by 2018. The other performers selected to develop the UHPC prototypes include Intel Corp., NVIDIA Corp., and Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory.



Amateur astronomers open potential lab in outer space for planetary scientists, says Sandia researcher

By Neal Singer

Two amateur astronomers who independently observed and videotaped an asteroid striking the giant planet Jupiter on June 3 have opened the possibility, in effect, of a giant research lab in space for planetary scientists.

The fortuitous observations, if supplemented by future observations of other amateur astronomers, could help scientists understand the behavior of asteroids of various dimensions and composition entering an atmosphere at varying angles and speeds, according to a paper, "First Earth-based Detection of a Superbolide on Jupiter," expected to have been published online Sept. 9 by *Astrophysical Journal Letters*.

"These amateur observations are very important," says Mark Boslough (1433), one of the paper's authors. "To me, the primary significance is the demonstration that relatively small bolides on Jupiter can directly be observed from Earth, that their energy can be quantified, and that such impacts are frequent enough to observe."

A continuous amateur observation campaign could provide data to determine impact flux and generate a size population curve for small objects in the vicinity of Jupiter.

"This would be a major scientific achievement," Mark says, because "the physics is the same as when something enters Earth's atmosphere. More data on airbursts — and we're looking down on Jupiter, which gives us a perfect observational platform — build up our understanding based on empirical observations."

The Shoemaker-Levy comet impact observed on Jupiter in the 1990s, modeled with startling accuracy at Sandia by Mark with David Crawford (1541), revolutionized the way researchers treat airbursts on earth. "That modeling directly translated into understanding the Tunguska explosion of the early 20th century and the mystery of Libyan yellow-green desert glass," says Mark.

According to the paper's authors, the asteroid was eight to 13 meters in diameter and packed a punch equivalent to a 250- to 1,000-kiloton nuclear bomb — smaller than the airburst that decimated Tunguska 100 years ago, but similar in its effect.

"It seems to me that Jupiter — a big target with tremendous gravitational attraction — should be getting hit by things this size all the time. But apparently nobody is usually watching at the right time," says Mark. "Here, two people were watching at the right time. The amateurs are so reliable and sensitive these days that we're seeing more impacts."

LEDs: How green?

(Continued from page 1)

centuries, according to well-accepted studies from a range of sources, the world has spent about 0.72 percent of the world's per capita gross domestic product on artificial lighting," says Jeff. "This is so for England in 1700, in the underdeveloped world not on the grid, and in the developed world using the most advanced lighting technologies. There may be little reason to expect a different future response from our species."

Far from an example of light gluttony, Jeff says, by increasing the amount of lit work space and bright time, individuals would enjoy the desirable outcome of increasing their creativity and the productivity of their society.

On the other hand, societal controls that increased the price of electricity by small, fine-tuned amounts could reduce the amount of energy used, while allowing smaller but still hefty increases in lighting because of the increased efficiencies of LEDs.

To the question of how much light is enough, says Jeff, no one yet has produced a gold standard for light saturation levels.

While artificial illumination is considerably better now than decades ago, the researchers write, "People might well choose higher illuminances than they do today, particularly to help mitigate losses in visual acuity in an aging world population." More easily available light also may help reduce seasonal depression brought on by the shorter darker days of winter, and help synchronize biological rhythms, called circadian, that affect human behavior day and night.

As for problems that could occur with too much light — from so-called 'light pollution' that bedevils astronomers to biological enzymes that operate better in darkness — Jeff has this to say: "This new generation of solid-state lighting, with our ability to digitally control it much more precisely in time and space, should enable us to preserve dark when we need it." There is no reason to fear, Tsao says, that advancing capabilities "will keep us perpetually bathed in light."

Jerry Simmons (1120), another paper author, points out, "More fuel-efficient cars don't necessarily mean we drive less; we may drive more. It's a tension between supply and demand. So, improvements in light-efficient technologies may not be enough to affect energy shortages and climate change. Enlightened policy decisions may be necessary to partner with the technologies to have big impacts."

Other authors of this paper are Randy Creighton and Mike Coltrin (both 1126), and Harry Saunders of Decision Processes Inc., of Danville, Calif.

The work was supported by Sandia's Solid-State Lighting Science Energy Frontier Research Center, funded by DOE's Office of Basic Energy Sciences.

The paper is available for a month, according to the journal, at http://iopscience.iop.org/0022-3727/43/35/354001.

LED paper's authors discuss motivation for research

Note: Information in the story beginning on page 1 about LED lighting has sparked an unusual controversy. Alerted by a Sandia news release sent out Aug. 23, a writer for The Economist *magazine reviewed the Sandia-led research article in the* Journal of Physics D*; he then wrote an apples-and-oranges comparison of the total energy used by incandescent bulbs today with the amount potentially used by LEDs in 2030. Since energy used for lighting increases yearly regardless of the method, such a skewed comparison resulted in the appearance that LEDs use more energy than incandescent light bulbs! The writer suggested that "greenness" might be better served by sticking with incandescents! Whether the conclusion was tongue-in-cheek or not, a* New York Times *blog picked up* The Economist *story the next day without checking its facts. Now behind the media curve, the Sandia researchers emailed letters to the two venues denying the peculiar conclusions. On the positive side, the controversy fanned media interest enough that more balanced stories appeared in a variety of magazines and newspapers, including* Scientific American *online. An NPR* Science Friday *piece is expected to air today.*

Given the controversy, when Jeff Tsao was invited by LEDs.com's editor to write an article on its "Last Word" page explaining the point of the technical paper, it seemed a natural to Lab News *editor Bill Murphy to run Jeff's clear exposition (with LEDs.com's permission) as a crystal-clear explanation of the issues. Coauthoring the LED.com piece with Jeff were Randy Creighton, Jerry Simmons, and Mike Coltrin of Sandia and Harry Saunders of Decision Processes Inc.* — Neal Singer

When, in the late 1990s, the idea of solid-state lighting was first articulated, there was a lot of excitement over the possibility that it would enable a reduction in worldwide energy consumption. The simple math was that if the efficiency of solid-state lighting was, say, 4 times higher than that of traditional lighting, then you'd decrease the consumption of energy for lighting by the same factor, 4 times. And, because the percentage of the world's primary energy consumption that is due to lighting is significant (6.5 percent or so), the macroeconomic impact would also be significant. This was exciting stuff!

In the late 2000s, though, a number of ideas emerged that caused us to wonder about that simple math. There was the monumental study by Roger Fouquet and Peter Pearson at Imperial College showing how per capita consumption of light in the United Kingdom had increased massively over the past 300 years. There were theoretical studies indicating that the magnitude of the so-called rebound effect could be pretty significant — the rebound effect is basically what happens when an increase in the efficiency of an energy service leads to a decrease in the cost, and consequently an increase in the consumption, of that service. And of course there was the direct experience of our own semiconductor electronics and optoelectronics community, where increased chip performance and decreased cost always seem to lead to increased market demand for those chips.

So we decided to take a closer look. What we found, amazingly, was that, over the past 300 years or so, a relatively simple relationship connects consumption of light with wealth and cost of light. We had to make a number of assumptions, and there are certainly nuances that deserve more attention, but the bottom line is this: the wealthier people are and the lower their cost of light, the more light they have consumed.

This empirical finding was more than a little disconcerting. If it were to continue to hold in the future, then, seemingly, increases in the efficiency of lighting would decrease the cost of light and would cause people to consume more light in just such an amount as to cause energy consumption to stay the same!

Something wasn't adding up. How could improving the performance of a technology cause us as a human society simply to stand still? What's missing? Well, what's missing, we think, is that we had forgotten that light isn't something, like sleep, that we only want a certain amount of. Light is something that makes us productive and, at least in the past, more light has made us more productive.

So the subtle shift in thinking is one in which solid-state lighting is not just about energy consumption, but about energy consumption and human productivity. On the one hand, if we don't mind a future in which we consume the same or more energy, solid-state lighting — by allowing us to consume more light "for free" — has the potential to greatly increase human productivity. On the other hand, if we do mind such a future, and governments act to reduce energy consumption, solid-state lighting can help mitigate the reduction in human productivity that would otherwise occur. This is just as exciting stuff!

* * *

Jeff Tsao et al's paper "Solid-state lighting: an energy-economics perspective" was published in *Journal of Physics D: Applied Physics* vol. 43 no. 35 (http://iopscience.iop.org/0022-3727/43/35/354001).

A *New York Times* blog on this story provoked a strong response: see http://ideas.blogs.nytimes.com/2010/08/31/are-better-bulbs-a-bright-idea.

Labs honors researchers, former Sandians for innovations during Entrepreneurial Spirit Week

By Heather Clark

Hong Hou is the CEO of one of the largest publicly traded companies in New Mexico, and Dan Neal helped commercialize a device that has helped improve the vision of about a million people.

The entrepreneurs — both former Sandia researchers who left the Labs under the Entrepreneurial Separation to Transfer Technology (ESTT) program — are among hundreds of current and former Sandians honored during Entrepreneurial Spirit Week held Aug. 23-27 to raise the profile of entrepreneurism and the culture of innovation at the Labs.

Managers Jackie Kerby Moore of Technology & Economic Development (1933), and Mark Allen of Intellectual Property Management Alliances & Licensing (1931) organized the events, which they hope will be repeated annually.

The week kicked off with an Innovation & Intellectual Property Celebration at the Albuquerque Museum. Seventy-one inventors were recognized for receiving patents in 2009; 73 researchers were honored for receiving copyrights and licenses in 2009; and 15 Sandians nominated by their directors as "Up-and-Coming Innovators" were saluted (more on the latter in an upcoming issue of the *Lab News*).

The next day, ESTT participants were awarded Olympics-style medals at the inaugural Entrepreneurial Spirit Awards luncheon at Sandia for their success in turning innovations from the Labs into successful businesses.

Div. 1000 VP and Chief Technology Officer Steve Rottler, who spoke at both awards ceremonies during Entrepreneurial Spirit Week, said they focused on the culture of valuing and expressing innovation at the Labs.

Steve said that Sandia's portfolio of intellectual property helps the Labs attract and maintain quality partners, such as government agencies, universities, and industry, which Sandia needs to enable its national security mission.

"The real reason that we entertain the notion of developing and exploiting intellectual property is to further the mission of the Laboratories," Steve said. "We're interested in strategically identifying, developing and exploiting intellectual property that allows this laboratory to further increase the impact we have in serving our country."

Jackie says Entrepreneurial Spirit Week was held to let Sandians know that "it's perfectly acceptable for people to leave Sandia to start up or expand companies. If people want to do that, we're going to support their efforts. We're going to provide the environment to allow them to leave, if it makes sense for the business of the Laboratory."

HONG HOU left Sandia in 1998 to expand EMCORE Corp. from its New Jersey headquarters to the Sandia Science & Technology Park in Albuquerque. Hou is now the CEO of EMCORE.

"I estimate that more than a million people see better today, and that's a very direct benefit of the technology that we developed."

— Dan Neal, who left Sandia in 1996 to found Wavefront Sciences Inc., which is now part of Abbott Medical Optics, a division of Abbott Laboratories

Sandia entrepreneurs honored

Recognized at the Entrepreneurial Spirit Awards Luncheon for their contributions to the success of the Entrepreneurial Separation to Technology Transfer program were:

- **Tom Brennan** cofounded Micro-Optical Devices Inc. (MODE) in 1996 to commercialize products based on Vertical Cavity Surface Emitting Laser technology. MODE was acquired by EMCORE for about $34 million.
- **Tim Estes** was Sandia's first ESTT entrepreneur. He left in 1994 to found Conductor Analysis Technologies Inc., a global provider of market-critical data for printed circuit boards that is still prospering after 16 years.
- **Karl Gross** left Sandia in 2003 to found Hy-Energy LLC in Newark, Calif. The privately held company, a subsidiary of Setaram Inc., designs and manufactures high-performance test and measurement instruments.
- **Hong Hou** left Sandia in 1998 to expand EMCORE Corp. from its New Jersey headquarters to the Sandia Science & Technology Park in Albuquerque. Hou is now the CEO of EMCORE.
- **Dan Neal** left Sandia in 1996 to found WaveFront Sciences Inc., which grew from three employees to more than 40 and is now part of Abbott Medical Optics, a division of Abbott Laboratories.
- **Jeff Nelson** left Sandia in 2000 to become the chief technology officer of Uniroyal Optoelectronics in Tampa, Fla. He also cofounded Medical Lighting Solutions, a startup company focused on light-emitting-diode-based (LED-based) lighting solutions for medical applications. He returned to Sandia in 2004 and now manages Materials, Devices & Energy Technology Dept. 6364.
- **Ellen Stechel** took ESTT in 1998 to join the Ford Scientific Research Laboratory. She later returned to Sandia where she is manager of Energy, Climate & Atmospheric Management Dept. 6383.
- **Regan Stinnett**, who left on ESTT in 1995 to found Quantum Manufacturing Technologies, Inc. Stinnett returned to Sandia, where he manages Organic Materials Dept. 1821. Since his return, Regan has been instrumental in establishing the National Institute for Nano-Engineering (NINE), an award-winning public-private partnership led by Sandia.

The events are being held to inspire Sandia employees who would like to pursue business opportunities — like Hou and Neal have done — or to encourage Sandians to pursue patents or licenses to keep the culture of innovation alive at the Labs.

Tremendous progress

Hou, an electrical engineer, says he left Sandia in 1998 when he recognized the potential to commercialize the high-efficiency, multijunction solar cells he was researching.

At the time, the conversion efficiency — the percentage of sunlight converted to electricity — of similar products was 21 percent. But Hou says by using four materials stacked together, the conversion efficiency can be doubled to 42 percent, allowing for more payload on satellites.

The technology "in many ways, revolutionized the power design in satellite service," Hou says. "We are getting 34 percent (conversion efficiency) right now. That's tremendous progress."

Fully embracing entrepreneurial spirit

Hou joined EMCORE and expanded the company from New Jersey to the Sandia Science & Technology Park in Albuquerque, where the company's headquarters are today. EMCORE also produces fiber optics for high-speed communications. The company has about 800 employees nationwide, including nearly 400 in Albuquerque, and currently has about 40 openings in Albuquerque.

Neal left Sandia in 1996 to start a company called WaveFront Sciences Inc. that was recently acquired by Abbott Laboratories and is now part of the Abbott Medical Optics division. The company, which employs about 50 people in Albuquerque, has sold 800 units to researchers and ophthalmologists around the world to help them measure the human eye, often in preparation for LASIK surgery.

"I estimate that more than a million people see better today, and that's a very direct benefit of the technology that we developed," Neal says.

Tom Brennan, who left Sandia in 1996 under the ESTT program to become cofounder of Micro-Optical Devices Inc. (MODE), went on to fully embrace entrepreneurism, most recently by working with ARCH Venture Partners and LabStart to bring more technologies from federal laboratories into the marketplace.

Brennan also served as an Entrepreneur in Residence at Sandia and has mentored other researchers thinking about leaving the Labs to start businesses.

But Brennan says he doesn't believe in training entrepreneurs; rather, the Labs needs to spot them and work with them to commercialize their technology.

"I think when you see an entrepreneur, you know it. If you're an entrepreneur, you know it and eventually there's no turning back. These people need to explore their itch; they need to do something about it," he says.

Brennan, Hou, and Neal all took advantage of the ESTT program when they left Sandia. The program guarantees Sandia employees reinstatement if they return within two years, and employees can request an extension for a third year.

Since 1994, nearly 140 Sandia employees have participated in the program and ESTT alumni have started 44 companies — 38 in New Mexico — and expanded 47 companies, including 20 in New Mexico.

"The ESTT program gives you a sense of security or a safe haven to go out and explore the world," Hou says.

Mark and Jackie are now working on additional programs to better support entrepreneurism and innovation at the Labs.

"What we're doing here also helps create the overall structure that it's OK to be creative, to be an out-of-the-box thinker, to try to make partnerships happen," Mark says. "If we don't try to take advantage of the knowledge that sits on the shelf, then nobody benefits."

IT'S LIKE THIS — Matthew Heine (5916), left, lead explosives operator for Sandia's Dynamic Explosive Test Site, explains to US Air Force Tech. Sgt. Mark Brady of Luten, England, center, and Airman 1st Class Patrick Connolly of Dayton, Ohio, how a water disruptor invented by Sandia researchers can deactivate improvised explosive devices, or IEDs. (Photo by Randy Montoya)

Water disruptor

(Continued from page 1)

water and accelerates it inward into a concave opening, Todd says. Therefore, when the water collides, it produces a thin blade.

"That allows you to have a high-speed, very precise water blade to go through and do precision-type destruction on whatever improvised explosive device it's going up against. Immediately behind the precision water blade is a water slug, which performs a general disruption that tears everything apart," Todd says.

Unlike traditional explosives, which release energy equally in all directions when they go off, researchers use shaped-charge technology to deliberately manipulate the explosives so that they create a certain shape when they explode, allowing the operator to focus the energy precisely where it's needed. The inventors of the fluid blade disablement tool took a different track. Rather than changing the shape of the explosive, Todd, Hughs, and Juan Carlos used an explosive modeling tool to figure out how to change the shape of the water when designing the water disruptors.

"We're putting the explosive in a flat tray and we're shaping the water," Greg says.

Process happens in microseconds

The process happens in microseconds and can't be captured by the human eye, so researchers used computer simulation and high-speed flash X-rays, which can view the interior of imploding high-explosive devices and record the motion of materials moving at ultrahigh speeds, to fine tune the design.

They also used another approach. Soldiers rotating out of Afghanistan and Iraq worked hand-in-hand with researchers and developers to test the device for several months in the New Mexico desert.

Paul Reynolds, TEAM Technologies' program manager, says the company improved the tool based on the soldiers' input after it was exposed to dust, water, and banging around by the troops. The improvements included providing a better seal and redesigning the water plug so it is easier to insert.

"The soldiers helped on the design to make it more ruggedized and small enough," Todd says. "It was a very good collaboration."

US Air Force Tech. Sgt. Mark Brady, who has served in Iraq on three separate tours and recently was shown how the device works, says he likes several features, including its size.

"Anything we use, we have to carry, so the smaller and lighter, the better," he says. "You never know when you could be out in the boonies or have to go up and down mountains."

READY TO GO — Emmilio Segovia, a student at Central New Mexico Community College and an employee with TEAM Technologies Inc,. packages Sandia-developed water disruptor devices for shipment to Afghanistan. (Photo by Randy Montoya)

TEAM Technologies is a small business of 75 employees based in the Sandia Science & Technology Park adjacent to the Labs.

"The first year we moved into the park here our business just exploded. We grew 70 percent that year," says Bob Sachs, president and CEO of TEAM Technologies.

Jackie Kerby Moore (1933), the park's executive director, says one reason businesses move to the park is so that they can better engage with Sandia.

"This is a real-life example of how the research park helps make companies aware of technology transfer opportunities and helps fulfill Sandia's mission to license technologies to private companies," Jackie says.

DISRUPTED — Just the shattered shell of a propane tank remains after being disabled by a Sandia-developed water disruptor.

The business of saving lives

The company's first priority is to get the device to troops in Afghanistan, but eventually they would like to sell it to law enforcement and airport security agencies. The device also could be used for forced entry into buildings.

"We saw the opportunity to move into a product line and we jumped on it," Sachs says. "We're very excited about it. We see it as a whole product line."

Reynolds says the tool can be placed almost in contact with the target or a distance away without losing its effectiveness. It uses minimal explosive material, its plastic legs can be attached in various configurations so that it can be placed in different positions to disable bombs, and it's built so that robots can easily place it near a target, he says.

"This is a giant leap forward in technology," Reynolds says.

Those researching and developing the fluid blade disablement tool say they felt a sense of urgency to get it into the hands of soldiers as they read nearly daily media reports about deaths of US troops from IED attacks.

"When I look back on how this all took place, the thing that comes through to me was that people were motivated to get a lifesaving technology onto the battlefield," Reynolds says. "This is a lifesaving technology."

Take Charge Corner

Health care plan administrators for 2011

Effective Jan. 1, 2011, Sandia's medical plans will be administered by UnitedHealthcare (UHC), Blue Cross and Blue Shield of New Mexico (BCBSNM), which is replacing CIGNA, and Kaiser Permanente. And as previously stated, more than 90 percent of the providers (hospitals, doctors, physicians, specialists, etc.), currently being used by Sandia employees and preMedicare retirees are part of the 2011 networks.

Nonrepresented employees and preMedicare retirees will have the choice of Sandia Total Health administered by UHC, BCBSNM, or Kaiser Permanente. Beginning in 2011, Sandia Total Health will be your **only** healthcare plan. While the plan design, including the Health Reimbursement Account, annual deductible, coinsurance, and out-of-pocket maximum, will be the same regardless of which claims administrator you choose, there will be differences in networks as explained below. As a reminder, the current medical plans Sandia offers today — UHC Premier PPO, CIGNA In-Network Plan, and Kaiser HMO (in California) — will be no longer be offered effective Jan. 1, 2011. All three plans will be replaced by Sandia Total Health administered by UHC, BCBSNM, or Kaiser Permanente.

All union-represented employees will have the choice of the UHC Standard Preferred Provider Organization (PPO), the UHC Premier PPO, and the BCBSNM In-Network Plan. SPA union-represented employees will have the additional option of the Sandia Total Health administered by either UHC or BCBSNM. While the Sandia Total Health plan design will be the same regardless of which claims administrator you choose, there are differences in networks as explained below. The plan design for the BCBSNM In-Network Plan will remain the same as the current CIGNA In-Network Plan.

Note: 2011 Medicare Advantage plans for Medicare-eligible retirees will be announced in the Benefits Choices Guide to be mailed mid-September.

UnitedHealthcare

For those currently enrolled in one of the UHC plans, you will be able to continue to see your current providers. UHC offers a national network that consists of more than 600,000 physicians and other health care professionals and more than 5,000 hospitals nationally. In the Albuquerque area, UHC has contracts with Presbyterian, the University of New Mexico, and many independent health care providers.

If you are currently enrolled in one of the UHC plans, you can search on myuhc.com for doctors in the UHC network by registering online. (If you are not currently enrolled, go to myuhc.com and enter SNL as the user ID and password.) Many UHC-contracted physicians are part of the United Health Premium Designation Program. The program uses industry, evidence-based, and medical specialty society standards to evaluate physicians across 20 specialties, as well as cardiac care, congenital heart disease, spine surgery, total joint, infertility, and neonatology facilities, to advance safe, timely, effective, efficient, equitable, and patient-centered care. Learn more at www.myuhc.com.

Blue Cross and Blue Shield of New Mexico (BCBSNM)

BCBSNM will provide a national provider network through the Blue Cross and Blue Shield system. This gives members access to more than 80 percent of physicians and 90 percent of hospitals throughout the country. BCBSNM will provide customer service, claims administration, and case management services out of the Albuquerque BCBSNM office for all enrolled members.

In the Albuquerque area, BCBSNM contracts with the Lovelace Health System, Albuquerque Health Partners, the University of New Mexico Hospital, and the Heart Hospital, as well as many independent health care providers. California employees enrolled in this plan will have in-network access to the John Muir Physician Network, Palo Alto Medical Foundation, San Ramon Valley Regional, ValleyCare Health Systems, as well as many independent health care providers. Members will also have access to health care services at in-network rates in nearly 200 countries worldwide. BCBSNM offers access to a special network of facilities, called Blue Distinction Centers, that have been determined by medical staff at the Blue Cross and Blue Shield Association to provide the highest level of care and treatment for specialty procedures, such as complex and rare cancers.

If you are currently enrolled in the CIGNA In-Network Plan or you would like to see if your provider is part of the BCBSNM network, go to www.bcbsnm.com.

To find BCBSNM providers in New Mexico:

- Click Find a Doctor
- Type the provider name
- Select Preferred Provider Organization (PPO) under the Network Type
- Click Find

To find BCBSNM providers outside of New Mexico:

- Click Find a Doctor
- Click Find U.S. Providers outside of NM under More Searches
- In the new browser window, click Continue
- Select the Guest tab
- Select BlueCard® PPO/EPO
- Click Find Providers without entering any additional information
- Enter your search criteria in this page and click Search

Kaiser Permanente

For those currently enrolled in the Kaiser HMO, you will be able to continue to see your current providers under Sandia Total Health administered by Kaiser Permanente. There are more than 160 locations in California. Members choose their own primary care physician, who is supported by a team of health professionals and specialists. Your primary care physician gets to know you and your health needs.

Many of the Kaiser facilities offer a wide range of services — like primary care, lab, X-ray, and pharmacy — all under one roof, so you don't have to make extra trips.

Online at kp.org, you can take advantage of personalized action plans to help you lose weight, reduce stress, eat better, stop smoking, and walk your way to better health. Also at kp.org, you can access My Health Manager, a one-stop online resource that can make managing your health easier and more convenient. You're able to email your doctor's office, view most lab test results, order prescription refills, request routine appointments, and more. Learn more at www.kp.org.

* * *

Note: *The premiums for the 2011 medical and dental plans will be provided in an upcoming* Lab News *article in September. More information will be posted to www.SandiaTakeCharge.com as it becomes available.*

Sandia Total Health consumerism tools and resources

Sandia Total Health is a consumer-directed health plan (CDHP) available to all nonrepresented employees, SPA-represented employees, and preMedicare retirees in 2011. The Sandia Total Health CDHP is one way Sandia is encouraging health care consumerism and improving overall health through an integrated approach to health and wellness. This includes a focus on prevention and healthy lifestyles, the management of chronic conditions, and behavior modification aimed at changing risk factors.

Sandia has already introduced some education and tools to help you learn about the cost of certain health care treatments and how to research the best options available and live a healthier lifestyle. For instance, the biometric screening and health assessment are tools Sandia offers to help you engage in health care awareness and education. You can read more about that at www.SandiaTakeCharge.com. More resources will be introduced in the coming months and in 2011 to help you become a better health care consumer.

Last year we provided a Medical Plan Cost Estimator Tool to help you see what you are most likely to pay for services and supplies during the plan year and the amount deducted from your paycheck when you enroll in one of the Sandia medical plans.

Additionally, here are some websites to assist you in learning about quality healthcare:

- www.abqhealthcarequality.org — Their "Hospital Snapshot" is a consumer-friendly resource presented by the Albuquerque Coalition for Healthcare Quality, providing information about the care provided by hospitals in Albuquerque.
- www.hospitalcompare.hhs.gov — Their "Hospital Compare" offers information on hospital performance on measures of quality. Hospital Compare is designed to help you and your loved ones make better health care decisions.
- www.qualitynet.org — Established by the Centers for Medicare & Medicaid Services (CMS), QualityNet provides health care quality improvement news, resources, and data reporting tools and applications.

Now that we have announced the Sandia Total Health plan administrators, we are able to provide a list of tools each vendor has available to its members. Our administrators are Blue Cross and Blue Shield of New Mexico (BCBSNM), Kaiser Permanente, and UnitedHealthCare (UHC). In addition to providing health care consumerism tools, if you enroll in either BCBSNM or UHC, you will receive your outpatient prescription drug benefits through Catalyst Rx. We've also provided you below (see page 13) with tools from Catalyst to assist you with your prescription drug purchases.

Blue Cross and Blue Shield of New Mexico

The list below is a sampling of programs BCBSNM offers. For more information about these programs and others offered, visit www.bcbsnm.com.

BlueExtras℠ Discount Programs —Provides you and your covered dependents access to discounted health care products and services usually not covered by your health benefits plan. BlueExtras has no claims to file, no referrals, no pre-authorizations, and no annual limits. To use the discounts, just show your Blue Cross and Blue Shield ID card to any of the participating merchants.

Blue Points℠ — Rewards you each time you use features in the Personal Health Manager's For Your Health section. Every time you track a fitness workout, report a healthful meal, complete a health assessment, or use other For Your Health features, you earn Blue Points that can be redeemed for health promotion products or merchant gift cards.

(Continued on page 13)

Open Enrollment 2011 for Employees

Open Enrollment 2011 for all active employees (represented and nonrepresented) will be held Oct. 18-Nov. 5, 2010 (5 p.m. MT)

Open Enrollment elections

Just like last year, you will make your 2011 Open Enrollment elections online from PeopleSoft HR self-service. The link will be provided through www.SandiaTakeCharge.com beginning Monday. Oct. 18. SandiaTakeCharge.com is a public website available inside and outside the Sandia network. However, if you wish to make your elections from home, you must first log into Sandia using your Cryptocard and then go to SandiaTakeCharge.com.

During Open Enrollment you may:

- Enroll, disenroll, or make changes to your medical plan(s)
- Enroll or disenroll in a dental and/or vision plan
- Enroll or disenroll a dependent in your medical, dental, or vision plans
- Enroll in a health care or childcare flexible spending account (even if you are currently enrolled)
- Enroll in the vacation buy plan (even if your are currently enrolled)
- Enroll in the voluntary group accident plan

2011 Medical Plans

Effective Jan. 1, 2011, Sandia Total Health administered by Blue Cross and Blue Shield of New Mexico, Sandia Total Health administered by Kaiser Permanente, and Sandia Total Health administered by UnitedHealthcare will be the only plans available to nonrepresented employees. During open enrollment this year, all nonrepresented employees are encouraged to review the available selections for their 2011 medical plan. Employees who take no action will be automatically transitioned into the following plans, as depicted in the chart above.

Effective Jan. 1, 2011, represented employees will have the option (see chart at right) of UnitedHealthcare Standard PPO, UnitedHealthcare Premier PPO, and the Blue Cross and Blue Shield of New Mexico (BCBSNM) In-Network Plan. The BCBSNM In-Network Plan is replacing the CIGNA In-Network Plan. Also, SPA-represented employees have the option of enrolling in Sandia Total Health administered by BCBSNM or Sandia Total Health administered by UnitedHealthcare.

Non-Represented Employees		
2010 Medical Plan		**2011 Medical Plan**
CIGNA In-Network Plan	→	Sandia Total Health administered by Blue Cross and Blue Shield of New Mexico (BCBSNM) (**Note:** BCBSNM provides access to National Networks)
Kaiser (CA) HMO	→	Sandia Total Health administered by Kaiser Permanente
UnitedHealthcare Premier PPO	→	Sandia Total Health administered by UnitedHealthcare (UHC)
Sandia Total Health UHC	→	Sandia Total Health administered by UnitedHealthcare (UHC)

Union-Represented Employees
2011 Union-Represented Medical Plans
BCBSNM In-Network Plan (**Note:** BCBSNM provides access to National Networks)
UHC Standard PPO
UHC Premier PPO
Sandia Total Health administered by Blue Cross and Blue Shield of New Mexico (BCBSNM) *(SPA-Represented Employees only)* (**Note:** BCBSNM provides access to National Networks.)
Sandia Total Health administered by UHC *(SPA-Represented Employees only)*

Detailed information on 2011 changes will be published in the Benefits Choices 2011 newsletters that will be distributed electronically in a HBE Update email.

Note: The large Medical Plan Comparison Charts are being eliminated. The decision was made to eliminate the charts because:

- For nonrepresented employees — Sandia Total Health is the only plan design. Specific elements of the plan design are consistent throughout all three administrators.
- For represented employees — No significant changes are being implemented for the 2011 medical plans. The BCBSNM In-Network Plan is similar in design to the CIGNA In-Network Plan.

Employee benefits fairs

This year, the Health, Benefits, and Employee Services Center will be hosting several benefit fairs for employees. Come and ask your benefit questions of the Sandia health plan vendors and/or the benefits staff.

Albuquerque, New Mexico

- Wednesday, Oct. 20, 10 a.m.-2 p.m. Employee & spouse fair at UNM Continuing Education Conference Center
- Thursday, Oct. 21, 10 a.m.-2 p.m. Employee Fair at Steve Schiff Auditorium
- Wednesday, Oct. 27, 10 a.m.-2 p.m. Employee Fair at Steve Schiff Auditorium
- Thursday, Oct. 28; 10 a.m.-2 p.m. Employee Fair at Steve Schiff Auditorium
- Wednesday, Nov. 3, 10 a.m.-2 p.m. Employee Fair at Steve Schiff Auditorium

Livermore, California

- Monday, Oct. 25, 10 a.m.-2 p.m. Employee Fair at Bldg. 904 Auditorium

Employee benefits fairs presentations
(see charts at right for schedule)

Open Enrollment 2011 Video

We have developed a short video providing an overview of benefit choices for nonrepresented Sandia employees. This video will include information on what's new for 2011, medical coverage, dental and vision coverage, eligibility, Flexible Spending Accounts (FSAs), and Health Reimbursement Accounts (HRAs). This video will be posted on SandiaTakeCharge.com before Open Enrollment and will play at the Open Enrollment fairs.

PayFlex FSA

PayFlex will administer the healthcare FSA for:

- Represented employees enrolled in the UHC Standard PPO, UHC Premier PPO, or the BCBSNM In-Network Plan
- Any employee who waives medical coverage

PayFlex will administer the childcare FSAs for all employees who contribute to a childcare FSA.

PayFlex representatives will deliver a presentation during every session and be available to answer your questions.

Blue Cross and Blue Shield of New Mexico

Blue Cross and Blue Shield of New Mexico (BCBSNM) will administer Sandia Total Health for non-represented employees and SPA-represented employees who choose this plan. Representatives will present details on their plans, including FSAs and HRAs.

UnitedHealthcare

UnitedHealthcare (UHC) will administer Sandia Total Health to nonrepresented employees and SPA-represented employees who choose this plan. Representatives will present details on their plans, including FSAs and HRAs.

Kaiser Permanente (California only)

Kaiser will administer Sandia Total Health to employees who live within Kaiser's northern California service area and choose this plan. Representatives will present details on this new plan design including FSAs and HRAs.

Presentation schedule — Albuquerque

	Wednesday, Oct. 20	Thursday, Oct. 21	Wednesday, Oct. 27	Thursday, October 28	Wednesday, Nov.r 3
10-10:30 a.m.	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video
10:30-11 a.m.	BCBSNM	UHC	PayFlex	UHC	BCBSNM
11- 11:30 a.m.					
11:30 p.m.-noon	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video	Open Enrollment Video
Noon -12:30 p.m.	UHC	PayFlex	BCBSNM	PayFlex	PayFlex
12:30-1 p.m.					
1-1:30 p.m.	PayFlex	BCBSNM	UHC	BCBSNM	UHC
1:30-2 p.m.					

Presentation schedule — Livermore

Monday, Oct. 25	
Time	**Presentation**
10- 10:30 a.m.	Open Enrollment Video
10:30-11:15 a.m.	BCBSNM
11:15-11:45 p.m.	Open Enrollment Video
11:45 a.m.-12:30 p.m.	Kaiser
12:30-1:15 p.m.	UHC
1:15-2 p.m.	PayFlex

Employees considering retirement

Considering retirement in 2010 or 2011? If so, you may want to attend a Retiree Open Enrollment presentation to learn about the medical plans offered to retirees. For details, see the companion article on the next page titled Open Enrollment 2011 for Retirees and Surviving Spouses.

More information

Open Enrollment website:
www.SandiaTakeCharge.com

Sandia Laboratories Customer Service

HBE Customer Service hbe.sandia.gov
505-844-HBES (4237) or 1-800-417-2634, ext. 844-HBES (4237)

Hours: 7:30 a.m. — 5:00 p.m. MT

Open Enrollment 2011 for retirees and surviving spouses

Open Enrollment 2011 for Sandia retirees and surviving spouses will be held Oct. 18-Nov. 16, 2010 (5 p.m. MT)

Detailed information on 2011 changes will be published in the Benefit Choices 2011 Guide sent to all participants' home addresses the week of Sept. 13.

Sandia retirees, surviving spouses, and long-term disability terminees will receive the Benefit Choices 2011 Guide directly from Extend Health (Sandia's new retiree, surviving spouse, and long-term disability terminee health benefits administrator). Extend Health will be responsible for enrollments/disenrollments, resolving eligibility issues, sending any pertinent materials to retirees, and collecting health care coverage premiums.

Retiree/surviving spouse pre-Open Enrollment sessions

Sandia Benefits will host several pre-Open Enrollment sessions in Albuquerque and Livermore for preMedicare and Medicare retirees to provide information on open enrollment choices, as well as important information on the transition to Extend Health. Representatives from Sandia Benefits, the health insurance carriers, and Extend Health will be available during these sessions to answer your questions. These are the only sessions being held to provide 2011 health plan information.

Albuquerque, New Mexico

All presentations will be held at the UNM Continuing Education Conference Center, 1634 University Blvd. NE.

PreMedicare presentations

Sandia preventive health clinicians will be available at all preMedicare retiree sessions to conduct biometric screenings. You may complete either a nonfasting screening or a fasting screening that requires a 12-hour fast. All preMedicare retirees must complete a biometric screening and health assessment to receive the full Health Reimbursement Account HRA contribution.

Date	Presentation Schedule	Biometric Screening schedule
Sept. 24 (Friday)	9-11 a.m. MT	8 a.m.-noon MT
Sept. 30 (Thursday)	9-11 a.m. MT	8 a.m.-noon MT
Oct. 1 (Friday)	9-11 a.m. MT	8 a.m.-noon MT
Oct. 4 (Monday)	9-11 a.m. MT	8 a.m.-noon MT

Medicare primary presentations — Albuquerque

Date	Presentation Schedule	Audience
Sept. 24 (Friday)	1-3 p.m. MT	Last name begins A-E
Sept. 30 (Thursday)	1-3 p.m. MT	Last name begins F-L
Oct. 1 (Friday)	1-3 p.m. MT	Last name begins M-R
Oct. 4 (Monday)	1-3 p.m. MT	Last name begins S-Z
Oct. 5 (Tuesday)	9-11 a.m. MT 1-3 p.m. MT	All Medicare primary retirees welcome
Oct.7 (Thursday)	9-11 a.m. MT 1-3 p.m. MT	All Medicare primary retirees welcome

Livermore, California

All presentations will be held at the Robert Livermore Community Center, Cresta Blanca Ballroom, 4444 East Ave., Livermore, Calif. 94550

Medicare primary presentation

Date	Presentation Schedule	Audience
Sept. 22 (Wednesday)	9:00 a.m. – 10:30 a.m. PT 1:00 p.m. – 2:30 p.m. PT	All Medicare primary retirees welcome

PreMedicare presentation

Date	Presentation Schedule	Audience
Sept.22 (Wednesday)	10:30 a.m.– noon PT 2:30– 4 p.m. PT	All Pre-Medicare primary retirees welcome

More information

For more information regarding retiree Open Enrollment, you will contact Extend Health's customer service hotline beginning Monday, Sept. 27. (This number will be published in future communications from Extend Health.) Extend Health will send more information to assist you with your Open Enrollment options as well as the transition to Extend Health.

Consumer tools

(Continued from page 11)

Condition Management Programs — Provides an integrated, holistic approach to health care management. This program helps those who have chronic diseases by providing self-management guidance and external support services. As part of the Condition Management Programs, members with certain chronic diseases receive educational materials, tools for self-care techniques, and health counseling and coaching.

Fitness Program — Regular exercise is an essential part of healthier living. With the Fitness Program, members and their covered dependents (age 18 and older) are eligible to participate and receive a flexible membership that allows them access to fitness centers nationwide.

Kaiser Permanente

The list below is a sampling of programs Kaiser offers. For more information about these programs and others offered, visit www.kp.org.

Live Healthy Resources — Helps members explore total health resources, including fitness, nutrition, mind and body health, weight maintenance, and more.

Member Discount Programs — Provides special rates for Kaiser Permanente members, including Weight Watchers®, fitness club memberships, and chiropractors. (Programs vary by region.)

Member Programs and Classes — Supports members' need to live healthier. These customized online programs with Kaiser Permanente include collaboration with HealthMedia® and can help you reach your health goals. Programs include managing chronic conditions, eating healthy, managing diabetes, quitting smoking, reducing stress, and managing pain and depression.

Sample Fee List — Shows Kaiser's estimated member charges for some of the most frequently used medical services, helping you estimate your personal out-of-pocket expenses.

Treatment Cost Estimator — Calculates estimated out-of-pocket health care costs (both in-network and out-of-network) for selected diseases and conditions, surgeries and procedures, office visits and tests, and drugs so that employees can gain a better understanding of the true cost of their health care and can plan accordingly. The estimated costs are based on average costs of health care within the ZIP code selected.

UnitedHealthCare (UHC)

The list below is a sampling of programs UHC offers. For more information about these programs and others offered, visit www.uhc.com.

UnitedHealth Allies Discount Program — Helps you and your covered dependents save up to 50 percent on certain health care services that may not be covered under Sandia Total Health. Products and services available under the UnitedHealth Allies Health Discount Program include: laser eye surgery, cosmetic dental services, massage therapy, fitness clubs, and more.

Health and Wellness Portal — Helps members measure, assess, and understand their overall risk profile and take a proactive and long-lasting approach to health and self-management. Your personalized Heath and Wellness page offers a health improvement plan, records, stats, reminders, and articles related to your personal profile.

Interactive Health Tools — UHC provides educational interactive tools to help you make the best health care decisions. Tools include: Symptom Checker, Condition quizzes, calculators such as BMI, and Health and Wellness tracking.

Treatment Cost Estimator — Finding the best provider and location shouldn't be like finding a needle in a haystack. The Treatment Cost Estimator allows you to see estimated cost information for diseases and conditions, surgeries and procedures, office visits, tests, and prescriptions.

Quicken Health Expense Tracker℠ — An easy way to keep track of your health care claims and costs. As a UnitedHealthcare member, you now have access to a new Web-based tool that will help you organize and understand your family's health care expenses. Features include:

- A clear breakdown of every health care claim
- Medical claims and records going back up to 18 months
- Online bill payment in a safe and secure environment

Catalyst Rx

The Sandia Prescription Drug Program (PDP), although part of Sandia Total Health, is administered separately through Catalyst Rx, a full-service pharmacy benefit management company. Learn more about Catalyst Rx at www.catalystrx.com. Catalyst Rx offers:

Interactive website — The Price & Save tool provides members the ability to retrieve pricing information for possible lower cost alternatives. Search for pharmacy-specific generics, over-the-counter (OTC) drugs, and therapeutic equivalents. Members can also check medication interaction and look up specific drug information. In addition, the Pharmacy Locator tool provides information on network pharmacies closest to your location along with driving directions. Visit www.catalystrx.com

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Note: These lists do not include every resource offered by the three Sandia Total Health administrators or the tools offered through Sandia. This is just a sampling meant to assist you with your 2011 Open Enrollment selection. While each vendor offers a variety of tools to assist you with your health care decisions, you must play an active role in managing your health. Take Charge.

Sandia Science & Technology Park's Applied Technology Associates expansion to create jobs

US SEN. JEFF BINGAMAN gives the keynote speech at Applied Technology Associates' ceremony for its expansion. Rep. Martin Heinrich, left, Albuquerque Mayor Richard Berry, beside Heinrich, and ATA's director of operations, Jim McNally, listen. (Photo by Randy Montoya)

By Heather Clark

A Sandia Science & Technology Park (SS&TP) business, Applied Technology Associates, announced a 26,000-square-foot, $5 million expansion that will create high-tech jobs, boost its manufacturing capabilities, and provide a facility to assemble and test satellites.

The expansion at the 35-year-old Applied Technology Associates (ATA) will create 50 or more high-tech jobs over the next few years, ATA CEO Tony Tenorio says. The expansion more than doubles the company's space, bringing its total size to about 41,000 square feet.

"I applaud Applied Technology Associates for making the decision to expand at the Sandia Science & Technology Park," US Sen. Jeff Bingaman said before a speech at the company's ribbon-cutting ceremony. "ATA's location gives the company a unique opportunity to collaborate with Sandia National Laboratories and Kirtland Air Force Base. As a result, ATA is able to help advance our national security efforts while supporting hundreds of good jobs in New Mexico."

Rep. Martin Heinrich and Albuquerque Mayor Richard Berry also attended the event.

ATA is among six SS&TP businesses that have expanded their facilities after moving into the 250-acre master-planned research park since its establishment in 1998, says Jackie Kerby Moore (1933), the research park's executive director. The other companies are: Analytical Solutions Inc.; CSA Engineering Inc.; EMCORE Corp.; Ktech Corp.; and TEAM Technologies Inc.

Overall, the six companies have spent nearly $144 million on their expansions and for equipment to fill the new space, Jackie says.

The SS&TP is located next to the Labs, giving the park's more than 30 firms access to the Labs' scientists and engineers. Many SS&TP businesses, like ATA, supply Sandia with goods and services or technological products. Others have licensed and commercialized technologies that originated at Sandia.

Since the park's inception, Sandia has awarded research park businesses with more than $345 million in contracts to supply the Labs with goods and services. The companies have paid more than $17 million to the Labs in cooperative research and development agreements (CRADAs), Work for Others (WFO) agreements, and licensing of Sandia technology, Jackie says.

ATA produces precision measurement, sensing, and controls equipment and offers engineering, integration, and test services and facilities to government entities, including Sandia and the Air Force Research Laboratory, and aerospace, and industrial customers.

Since moving to the SS&TP in 2002, ATA has done more than $2.5 million of technical work for Sandia, Jackie says.

The company has provided testing for Sandia that helps validate satellite hardware performance before launches to ensure reliable performance in space. ATA also has made about 50 sensors to control vibrations on satellites, Tenorio and Jackie say.

Since 2008, the company also has provided in-depth technical training for about 30 Sandia scientists working on satellites, Jackie says.

"One of the reasons ATA moved to SS&TP is because they wanted to develop a relationship with Sandia," Jackie says. "Their physical proximity allowed them to get to know Sandia better and to understand how they could work more with the Laboratories, which has resulted in business for ATA and technical support for Sandia."

The company is a minority-owned small business that employs about 250 people in New Mexico. It also has facilities in Las Cruces and at White Sands Missile Range in southern New Mexico. The company was founded in 1975.

The expansion includes a 7,200-square-foot satellite and payload assembly and test facility, which will help the company better support Sandia and other customers. This high bay contains 30-foot high ceilings and a 7.5-ton crane to move around satellites and parts.

"We're looking to grow our capabilities in satellite assembly and testing, which would result in hiring and creating good paying jobs," says Jim McNally, ATA's director of operations.

The expansion also has allowed ATA to form an alliance with the Space Dynamics Laboratory (SDL) from Logan, Utah, to expand SDL's presence in Albuquerque, improve its support to Sandia, and work with ATA in the new facility.

Training course codeveloped by Sandia helping safeguard world's most dangerous biological agents

By Stephanie Hobby

Safeguarding the world's most dangerous biological agents has been a top priority for a dedicated group of Sandia scientists for more than a decade, and now this team is training laboratory leaders from around the world how to secure deadly agents such as anthrax and HIV from accidental or intentional misuse.

This year, Sandia's International Biological Threat Reduction (IBTR) group codeveloped the World Health Organization's (WHO) Biorisk Management Advanced Trainer Course, which will be executed in each of the WHO's six regions: Eastern Mediterranean, the Americas, Europe, Southeast Asia, Africa, and the Western Pacific. The team conducted sessions in Amman, Jordan, and Quito, Ecuador, starting in April, and will present additional courses in Stockholm, Sweden, the Maldives, Nairobi, Kenya, and possibly Bangkok, Thailand, by December.

The courses are in line with Sandia's efforts to ensure that potentially dangerous agents are not accidentally released or do not fall into the wrong hands. The need for such work was readily apparent after the 2001 anthrax attacks on the US right after the 9/11 terrorist attacks. Until that time, most Americans had never considered the nation's vulnerability to a bioattack. But more than a year before the anthrax attacks, Sandia scientists had formed a small team to look at ways to prevent and contain such threats. That team eventually became IBTR.

In the past 10 years, the international community has taken an increased interest in mitigating risks related to the growing fields of biosciences and biotechnology. In response, WHO strengthened its work in laboratory biosafety, biosecurity, and infection prevention and control. Sandia contributed to the revision of WHO's Laboratory Biosafety Manual in 2004 and to the development of a biosecurity supplement in 2006. Additionally, in 2008, the European Committee for Standardization published a workshop agreement, which IBTR staff helped create, that focuses on standardizing biorisk management in labs worldwide; this international standard motivated the development of the current WHO training courses.

REN SALERNO (6720) speaks with Fatima Ebrahim Shehab, biosafety officer at Bahrain's Central Public Health Laboratory, about conducting risk assessments during the WHO's Biorisk Management Advanced Training Program in Amman, Jordan, earlier this year.

Sandia's team continues to be a leader in the fight against accidental and intentional misuse of infectious diseases, and IBTR reaches into many countries worldwide with additional prevention and outreach efforts. Raising awareness, engaging scientists and providing educational outreach and technical support for foreign laboratories are critical to advancing US national security interests. To meet that need, Sandia's IBTR executes laboratory risk assessments, implements risk management programs, and conducts many different technical training programs both at home and abroad, including courses with WHO. IBTR is seeing increased participation as more labs handle potentially dangerous agents.

"In the 10 years since Sandia's team was founded, laboratory biosafety and biosecurity has become a particularly vibrant field," says Ren Salerno (6720), founder of Sandia's IBTR. "The international community recognizes that safeguarding work with high-risk pathogens is critical to both public and agricultural health and international security. Today, there are hundreds, maybe thousands, of labs around the world that work with high-risk pathogens, and lab leaders are increasingly committed to taking the proper precautions to prevent those agents from accidentally harming lab workers, being released into the environment, or being misused by someone who intends to cause harm."

Sharing the IBTR's knowledge of physical security, computer science, biology, microbiology, physiology, veterinary medicine, and chemistry with other labs is critical, but the WHO courses emphasize providing participants with the tools needed to assess and mitigate risks based on their work and their labs. This is a departure from traditional risk-mitigation practices, which relied on a standard set of guidelines based on what agents were studied in the lab.

"We're really trying to add an intellectual framework to these guidelines," Ren says. "Current guidelines can mean different things to different people, and if lab leaders lack the ability to understand why some of these guidance statements have been made, the risks of accidental or intentional misuse increases. With this new approach, much more responsibility is placed on the individual labs and their managers. They're no longer just following a checklist. I'm confident that courses such as these, combined with other outreach efforts like the many we already offer, will continue to bolster safety and security in labs worldwide."

Mileposts

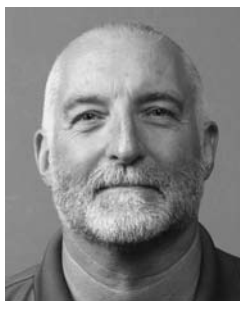
New Mexico photos by Michelle Fleming
California photos by Randy Wong


John Becker
35 8133


Pat Keifer
35 8223


Gary Simpson
35 8226


James Van De Vreugde
35 8125


William VonderHeide
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John Chavarria
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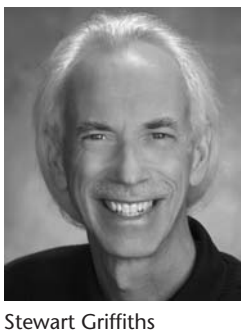
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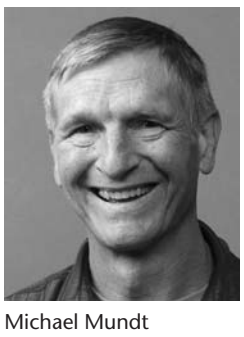
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Danny Rey
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James Ringland
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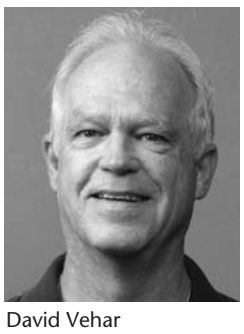
David Vehar
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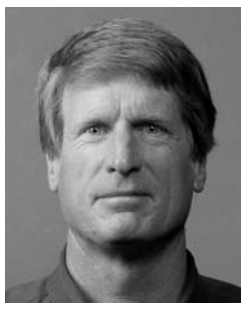
Catherine Houf
25 8945


Eric Burns
20 17412


Neal Fornaciari
20 8365


Gary Kishi
20 3653


Della Vieth
20 5096


Felicia Duran
15 6414


Reuben Martinez
15 5419

Feedback

Pen drives, thumb drives in security areas — what's the policy?

Q: *These two items were in the* Daily News *on the same day — (NM) Prohibited S3 vendor item: The Xerox vendor at Wednesday's S³ (Safe, Secure, Sustainable) event distributed wrist bands that include a built-in 250 MB USB memory device ("thumb drive," "pen drive"). Many who attended the event may have picked up one of these devices and unintentionally violated the controlled articles requirements by bringing it into a security area. . . . and — (NM) Year-end stock-up: Representatives from Joy of Advertising will be in the IPOC supplier lobby Thursday, Aug. 26, 9-10:30 a.m., to provide ideas on promotional products you might want to buy for FY 2011 with year-end money still available. T-shirts, pens, cups, pen drives, stress balls and more are among the things you'll need for outreach events or team celebrations during the upcoming fiscal year. You can just stop by, or register ahead of time by contacting Joy of Advertising at 384-9788 or joyofad@aol.com. So are the pen drives that we can buy for promotional purposes or team celebrations allowed in the tech area since they were bought with government money? If they are, I really don't understand the issue with the Xerox drives. If they aren't, why are we advertising in the* Daily News *to go buy pen drives?*

A: Thank you very much for allowing me the opportunity to comment on your questions regarding computer media and when it can and cannot be introduced into a security area. There are several elements to your question, so I'll address the current Sandia policy regarding computer media, to establish a foundation. Corporate Procedure IM100.1.2, *Manage Controlled Electronic Devices and Media*, describes the requirements. Specifically, the current guidance stipulates, "You may bring computer media (e.g., CDs, floppy disks, Zip® and Jazz® disks, thumb drives, pen drives, USB drives, removable hard drives, etc.) onto Sandia-owned premises if all of the following conditions are true:

• The media were obtained through approved US government or Sandia procurement channels and are identifiable as US government-owned property.

• The media are used to perform Sandia work. Sandia computers used to access the media are configured with the latest virus definitions to check for viruses and trojan horses."

The security concern regarding the Xerox bracelet thumb drives was attributed to the fact that the thumb drive was concealed within the wrist bracelet so members of the workforce were unaware they were receiving a media device. I published the announcement as a way of mitigating potential issues within high security facilities and also to inform members of the workforce that this bracelet concealed a thumb drive. Based on current policy, the introduction of the device into a limited area or higher security area is a violation. The cybersecurity professionals are concerned about the introduction of these devices due to the potential for media devices to be "loaded" with software that could adversely impact cyber security. Items provided as gifts, awards, or promotional items are typically not considered as items that will be used for an official business purpose.

Media ordered from an authorized JIT vendor is less vulnerable to a targeted attack because of the randomness of the supply chain. Purchasing thumb drives from the Joy of Advertising for team celebration awards or promotional purposes is acceptable. Just because these items are purchased with "government" money, does not translate to meeting policy because the intent of the purchase is for a promotion or token gift, not for business use. This is also true of drives you may receive while attending conferences or other professional gatherings — these media should not be used for Sandia business. If you are responsible for purchasing promotional items, you should ensure that the items you buy do not inadvertently create security issues. Concealed items are not recommended, whether they be computer media, letter openers, etc. I hope this provides some insight as to the differences in risk between promotional items in which a potential adversary knows the destination, and items randomly purchased from one of the JIT vendors specifically for a business purpose. I also hope it is clear that there is not an issue with a vendor providing promotional thumb drives and such. The problem comes when members of the workforce introduce the devices into security areas and worse, introduce the device to the cyber environment. Providing a promotional item that obfuscates the actual device or a function that may have special controls can and should be avoided. For specific questions regarding cyber security, please contact your cyber security representative (CSR). For specific questions relating to controlled articles, please visit the controlled articles web site http://info.sandia.gov/security/dept/mca/capa/.

— Paul Keller, 4242

About the Feedback program

Sandia's Feedback Program, established in 1973, is designed to facilitate both upward and downward communication at the Labs. The program enables employees to question policies or procedures and point out areas of discontent and frustration. Feedback allows management to answer difficult and sensitive questions, learn what employees want or need, obtain suggestions for making improvements, and determine if policies and procedures need changing. The submitter's identity remains confidential, known only by the Feedback program administrator unless the submitter specifically asks to be identified with the question.

To submit a Feedback question: On the Techweb homepage, click on the Feedback link in the Around Sandia section and then Submit a Question. Complete and submit the electronic form. Questions can also be submitted via fax, by email directly to the administrator, or through internal mail. Unless otherwise requested, submitters' names will be kept confidential, known only by the Feedback administrator. Remember, if you do not include your name with your submission, there will be no response, which is otherwise guaranteed. Anonymous submissions will be forwarded to the appropriate director for their information only.

Confidentiality (only the Feedback Program Administrator has access to the names of individuals who submit questions) encourages employees to ask questions or make comments, including those that might be considered critical of management, without being thought a "troublemaker." Any breach of confidentiality would inhibit the free flow of two-way communication, which is the chief value of Feedback.

While confidentiality is ensured, the Feedback program is not aimed at "bypassing the boss." It is clearly stated at the top of the Feedback form "your immediate supervisors are the best source of information about Sandia National Laboratories and your work." Feedback is set up to handle questions that supervisors, in all likelihood, are not equipped to answer authoritatively without considerable research.

'Singing is my air,' says Juanita Evans

By Iris Aboytes

If you have been to any Sandia celebrations or attended any University of New Mexico's Lobo games you may have heard Juanita Evans (9003) sing. Juanita also recently sang a medley of military songs on the Performance Excellence USA Radio show hosted by former Sandian Julia Gabaldon.

Performance Excellence USA airs every Sunday on 770 KKOB AM. The Alliance for Performance Excellence and the Baldridge National Quality Programs showcases businesses and organizations that advance America's competitiveness.

"Singing is my air," Juanita says. "My daddy, Frank, used to sing to me when I was still in my mother's womb and then as a child after he came home from work. There are seven kids in our family, and we all sing. Growing up we all sang in rounds. My entire family performed in churches as The Evans Family. When dad pastored a predominately Native American church, we sang black spirituals with more enthusiasm. I enjoy singing Christian and inspirational music. Daddy inspired my love of music. I remember having a feeling of joy when I heard him whistling as he came home."

Juanita began singing at Sandia events in 2004. She was in all-state choirs for three years. In 2006, she performed her first recital, singing arias from the Ballad of Baby Doe, inspirational songs, and spirituals. In 2009, she was in a joint recital where she sang arias from Porgy and Bess.

When she sang at President and Labs Director Paul Hommert's address at the Albuquerque Business Community luncheon event sponsored by the Greater Albuquerque Chamber of Commerce, Julia Gabaldon heard her sing and invited Juanita to sing on her radio program.

Juanita was part of a group of four young women called Redeemed, whose mission was to share inspirational music in Albuquerque and the surrounding cities. She also sang with a group of five young women called the Dazzle Dolls. Their passion was to bring the joy and healing of music to the seniors and elderly of Albuquerque and throughout New Mexico, especially those whose circumstances limited their opportunity to experience uplifting and entertaining performances.

Juanita began taking voice lessons about six years ago. She particularly likes Puccini. "Puccini operas are emotional and dramatic," Juanita says. "When I sing them, I can actually feel the words. I plan to do a recital on Puccini...."

"Puccini operas tell stories of love found, love lost, and great tragedies. My heart feels the words I sing like a story of life with joy, anger, and awakenings.

"I have enjoyed Puccini for such a long time that when I hear myself sing, it is unreal. Me — singing Puccini. It is a thrill for me to have people feel what I feel because the nonsinging part of me is shy and quiet. Music provides the avenue to share the full range of emotions that are easily understood by people of all generations and cultures."

To enjoy Juanita's performance on KKOB, go the Quality New Mexico website at qualitynewmexico.org, where it will be posted soon.

JUANITA EVANS has enjoyed Puccini for a long time. "It is unreal — me singing Puccini. I love the way my heart feels when I sing," she says. (Photo by Randy Montoya)

Habitat for Humanity

LABS DIRECTOR AND PRESIDENT PAUL HOMMERT welcomes Cynthia Jones and her daughters, Esperanza and Angelica, to their new home. Sandia's 10th Habitat house took 283 Sandia volunteers, family members, and other volunteers about eight weeks to build. The Jones family moved in right after the dedication Saturday, Aug. 28. (Photos by Patty Zamora)