

Sandia nanolaser may help extend life-spans by rapidly analyzing possible neuroprotectant drugs

Preventing mitochondria from turning ugly may postpone Alzheimer's, Huntington's, Parkinson's diseases

By Neal Singer

Anyone visiting a nursing home has seen the horror of humans living on beyond their brains' ability to make sense of their surroundings.

That loss of discrimination is caused by neurons killed by malfunctions in mitochondria — the submicron-sized power packs found in every animal cell.

These malfunctions — the 'dark side' of the otherwise 'white hat,' life-supporting organelle — are the most immediate cause of afflictions like Parkinson's, Huntington's, and Alzheimer's diseases.

Malfunctioning mitochondria have also been linked to battlefield aftereffects caused by radiation or by nerve agents like sarin.

Because these malfunctions are caused in part by the actions of excess calcium ions in each cell, "Waterproofing' the mitochondria with specific protectant drugs would increase the survival chances of the brain," says Marcus Keep, a neurosurgeon professor at the University of New Mexico School of Medicine.

But because mitochondria are so small, averaging a few hundred nanometers, scientists have been unable to study them in vitro with the necessary precision to determine the best possible neuroprotectants.

Now basic research at Sandia on a unique
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SURROUNDED BY MRIs of human brains, Sandia researcher Paul Gourley, left, and Marcus Keep, a neurosurgeon professor at the University of New Mexico School of Medicine, examine a fanciful drawing of a mitochondrion by recently deceased Swedish artist Oscar Reutersvard. The photo site is at UNM. (Photo by Randy Montoya)

Labs officials laud DOE move to cut down on mandatory polygraphs

Random screening program would be added

By Ken Frazier

DOE's decision to significantly reduce the number of weapons-complex employees who would have to undergo mandatory polygraph testing is a step in the right direction, Executive VP Joan Woodard and Counterintelligence Program Manager Bruce Held (30) said last week.

On Sept. 4, Deputy Secretary of Energy Kyle McSillarow announced he will "recommend that we substantially

lower the numbers of categories of information and hence the numbers of persons that would be subject to a polygraph screen."

Joan said the recommendation amounts to about a "factor of 5" reduction in the populations at the national labs subject to polygraph testing.

The new proposed policy would reduce the number of Sandians subject to mandatory polygraph screening from the previous estimate of 4,000 to 4,500 down to fewer than 1,000, Bruce said. While the numbers subject to mandatory testing would drop significantly, some other

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"Given where we started, there is substantial progress in making this a much more balanced process."

Joan Woodard

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Jeff Brinker, Jim Gosler appointed Sandia Fellows

Rare honor goes to widely published scientist, super-secretive 'blackhatting' intelligence expert

By Neal Singer

Jim Gosler (5901) and Jeff Brinker (1846) have been appointed Sandia Fellows by Laboratory Director C. Paul Robinson.

They are the fifth and sixth Sandians so honored since the Laboratories were founded 57 years ago, and they already have plans to use their new positions — which correspond to director of a line organization — and distinctive capabilities to perform work that wouldn't have occurred to them before their appointments.

Says Jeff, "Maybe Gordon [Osborn (1001), the only other active Fellow], Jim, and I will come up with a common denominator to find and work critical problems that would be of importance to the Laboratories. Maybe we can do something interesting instead of being disconnected entities."

Ordinarily, he said, "My world doesn't intersect with Jim's at all. But he has major issues he's identified. Maybe Gordon can provide modeling, I do the materials work, and Jim

identifies the threats."

Jim is a widely recognized expert in areas of information security that are generally classified as "dark" areas. Jeff is an internationally recognized expert in materials science, particularly in the area of sol-gel processing of ceramics and self-assembling nanostructures.

Says Jim, "One of the loves of my life is what has historically been known as blackhatting. In the past, I've pulled together a collection of diverse technical people looking for vulnerabilities in weapons components that bad guys might attempt to exploit, with the idea of getting there before they do. Over the last 15 years, I've been deeply involved with the operational world and finding novel applications of technology to support that world. I suppose that broadens the definition of Sandia Fellow in the Labs; I don't fit the Brinker-Osborn scientist mold. So we agreed that the three of us get together on problems of national interest where the blend of our expertise could be useful in finding solutions to these prob-

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What's what

A note in this space last month about people chattering up a storm as they walk along alone caught Roger Busbee's (8232) eye. What's even more interesting than just talking to yourself, he wrote, is asking yourself a question and then answering it. As in muttering to yourself, "What time is it?" then looking at your watch and responding (aloud) "It's 2:30."

And he's especially entertained by watching people in airports and other gathering places who have headsets plugged into their cell phones. "Not only do they appear to be talking to themselves," he wrote, "but with their hands now free, they're waving their arms in all fashion of expression. I have always wondered if this sort of person could carry on a conversation if they had to keep their hands in pockets."

I don't know, Roger, but my guess is that if someone's so determined to have a conversation that not having another someone to converse with isn't inhibiting, forced restraint of hands and arms wouldn't make much difference.

* * *

Sandia's recognized around the world because Sandians write papers that are published in scientific, scholarly, and academic journals. Researchers – individually and in teams – are routinely recognized by a variety of organizations for their original and innovative work, and individuals are awarded prizes and memberships in prestigious academies and societies. And if you're familiar with the Lab's early history, you know that Bob Henderson, who left a Hollywood career with Paramount Pictures to lend his expertise to national security, was a 1942 Academy Award winner (obituary, *Lab News*, June 28, 2002).

But did you know Sandia has been recognized in the *Guinness Book of World Records*?

Yep, we're recognized as the maker of the world's highest-jumping "hopper" robots; creator of the Z machine, the world's most powerful generator of X-rays; and builder of the world's tiniest steam engine, a machine with a rectangular piston 6 microns wide by 2 microns high.

It's true. Sandia – among the world's preeminent research and development laboratories, one of the brightest stars in the constellation of national security labs – is right there in the same pages as:

- Danny Capps of Madison, Wis., who holds the record for the greatest distance anyone has spat a dead cricket from his or her mouth – 30 feet, 1.2 inches.

- Ashrita Furman of New York, the record-holder for the greatest distance walked by a person continuously balancing a milk bottle on the head – 80.96 miles.

- And the apparently multigifted Mr. Furman, who also holds the world record for the fastest time jumping the 1,899 steps of the CN Tower in Ontario, Canada, on a pogo stick – 57 minutes, 51 seconds.

Just makes you proud, doesn't it?

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

'Your Thoughts' on better meetings with the boss

...and, Sandians speak out about PowerPoint

Meeting with the boss to talk about a problem or concern probably isn't one of those at-work agenda items most of us relish. Research shows that bosses don't relish it either.

That's why "Your Thoughts, Please," the Labs' intranet-based employee comment program, wants to give Sandians a chance to chime in.

Just respond to the current question: "What has been your experience when taking a concern or problem to a manager at any level, and what principles, if needed, would you propose to make those experiences as effective as possible for both managers and staff?" Go to the NewsCenter (<http://www-irn.sandia.gov/newscenter/news-frames.html>) and click on the "Your Thoughts, Please" link at the top left of the page.

Also on that page are employee responses to the previously posed question – basically a query calling for a thumbs-up or -down on how Sandians use PowerPoint, a near-requirement, it seems, for presentations.

A few sound bites from Sandians on PowerPoint:

"PowerPoint is a terrific communication tool when it is used as a tool and not as a replacement to oral presentations."

"It seems that the PowerPoint presentation is mainly for the presenter's benefit to help them remember what they want to say, not the audience."

"...the closed nature of the source code and file formats of PowerPoint, Office, and Windows in general makes it an ill-defined and poor security environment that is fundamentally inappropriate for use in a government institution charged with critical national security tasks."

"I suspect with little effort, an inverse Moore's Law could be demonstrated relating the decreasing information content of presentations with the introduction of more presentation bells/whistles."

Finally, some responders simply didn't like the PowerPoint question. For example: "Don't we have anything better to talk about than PowerPoint use? Has the fear of controversy finally done 'Your Thoughts, Please' in?"

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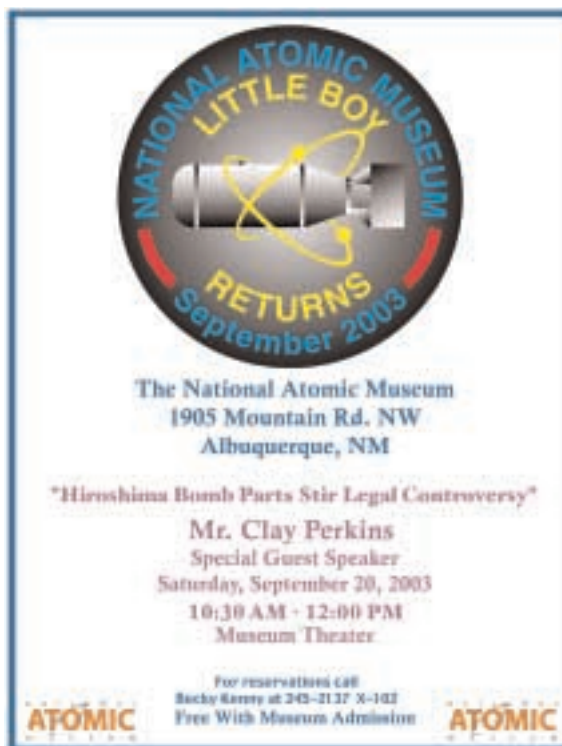
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★ Congratulations

To Hope and Derek (6133) Rodgers, a daughter, Jaiden Faith, July 31.

To Penny (9724) and James "Red" (15272) Jones, a son, Cian Franklin, Sept. 2.

Heffelfinger, Hsu in NAE Frontiers of Engineering program

Sandians Grant Heffelfinger (1802) and Julia Hsu (1114) were scheduled to be among 83 of the nation's top young engineers participating in this week's annual National Academy of Engineering Frontiers of Engineering program.

The three-day event, Sept. 18-20, at the National Academies' Beckman Center in Irvine, Calif., Sept. 18-30, brings together engineers age 30 to 45 "who are performing leading-edge engineering research and technical work," according to the NAE. Participants were selected from 170 applicants nominated by fellow engineers or organizations.

Topics to be explored include environmental engineering, nanotechnology, counterterrorism technologies and infrastructure protection, and biomolecular computing.

Employee death

Lewis Bird of Custodial Services Team 1 10848-4 died Sept. 6 after a long illness. He was 56 years old.

Lewis was a custodian and had been at the Labs since February 2001.

He is survived by sons Lewis Jr. and Joel and daughters Johanna and Joy.

Note: Lab News writer Iris Aboytes had recently interviewed Lewis about how much United Way had helped him and his family during his illness. Her story about Lewis is on page 12.

Nuclear weapons pioneer Edward Teller, a titan of 20th century physics, dies at age 95

Sandia weapon interns relished annual luncheon meeting with the famous scientist

By Bill Murphy

By the end of his life, Edward Teller had reportedly come to deeply resent the sobriquet for which he was known for half-a century: Father of the H-Bomb.

Of course, whether he liked it or not, that was the kind of label that Teller would never shake. He would always be associated with the hydrogen bomb, just as much later in his career he would be associated with the Reagan-era Strategic Defense Initiative.

Teller, a towering figure in 20th century physics who attracted controversy like a lightning rod throughout a remarkably long and scientifically productive career, died last week (Sept. 9) at age 95 at his home on the campus of Stanford University.

Teller, a Hungarian Jewish émigré to the US who fled the rise of Nazism in Europe in 1935, was a key member of the senior technical team during the Manhattan Project that developed the first atomic bomb. Even before

the work on the first nuclear weapon was completed, Teller was conceiving of a far more powerful weapon, a fusion device that would dwarf the power of the weapons that destroyed Hiroshima and Nagasaki, Japan, and brought to an end the bloodiest war in the history of the world. Teller was convinced, to the end of his life, that it was only the awesome deterrent power of nuclear weapons that kept the US and the Soviet Union at arm's length throughout the Cold War and prevented a global holocaust that could have dwarfed even the carnage of World War II.

Most Americans, from common citizens to the highest policymakers in Washington, agreed with him, and there has been broad bipartisan support for a nuclear strategic deterrent for some three generations.

Teller was closely associated with Lawrence Livermore National Laboratory. Upon learning of his passing, LLNL Director Michael Anastasio said, "His death is a great loss for this laboratory and for the nation. Dr. Teller will long be remembered as one of the most distinguished individuals in science. He devoted his life to preserving freedom, pursuing new knowledge, and passing along his passion for science and engineering education to students of all ages."

Earlier this year, Teller was awarded the Presidential Medal of Freedom, the nation's highest civilian honor. He was unable to attend the special ceremony in Washington presided by President George W. Bush. The award was accepted by his daughter Wendy.

Over the past five years, Edward Teller met for lunch with members of the Sandia Weapon Intern Program during their annual visit to Livermore. Here, Teller visits with, from left, Sandia intern Jeff Whitlow, senior mentor Leon Smith, Sandia manager Perry D'Antonio, Sandia intern Larry Luna, Sandia intern Brad Smith, Sandia intern Doug Deming, senior scientist John Hogan, and (leaning on table) Sandia intern Ken Griego.



OVER THE PAST FIVE YEARS, Edward Teller met for lunch with members of the Sandia Weapon Intern Program during their annual visit to Livermore. Here, Teller visits with, from left, Sandia intern Jeff Whitlow, senior mentor Leon Smith, Sandia manager Perry D'Antonio, Sandia intern Larry Luna, Sandia intern Brad Smith, Sandia intern Doug Deming, senior scientist John Hogan, and (leaning on table) Sandia intern Ken Griego.

Sandia-developed μ ChemLab components touted for commercialization

Proteomics, genomics, pharmaceuticals among prospective users

Sandia's μ ChemLab project is spawning a variety of technologies available for licensing, such as microfluidic fittings, manifolds, and a miniature power supply device, that offer turn-key solutions for applications in proteomics, genomics, pharmaceuticals, HPLC, and microactuation.

"This may open up a new market," says business development associate Jill Micheau (8529). For instance, fiber optic companies may segue into offering fluid-to-chip interfaces for drug discovery, the medical industry, or defense applications. She is encouraging companies with the technical capability and manufacturing capacity to produce these devices for government and commercial applications to contact Sandia by Oct. 31 for information on licensing.

The miniature power supply runs chemical analysis operations in which complex mixtures are sorted into their constituent components within microchannels etched into a glass chip.

In the integrated device, μ ChemLab microfluidic junctions are provided by small machined fittings and manifolds invented at Sandia.

Jamie Stamps and Dan Yee (8111) designed the power supply to meet a suite of requirements for an analytical device that uses electric

fields to route liquid samples in microfluidic channels. The hand-held μ ChemLab system required a constant current mode, robustness to dielectric breakdown, and efficient operation in a compact package. This unique combination was unavailable on any existing power supply. The device represents an ideal, low-cost solution for other scientific and engineering applications that require robust high-voltage power, stable regulated voltage, current monitoring, and float capability.

Created and developed by Ron Renzi and Scott Ferko (8111), the affordable microfluidic junctions provide reliable, clean, reusable, fluid-tight connections up to 40,000 psi.

The one-piece ferrules, CapTite™, are small enough to be incorporated into miniature devices, yet can easily be manipulated by hand. ChipTite™ manifolds provide convenient capillary-to-microchip interfaces consisting of individual or arrayed fittings. These create reversible junctions with dead volumes as low as zero.

Additional information about these technologies and partnership opportunities at Sandia may be found at <http://www.ca.sandia.gov/industrypartner/MicroChem.html>, or by e-mailing CA-Partnerships@sandia.gov.

— Nancy Garcia



A FREQUENT VISITOR to Sandia over the decades, Edward Teller, left, is seen here in a circa 1957 photo meeting with Sandia President James McRae and Director of Systems Development (later Executive VP) Jack Howard.

Although his closest ties were to LLNL, Teller was a frequent visitor to Sandia Labs over the years. In later life, he interacted with participants in Sandia's Weapon Intern Program, providing a new generation of weaponers with a unique opportunity to share first-hand the insights of this legendary figure.

Recalls Intern Program Director John Hogan (2910): "I had interfaced with Dr. Teller over the years at different conferences and so on and I knew that he very much liked to talk to young engineers and scientists. The interns of the Sandia

Sandia California News

Weapon Intern Program had a site visit to Lawrence Livermore every year. Dr. Teller still came to work at LLNL on Tuesdays and Thursdays, where he worked out of the Director's office. Joanne Smith was his administrative assistant on those days. With her help, I was able to schedule, during each of the past five years, a luncheon meeting between Dr. Teller and our interns. Through Dr. Bill Bookless, LLNL would host a lunch and open discussion with Dr. Teller. Dr. Teller wanted to talk about subjects that interested the group. Ahead of time I would determine a general theme. During the first part of the lunch I would explain who the interns were, their education, and the general topic. After eating, Dr. Teller would address the interns and talk about the topic selected and then open the floor up to questions.

"For the interns, sharing lunch, listening to, and talking with Dr. Teller was a treat they enjoyed more than any other occasion.

"The interns were always amazed at how current Dr. Teller was and at the same time how fantastic his memory was. Being in the room with a man who personally knew and studied under some of the greatest scientists of all time was in itself inspiring.

"Dr. Teller had a wonderful command of English and fun way of telling stories about Albert Einstein, Enrico Fermi, and his seemingly favorite personality, Leo Szilard. One of the most memorable times with Teller is when he asked the question, 'Do you know who Leo Szilard is?' and everyone in the room raised their hand. Dr. Teller went on to tell how Leo and he went to Einstein's house to get Albert to write the famous letter to President Roosevelt that became the genesis of the Manhattan Project, and 'the only reason I was there is Leo couldn't drive and he thought I could! Albert came out to the car and invited me in also.'

"Dr. Teller was humble about his own accomplishments in science but seemed proud of his driving the United States to understand the hydronuclear bomb."

Sandia, Los Alamos, NM Tech to team on 'energetic materials' research

Researchers in the technical security community often call them "energetic materials and devices." The public calls them explosives and bombs. By any name, as the nation remains under the threat of terrorist attack, there is a growing urgency to develop advanced capabilities to identify, evaluate, test, and disarm such devices. At the same time, there has been a decline in recent years in research into the science of energetic materials, and a corresponding decrease in development of new energetic devices for both peaceful and military applications.

To address the immediate terrorist threat as well as the longer-term need to revitalize the nation's energetic R&D activities, Sandia, Los Alamos National Laboratory, and the New Mexico Institute of Mining and Technology are establishing the Center for Energetic Materials and Energetic Devices (CEMED). Officials from the three organizations this week were to sign a memorandum of understanding spelling out the scope of the new research center.

Each CEMED partner brings unique capabilities to the table. Sandia for more than 50 years has had

as one of its core missions the design and production of advanced energetic devices and subsystems. CEMED projects will offer Sandia and its Regional Alliance for Manufacturing Program (RAMP) partners a chance to stretch their manufacturing capabilities on high-consequence/low-volume systems and assemblies. Los Alamos brings to the new partnership a long history of developing and characterizing new energetic materials under normal and extreme conditions using sophisticated experimental diagnostics and accurate materials and test fabrication facilities. New Mexico Tech is the only US university to offer degrees in explosives engineering; it conducts research and testing related to energetic materials and explosives for industry and government agencies.

Customers for CEMED will include DOE, the departments of Defense, Justice, Homeland Security, and Agriculture, and other federal and state agencies with an interest in energetic materials and devices. In addition, the center will be a resource for US companies that develop, use, and manufacture energetic materials and devices. They include companies from various industry sectors including

transportation, mining, oil and gas, automotive, and munitions manufacturers.

Initial projects CEMED is pursuing include developing energetic devices to help fight wild fires for the forest service and experimental tests to determine blast pressure and validate simulation models of building demolitions.

Key participants in the development of CEMED include, from Sandia, Bob Bickes (2523), Greg Scharrer (2553), Cesar Lombana (14011), Clint Atwood (1314), and Bill Alzheimer (Sandia emeritus). Also involved were, from Los Alamos, John Sanchez, and from New Mexico Tech, Jim Forster and Christa Hockensmith. Bill Alzheimer, former Sandia Director of Energy Components and Metrology, will be the Executive Director of CEMED.

Signatories to the MOU include Sandia VP for Manufacturing Systems, Science, and Technology Lenny Martinez, LANL Associate Laboratory Director for Weapons Physics Raymond Juzaitis, New Mexico Tech Director of Energetic Materials Research and Testing Center John Meason, and New Mexico Tech Acting VP for Administration and Finance Lonnie Marquez. — Bill Murphy

Mitochondria

(Continued from page 1)

nanolaser has demonstrated the first-ever technique for rapidly studying the reactions of such ultrasmall biological organisms in their functioning state as they are subjected to neuroprotectant drugs.

"Our goal is make the brain less susceptible to diseases like Lou Gehrig's," says Sandia researcher Paul Gourley (1141), a physicist who grew up in a family of doctors. "But the subject is even bigger. If we can use this light probe to understand how mitochondria in nerve cells respond to various stimuli, we may be able to understand how all cells make life-or-death decisions — a step on the road, perhaps, to longer lives."

How does the cell self-destruct?

To do that, he says, scientists must understand how a cell self-destructs, which means understanding how mitochondria send out signals that kill cells as well as energize them.

Mitochondria have long been known as the mechanism that produces ATP, the universal energy driver for animal life. ATP powers each cell like gas powers each automobile. But scientists have found that the tiny power plants have another function. When cells are signaled to die — acceptably, as when biomaterial is shed from a uterus during its periodic menstrual cycle, or unacceptably, as the result of certain neurological diseases — an excess of calcium ions and free radicals emerging from chemical reactions in the body open a large pore in the inner membrane in that cell's mitochondria. The pore enables release of a protein called cytochrome C that kills the cell. Meanwhile, the mitochondrion itself swells and explodes. One way to stop this suicidal process would be to find a chemical that would shield the mitochondria from these intruders.

The observation technique developed at Sandia to test for such effects came about almost by accident. In the innovative lab arrangement already developed by Paul's group, a micropump sends fluids containing suspect material through a sub-micron-sized lasing cavity. The cavity is formed between a light-emitting semiconductor and a reflective mirror.

The research group expected to push fluid containing mitochondria through the device and to see very weak signals emanating from the tiny organelles. Had this been true, signal-averaging techniques would have been necessary to generate a generalized, necessarily less crisp estimate of responses.

"We were pleasantly surprised but puzzled to see very large signals from each mitochondrion," Paul says. "A statistical average was unnecessary."

The researchers realized that each mitochondrion acted as a lens for light passing through it because the organelle had a higher index of refrac-

"Our goal is make the brain less susceptible to diseases like Lou Gehrig's, but the subject is even bigger. If we can use this light probe to understand how mitochondria in nerve cells respond to various stimuli, we may be able to understand how all cells make life-or-death decisions — a step on the road, perhaps, to longer lives."

Sandia researcher
Paul Gourley

tion (1.42) than water (1.33). Light refracted into the mitochondria in effect emerged amplified. It was exactly analogous to a lens concentrating light passing through it.

"When a critical concentration of emitted photons is reached," says Paul, "stimulated emission of additional photons occurs in the semiconductor."

These photons, as well as those reflected from the mirror, retrace their paths back through the mitochondria. "Wildly wayward photons are lost," Paul says. "Only the photons that pass back through the tiny mitochondrion will arrive back at the semiconductor with the proper phase and location where the photon amplification (gain) can recur."

This discovery suggested the laser cavity be set up sensitively — like a gun on a hair-trigger — by carefully setting the power of an external pump laser that beams energy into the cavity. When a mitochondria cell is present, the light in the cavity reaches critical concentration to trigger the avalanche of photons necessary for laser action.

Thus the tiny organelle becomes the center of a lasing process that yields light signals as bright as that emitted by an entire cell several orders of magnitude larger, offering possibilities for analysis that light scattering — the current method of choice for rapid mitochondrial analysis — lacks.

'Waterproofing' the mitochondria

Because the light has to squeeze through such a tiny object, a process Paul calls "nano-squeezing," the lasing spectra are dramatically altered, which makes cell identification and detection easier.

Keep, who is also chief executive officer of the Albuquerque-based Swedish-American company Maas BiolAB, has contributed the neuroprotective agent Cyclosporin A, for which his company holds a patent. According to Keep, Cyclosporin A does

"waterproof" the mitochondria, but not well enough. The idea here is to use the Sandia biolaser to establish a benchmark for performance against which to measure other, potentially even more effective drugs.

"Cyclosporin protects mitochondria better than anything else known, but it is not a perfect drug," says Keep. "It has side effects, like immunosuppression. Unrelated drugs may have a similar protective effect on mitochondria. Paul's device will lead to a rapid screening device for hundreds of cyclosporin derivatives or even of chemical compounds never tested before."

While testing with conventional methods would take many people and many batches of mitochondria, says Keep, the nanolaser requires only tiny amounts of mitochondria and drug to test.

"With one tube on the left flowing in a number of mitochondria per second, and microliters of different drugs in different packets flowing in to join them on the right, we could rapidly run through hundreds of different compounds. Each mitochondrion scanned through the analyzer would show if there were a change in its lasing characteristics. That would determine the effectiveness of chemical compounds and identify new and even better neuroprotectants," says Keep.

Currently, he says, only a few materials can be tested each day.

Mitochondria with and without neuroprotectant would have calcium ions added to the mix to see the effect of each potential drug.

Helping Gulf War victims

Keep has applied for a grant from the US Congress to develop treatments based on Cyclosporin A to help Gulf War victims who develop the neuron disease amyotrophic lateral sclerosis (ALS). ALS or Lou Gehrig's disease is a neurodegenerative disorder affecting both Gulf War veterans and civilians that kills motor neurons causing paralysis and death in three years. The mitochondria are believed to be the final common pathway leading to the loss of motor neurons. The portion that would go to his work with Paul on the nanolaser screening for next-generation cyclosporin neuroprotectants would be \$225,000. Their goal is to find a better mitochondrial waterproofing drug to treat ALS, and potentially the other diseases that rob a person of their mental function such as Alzheimer's and Parkinson's diseases.

Paul's biolaser, using the same techniques to analyze anthrax spores, recently won first place in the DOE's annual Basic Energy Sciences' competition; this is expected to lead to an enhancement to his current program funding from BES. Other funding has come from DOE's Office of Biological and Environmental Research and Sandia's Laboratory Directed Research and Development. Work thus far has measured the mitochondrial size and the swelling effect caused by the addition of calcium ions. The researchers expect to introduce neuroprotectant drugs into experiments this month.

Sandia Fellows

(Continued from page 1)

lems and perhaps provide seed material for others within the lab."

Gordon, Jim says, was one of the first to e-mail him congratulations and suggest further talks upon learning of his appointment.

Says Pace VanDevender, VP 1000, who supported Jeff's nomination and saw it through the intensive scrutiny required, "Jeff, who has been a Senior Scientist in Materials & Process Sciences Center 1800, is an internationally recognized materials scientist, and is best known as one of the founding fathers of the field of sol-gel processing. Jeff's work in the new field of nano-engineering has substantially contributed to establishing Sandia's credibility as a leader in the National Nanotechnology Initiative."

Open research vs. classified world

Sandia VP for Nonproliferation and Assessments Al Romig (5000) proposed both Jeff's and Jim's nomination.

"This award is given to honor Sandia researchers who have had a significant impact on the nation and their community," says Al. "While Jeff and Gordon have had a visible impact on the scientific community, Jim has done the same — less visibly, obviously — on national security for the intelligence community. Frankly, it's easier to measure papers, awards, and citations for scientists. Measuring impact in the classified world is based on our evaluation of the large impact that Jim's information technology applications have in the nation's intelligence community. That impact was highlighted in George Tenet's [Director of Central Intelligence] presentation of a major award to Jim in a private ceremony a few years ago. That was only one of many praises from senior intelligence people. These endorsements were used in supporting Jim's selection as a Sandia Fellow."

Jim, an expert in vulnerability assessment, "is mysterious for what he's done, and boy, has he done it well," quipped Al, who hired into Sandia on almost the same day as Jim and shared the same uncleared office in 1979.

Re Jeff, Al said, "One of the things Paul [Robinson, Labs President] likes to say is that Jeff almost owns *Science* and *Nature* magazines. It's true that Jeff has been a very prolific author there. In professional journals, he's one of the most highly cited authors we have at Sandia. He's almost without peer. He's also the only Sandian with the rights of a Sandia Fellow and at the University of New Mexico of a full professor. In addition to his extraordinary accomplishments, he is also more than ready, willing, and able to apply his expertise to solve problems that are critical to Sandia. There have been a number of issues criti-

cal to the national security enterprise when DOE looked across its labs and Jeff was the only one who could do it, and he did it."

Exhilarated, honored

Says Jim, "One thing I want to do with the remaining parts of my career is to take all that I have learned technically, programmatically, and operationally and apply that as best I can helping the people back East solve problems relating to the war on terrorism, and help Sandians apply their wonderful technical capabilities in supporting those efforts. The three of us are pretty different in our background, so we may get a lot done.

"I'm really exhilarated and honored to have this opportunity; I had an opportunity to work with Gus Simmons [a retired Sandia Fellow] in my early years. He had a significant impact on me at the Lab. He took the time to provide input and guidance. He helped me along the way. So it's particularly delightful for me to now hold the same position."

Says Jeff, more the cautious researcher, "I knew it was in the works, but I wasn't sure when. I'm not sure yet what it all means, but . . . I'm hoping it means I don't have to spend as much time digging for money [to support my research]. Then I'll have huge amounts of time to do more science." Jeff says it takes probably 30 percent of his time to obtain, maintain, and administer the funding needed to support himself and his research group of 25 undergraduates, graduate students, and postdocs.

Both men seem to embody the inverse of Parkinson's whimsical law that work expands to fill the time available. In their case, the work must obligingly contract, since they do so much of it.

Creativity at the nanoscale

Jeff is a researcher, teacher, editor, patent holder, and prolific article writer. He serves on the editorial board of five technical publications. This year, he has been awarded the 2003 Materials Research Society Medal "for pioneering the application of principles of sol-gel chemistry to the self-assembly of functional nanoscale materials" (*Lab News*, Sept. 5). In 2002, he won DOE's E.O. Lawrence Award — the highest, if only the latest, in a string of his DOE awards for advances in materials science (*Lab News*, Oct. 4, 2002). In the same year, he was elected a member of the National Academy of Engineering. In his capacity as professor at UNM, he has advised 25 graduate students, one of whom — Dhaval Doshi — won the 2001 "Collegiate Inventors Competition" from the National Inventors Hall of Fame. The award was accompanied by a \$30,000 check to (mainly) student and (also) professor. Mostly, though, Jeff is known for his work in sol-gel processing, which has produced a series of innovations in nanotechnology over the last decade that emerged with the logic and excitement and, nearly, the structure of a popular novel. The papers of the Brinker group, appearing regularly in publications like *Nature* and *Science*, have been well-chronicled in *Lab News* as the team went from flat surface coatings to multiple layers to nanospheres and beyond. These stories are available in the online *Lab News* on the Sandia web site, search "nano."

Clandestine information technology

While Jim's work is harder to itemize (imagine a series of blackouts here), it can be said that Jim was Sandia's first loaned employee to the National Security Agency, beginning a partnership between Labs and Agency that continues to this day. He solved problems there that many considered unsolvable, emerging as perhaps the preeminent expert in vulnerability assessment. In 1995, he was named Sandia Manager of the Year and also received Sandia's first NOVA award from Lockheed Martin for leadership. In 1996, then-CIA director John Deutch requested Jim's support in establishing Information Operations as a core element of the CIA's clandestine technical collection arsenal. Jim was named Founding Director of the CIA's Clandestine Information Technology Office. After six months of analysis, Jim reengineered his office to take advantage of available synergies, which enabled CITO to achieve extraordinary impact on US national security. Among his awards are the Director of Central Intelligence Director's Award, the Intelli-



SANDIA FELLOW JIM GOSLER

gence Medal of Merit, the National Intelligence Medal of Achievement, and the Clandestine Service Medallion.

"There were a lot of talented people already there working in these areas and I just brought coherence," he says, a description that itself speaks for his ability to work with others.

A significant difference between current appointees Jim, Jeff, and Gordon and preceding Sandia Fellows is that recent appointees are active researchers in the middle of their careers. Predecessors Gus Simmons, Walt Herrmann, and Wendell Weart were nearing the end of their tenures before receiving the honor.

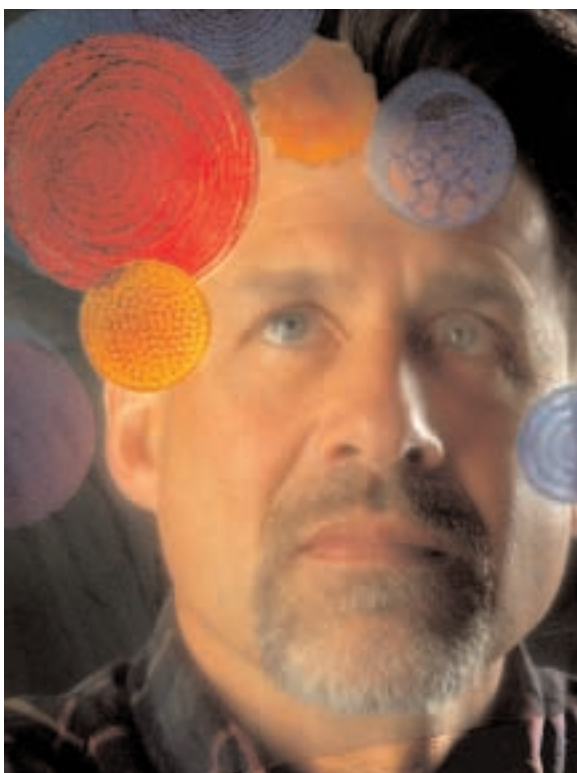
Not just honorary award

The position of Sandia Fellow is no longer just an honorary award but now comes with stated conditions of obligations of the Fellow to Sandia, and of Sandia to the Fellow. In addition to the honor and recognition that goes with the title, a Fellow's work is expected to continue with little change in job responsibility except for outreach efforts, attending Large Staff meetings, and having input on overall Sandia policy — without taking on the load of a director's administrative tasks. A Fellow also can expect preference in requests for LDRD funding, and in office location and space, depending on need and availability.

The obligations of Sandia Fellows are to demonstrate a continued and expanding high profile in the scientific community that brings respect to both the Sandia Fellow and Sandia; to lead Sandia in new technical directions; to mentor Sandia staff; to provide advice and consultation across Sandia on technical matters and special assignments of a technical nature; and to participate in Leadership Forums, Spring Managers' Conferences, Directors' Quarterly Meetings, and so on. Furthermore, Sandia Fellows are expected to earn their salaries, as do all other members of the technical staff; i.e., they are not paid from overhead except for time spent in the types of meetings mentioned above and in other activities not related to technical projects.

Candidates for Sandia Fellow are nominated by their VPs. The process is irregular — there is no fixed number of Fellows, and thus no quota to be filled. Nor is there a specific time for nominations to be made. The number of Fellows at Sandia is expected to remain quite small, "reflecting the rarity of the distinction," says Don Blanton, VP for Human Resources and Protection Services.

The appointment to this lifelong working (rather than honorary) position completes the population of all positions in Sandia's dual career ladder (IJS), with the approximate correspondence of Distinguished Member of the Technical Staff, Senior Scientist/Engineer, and Sandia Fellow to Manager, Level II Manager, and Director, respectively.



SANDIA FELLOW JEFF BRINKER

Independent review team says Sandia needs a change in ES&H attitude

Some of Sandia's 350 accidents last year could easily have been far more serious, review team says

By Chris Burroughs

Last year Sandia had 350 accidents with injuries serious enough to require more than simple first aid. In addition, there were a number of near-misses or accidents that, if the event had gone slightly differently, could have resulted in much more serious injuries.

"Three hundred and fifty accidents, even if minor, are just unacceptable," says Don Blanton, VP for Human Resources and Protection Services (3000). "We have got to do better."

The accident rate was one item that came to light following an analysis by an Environment, Safety, and Health (ES&H) Independent Review Team. The team was initially chartered to look at the cost and size of Sandia's ES&H program. This turned into a review of the entire program, starting with the program's historical performance followed by benchmarking with industry and other DOE sites.

ES&H organizations, along with selected line management, were interviewed.

"The Review Team gave us information we hadn't asked for but that we truly needed," says Don. "They told us that we have a laboratory culture that is simply too accepting of accidents and injuries. That should be of concern to us all."

The 10-member team — led and organized by Warren Cox (6233) and consisting of people from large commercial companies, DOE/NNSA sites, Lockheed Martin, a small company, and retired Sandians — determined that the Labs' ES&H effectiveness is low compared to industry and best-in-class DOE/NNSA sites. Sandia's ES&H

"They told us that we have a laboratory culture that is simply too accepting of accidents."

Review team members

Members of the ES&H Independent Review Team: Warren Cox, team leader, Org. 6233; Dana Beaulieu, Intel; Dennis Derkacs, LANL; Phil Grant, WASTREN; John-Olav Johnsen, DOE/NNSA; David Gunnarson, Lockheed Martin Manassas; Robert Holland, Org. 8516; Leanne Smith, retired DOE and consultant to DOE; Dick Rohde, retired Sandian; Anne Vogel-Marr, PG&E National Energy Group; and Heinz Schmitt, Sandia VP emeritus.

Serious accidents and near-misses

Below is a sample of accidents that occurred at Sandia in the past several months which could have had much more serious consequences:

- An apprentice electrician received a 208-volt shock while on a ladder removing light fixtures from an office area. His mentor, a journeyman electrician, was also shocked when he climbed up the ladder and touched the same components. The journeyman knew the circuit supplying the fixture had been disconnected at the breaker — he did not know that there was a cross-feed to the fixture from another circuit. The shocks could have been fatal had environmental conditions or the conditions of the shock path been different.
- A 480-pound document safe tipped over as an employee was accessing the top drawer, fracturing the employee's foot. Had the employee not been able to move quickly, he could have been crushed by the safe.
- A large, 4,200-pound metal crate was being lifted with a forklift when the crate became stuck on one of the forklift tines. A nearby worker reached in to free the crate when it suddenly shifted. The individual's

costs are in the lower 30 percent when compared to 12 other DOE installations, including other large national laboratories. Sandia has ES&H policies and systems in place, but they are not being consistently implemented across the Labs.

The reason, says team member Dick Rohde, retired deputy director for Sandia's Environment, Safety, and Health Center, is that we believe the ES&H culture — including values, attitudes, and behaviors — is not considered as important as it should be at Sandia.

"ES&H core values are less apparent at Sandia than at the leading commercial companies," he says. "And an environment and process do not exist to establish and nurture cultural change within the Sandia organization."

He adds, "We at the national labs tend to say 'we're different,' and we are different. But if you look at others who have done similar kinds of work, Sandia's ES&H performance does not compare favorably."

From their benchmark studies of successful organizations, the team determined that for people to make ES&H more of a priority, safety needs to be noticeably valued by management at all levels, starting at the top. "Industry doesn't make money by having low accident rates, but they have decided that a target of zero accidents is the right number," Dick says. "Management must provide visible, consistent, and persistent motivation and incentive to inspire Sandia employees to develop a strong ES&H culture."

At Sandia this will mean some changes in attitudes toward ES&H. But why change?

The team offers several reasons. It is unacceptable to tolerate injuring people or harming the environment. Improved ES&H performance will lower cost to the Labs as it has for industry. It will enhance achievement of mission success. It will create a great place to work and it will enhance stakeholder confidence in Sandia as an organization.

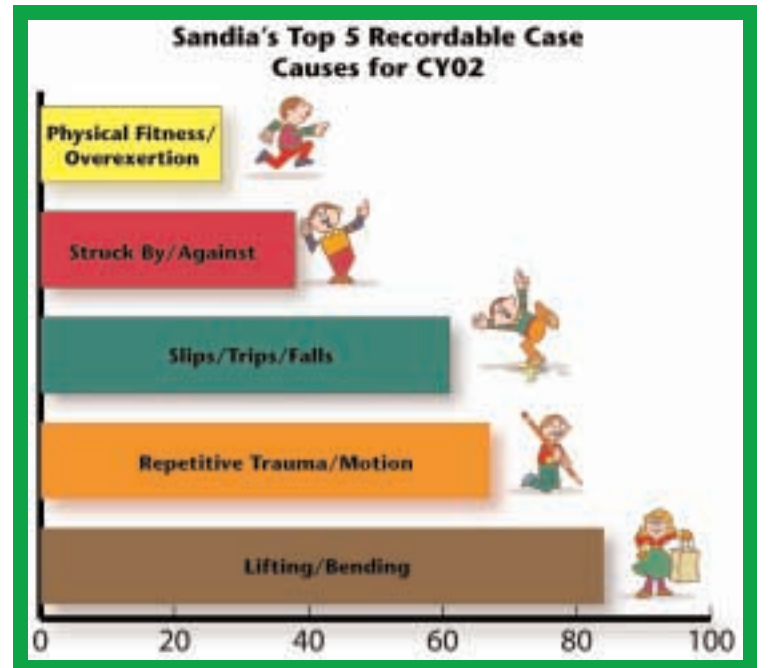
On a positive note, says Warren, Sandia is well positioned to make significant improvements in ES&H performance, but it will take time and the

arm became pinned between the crate and forklift. The forklift was lowered and other workers helped him free his arm. The individual sustained injuries to his lower arm and thumb.

- A worker's foot was crushed and nearly amputated when a steel beam used to hoist a prefabricated steel stairway fell through the stairwell roof opening. The beam glanced off the worker's hardhat before striking his foot. The man could have sustained serious or fatal injuries if the beam had fallen at a slightly different angle or if he had been positioned slightly differently when the beam fell.

- During work to install a ridge cap on a metal roof while it was raining, a worker slipped and slid down the roof, falling about 15 feet onto a concrete pad, breaking his leg. A change in the worker's position as he slid off the roof could have resulted in serious head injuries.

- Slips, trips, and falls continue to cause the highest number of injuries resulting in days away from work. Many of the slips, trips, and falls involve falls to hard surfaces such as concrete or asphalt.



Review team's active timeline

The evaluation by the ES&H Independent Review Team was authorized in November by the Integrated Enabling Services (IES) program leaders. After that, a project plan was developed, team goals established, and team members identified. The team started its review in April 2003 with the bulk of the endeavor taking place the week of May 5.

Work involved lots of up-front reading to get acquainted with Sandia's structure and ES&H management system. There was also a one-day orientation/planning session followed by a full-week on-site review.

Over the following weeks, the team prepared final recommendations and presentation materials, communicating frequently. The results were then presented to the IES program leaders, the Labs Leadership Team (LLT), and the Line Implementation Working Group (LIWG). The results will also be presented to Sandia Site Office (SSO) in September.

An action plan is being developed to address the team's recommendations. The action plan will be presented to the LLT for its concurrence, support, and ownership.

attention of everyone in the Laboratory.

"At Sandia systems are in place and have been well thought out," he says. "In addition, no one wants to have people injured or the environment damaged. There are good, highly qualified staff working in the ES&H program disciplines." The diversity of program activities is a challenge that the ES&H staff have proven they can handle.

He notes that in the best ES&H programs, people exude passion. "We have to foster that passion in the context of really caring about people and the environment. Passion doesn't detract from the mission, it advances it," Warren says.

Don agrees. "This has got to be much more than saying the words and pointing to the star on our badge," he says. "We all have to become committed to creating a work environment where people are safe and secure in the knowledge that individual safety and protection of the environment are our highest priority. It includes not only looking out for our own safety, but also for the safety of others as well. We have got to move to a culture that believes all workplace accidents are avoidable. That is the path we need to be on."

Sandia researchers seek ways to lower the cost of wind energy in less-than-optimal locations

Popularity of wind energy growing worldwide; PNM is getting in on the action

By Chris Burroughs

As the popularity of wind energy rapidly grows worldwide, Sandia researchers are developing ways to lower the cost of this alternative energy and enable turbines to produce more power.

Current wind turbines are cost effective in very windy sites. The goal of the DOE wind program is to extend that cost effectiveness to convenient sites that are not as windy. This can be done by making the rotor sweep area larger and slowing the rotation rate down.

"We are looking at methods of building larger, stronger blades for turbines using a hybrid of carbon graphite fibers and fiberglass that sweep a greater area without greater cost," says Paul Veers, Manager of Wind Energy Technology Dept. 6214. "By next summer we expect to have experimental blades ready for testing that we believe will be lighter and stiffer than blades currently used in the industry."

Sandia has been researching wind energy since the 1970s, but it's only now that the alternative energy source has become economical enough to find widespread use. Over the past ten years the cost of wind energy has fallen dramatically — to 2.5-5 cents a kilowatt-hour in the most windy sites, says Paul. However, further cost reductions are necessary in critical subcomponents in design, manufacturing, and system integration, Paul says, to make turbine cost effective in sites with modest winds.

Wind farms — fields of wind turbines — can be found in California, Southwest Texas, Minnesota, the Washington-Oregon border, Iowa, West Virginia, Pennsylvania, and several other states. A newly developed wind farm recently began operations at a Public Service Company of New Mexico Wind Energy Center near Fort Sumner in New Mexico.

Paul says that in Europe, where wind energy



TURBINES SPIN at the New Mexico Wind Energy Center, located 170 miles southeast of Albuquerque and 20 miles northeast of Fort Sumner, which recently started producing electricity for PNM. The center, the world's third-largest wind generation project, will officially be dedicated Oct 1.

has become particularly popular, turbine manufacturers are starting to produce very large machines. They are frequently used for offshore applications where winds are steady and strong.

"However, as machines have grown larger, issues of scaling and loads have made detailed engineering even more important," Paul says.

That's where Sandia comes in — researching



EUROPE is turning more and more to placing wind turbines in the ocean where winds are steady. This is a wind farm off the southwest coast of Denmark.

is expected that qualities of successfully tested subscale blades can be scaled up to carbon/glass blades 50 meters long that would reside on turbines with 100-meter towers and that produce 2 to 5 megawatts each.

Sandia is concurrently working with industry, both manufacturers and designers, to bring the findings of these subscale blade studies up to full-scale application in commercial prototypes. Public-private partnerships are being funded through the DOE Low Wind Speed Turbine program.

By next summer the researchers hope to have six to 12 different blades to test at the National Wind Technology Center near Boulder, Colo., using its large blade test facilities, and at the Department of Agriculture's research station in Bushland, Texas, using three experimental turbines.

"We expect over the next few months to make some real inroads to developing better blades for turbines," Tom says. "It's a project we are all looking forward to."

how to overcome some of these issues.

Today, the most popular commercial wind turbines have 35-meter blades on towers that are 65 to 80 meters tall. They produce about 1.5 megawatts each, and the blades are primarily made of fiberglass, although at least one European manufacturer uses wood.

Tom Ashwill (6214), who leads the blade development team, says that the research blades will be built at subscale sizes of nine to ten meters in order for the researchers to cost-effectively grapple with issues such as fiber material form (i.e., stitched or woven), degree of carbon/glass hybridization, manufacturability — vacuum-assisted resin transfer molding — and other traditional issues like aerodynamics, structural strength, and reliability. It

Blade development team

Members of the Sandia blade development team include Tom Ashwill, Dan Laird, Perry Jones, Mark Rumsey, Jose Zayas, Herb Sutherland, Dale Berg, Don Lobitz (all 6214), and US Department of Agriculture personnel at Bushland, Texas.

Guarding against gusts: Aeroelastic tailoring expected to increase life of blades

Wind gusts often provide problems for wind turbines. They cause extraneous blade motion, resulting in additional blade fatigue that reduces the life of the blade.

Don Lobitz, retired but consulting for Dept. 6214, has created a computer model of a blade that twists when a gust of wind hits it, alleviating the gust load and significantly reducing fatigue. Called aeroelastic tailoring, the response to a wind gust is reduced due to a decrease in the angle of attack.

Under contract to Sandia, researchers at Stanford University have produced an aeroelastically tailored D-spar, a long structure made of carbon graphite fibers embedded in

an epoxy resin having a D-shaped cross section. Subsequent laboratory testing indicated that significant amounts of twist occurred when bending loads were applied. Next summer a blade with aeroelastic tailoring will be one of those tested at the National Wind Technology Center and the Department of Agriculture's research station in Bushland, Texas.

"We'll first test blades without aeroelastic tailoring and then ones that have it," says Don. "Testing devices placed on the blades will measure their motion, from which comparisons will be made. We expect to see less fatigue on the blades with the aeroelastic tailoring design."

New Mexico Wind Energy Center to open this fall

New Mexico's most ambitious wind farm, called the New Mexico Wind Energy Center, recently started producing electricity for PNM, the state's largest electric and gas utility. The center, the world's third-largest wind generation project, will officially be dedicated Oct. 1.

Located 170 miles southeast of Albuquerque and 20 miles northeast of Fort Sumner, the wind center sits on 9,600 acres of private and state-owned land.

The center consists of 136 turbine towers, each measuring 210 feet in height with turbine blades measuring 110 feet. It will have a peak output of about 200 megawatts of electricity, or about 1.5 megawatts per turbine. The turbines require 8 mph winds to produce electricity and will continue to produce electricity in winds up to 55 mph. The center is expected to produce enough electricity to supply 94,000 average-sized New Mexico homes.

Florida-based FPL Energy owns and manages the Wind Energy Center; PNM will purchase all of its output.

Polygraphs

(Continued from page 1)

employees would be subject to a new program of random polygraph testing (see "Random screening new element of polygraph program," right).

"Given where we started, there is substantial progress in making this a much more balanced process," Joan said.

Bruce called the DOE decision "a huge step forward from where we were before." He said human judgment in decisions about access to classified information should never be replaced by a machine, which is only a tool. They spoke at a question-and-answer session for employees Sept. 8 in the CNSAC Auditorium.

Joan said the new recommendations benefited from close engagement with national labs officials, including two recent teleconference calls. She called the process "inclusive."

McSllarrow said he was persuaded by last October's National Academy of Sciences report "The Polygraph and Lie Detection" (*Lab News*, Oct. 18, 2002), which was highly critical of the use of polygraphs as a screening tool at the DOE national labs.

"Polygraph testing yields an unacceptable choice," said the NAS report. "Its accuracy in distinguishing actual or potential security violators from innocent test takers is insufficient to justify reliance on its use in employee security screening in federal agencies."

Last week McSllarrow called that conclusion "stark."

Given the NAS report's harsh criticism of the polygraph and its conclusion that polygraph testing rests on, at best, weak scientific underpinnings, it was a surprise this April 14 when DOE announced that it intended to continue the program as-is (*Lab News*, May 2). Yet many interpreted this as an interim decision subject to change, and so it proved to be.

DOE Secretary Spencer Abraham asked for public comment and explicitly asked all weapons labs directors for their responses. Sandia President C. Paul Robinson sent Abraham a lengthy response on June 12. It was published in full in the June 27 *Lab News*. Abraham also directed McSllarrow to review the policy, the NAS report, and the entire issue, and then to make recommendations.

McSllarrow's recommendations came in a 29-page statement to the Senate Committee on Energy and Natural Resources, chaired by Sen. Pete Domenici, R-N.M.

Throughout his review, said McSllarrow, "I was guided by the NAS Report, a study of considerable rigor and integrity. . . . The NAS report makes very clear how little we actually know — in a scientific sense — about the theory and practice of polygraphs. . . . I found many of the NAS's concerns about the 'validity' of polygraph testing to be well taken."

At the hearing, McSllarrow said, "The NAS study moved me. I was in a different place, frankly, and it changed my mind." He said it also changed the mind of Secretary Abraham.

"The costs of allowing bottom-line decisions to be made based solely on a [polygraph test]

Random screening new element of polygraph program

An entire new element of the DOE polygraph program would be introduced under DOE Deputy Secretary Kyle McSllarrow's recommendations — random screening. This would supplement the much-reduced mandatory screening program. Employees in certain positions that don't require mandatory screening but nevertheless warrant "some additional measure of deterrence against damaging disclosures" would be subject to random selection for polygraph examinations.

Here are the positions subject to the random screening program, according to McSllarrow: "all positions in the offices of Security, Emergency Operations, and Independent Oversight and Performance Assurance that are not designated for mandatory screening program; positions with routine access to Sigma 14 and 15 weapons data; and system administrators for classified cyber systems."

McSllarrow estimated the total number of people complex-wide who would be eligible for the random polygraph program at about 6,000 but said only a small fraction of those would actually be selected in any given year.

At last week's Q&A for Sandia employees Counter Intelligence Program Manager Bruce

Held estimated that the population of Sandians subject to the random screening program would be "on the order of 1,500." He said his guess was that only about 5 percent of those would be randomly chosen for polygraph testing in any given year. Bruce said work was needed to try to distinguish computer systems administrators who do work on classified cyber systems from those who don't.

Sandia President Paul Robinson's June 12 letter to DOE Secretary Abraham, which criticized mandatory screening and endorsed the NAS conclusions, recommended a small program of random testing. McSllarrow said he found some support for random testing in the NAS report. The NAS committee, he noted, said polygraph testing "may have a deterrent value" and noted that predictable polygraph testing at fixed intervals "probably has less deterrent value than random testing."

Said McSllarrow: "It will be our policy to fashion a random polygraph program that achieves the objectives of deterrence with the minimum reasonable percentage or number of individuals in those positions to which it applies." Again, many details remain to be worked out.

'positive' that stands a substantial chance of being a 'false positive' are unacceptably high," McSllarrow said in his prepared statement. "We cannot afford them because they risk undermining the very national security goals we hope to attain."

However, as a policy maker, McSllarrow said he had concluded that "the utility of polygraphs is strong enough to merit their use in certain situations, for certain classes of individuals, and with certain protections that minimize legitimate concerns expressed by the NAS, employees of the Department, and other observers."

He said the polygraph "seems to be to be far less problematic" when used solely as a tool in conjunction with traditional investigative tools. And that is how he proposed polygraphs now be used. "To put the point simply: I know of no kind of investigative lead that is perfect," McSllarrow said. "I believe we should continue to use the polygraph as one tool to assist in making that determination [whether someone should be given access to extremely sensitive information], but that we not use it as the only tool."

"My recommendation is to retain a mandatory polygraph screening program only for individuals with regular access to the most sensitive information," McSllarrow said. "The approach I am recommending would have the effect of reducing the number of individuals from well in excess of potentially 20,000 [throughout the entire weapons complex] under the current rule to approximately 4,500 under this new program."

Subject to mandatory testing would be those positions with routine or continuing access to all DOE-originated Top Secret information, including Top Secret Restricted Data and Top Secret National Security Information. The former, he said, involves "the weapons community's most

sensitive information assets."

"Let me make clear that this category will not include everyone with a 'Q' or a Top Secret clearance, nor will it include all weapon scientists," McSllarrow said. "It will include only those whose positions require continuing, routine access to Top Secret RD or other DOE-originated Top Secret information. This is a fairly small population, probably less than one thousand people complex-wide."

Those who possess certain nuclear weapons information ("Sigma" information) below Top Secret that deals with various sensitive aspects of weapons could also become included in the polygraph-susceptible category, he said.

McSllarrow said he will recommend that the new proposed rule "retain and enhance" protections against potential errors and adverse consequences and to safeguard the privacy and rights of persons subject to polygraph exams, including limiting questions to counterintelligence matters and avoiding "lifestyle" questions.

Furthermore, he said, "I recommend that we also make clear that it is our policy not to base a denial of access solely on the results of a polygraph exam." This is consistent with the NAS recommendations. A counterintelligence evaluation review board, including the weapons lab director, would be convened to aid in any access-denial decisions.

A number of details still need to be worked out. In last week's Q&A session, Joan Woodard referred to McSllarrow's statement as "architecture for writing" a draft rule. "There is still a fair amount of work to do," she said. With further input from labs officials and others DOE hopes to publish that proposed new rule by the end of this calendar year.

Outside reaction mixed to change in DOE polygraph program

Outside reaction to DOE's proposal to reduce the number of weapons-complex employees subject to polygraph testing was mixed.

"This was a smart decision by DOE," said Sen. Pete Domenici, R-N.M., chairman of the Energy and Natural Resources Committee. "I'm very pleased by this announcement. . . . I have been appalled by the DOE's continued massive use of polygraph tests in the wake of a national study condemning the reliability of these tests. Our national labs scientists deserve better."

Sen. Jeff Bingaman, D-N.M., who requested the NAS study and is the ranking member of the Senate Energy and Natural Resources Committee, said even the new, reduced polygraph pro-

gram would produce about 800 "false positives." He told McSllarrow at the Senate hearing: "I think you have many Americans who have other options than having their patriotism questioned and being hooked up to a machine to determine their loyalty."

"As a nation, we should not allow ourselves to continue to be blinded by the polygraph," Stephen Fienberg, chairman of the NAS committee and a professor of statistics and computer science at Carnegie Mellon University, told the Energy Committee in his testimony.

Rep. Ellen Tauscher, D-Calif., who represents the district that includes Sandia's California site and Lawrence Livermore National Laboratory (LLNL), said she was relieved by the new

policy. "But I remain deeply concerned that a dangerous gap between science and the policy remains." Continuing to subject thousands of lab employees to polygraphs "only promotes a false sense of security and does nothing to foster good science at our national labs."

"It is still a voodoo test which jeopardizes these people's careers without being an accurate or reproducible test," said LLNL's Bill O'Connell, former president of an LLNL union, the Society of Professional Scientists and Engineers.

The *Albuquerque Journal* editorialized that the decision didn't go far enough. "The DOE policy of screening for spies with polygraphs shouldn't just be downsized; it should be reversed."

Jeff Everett receives DoD's highest civilian honor for his work on nuclear weapon recapture/recovery

Jeff Everett, Manager of Security and Use Control Assessment Dept. 12334, has received the Office of the Secretary of Defense Medal for Exceptional Public Service for his service on the Federal Advisory Committee on Nuclear Command and Control System End-to-End Review.

Jeff was presented the award in a surprise ceremony at Sandia last week by Capt. Duane Baker, USN, Deputy Director of the Nuclear Command and Control System Support Staff (NSS).

Baker was at Sandia for a scheduled meeting of the Nuclear Weapons Council. He presented the award to Jeff on Sept. 11 on behalf of Assistant Secretary of Defense John Stenbit. According to Baker, the Exceptional Public Service Award is the highest award DoD can bestow on a civilian.

According to the citation, "Under Mr. Everett's masterful leadership, the Recapture/Recovery Study Group performed an in-depth analysis of the plans, procedures, and capabilities needed to accomplish nuclear weapon recapture and recovery missions. . . . Mr. Everett skillfully assessed complex technical issues and proposed appropriate recommendations that will result in a safer, more secure Nuclear Command and Control System for well into the 21st century."

Baker noted that while Jeff was honored specifically for his work on Recapture/Recovery issues — processes that are increasingly important in the current geopolitical environment — his exceptional involvement with the Nuclear Com-



NAVY CAPT. Duane Baker pins the DoD Secretary's Medal for Exceptional Public Service on Sandian Jeff Everett for his work on the Nuclear Command and Control System End-to-End Review. Jeff's wife Terra holds the accompanying certificate.

(Photo by Randy Montoya)

mand and Control System extends back to 1990, when he served a two-year stint in Washington as one of the first Sandia representatives to serve on the NSS. During that tour, Jeff was the technical adviser to a Secretary of Defense-appointed committee involved in a nuclear failsafe and risk reduction review.

"Jeff was one of the first Sandians to work closely with the NSS. He really set the style for follow-on work at NSS by his fellow Sandians," Baker said.

end-to-end review.

The Recapture/Recovery analysis team, Jeff says, was cross-organizational, with members from DOE, NNSA, the FBI, the US Navy, the State Department, the US Air Force, and Los Alamos National Laboratory, all of whom made important contributions to the quality of the final analysis.

In presenting the Exceptional Public Service award to Jeff, Capt. Baker said, "This award barely covers the breadth of Jeff's contributions to this national effort."

— Bill Murphy

Over-the-counter medicines now included in RSA reimbursements

Some good news: Effective immediately, your health Reimbursement Spending Account (RSA) has been improved and expanded. Expenses incurred for over-the-counter medicines and drugs during the current plan year may be submitted to PayFlex Systems for reimbursement from your Health RSA.

PayFlexSystems and Sandia's Benefits Department made the announcement this week.

The Internal Revenue Service recently issued

BENEFITS CHOICES 2004

two rulings authorizing the reimbursement of over-the-counter medicines and drugs through health RSAs.

- Over-the-counter medicines and drugs that are used to alleviate or treat sickness or injuries, such as allergy and cold medications and pain relievers such as aspirin and antacids, are eligible for reimbursement.

- Items such as vitamins and dietary supplements that are for general good health are *not* included and remain ineligible expenses.

- Proper expense substantiation is still required. However, a doctor's prescription is no longer necessary.

Sandia's Benefits Department cautions, however, that this is not an eligible mid-year election change event allowing you to increase, decrease, enroll, or cancel your Health RSA annual election amount.

Stay tuned for a future *Lab News* article concerning the Benefits Choices 2004 Open Enrollment that will be held from Oct. 20-Nov. 9.

Sandia/Lockheed Martin break ground on latest Habitat for Humanity project



HABITAT HOUSE NUMBER FOUR — Sandia Executive VP Joan Woodard, right, helps Nicolette Rodriguez and her two sons, Anthony, 7, and Estevan, 4, turn the first spades of soil during a groundbreaking ceremony earlier this month. This Sandia/Lockheed Martin house, which should be completed by late October, is the Labs' fourth Habitat for Humanity project in the past six years. "We understand how important this house is to you and your family," Joan told Nicolette. "We hope you understand that the house is also very meaningful to those of us who work on it and help to make a difference in the community." Retired Sandian Irv Hall, who has come to be a fixture at the Labs' Habitat projects, will oversee the effort. Those interested in volunteering can contact Darlene Leonard, 844-8024, or check Sandia's internal Web site.

(Photo by Bill Doty)

Mileposts

New Mexico photos by Michelle Fleming
California photos by Bud Pelletier



Ernest Sanchez
35 3122



Howard Arris
30 14172



Daniel Baca
30 10843



Chris Chavez
30 10848



David Rogers
30 14181



Ed Williams
30 10864



David Zamora
30 14172



Felipe Campos
25 5932



Paul Dressendorfer
25 1141



David Harris
25 6516



Tom Plut
25 1742



Pete Roth
25 2521



Linda Scott
25 2995



David Seidel
25 1642



Matt Senkow
25 14402



Bob Alexander
20 3127



Mark Boslough
20 9216



Wendy Brothers
20 15415



David Cox
20 6532



Don Hall
20 8945



John Guillen
20 2523



Brian Kelly
20 12870



Richard Kuehn
20 9621



Steve Martin
20 1707



Teresa Mills
20 6010



Jennifer Nelson
20 9209



Steven Nowlen
20 6413



Jim Phelan
20 6142



Kenneth Sanchez
20 10268



Richard Taplin
20 2664



Roger Ten Clay
20 2345



Daniel Trudell
20 1764



Timothy Vargo
20 2662



Nellie Ward
20 9311



Peter Wilson
20 9902



Douglas Ammerman
15 6141



Robert Brown
15 15415



William Burcham
15 2133



Debra Chavez
15 1701



Merlin Decker
15 2131

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

MISCELLANEOUS

FERRETS, 2 (1 albino, 1 sable), w/3-story cage, \$100. Schneider, 699-9599.

ECO-WATER SOFTENER & REVERSE OSMOSIS, \$350; Autumn Wood oak dining table, 48" x 70", w/6 chairs, \$400. De La Rosa, 798-0550.

SHOPSMITH, w/upgraded table & fence, jigsaw, joiner, belt sander, many other accessories, \$1,950 OBO. Konkel, 298-4403.

VACATION, throughout the world, Australia, Hawaii, Canada, etc., 154,000 deeded Fairfield points, not fixed week, \$6,900 OBO. Yawakie, 294-6855.

NEW MEXICO BIRD CLUB SHOW & MART, State Fairgrounds, Sept. 27-28, birds, competition, cages, supplies. Bullington, 797-5999, nmbirdclub.org.

PAINT BALL GUN, Defiant, like new, \$700. Schneider, 299-1055, leave message.

FALL JAPANESE FESTIVAL, free annual event, Sunday, Sept. 28, in front of Japanese Kitchen restaurant, 11 a.m.-4:30 p.m. Begay, 343-1180.

DOORS, 2, oak, antique, beautiful wood-work, oval beveled glass, w/all hardware, \$700/pair. Ewen, 836-3563.

'03 HONDA GENERATOR, 5,000W, electric start, remote control, used only a few times, \$2,350. Latoma, 896-3033, after 7 p.m.

LOBO MEN'S BASKETBALL TICKETS, 2 chair-back seats, sec. 2, row 7, \$686. Easley, 884-5192.

MOVING: washer, \$225; dryer, \$217; bunk bed, excellent condition, \$75; Schnauzer mix male, to good home. Martin, 889-0735.

CAR RECEIVER, Clarion HXD10, w/out-board amp & subwoofer, \$300. Anders, 858-0569.

TELESCOPE, reflector, equatorial, 4-in., \$40; spotting scope, \$5; beta recorder studio, \$15, other miscellaneous. Dunn, 298-6278.

JVC SPEAKERS, for compact system, 150W ea., new in original packaging, 3-way bass reflex, \$40/pair. Wilson, 244-1949.

GAS DRYER, '99 Kenmore, 70 series, super-capacity plus, used one year, like new, in storage, \$275. Eisenberger, 877-7041.

COMPUTER DESK, 48-in., light wood, excellent condition, paid \$225, asking \$100. Saavedra, 864-9626.

COMPAQ IPAQ, Internet appliance, \$275; microwave, \$65; metal desk, sturdy, \$35; kitchen table & chairs, \$75. Schwerkoske, 821-0835.

BAKER'S RACK, \$495; bedside commode, health aid, new, \$50; glass-top coffee table, \$175. Gomez, 291-1062.

WATERBED MATTRESS, queen-size, 100% waveless, w/heater, \$90 OBO, will sell separately. Mahn, 823-4796.

BOW, Groves Fliteline II, 30-lb.@28-in., 62-in. Spray, 821-5877.

MANZANO ARCHERY CLUB, 3-D target shoot, Sept. 28, registration 8 a.m.-9 a.m., adults \$15, youth \$7, under 12 \$5, call for base entry procedures. Reed, 883-2818.

COMPUTER DESK, oak, open hatch; full-size futon, thick mattress; corner kitchen table, w/bench, make offer. Herrera, 884-1925.

ABOVE-GROUND POOL, 15'D x 4'H, recent 1-hp pump, sand filter, liner, cover, accessories, \$400. Schulze, 897-2974.

ANALOG MAGAZINE, '70s, '80s, \$10 OBO; PC Gamer, '90s, '00s, free. Hunter, 294-2877.

BASS GUITAR CABINET, black grille, heavy-duty handles, metal corners, 100% wired, T-nuts, ready for 15-in. speaker (not included), \$30. Klarer, 344-0612.

SAFE, 17" x 18" x 21", compact, excellent combination lock, great condition, economical, \$175. Diegle, 856-5608.

BARBECUE, propane, 2 levels, good condition, does not include tank, \$50. Lunt, 271-0741.

SWAMP COOLER, Champion 5500/6500, used, good condition, price includes 2 used motors, \$200. Keiss, 299-3312.

PRINTER, HP697p; Winbest 17-in. monitor; keyboard & all cables. Nelson, 265-2248.

TIMESHARE, Cancun Villa, sleeps 5-6, 5-star beach resort, many amenities, Nov. 16-22, \$1,500/wk. Maddox, 298-3815.

GOLF CLUBS, men's Hogan Apex Plus, 3-PW, \$200. Bread, 261-4685.

GAS RANGE, Wards, black & white, 5-burner, works well, \$75. Lenberg, 266-8988.

TIRES, new, from Jeep Wrangler, Goodyear P225/75R15 RTS steel radials, \$116 new, asking \$60 ea. Zender, 294-8210.

COUCH & LOVE SEAT, small flower pattern fabric, cherry wood, good condition, \$175. Baca, 856-5542.

POOL, Itex, 15-ft. dia., 42-in. depth, w/pump/filter, ladder, cover, 2 mos. old, new \$300, asking \$100. Kelly, 271-9589.

GAS STOVE, brand new, \$350; dishwasher, \$175; \$500 for both. Gonzales, 890-6249.

FLUORESCENT LIGHT FIXTURES, 48-in, 2 lights, complete w/bulbs, very good condition, new \$40 ea., asking \$20 ea. Campbell, 281-0744.

PIÑON FIREWOOD, apricot tree firewood, free if you chop down tree. Simon, 299-8468.

BBQ GRILL, used 1 summer, no need for second, \$50. Baca, 319-8371.

DIGITAL CAMERA, Olympus C4000, 4 mega pixel, w/62MB memory card, 10x optical-digital zoom, excellent condition, \$380. Contreras, 292-7831.

POOL TABLE, dark wood finish, balls, cues, cue wall rack, table cleaning tools, excellent condition, \$1,200. Preston, 821-8028.

INSTA-TRUNK, for Jeep Wrangler, \$200; 130K BTU/HR Burnham boiler, Grundfos 25-64 pump, draft diverter, \$400. Lanes, 856-6237.

MATCHING RECLINERS, 2, Lane, multi-colored, very good condition, \$100 ea. Ghanbari, 883-3819.

INKJET PRINTER, archival quality, Epson 2000P, prints up to 13" x 44," \$250. Davies, 298-8928.

KITCHEN TABLE, oak, 48-in. round, w/24-in. leaf, 6 chairs, country style, \$125. Behr, 856-6273.

DELUXE BABY JOGGERS: single \$300; twin \$400; white diaper changing table, w/pads, \$20. Hendrickson, 275-3119.

BRANDING CHUTE, \$500; stock tanks, \$30 ea.; metal saw, \$800; trash pump, \$450; stock trailer, \$450. Casias, 865-1352.

MATTRESS/BOX SPRING, queen-size pillow top, Simmons Beautyrest, 4 yrs. old, \$150 OBO. Wilcox, 884-0217, dwilcox@byu.edu.

POOL TABLE, full-size, legs fold up, balls & cue sticks included, great for kids, \$100. Dukart, 296-0155.

ROCKS: black lava, 2 yds., \$10/yd.; gray river, free; 3,500/cfm swamp cooler, \$25. Murphy, 292-8016.

COMPUTER MONITOR, Mag Innovations, 17-in., white, small glitch, \$75. Hesch, 350-9903.

JEEP SOFT TOP, '03 black, tinted rear & top quarter windows, door kit & hardware, \$800 OBO. Stotts, 298-8894.

STUDENT TROMBONE, Holton, w/case, very good condition, \$200. Peters, 293-6356.

RECLINER, brown leather, wingback, \$975; reading chair, overstuffed, peach, \$175; 1840's camelback love seat, cherry, \$900. Linn, 828-4775.

GENERATOR, Honda EM650, portable, gas, recently serviced, like new, \$375. Lininger, 856-1542.

DINING ROOM TABLE, 42" x 65", 2 leaves, excellent condition, \$350; wood-frame sofa, \$35. Knapp, 294-6359.

BREAKFAST BAR/BAR STOOLS, 2, blue patterned seats, wicker backs, 29-in. seat height, excellent, \$60. Kranz, 856-2648.

BENTLEY PIANO, blonde, w/music storage bench, made in UK, \$2,500. Robertson, 821-6388, ask for Yvonne.

LAWN MOWER, Sears, 5-hp, self-propelled, good condition, \$65; electric dryer, 2 yrs. old, like new, \$100. Ritchey, 299-7082.

DESKJET PRINTER, HP 880C, w/4 color cartridges, \$45 OBO; PC video cards, SCSI cards, more, call. Cocain, 281-2282.

BUNK BED, twin-size, black metal frame, w/mattresses, \$100. Peterson, 291-1212.

REFRIGERATOR, Whirlpool, almond, 25.5 cu. ft., w/water/crushed/cubed/ice dispenser w/light, 3 yrs. old, \$750. Ramos, 681-7756.

4-IN. SEWER PIPE, 50-ft., \$35; gas dryer, Kenmore, \$55; 5-ft. scaffolding, w/assy's, \$50; coffee table, w/glass, \$55. Garcia, 831-0086.

SOLAR ENERGY SYSTEM, for do-it-yourself individual, many good components, you remove from house, free. Claghorn, 884-4483.

CAR-TOP CARRIER, Sears X-Cargo, only used twice, \$50. Bendure, 281-7441.

WASHER & GAS DRYER, Kenmore; matching soft-side luggage; trundle bed & mattresses; Drexel desk, bookcase; Broyhill love seat. Linnerooth, 299-6558.

STEAMER TRUNK, antique, \$95; antique oak chair, W.H. Gunlocke manufacturer, \$95; e-mail pictures upon request. Miller, 275-8154.

HENS & PULLETS, \$7-\$9, depending on age; roosters, \$6, multiple breeds. Swahlan, 286-2808.

'63 JOHN DEERE TRACTOR, model 3010, tricycle, good rubber rear, fair front, everything works, \$5,000 OBO. Shoemaker, 869-2775.

MOVING BOXES, all sizes, for 3-bdr. home, \$50; 3 natural-finish bar stools, \$10 ea. Wahlberg, 271-1337.

GUITAR, Pimental, 12-string, mahogany back, w/case, \$950. Mowrer, 281-5595.

SOFA/HIDE-A-BED, Southwest décor, very good condition, except 1 damaged seat cushion, free, you haul. Northrup, 884-4718.

JACUZZI SOAKING TUB, 42"W x 60"L, not jetted, new, still wrapped, \$375. Krumb, 321-5982.

GUITAR PROCESSOR, Digitech RP140D, \$300; Yamaha electric guitar S/S/H, Floyd Rose, \$250. Gonzales, 891-1426.

BUFFET/HUTCH, Temple-Stuart, colonial, solid maple, silverware drawer, good condition, can e-mail picture, \$395 OBO. Pierce, 681-5088.

How to submit classified ads

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

- E-MAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 0165 (Dept. 12640)
- DELIVER: Bldg. 811 Lobby
- INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.

Ad rules

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

VIDEO EYE, purchased March '01, good condition, w/ or w/out monitor, \$2,000. Spatz, 299-0410.

BEDROOM FURNITURE, child's, chiffarobe & nightstand, white, great condition, \$50. Nelson, 828-2755.

MOVING SALE: new couch, end tables, 32-in. TV, chairs, lamps, china cabinet, dining table w/6 chairs, bedroom set, chandelier. Pitts, 293-5481.

SOFA SLEEPER, matching chair & ottoman, country plaid, oak accents, \$300 OBO; Aerobraton exercise machine, \$150 OBO. Eckley, 286-2103.

GARAGE SALE, 9/26-27, 8 a.m.-4:30 p.m., golf/home items, clothes, much more, 21 Ridge Road, I-25N, exit 242E, follow signs. Renning, 771-0860.

TRANSPORTATION

'90 BUICK PARK AVENUE ELECTRA, V6, 3.8L, AC, power, new battery, brakes, tires, very reliable student car, \$2,849 OBO. Moonka, 856-1110.

'98 CHEVY SILVERADO Z71, 74K miles, very clean, very nice w/extras, excellent condition, \$17,000 OBO, consider trade. Tarango, 232-9543.

'94 FORD F250, Supercab, loaded, 5th-wheel tower, large toolbox, bed liner, 81K miles, \$9,700. Nunez, 884-3623.

'91 GMC, ext. cab, small bed, 5-spdl., PL, PW, 98K miles, excellent, \$4,995 OBO. Baker, 856-6228.

'91 FORD RANGER, 4x4, ext. cab, V6, 4.0L, new brakes, tires, great shape, need head gasket. Rael, 884-4778.

'53 PLYMOUTH, 4-dr., Ortiz, 877-6883.

'00 PONTIAC GRAND PRIX GTP, 2-dr. coupe, leather, sunroof, headsup, new tires, 31K miles, excellent condition, \$16,400. Romero, 831-6646.

'92 SEDAN DEVILLE, white w/gold trim, \$4,699; RZ67 camera system, \$4,800; men's boots, T.O. Stanley, 8D, \$450. Luther, 822-1187, www.rluther.com/4sale.

'88 BUICK Regal, 2-dr., V6, AT, AC, 1 owner, 75K original miles, good condition, cloth interior, no rips, \$1,800. Vining, 323-5146.

'92 TOYOTA CAMRY, 4-dr., 4-cyl., 5-spdl., new tires, highly maintained, 182K miles, runs well, \$1,500. Rolfe, 833-5109.

'85 OLDS NINETY-EIGHT, AC, power everything, white, almost new tires, 88,683 miles, excellent condition, \$2,900. Parker, 822-5057.

'98 CHEVY 350 DUALY, 4WD, fully equipped, white, goose-neck hitch, 1 owner, never been wrecked, excellent condition. Arana, 228-4134.

'90 PONTIAC BONNEVILLE, PS, PL, PW, seats, tilt, good AC, good tires, 121K miles, runs nice, dependable, \$1,200 OBO. Kovarik, 897-2188.

'88 OLDSMOBILE DELTA 88, 4-dr., luxury sedan, power everything, AC, radio, 156K miles, great condition, \$1,100. Trezza, 293-3097.

'97 PLYMOUTH BREEZE, AT, AC, CD, white w/purple accents, 79K miles, excellent condition, \$4,000 OBO. Brown, 830-2527.

'97 CHEVY S10 BLAZER, 4-dr., 2WD, AT, PW, PL, hunter green, maintained, 96K miles, good condition, \$5,500 OBO. Gallegos, 897-5762.

'94 TOYOTA 4RUNNER, black, looks good, runs well, high mileage (170K on 110K engine), \$6,000. Williamson, 299-4310.

'88 FORD F250, 4x4, w/shell, 143K miles (less than 10K/yr.), very good condition, good truck, \$4,200. Jackson, 281-8927.

'99 CROWN VICTORIA, cruise, remote entry, air shocks, tow pkg., life for scooter, 68K miles, \$10,995. Gass, 828-3959.

'86 VOLVO 740 GLE, AT, upgraded AC, new tires, second owner, 182K miles, good condition, \$2,000 OBO. Carrejo, 883-7621.

'00 ACURA INTEGRA TYPE R, 5-spdl., PW, PL, AM/FM/CD, alarm, black, 32K miles, \$18,950 OBO. Stocker, 379-4957.

'84 NISSAN 200 SX, 5-spdl., 1 owner, 124K miles, very good condition, \$1,500 OBO. Archibeque, 242-7198.

'03 GALANT, PL, CC, silver, ABS, tint, remote entry, almost new, warranty, 6K miles, save \$4,000 over new, \$17,500 OBO. Natha, 453-6345.

'03 MERCURY GRAND MARQUES, 4,300 miles, excellent condition, \$19,500. Scott, 275-7429.

'02 LEXUS IS300, 5-spdl., ABS, AC, cruise, sunroof, leather, spoiler, red, 6CD, alarm, warranty, 5,200 miles, \$26,700. Jones, 892-6905.

'95 LEXUS ES300, black w/tan leather, 102K miles, excellent condition, book value \$10,200, asking \$7,950. Heise, 823-6355 or 400-9460.

'90 CHEVY SUBURBAN SILVERADO, rear AC, rims, tow pkg., 3rd seat, running boards, 130K miles, \$5,900 OBO. Marquez, 228-4200.

'96 CHEVY 1500 PICKUP, 2WD, 5.7L, ext. cab, camper cover, trailer pkg., 78K miles, 1 owner, excellent condition. Jones, 292-1581.

'00 OLDSMOBILE INTRIGUE GX, 4-dr., power everything, 60K miles, rides like a luxury car, \$9,400. Kellogg, 247-3888.

'92 ACURA VIGOR, V5, 5-spdl., sunroof, new timing belt, runs great, good condition, \$5,000 OBO. Mondragon, 867-4826.

'01 NISSAN PATHFINDER XE, 4x4, V6, AT, AC, PS, PL, AM/FM/CD/cassette, blue/gray, 59K miles, excellent, \$15,900. Gruebel, 323-2414.

'99 MAZDA MILLENNIA, V6, loaded, leather, power everything, sunroof, 73K miles, outstanding car, NADA \$12,400, asking \$11,000. Rivera, 459-7851.

'94 MERCURY TRACER, 5-spdl., new brakes, tires, clutch, clean, no repairs needed, \$2,500 firm. Bertsch, 299-3913.

'91 CADILLAC SEDAN DEVILLE, loaded, 1 owner, 90K miles, excellent condition. Carrington, 883-4402.

RECREATIONAL

'90 BOUNDER MOTOR HOME, 31-ft., 2 AC, microwave, generator, basement, excellent condition, below book, \$15,800. Strome, 256-3324.

'00 KAWASAKI KX250, excellent condition, never raced, \$2,800. Marquez, 865-0195.

'79 DODGE SANDPAK RV, 21-ft., sleeps 6, great for hunting, \$2,500 OBO. Castillo, 323-6270.

'92 HARLEY-DAVIDSON FXRS, many extras, 23K miles, \$10,800 or partial trade for BMW airhead. Anderson, 281-6975.

'99 WINNEBAGO BRAVE, 32-ft., Class A, V10, Banks power pack, generator, awning, no smoking, 22K miles, excellent condition, \$56,900. Sena, 899-5118.

'99 CHAPARRAL 1830SS BOAT, <50 hrs. on engine, boat, trailer, lots of extras, like new, reduced \$15,000. Beggs, 323-5901.

'98 SUZUKI VL1500 V-TWIN, 1 owner, windshields, hard bags, custom pipes, crushbar, excellent condition, \$5,750 OBO. Burrows, 869-6952.

'01 KIT 5TH WHEEL, slide-out, awning, bunk beds, flipped axles, 16K hitch, \$18,000. Serna, 869-2128.

'93 SANTANA TANDEM, medium, 48-spoke wheelset, shockpost, excellent condition, \$1,100. Russell, 281-1289, www.swcp.com/~russells/classified.htm

'02 TERRY 5TH WHEEL, 30-ft., bunkhouse model, large slide-out, includes hitch, excellent condition, \$19,500 OBO. Rantanen, 228-6586.

'95 PROWLER 5TH WHEEL, 25-ft., w/slide, awning, extras, great shape, \$8,000. Jones, 281-1177.

MOUNTAIN BIKE, GT LTS, full suspension, 18-in., Marzocchi Z1 fork, LX/XTR components, very plush, \$495. Eldred, 281-0224.

'96 HONDA XR-600 DIRT BIKE, 4-stroke, Super Trap exhaust, runs perfect, \$2,400. Sustaita, 453-2131, ask for Tom.

'81 PRINDLE CATAMARAN, 16-ft., custom trailer, good working condition, \$800. Litts, 884-9010.

'89 AVION TRAVEL TRAILER, 34-ft., base-ment model, new AC, batteries & AM/FM/CD, very good condition, \$16,000. Bland, 344-9613.

MOUNTAIN BIKE, Cannondale F800, small frame, XT/XTR components, SPD pedals, knobbies & slicks, hardly used, \$250 OBO. Oczonek, 888-5140.

MOUNTAIN BIKE, 21-spdl., Research Dynamics; kid's 21-spdl. mountain bike; swimming pool cover, hand-crank reel. Roberts, 275-2941.

'89 VW WESTY, AC, pop-up, sink, stove, refrigerator, 101K miles, great condition, \$6,475 OBO. Schaub, 821-7242, evenings/weekends.

'97 VESPA, 150cc, gas gauge, electric start, under 800 miles, spare tire, excellent condition, \$3,000. Griffith, 730-1324.

'02 KAWASAKI NINJA ZX-9R, Yoshimura pipe, never raced, show-room condition, only 700 miles, must sell, \$7,100. Deshler, 238-3486.

'02 HONDA CBR600 F4i, yellow/black, 600 miles, must sell, \$7,000 OBO. Maestas, 228-0636.

MOUNTAIN BIKE, Intense UzzisiL, ball burnished, XT parts, Spinergy Xyclone wheels, great condition, \$2,500 OBO. Bisconte, 292-5842.

REAL ESTATE

5 ACRES, East Mountains, access off North 14, Piñon Trail Road, \$125,000. Zottnick, 299-6339.

2.26 ACRES, Paako, includes house plans, 15 Tewa Court, \$125,000. Merkle, 286-4986.

5 WOODED ACRES, Conchas Dam, w/1,700-sq. ft. mobile home, oversized garage, boat port, \$165,000. Wilhelm, 505-868-2469.

3-BDR. HOME, 1-3/4 baths, 1,450 sq. ft., 2-car garage, remodeled, NE Heights, \$131,000. McReaken, 293-1227.

3-BDR. HOME, 2-3/4 baths, 1,780 sq. ft., 2 master suites, walk-in closets, Spain/Juan Tabo area, \$189,000. Bujewski, 298-2653.

3-BDR. CUSTOM HOME, 2 baths, Northern New Mexico Style, East Mountains, 2-1/2 acres, greenhouse, spa, workshop, \$219,000. Snyder, 281-1239.

.77 ACRES, beautiful lot, Glenwood Hills, ridge overlooking city, stunning unobstructed views, \$175,000. Stubblefield, 298-2991.

4-BDR. HOME, 1-3/4 baths, LR, DR, FR, breakfast area, 1,920 sq. ft., Taylor Ranch, \$5,000 below appraised. Lin, 821-6183.

4-BDR. HOME, 2 baths, 2-car garage, updated kitchen and bathrooms, 1,440 sq. ft., Wyoming and Montgomery area, \$125K. McDuffie, 292-0459.

WANTED

ROOMMATE, master bdr., private bath, full use of kitchen/laundry, must like pets, no smoking, \$450/mo. Schneider, 270-4941, leave message.

CHORAL GROUP MEMBERS, The Enchanters, mixed group, new session Aug. 26th at Sandia high school, 7:30 p.m., SATB. Pullen, 858-1500, ask for Gwen.

OLD CLOCKS, non-electric, pendulum-style, cuckoo clocks, working or not, price dependent on condition. Jones, 797-4894.

TUBE RADIOS, pre-1950, any condition, also vacuum tubes, literature, or other related radio stuff. Brady, 292-0487.

TV, 27-in. or bigger, good condition, reasonably priced for student's new apartment. Jaramillo, 463-8855.

HOUSEMATE, own bdr., 1/2 mile from UNM, full use of kitchen/laundry, nonsmoker, \$365/mo., includes utilities. Darshan, 304-6576.

OLDS TRUMPET, or parts, any condition considered. Gutierrez, 239-7059.

GOOD HOME, kittens, 7 wks. old, black & white, gray, playful, affectionate. Malcomb, 294-6975.

WIRE CRATE, small dog, or medium-size carry all, inexpensive. Sanchez, 315-5075.

ATX-compatible computer parts, cases, boards, etc. Low- or no-cost. Murphy, 294-1778



Lewis Bird opens door to a 'new world'

United Way comes to aid of Sandian and his family in their time of need

By Iris Aboytes

Editor's note: Lab News writer Iris Aboytes worked closely with Lewis Bird in preparing this story. Over weeks she spoke with him frequently, in and out of the hospital. Back in the hospital he saw the final draft, and he told her he loved the article. "It gives me peace," he said. She thought he was getting better and called Monday of last week to check on his condition. She was told he had died that Saturday (Sept. 6). As a tribute to Lewis, and to honor the work of the United Way, we have decided to publish the article as is.

Many of us try to lose weight by dieting and working out. Sandian Lewis Bird did neither of these and yet he lost weight. Periodic check-ups to the doctor gave him no insight as to what was happening. In a five-month period he lost 60 pounds. Still he was reassured nothing was wrong.

He insisted on more tests. This time he was told the tests revealed something "of concern" in his stomach. They would be analyzed further and he would be notified by phone of the results. In a phone call two days later, Lewis was notified he did not have to be concerned. He just had ulcers. "Thank God," thought Lewis, "I was thinking it was the worst imaginable." The sigh of relief did not last long as another phone call several days later asked that he go back to the doctor for a sit-down diagnosis.

Once in the doctor's office, Lewis heard what he had been afraid of hearing all along. He had cancer and would have to have surgery — part of his stomach would have to be removed. When the surgery was performed two weeks later, cancer had spread. In an all-day surgery, his entire stomach was removed and a smaller stomach was constructed from his large intestine.

Lewis did not tell anyone initially. To him cancer meant death. "What do I do? Who do I tell? I don't want to worry anyone," thought Lewis. After



LEWIS BIRD

four days of walking in a trance, he had to tell someone. He told his brother Delfino Bird (10843-3). Are you positive, asked his brother? Lewis response was, "Yes, I am scheduled for surgery."

Lewis next told his supervisor, Vicki Blackberg (10848-4), who was shocked. Word spread and it was wonderful how his co-workers were supportive, compassionate, and helpful as they offered their prayers.

Coming to Sandia as a custodian Lewis opted not to get health insurance. He had after all always been very healthy, and financially he was not in a position to pay for it. He would wait till the next time it was offered. So Lewis was in a major downfall.

He was receiving his medical treatment through the Public Health Indian Hospital. How would he pay for rent, groceries, and medications? Metal Trades Council Secretary Treasurer Ron Young (10842-2) suggested he contact United Way. Lewis talked with Mike Swisher, AFL-CIO Community Service Liaison at United Way of Central New Mexico.

Mike put Lewis in touch with UW community partners, and UW-funded programs that provided several months of rent assistance, food, and prescriptions.

Using United Way 211 (UW's Information & Referral service), a program funded by the Community Fund, was exactly what Lewis needed to do. United Way 211 maintains a database of over 500 nonprofit and government agencies that provide service to people in need. They identify the specific needs and then connect people to those agencies best suited to provide much needed assistance.

"Lewis is the very essence of why United Way exists," said Swisher. "United Way is a way to join together as a community to help our neighbors and coworkers through difficult times. The UW Community Fund finances programs that provide a variety of assistance ranging from counseling to rent assistance. Using these programs as well as United Way 211 and other community partners, we were able to get Lewis the help he needed."

Without United Way Lewis does not know what he would have done. United Way was there when he was the most vulnerable. Lewis hopes to be in a position soon where he can give back to the community.

Lewis signed up for medical insurance during open enrollment in November and his insurance became effective in January. He feels he is on his way to total independence.

Lewis was in the hospital only a week before he got to go home. Despite the offers from his family, he chose to take care of himself. On the tenth day following his surgery, he was on a mountain holding a chain saw — helping his brother cut wood. "The medical people told me I heal well!" smiles Lewis.

"A month after the surgery, I started receiving low doses of radiation and chemotherapy every three weeks. It wasn't too bad. A month after the chemo and radiation treatments ceased, tests revealed that fluid around my liver contained cancer cells, so I have had to have the higher dosage of chemotherapy. The treatments are every three weeks and it takes me about four days to recover."

Now in remission, Lewis says his 7-year-old son, Lewis Jr., is his everything. "When I first told him I had to have surgery, he asked 'daddy is it real bad or what?' It scared me at first," responded Lewis, "but I can deal with it now. Son, you don't have to worry, daddy will get better."

To his son it does not matter that his daddy does not weigh 200 pounds, or that he is bald. His son is just happy that now daddy can take him fishing.

"I feel fortunate that I have a second chance at life and I am going to enjoy it. I look forward to going back to work at Sandia," says Lewis. "Hopefully, it will be soon. Sandia is nondiscriminative, nothing like other places I have worked, and the sky is the limit as far as opportunities. I want to be there for my co-workers like they have been there for me."

"Lewis is a hard worker and a very good person and we look forward to having him return," says his boss Vicki Blackberg.

"Cancer has opened up a brand new world for me," says Lewis. "Maybe I was self-centered, I do not know. I do know that I will not take things or people for granted. I have found peace in my family, my co-workers, and my surroundings."

"Besides," laughs Lewis. "I have one over you. I can eat as much as I want, whenever I want, and still maintain my 112-pound macho-man physique."

Learson, Bennett receive Women of Color awards

Two Sandians will receive awards by Career Communications Group, Inc. The awards will be presented during the National Women of Color Technology and Business Awards Conference in Atlanta Oct. 9-11. The conference celebrates the often-unheralded contributions of minority women in technology and business.

Berweida Learson, Human Resources Customer Service Manager, Dept. 3000, will receive the National Women of Color Technology and Business Award in the area of Professional Achievement. Her work during her 29-year career includes Technical Writing, Corporate Training, Organizational Development, Leadership and Management Development, and Diversity Leadership, where she established sustainable diversity programs both in Sandia and in the community.

Over the past four years, Berweida has provided leadership in strategic human resource management for Division 15000 (DoD Programs) and the Military Technologies & Applications SMU as well as facilitation and consultation on several Division 10000 projects. She is the project leader for the IES-sponsored Leadership Academy program, which starts its fourth session in October of this year, after having graduated nearly 70 managers in the previous three sessions. Berweida has a BA from Loyola University, New Orleans; an MA from UNM; and



BERWEIDA LEARSON

recent certification as Senior Professional in Human Resources (SPHR) from the Society for Human Resource Management.

Dawn Bennett of MEMS Device Technologies Dept. 1769 will receive an Emerald Honor for Student Leadership.

She received a BS from Brown University and an MS from Duke University, both in mechanical engineering. She is currently working on her PhD in mechanical engineering from the New Jersey Institute of Technology. Previously, she worked as a project and manufacturing engineer for General Motors, Rockwell, Allied Signal, and Delphi-Delco Electronics. She also taught for a year as a volunteer in Kenya, Africa. At Sandia she is a Microsystems and Engineering Sciences Applications (MESA) student intern researching the separation and concentration of biological and nonbiological analytes from fluids upon the application of nonuniform AC field — a technique known as dielectrophoresis. Her research has potential applications to biological warfare agent detection and medical diagnostics.

The awards are being given by Career Communications Group, Inc., publisher of *US Black Engineer and Information Technology* magazine, *Hispanic Engineer and Information Technology* magazine, and *Women of Color Conference* magazine.



DAWN BENNETT

Sandia's Take Our Sons to Work Day 2003

Date: Tuesday, Oct. 7
 Sponsor: Human Resources Div. 3000
 Registration: 7-9:30 a.m. (TTC),
 Badge Office after 9:30 a.m.
 Opening session: 8-9 a.m., Steve Schiff Auditorium, Technology Transfer Center (Bldg. 825)
 Format: Job shadowing
 To volunteer: Pat Hubbard (3552), 845-3306

Watch the Sandia Daily News for the link to the Son's Day Web site, which will provide the most current information and registration forms.

Janet Carpenter

— Chris Burroughs