

A driving force

Sandia total spending, economic impact up in 2015

By Nancy Salem

Sandia spent roughly \$983 million on goods and services in fiscal year 2015, up nearly \$21 million from the previous year, and New Mexico businesses received more than \$381 million, or 39 percent of the total, according to the Labs' latest economic impact report.

US small businesses received more than 52 percent of the available dollars, about \$519 million in Sandia contracts, with the New Mexico share totaling \$259 million, or 68 percent of the small business total.

Compared with FY14, spending was up more than \$19 million with New Mexico businesses and about \$18 million with the state's small companies. Total US small business spending increased about \$64 million.

(Continued on page 4)

BUSINESS CIRCLE — Judy Ortiz Rizek is owner and president of The Circuit Shop in Albuquerque, a small, woman-owned business that contracts with Sandia. The 35-year-old company makes printed circuit boards for a variety of departments at the Labs and is International Traffic in Arms Regulations, or ITAR, certified. Rizek says being a Sandia supplier has helped her company grow in size and skill. "Sandia is amazing," she says. "It has given us every opportunity in the circuit board industry. The Labs stretch us to become better and better."

(Photo by Randy Montoya)



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Sandia LabNews

Managed by Sandia Corporation for the National Nuclear Security Administration



Volume 68, No. 2

January 22, 2016

Lightning fast

Sandia researchers are characterizing lightning discharges using a suite of sensors including a high-speed imager that breaks down strikes into microseconds. Data collected on this project is aimed at providing real-world validation for a lightning model being developed at Sandia. See page 6.



25 years of LDRD



FORMER SANDIA RESEARCHER DOUG ADKINS takes an up-close look in this 2001 photo at mini robots he developed with Ed Heller (1725). Weighing less than an ounce, they were at the time among the smallest autonomous untethered robots ever built. The robot miniaturization work grew out of Laboratory Directed Research and Development (LDRD) in Sandia's Intelligent Systems Sensors & Controls Department. LDRD was established by Congress 25 years ago to let scientists at national laboratories do creative, innovative, independent research. In those 25 years, LDRD has played a vital role in the nation's security and led to a life-changing array of scientific advances. And it continues to be the vehicle for ground-breaking discoveries. Read about the impact of LDRD on page 5.

(Photo by Randy Montoya)



New expanded videoconferencing capabilities. See page 3.

The facts about drug and alcohol testing at Sandia



Among things to consider: Marijuana is illegal per federal law. Despite legalization in some states, marijuana/THC is prohibited for all members of the workforce regardless of location or possession of a medical marijuana card. More on page 11.

Super blade

A new design for super blades longer than two football fields could help bring 50 MW offshore wind turbines online. Story on page 7.



Truths & Consequences

Real cases and outcomes. This time: failure to comply with the personal conflict of interest (PCI) mitigation plan. In FY15, there were multiple substantiated PCI violations. Truths & Consequences details the responsive actions taken by Sandia Corp. Story on page 9.



CSI Dognapping program

Four hundred students from under-represented schools across New Mexico donned lab coats and goggles at the Advanced Materials Lab to discover that chemistry is a real blast. Story on page 12.



Better. Faster. Smarter. The Operational Excellence Awards recognize Sandians and teams that use creativity to reduce costs and improve efficiencies across the Labs. Story on page 10.



It's not easy starting a new job. You have new co-workers, a new corporate structure, and baffling acronyms to get to know. You may get lost in unfamiliar hallways or confounded in an array of numbered buildings. ANGLE is there to help. Story on page 8.

That's that

I'm not one who typically likes to blow my own horn, but let me depart from my comfort zone for just a moment to tell you what a great friend I can be. The day before the big \$1.5 billion Powerball drawing last week, I promised my friend and colleague Mike Lanigan that if I won the lottery I'd give him a million bucks. Just like that. No questions, no conditions. Just a million dollars free and clear, after taxes. Mike was deeply moved, so moved he started laughing – out of deep appreciation, I'm sure.

Anyhow, when I got home from work, I told my wife about my promise and she said, Shucks, why not give him \$10 million? That sounded like a great idea and not really that big a sacrifice. Out of a take-home payout of upwards of \$500 million, I figured I could part with 10 large for a friend. Happy to do it, in fact. When the drawing came and went, my numbers didn't come up – not one of them – and I felt a real let-down. Not for myself, but for Mike.

At work the next day, I told Mike I had decided to give him \$10 million if I'd won, which of course I hadn't. Visibly moved, he started laughing in that way you do when your emotions get the best of you. When he came back to himself, he said, "You're a great guy, man." Like I said. But even before I could savor Mike's appreciation, our mutual colleague and friend Randy Montoya inserted himself into the conversation and did me one better. "For the record, Mike, I was going to give you \$20 million."

Let me be clear: I almost never buy lottery tickets. When the payoff tops a billion dollars, though, my way of thinking about the value proposition changes. I equate those big payout lotteries to the issue of Near Earth Objects. The chance that at any given time a big asteroid is going to slam into the Earth – an extinction-level event – is vanishingly small but demonstrably not impossible: The geological record is clear – these things do happen. Given the stakes, it's only rational to invest in mitigation strategies. Likewise with those big lottery drawings: There's just the teeniest, tiniest chance of winning, but the payoff is so huge that it makes sense (to me) to toss a couple of bucks into the pot to get a little bit of skin in the game. It's a low risk (\$2)/high consequence (\$1.5 billion) calculation.

* * *

The snowpack this winter is really looking good. It looks like the eagerly anticipated and much welcomed El Nino patterns this year are working out just as advertised. Granted, the storm systems have caused some real hardships in some parts of the state, but on balance, the moisture getting delivered to New Mexico via El Nino Express is all good. Reservoirs will get a boost, farmers will have a good year, and the fire danger in our forests will be way down. Not least, for those of us who love outdoor winter sports, the conditions for skiing and snowshoeing are the best they've been in a decade.

Speaking of skiing, my wife and I took a weekend trip to a nearby ski resort and stayed the night in a basic but perfectly decent hotel. After a day on the slopes, we looked forward to sitting for a few minutes in the hotel's hot tub, an amenity we always welcome. We stowed our ski gear, donned swim suits and bathrobes, and made our way to the spa, only to find a sign apologizing for the fact that the hot tub was down for repairs. What a letdown. But for a couple of wordsmiths (my wife is a writer, too) the wording on the sign was almost worth the disappointment. It said: "We're closed. Sorry for the 'inconvenience.' Please bare with us." Uh. No thanks. I'm a pretty open-minded guy, but I think I'll keep my suit on.

* * *

At the wrap-up of a team meeting a few weeks ago we were talking about work-related business when a colleague mentioned that during a conference in the Bay Area, she was able to get a briefing about and tour of the Twitter headquarters. Someone asked how many employees the company had. "I think they said about 4,000 regular employees," she replied. To which I answered, "Well, actually, they have 3,860 regular employees and 140 characters." I just couldn't resist.

See you next time.

– Bill Murphy (MS 1468, 505-845-0845, wtmurph@sandia.gov)

David Osborn elected Fellow of American Physical Society

By Michael Padilla

Sandia researcher David Osborn (8353) has been elected a Fellow of the American Physical Society's (APS) Division of Chemical Physics. He was honored "for innovative research in multiplexed methods for interrogating chemical kinetics and measurements of the physical chemistry of previously elusive reaction intermediates," according to the APS citation.

Election to fellowship in the APS is limited to no more than one half of 1 percent of the membership and is recognition by David's peers of his outstanding contributions to physics.

"It is a great honor and very humbling to be included in a group that

contains so many of the scientific heroes who inspired me, like Glenn Seaborg (an American chemist), Robert Oppenheimer (father of the atomic bomb), and Yuan Lee (first Taiwanese Nobel Prize laureate)," David says. "Being selected also reminds me how fortunate I am to have a fantastic group of scientific collaborators, who were critical to these discoveries, and for the Department of Energy funding that encourages curiosity-driven, long-term, fundamental scientific research in chemical physics."

David says his election as a Fellow is based on a technique he developed that allows chemical physicists to obtain a broader view of a chemical reaction. This technique allows physicists to look at all the different molecules in a reaction simultaneously, to watch how their concentrations increase and decrease with time, and to identify the structure of each molecule. David and his collaborators applied this approach to observe particular classes of long-sought chemical intermediates. A chemical intermediate is a highly reactive molecule that comes into existence only for a short period of time during the transformation of chemical reactants to products. Chemists speculate how this transformation occurs and postulate that a certain intermediate must exist if their hypothesis is correct.

"It is therefore especially satisfying, and may confirm or modify a hypothesis, if one can actually observe this fleeting intermediate, and even better if one can make measurements of how fast it is formed, how quickly it decays, and what other molecules have a propensity to react with it," David says.

Since 1999, David has explored the mechanisms of gas phase chemical reactions at Sandia's Combustion Research Facility. His research program creates multiplexed methods that provide broader views of a chemical reaction mechanism, with insights into kinetics, dynamics, spectroscopy, and molecular structure of reacting systems. He has applied these techniques to problems in combustion chemistry, earth's troposphere, and planetary atmospheres with the goal of improving fundamental understanding of chemical reactions and the predictive capability of chemical reaction models.



DAVID OSBORN

Employee Recognition Awards nominations being sought

It's time again for Employee Recognition Awards (ERA) nominations. Sandia's annual ERA program honors individuals and teams who have made outstanding contributions to Sandia's success.

The ERA program is expanding this year with new categories of eligible employees, new awards categories, and enhanced communication and recognition of award winners.

A new award category, Safety Leader & Influencer, will highlight achievements related to Sandia's safety mission. We are looking for nominations of individuals and teams that exemplify safety as an essential Sandia value. The ERA nomination process is open through Jan. 29.

For information on submitting a nomination, or to view a list of ERA Division Coordinators, see the ERA page at <http://tiny.sandia.gov/ubknq>.



Sandia National Laboratories

<http://www.sandia.gov/LabNews>

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Amarillo, Texas • Carlsbad, New Mexico • Washington, D.C.

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

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Classified ads 505/844-4902

Published on alternate Fridays by Internal & Digital Communications Dept. 3651, MS 1468



Lockheed Martin to end scholarship programs

Current scholarship recipients will not be affected by the change



Based on employee feedback gathered through focus groups and surveys, Lockheed Martin has decided to end its employee-focused scholarship programs, the National Merit Lockheed Martin Academic Scholarship Program and the Institute of International Education Lockheed Martin Scholarship Program, beginning in the 2016-2017 academic year.

All students currently in the program are grandfathered and will continue to receive their scholarship funds. Current participants must continue to meet the terms of their official scholarship offer as determined by the National Merit Scholarship Corp.

In its place, the Lockheed Martin Community Relations team is assessing new programs that will provide employees the opportunity to get involved in their community and align with the company's philanthropic focus areas of science, technology, engineering, and math education, and military and veteran support.

New videoconferencing capabilities come to Sandia

System enables desktop videoconferencing to connect to traditional videoconferencing

By Michael Padilla

A new videoconferencing era has begun at Sandia.

Members of the workforce will soon be able to connect and participate in a videoconference from their desks or VPN-connected devices without having to go to a specific conference room onsite. This new capability is in addition to the current Sandia videoconferencing in use today.

Led by Sandia/California's Videoconferencing and Collaborative Technologies group, the new videoconferencing capability system has been in the works for nearly five years and has involved at least 12 departments from across the Laboratories. Funding for the project came from Sandia's Chief Information Officer Department and totaled approximately \$4 million.

"The idea is to make things easier for employees to connect to videoconferencing," says Div. 9000 VP and Chief Information Officer Len Napolitano, who tasked the group to create an effective, low-cost way to link to videoconferencing without having to meet in a specified area. "Sandia is one of the first laboratories in the NNSA enterprise to have a system capable of connecting traditional videoconferencing (VTC) to desktop and mobile devices."

The challenge for the group was to determine a way to connect Skype (previously Lync) used at Sandia with traditional VTC systems. The group used a new model called Virtual Meeting Room (VMR) dialing.

"The main goal of the project was to enable desktop videoconferencing to connect to traditional videoconferencing," says Diane Gomes (89441). "You just dial your virtual meeting room and you are done. Doesn't matter what location you are in and whether you are on a desktop system, an iPad, iPhone, a laptop, or in a videoconferencing room."

The new VMR model is similar to Sandia's current audio conference bridge model. A VMR is a dynamically created meeting room; a location is no longer needed to dial in. The new infrastructure supports high-definition video, which older VTC systems may not support.

Several pilot groups have used the new capabilities to work out the kinks and ensure the system is able to connect to external participants.

Tim Berg (8940), who helped lead the group, says straightforward access to reliable videoconferencing is an expectation of the modern worker and a critical part of how Sandia stays connected to customers, partners, and other Sandians, especially those who telecommute or work at sites like California, Minnesota, or Washington, D.C.

"We are doing more than just adding new features," says Tim. "Sandians frequently need and expect straightforward and reliable videoconferencing to do their jobs, and mod-



NEW VIDEOCONFERENCING CAPABILITIES — Jeff Jortner, Diane Gomes, Joshua Crawford, and Corbin Stewart (all 8944) hold a videoconference with Lanette Radliff. (8944-1) They were all part of the team that spearheaded the new video capabilities.

ernizing the technical infrastructure is a key part of enabling that outcome."

How to connect to a videoconference

Connecting to a videoconferencing meeting is a simple process, Diane says. First, create a Skype meeting in Outlook, which will create a conference ID number. Meeting participants who attend from their desktop just need to click to join and those who choose to attend from a traditional VTC room will dial the conference ID to join. If users would like to have an external VTC system in the meeting, they can schedule it going to the VACT web page — Request for Services tab to bring that site into the conference.

Since the Skype Conference ID is the dynamic VMR number, users need to share it with those invited to participate in the videoconference. If users request setup support, the conference identification number will be needed. If a Skype desktop will not be part of the meeting, a 10-digit Sandia telephone number can be used as the VMR.

"This is a completely new way of doing videoconferencing," says Diane. "You don't need to be concerned anymore about what room someone is physically located in. It doesn't



matter if he or she is in a videoconference room, at a desktop computer, or in an airport on an iPad — as long as they have the Skype conference ID, they can all join the meeting."

Since a large majority of the work done at Sandia is considered official use only or need to know only, concerns about privacy were taken into consideration when creating the system. To create a private meeting space, create a Skype conference in a new "meeting space."

There are a number of benefits to using the new videoconferencing capabilities at Sandia, including allowing participants to stay at their desks and to participate with colleagues from various locations and from

other labs or sites.

"The expectation is that you will now be able to participate in a meeting that you may have otherwise missed," says Jeff Jortner (8944). "The new system will make it easier for people to participate because they won't have to join in from a fixed location. The bottom line is that videoconferences will have wider participation than ever before."

Diane says finding a publicly available room to hold a videoconference was often difficult but now the need to hold every videoconference in a single location will be a thing of the past.

Joshua Crawford (8944) says one benefit of the new videoconferencing system at Sandia is the common look and feel. "The new user experience is basically identical no matter what platform you're using or where you are," says Joshua. "You don't have to figure out which rooms you are going into, because they are all the same."

MORE INFO: Users can get more info and a QuickStart guide at the VACT website at <https://prod.sandia.gov/vact>. Members of the workforce are reminded to continue to protect official Sandia and DOE information.

Two Sandia scientists cited for computing advances yielding real world impact

Association for Computing Machinery selects Ali Pinar, Cynthia Phillips as 2015 distinguished members

By Michael Padilla



ALI PINAR

Sandia scientists Ali Pinar (8962) and Cindy Phillips (1400) have been selected as distinguished members of the Association for Computing Machinery (ACM).

ACM, the world's leading association of computing professionals, selected Ali and Cindy for their significant accomplishments and impact in computing. ACM recently selected 49 members for this recognition in the areas of education, engineering, and science.

Ali, a principal member of the technical staff, centers his work on applying graph algorithms to real-world problems. He has worked on combinatorial problems arising in parallel and scientific computing, electric power systems, and data, especially graph mining.

He first worked at Sandia as an intern in 1999 while he was working toward his PhD at University of Illinois at Urbana-Champaign. He received his bachelor's degree in computer science from Bilkent University in Turkey and PhD in computer science from the University of Illinois. Since returning to Sandia full-time in 2008, he has focused on modeling and analysis of graphs and using sampling and streaming algorithms for massive data sets. This recent work has received three best paper prizes from the Society for Industrial and Applied Mathematics, ACM, and the Institute of Electrical and Electronics Engineers (IEEE).

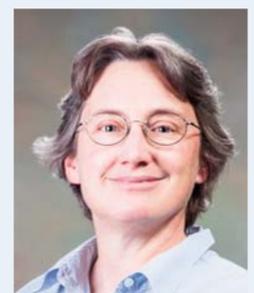
Ali is a member of Society for Industrial and Applied Mathematics (SIAM), and IEEE. He is a member of the editorial boards of *SIAM Journal on Scientific Computing*, *SIAM News*, and *Journal of Complex Networks*. He has chaired five international meetings and served on more than 40 program committees.

Cindy, a senior scientist in Sandia's Computing Research Center, conducts research in combinatorial optimization, algorithm design and analysis, and parallel computation. She has applied these techniques to many areas including scheduling, network and infrastructure surety, integer programming, graph algorithms, computational biology, quantum computing, computer security, wireless network management, social network analysis/graph data mining, sensor placement, and co-design of algorithms for next-generation architectures.

She received a bachelor's degree in applied mathematics from Harvard University and a PhD in computer science from Massachusetts Institute of Technology. She has been at Sandia since 1990. Her papers on combinatorial scheduling, with academic co-authors, have influenced the real-time scheduling community. She was a member of a team that won an R&D 100 award in 2006 for supercomputer processor allocation and a member of a finalist team for the Edelman award in 2008 for sensor placement in municipal water networks.

Cindy has chaired seven major international meetings and served on more than 60 program committees. In particular, she has served on the program committee for at least 20 ACM conferences, including chairing its flagship parallel algorithms conference, the ACM Symposium on Parallelism in Algorithms and Architectures. She also served as a conference officer.

The distinguished members are selected from leading academic institutions and corporate and national research laboratories around the world. This year, ACM selected distinguished members from Argentina, Belgium, Canada, China, Egypt, Finland, Hong Kong, India, Japan, Portugal, Qatar, the United Kingdom, and the United States.



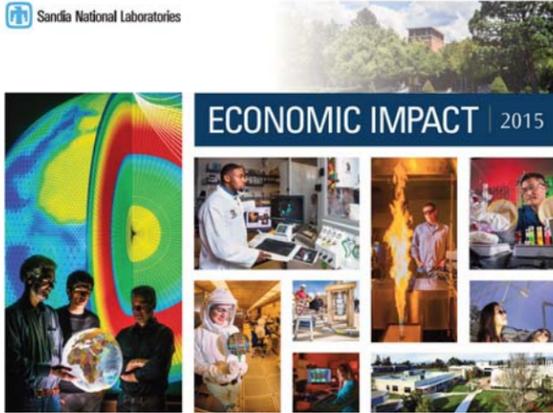
CINDY PHILLIPS

Economic impact

(Continued from page 1)

“These numbers show that Sandia continues to be a driving force in New Mexico’s economy,” says Don Devoti, manager of Small Business Utilization Dept. 10222. “We

Sandia National Laboratories



continue to set aggressive small business and supplier diversity goals and work diligently to meet or exceed those goals.”

Small businesses, diverse suppliers wanted

Sandia reaches out to local businesses through a variety of programs. It holds public forums with suppliers and civic leaders to discuss contracting opportunities and lists contracts on its Business Opportunities website. The Labs provides information to small and diverse business owners about doing business with Sandia and seeks qualified suppliers.

The 2015 Sandia National Laboratories Economic Impact report breaks down Sandia’s spending and spotlights its role in the economy. The 2015 data, reflecting actual payments made, is based on Sandia’s fiscal year

from Oct. 1, 2014, to Sept. 30, 2015. The report demonstrates Sandia’s continued commitment to small business, Don says.

Sandia’s overall economic impact in 2015:

- \$1.7 billion was spent on labor and non-contract-related payments.
- \$982.7 million went to contract-related payments.
- \$69.5 million went to the state of New Mexico for gross receipts taxes.
- \$77.8 million was spent through procurement card purchases.

“During the current fiscal year, Sandia procurement and our small business team are driven to exceed all our negotiated small business and supplier diversity goals, the standard by which our program is measured,” Don says. “We will continue to build upon our successes with HUBZone, Veteran, Service Disabled, and Small Disadvantaged businesses, where we exceeded our goals last year, to drive future success.”

Sandia helps the state’s economy through the New Mexico Small Business Assistance (NMSBA) program, established by the state Legislature in 2000 to help com-

panies with technical support from the Labs. In 2014, the Sandia NMSBA provided \$2.31 million in technical assistance to 197 New Mexico small businesses in 27 counties. Since 2000, it has provided more than \$29 million in assistance.

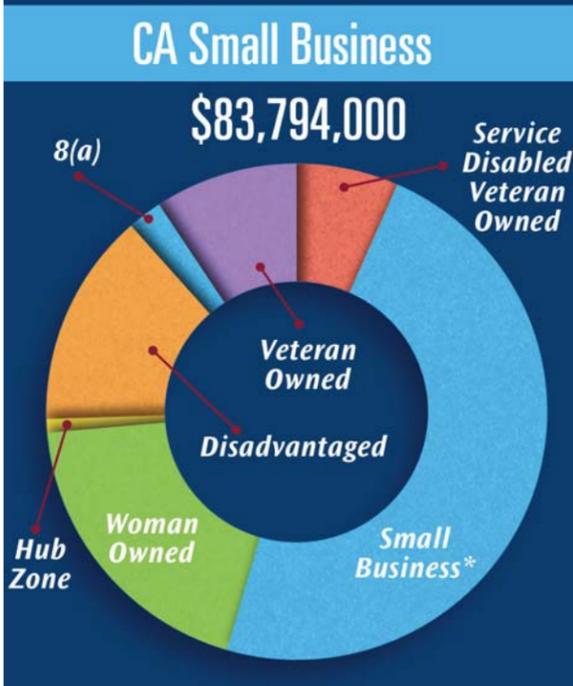
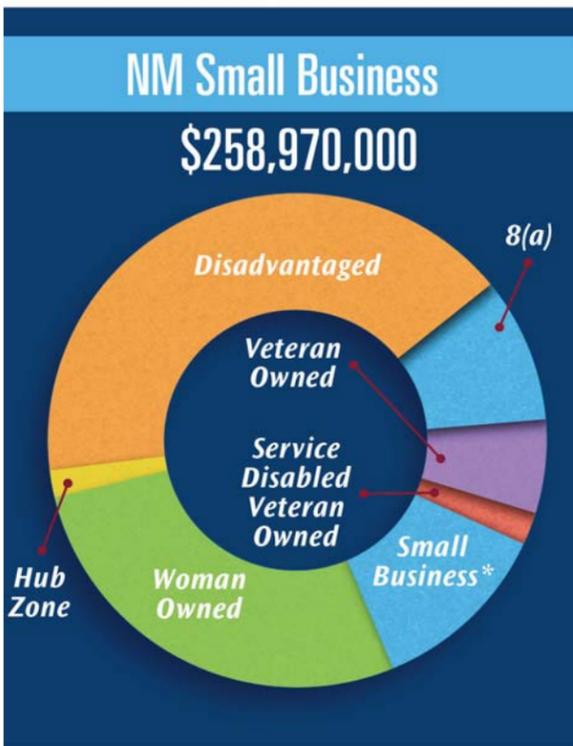
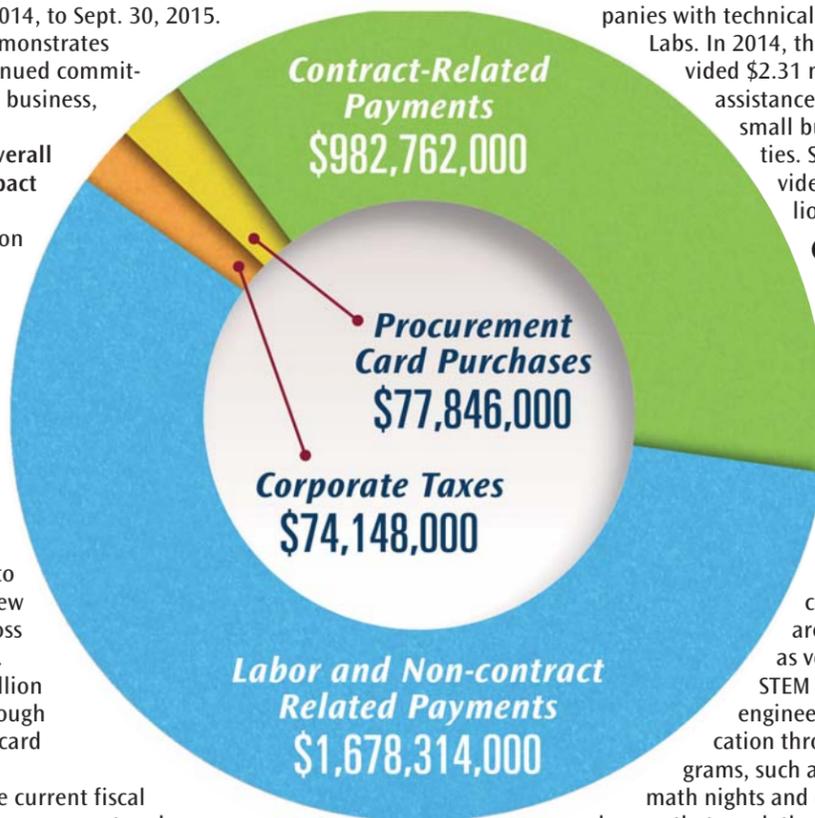
Giving back to the community

Sandia employees also gave more than \$6.5 million in 2015-2016 to the United Way of Central New Mexico as the largest corporate contributor to the agency.

Sandia employees contribute their time to area community groups as volunteers, supporting STEM (science, technology, engineering, and math) education through a variety of programs, such as family science and math nights and engineering challenges, that reach thousands of students.

Don says Sandia is committed to strengthening its relationships with the New Mexico business community and building new and enduring partnerships.

“Sandia National Laboratories has a long and distinguished record of encouraging and partnering with highly qualified, diverse small business suppliers who assist us in achieving our national security mission,” he says. “We are fully committed to continuing this track record and making a difference to the New Mexico economy.”



Small business expenditures for fiscal year 2015 with breakouts for its New Mexico and California labs

	National	New Mexico	California
Total small businesses:	\$519,330,000	\$258,970,000	\$83,794,000
Woman-owned small businesses (WOSB):	\$97,677,000	\$72,352,000	\$11,806,000
Businesses in impoverished areas (HUBZone):	\$29,373,000	\$18,913,000	\$0
Small disadvantaged business (SDB)	\$99,062,000	\$67,282,000	\$8,396,000
Business owned or co-owned by socially and economically disadvantaged person 8(a):	\$15,883,000	\$10,518,000	\$15,000
Veteran-owned small businesses (VOSB):	\$49,635,000	\$17,874,000	\$7,787,000
Service-disabled, veteran-owned small businesses (SDVOSB):	\$30,377,000	\$6,860,000	\$5,516,000
Small business (non-minority, non-woman, non-veteran owned)	\$197,323,000	\$65,171,000	\$50,274,000

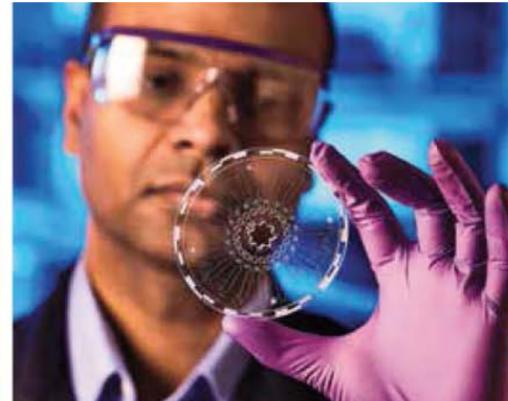
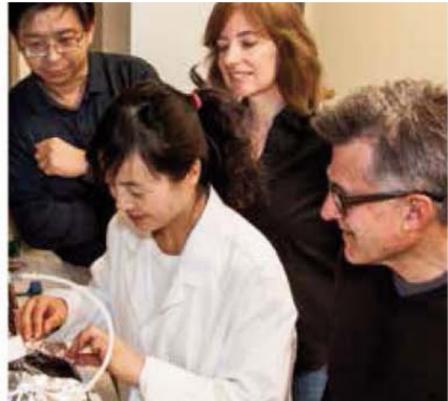
SANDIA’S FY15 CONTRACTING GOALS



25 years of LDRD

Headlights of a laboratory

Independent R&D lets scientists walk into the unknown. What they find can change the world.



By Nancy Salem

Research at a national laboratory is concrete. It produces scientific and engineering solutions to real-world challenges tied to precise, vital missions. Most of the time.

Someone, somewhere, decades ago looked at the extraordinary talent and brainpower collected at the Labs and thought, what if?

What if the country turned those super-smart people loose to really explore what they could only imagine. Give them time and money to take science to the frontiers of possibility.



GRAND CHALLENGES — Then-Executive VP Joan Woodard discussed notable LDRD-funded breakthrough research during a State of the Labs address to the community in the early 2000s. (Photo by Randy Montoya)

Thus was born Laboratory Directed Research & Development (LDRD), established in 1990 by Congress to let scientists at national laboratories do creative, innovative, independent research. “LDRD has allowed us to stay at the cutting edge of science in our core mission areas,” says Andy McLroy, deputy chief technology officer and director of Sandia’s Research Strategy and Partnerships Center 1900. “The origin was the realization that national labs, particularly national security labs as opposed to science labs, needed to have a small portion of their budgets directed to forward-looking research.”

At Sandia, LDRD is funded as a percentage of all the programs that come into the Labs. Currently at just under 6 percent, or \$155 million a year, it is directed toward long-term research that ultimately benefits the national security mission but may be at a lower technological readiness level than core programs can support. “It keeps the technical base fresh and forward-looking in ways the core programs might not be

able to in the course of usual business, but is of long-term benefit to them,” Andy says.

Investment has paid off

The investment has paid off in 25 years with important scientific advances. LDRD funds much of the work in Sandia’s seven research foundations, each focused on a specific scientific discipline and overseen by the Office of the Chief Technology Officer. “Research helps us to envision things that haven’t been realized yet,” says Rob Leland, Sandia VP of Science & Technology and Chief Technology Officer. “We can look broadly across the scientific and engineering community and ask what new and emerging areas of research could have a beneficial impact on the nation, and then develop understanding necessary to bring them to life.”

The seven foundations are Bioscience, Computing and Information Science, Engineering Science, Geoscience, Materials Science, Nanodevices and Microsystems, and Radiation Effects and High Energy Density Science. “The foundations enable the mission and advance the frontiers of knowledge in science and engineering,” Rob says.

Research supports national security in important ways, Andy says. “We can look into new and emerging areas that, if mastered by an adversary, could be used to the disadvantage of us and our allies,” he says. “We can position ourselves to counter a threat if it becomes a reality.”

Attract and keep exceptional scientists

LDRD also has helped Sandia attract and keep exceptional scientists. “It offers the freedom to propose and explore your own, mission-relevant ideas and push the state of the art in new ways,” Andy says. “When you add in the national security mission, it is very attractive. We attract professionals who are among the smartest people on the planet, who are not afraid of challenging problems, and who believe national service is worthy of a career commitment.”

The LDRD process starts with a set of calls from research and mission foundations. Broad areas are identified that have the potential for strong mission impact in the short or long term. Researchers respond with brief proposals that are reviewed by experts within the Laboratory. About a fourth are asked to submit a full proposal. Those get an extensive programmatic and technical review. Roughly half will be funded.

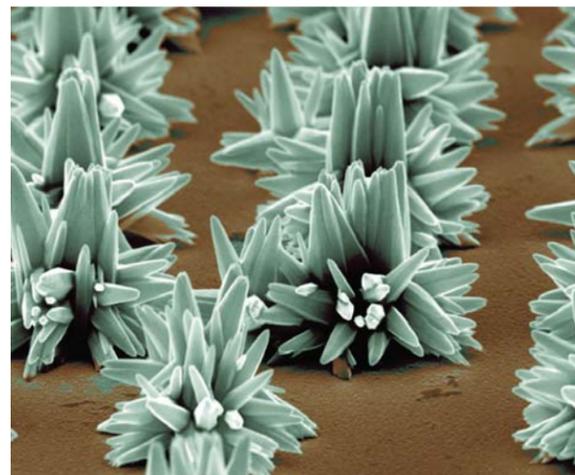
“We get a lot of ideas,” Andy says. “There is quite a bit of scrutiny.” A typical LDRD project is funded at \$200,000 to \$600,000 and takes up about a third of the principal investigator’s time for up to three years. Typically, researchers work on other projects in addition to an LDRD project.

About 20 percent of Sandia’s LDRD portfolio is connected to Research Challenges, long-term, cross-disciplinary projects in 11 designated areas related to national security. “We’re looking for big, bold ideas to move the Research Challenges forward,” Andy says.

Groundbreaking discoveries and innovations

Not all LDRD projects are long and complex. “Some let us explore new areas that might fall outside our expertise with small seed projects to see if it will lead in a new direction,”

“LDRD offers the freedom to propose and explore your own, mission-relevant ideas and push the state of the art in new ways.”



AN LDRD-FUNDED research project called “Nanolithography Directed Materials Growth and Self-Assembly” had applications in renewable energy technologies. During the research Julia Hsu captured this image, which she called “zinc oxide yucca.” The image was a winner in an annual Art as Science competition.

Andy says. “This allows us to quickly explore areas that could become important in the future.”

Andy says LDRD has produced groundbreaking work including discoveries and innovations in microelectronics, microsystems and nanodevices, materials science, defense, and advanced radar. “We’ve stayed at the forefront of radiation-hardened electronics. Sandia is one of the only places in the country that produces them,” he says. “It is important in nuclear weapons work but also applies to space-related activities.”

Bioscience was a niche at Sandia until LDRD advances led to the establishment of a research foundation. The breakthrough was MicroChemLab, a micro-laboratory compact and light enough to fit in a hand. It harnessed the power of a full chemistry lab, detecting and analyzing toxic agents such as bacteria, viruses, and protozoa in minutes rather than hours. And it did its work using only minuscule amounts of sample and analytes.

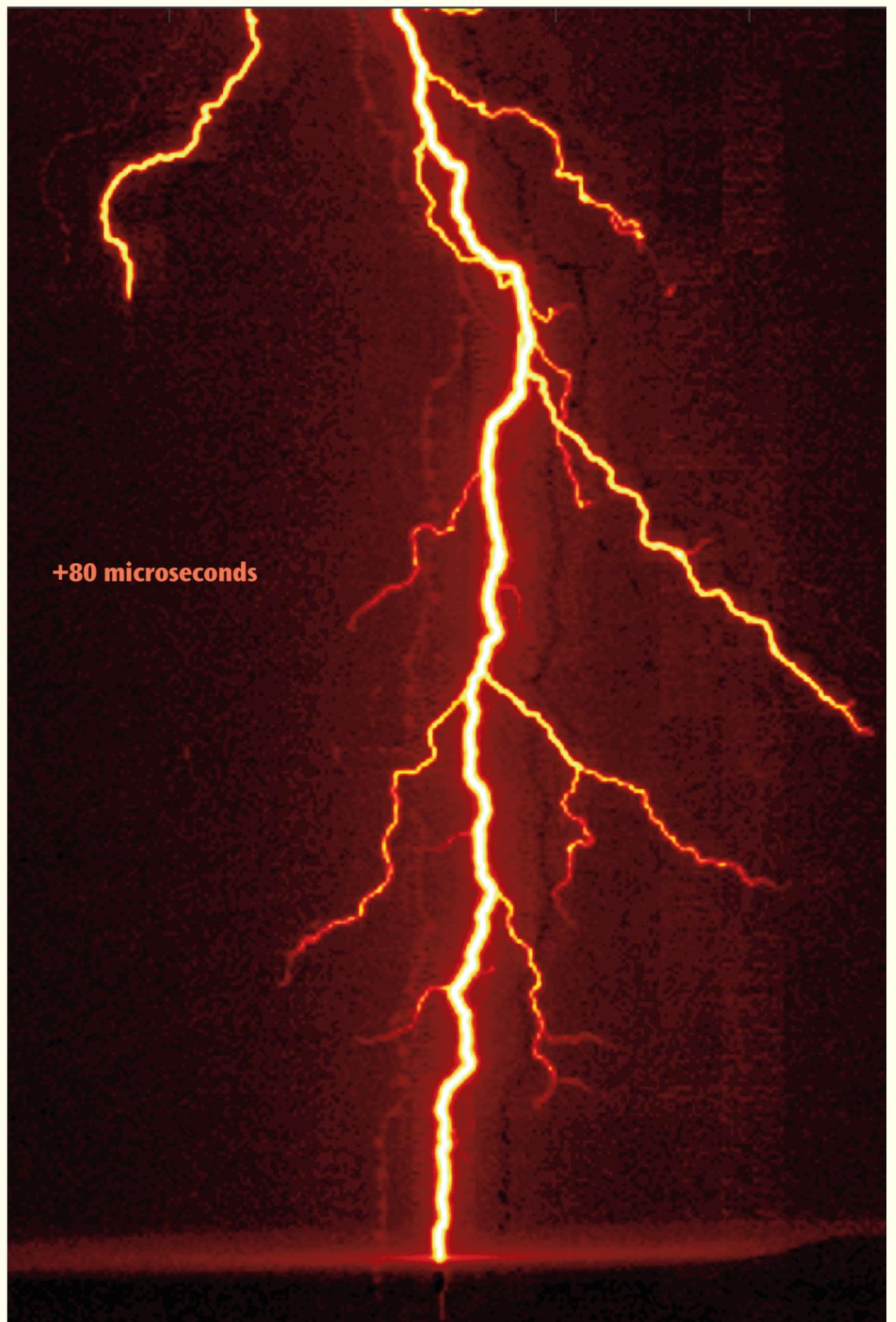
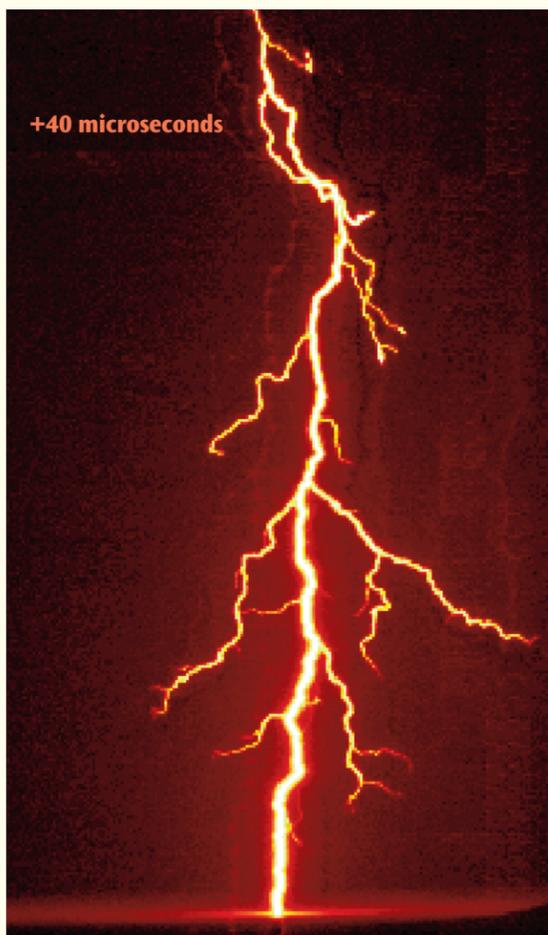
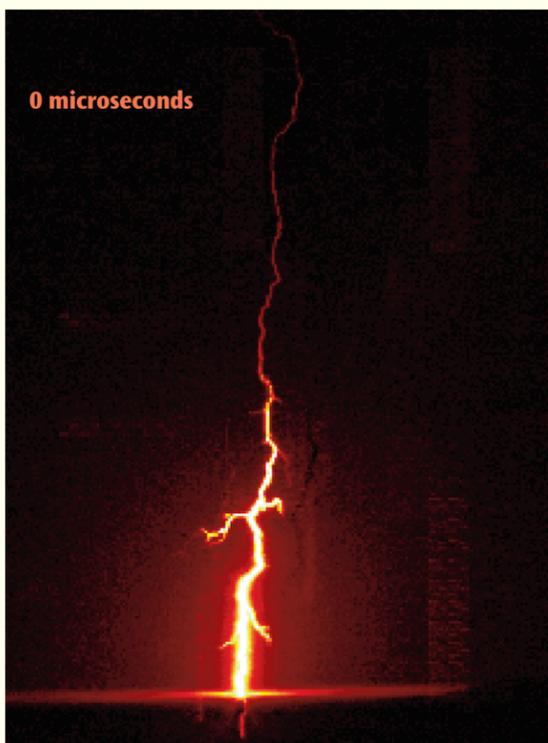
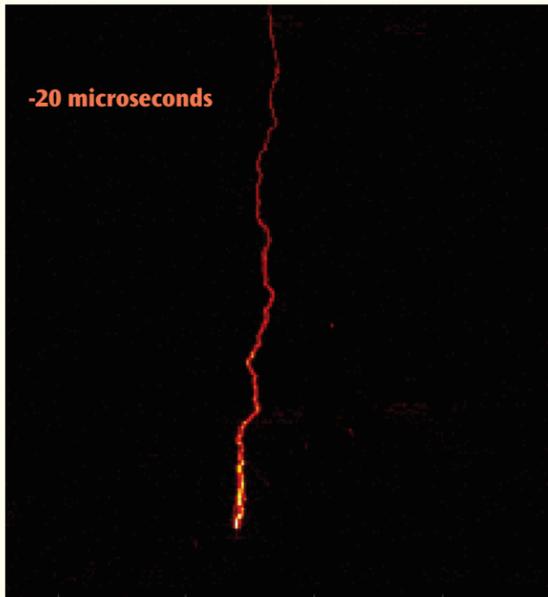
The micro device, created out of Sandia’s first Grand Challenge LDRD, was a milestone on a strategic path to establish the Labs as a microfluidics authority. Grand Challenges are larger LDRD projects at around \$3 million a year for three years that focus on bold, high-risk ideas with potential for significant national impact. Sandia has enhanced the basic technology behind MicroChemLab, generated a multitude of patents, and garnered national recognition, including a 2012 R&D 100 award for an entire integrated system for automated sample preparation and analysis of micro-liter volumes.

And proving that innovation breeds innovation, MicroChemLab has spurred a half dozen startup companies and unanticipated uses such as monitoring for gases released during fracking. More than a decade after the first prototype was launched, the momentum remains strong as Sandia continues to receive funding for new applications of the microfluidics technology in national security, public health, and energy.

“This was an iconic project where an early investment in LDRD planted the seeds of an important national security program,” Andy says. “LDRD really helps us deliver on our tagline of delivering exceptional service in the national interest. To be exceptional we have to be at the cutting edge, and LDRD is one of the tools that help us meet the expectations of the country. We have delivered.”

When lightning strikes

Sandia researchers break down lightning strikes into microseconds



Remote sensing personnel and geophysicists are interested in accurately characterizing lightning discharges. The lightning strike shown here was imaged on Aug. 17 in central New Mexico from a building near Sandia's solar tower. It was one of 65 recorded in their natural environment by Mark W. Smith, Braden Smith, Michael Clemenson, and Joshua Zollweg (all 5772) during six weeks of observation last summer.

Data was collected at a variety of wavelengths, using a suite of sensors that included a high-speed imager and a pair of high-speed spectrometers with different spectral resolutions. Brightness increased dramatically during lightning's

so-called return stroke, when the raw electrical energy began its bounce back up into the sky (here, at $T=0$). Data collected on this project is expected to provide real-world validation for a lightning model being developed at Sandia.

A poster of the work was presented at the American Geophysical Union meeting in San Francisco in December. The project is funded by Sandia's Laboratory Directed Research and Development office.

The researchers were hosted at the solar site by Julius Yellowhair (6123). Additional technical support was provided by Anthony Tanbakuchi, Michael Montoya, and Byron Demosthenous (all 1535).

— Neal Singer



WIND MASTER — Todd Griffith (6121) shows a cross-section of a 50-meter blade, which is part of the pathway to the 200-meter exascale turbines being planned under a DOE ARPA-E-funded program. The huge turbines could be the basis for 50-megawatt offshore wind energy installations in the years ahead. (Photo by Randy Montoya)

Enormous blades for offshore energy

By Stephanie Holinka

A new design for gigantic blades longer than two football fields could help bring offshore 50-megawatt (MW) wind turbines to the United States and the world.

Sandia's research on the extreme-scale Segmented Ultralight Morphing Rotor (SUMR) is funded by DOE's ARPA-E program. The challenge: Design a low-cost offshore 50-MW turbine requiring a rotor blade more than 650 feet (200 meters) long, two and a half times longer than any existing wind blade.

The team is led by University of Virginia and includes, in addition to Sandia, researchers from the University of Illinois, the University of Colorado, the Colorado School of Mines, and the National Renewable Energy Laboratory. Corporate advisory partners include Dominion Resources, General Electric, Siemens, and Vestas.

"Exascale turbines take advantage of economies of scale," says Todd Griffith (6121), lead blade designer on the project and technical lead for Sandia's Offshore Wind Energy Program.

Great offshore wind energy potential

Sandia's previous work on 13-MW systems uses 100-meter blades on which the initial SUMR rotor designs are based. While a 50-MW horizontal wind turbine is well beyond the size of any current design, studies show that load alignment can dramatically reduce peak stresses and fatigue on the rotor blades. This reduces costs and allows construction of blades big enough for a 50-MW system.

Most current US wind turbines produce power in the 1-2 MW range, with blades about 165 feet (50 meters) long, while the largest commercially available turbine is rated at 8 MW, having blades 262 feet (80 meters) long.

"The US has great offshore wind energy potential, but offshore installations are expensive, so larger turbines are needed to capture that energy at an affordable cost," Todd says.

Barriers remain before designers can scale up to a 50-MW turbine — more than six times the power output of the largest current turbines.

"Conventional upwind blades are expensive to manufac-

ture, deploy, and maintain beyond 10-15 MW. They must be stiff to avoid fatigue and eliminate the risk of tower strikes in strong gusts. Those stiff blades are heavy, and their mass, which is directly related to cost, becomes even more problematic at the extreme scale due to gravity loads and other changes," Todd says.

He says the new blades could be more easily and cost effectively manufactured in segments, avoiding the unprecedented-scale equipment needed for transport and assembly of blades built as single units.

The exascale turbines would be sited downwind, unlike conventional turbines that are configured with the rotor blades upwind of the tower.

SUMR's load-alignment is bio-inspired by the way palm trees move in storms. The lightweight, segmented trunk approximates a series of cylindrical shells that bend in the wind while retaining segment stiffness. This alignment radi-

cally reduces the mass required for blade stiffening by reducing the forces on the blades using the palm-tree inspired load-alignment approach.

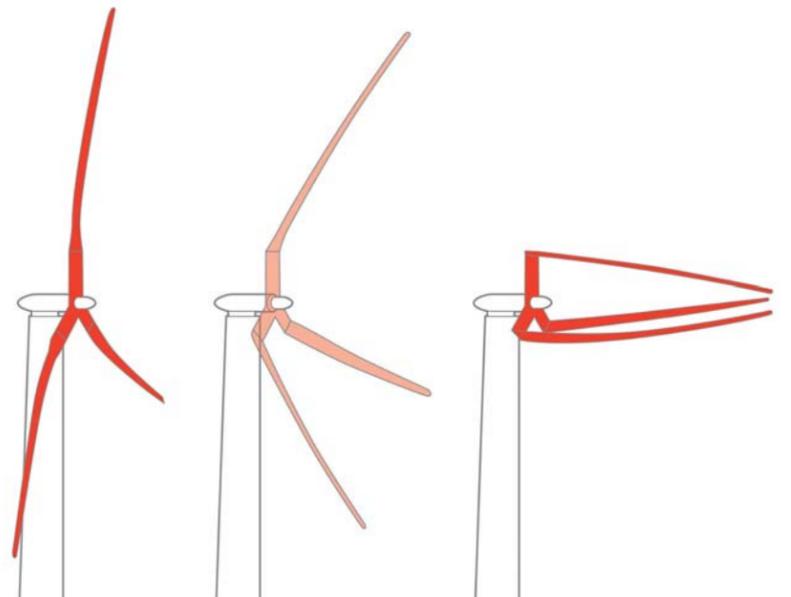
Segmented turbine blades have a significant advantage in parts of the world at risk for severe storms such as hurricanes, where offshore turbines must withstand tremendous wind speeds of more than 200 mph. The blades align themselves to reduce cantilever forces through a trunnion hinge near the hub that responds to changes in wind speed.

"At dangerous wind speeds, the blades are stowed and aligned with the wind direction, reducing the risk of damage. At lower wind speeds, the blades spread out more to maximize energy production," Todd says.

DOE's goal is to reduce the cost of wind power to support deployment that could provide 20 percent of the nation's energy from wind by 2030. Exascale turbines made possible by giant blades could help realize that goal.

Sandia's 100-meter blade is the basis for the Segmented Ultralight Morphing Rotor (SUMR), a new low-cost offshore 50-MW wind turbine. At dangerous wind speeds, the blades are stowed and aligned with the wind direction, reducing the risk of damage. At lower wind speeds, the blades spread out more to maximize energy production.

Illustration courtesy of TrevorJohnston.com/Popular Science





ANGLE MEMBERS Tyson Bailey (424), left, and Maneeshika Madduri (2600) watch as Albuquerque school children explore during the Big Brothers Big Sisters STEM Discovery Festival Nov. 13. Volunteering at the festival is only one of many activities open to ANGLE members. (Photo by Randy Montoya)

ANGLEing towards success as a Sandian

By Mollie Rappe

It's not easy starting a new job. You have new co-workers, a different corporate structure, and baffling acronyms to get to know. You may get lost in unfamiliar hallways or confounded in an array of numbered buildings.



Advancing the Next Generation of Leadership Excellence (ANGLE), a Sandia affinity group, is here to help employees — new and established — connect and excel. ANGLE began in 2007 as the Sandia chapter of North American Young Generation in Nuclear, but has grown from a nuclear engineering-focused early career group to one that serves all Sandians.

“Sandia is big and it can be hard to connect across the Labs outside of your own department, especially if you are building your professional portfolio early in your career, or if you are new to Sandia. But everyone benefits from growing their network, continual professional development, and giving back to the Sandia and Albuquerque communities,” says Amber Dagele (1728), vice chair of ANGLE.

ANGLE's members come from every center across the Labs and include people who have only been at Sandia a few months to those who have been here for more than 20 years. In 2014, the ANGLE group mailing list reached 200 people, but it now has 450 members, says Lia Kashdan (2100), chair of ANGLE. This growth corresponds to an 11 percent growth of the Labs workforce in fiscal year 2015.

The ANGLE board wants to serve everyone who joins the group and provide content that they want to see, says Lia. From September 2014 to September 2015 ANGLE hosted 35 events in four areas: professional development, networking and social activities, community service, and science outreach.

Developing professional skills

“Professional development talks are helpful for everyone,

no matter where you are in your career. All of our talks are open to everyone, so anyone who wants to come can come,” says Susan Stevens-Adams (431), professional development co-chair. Susan and Danielle Thomas (421), the other professional development co-chair, plan sessions every six weeks or so on topics of interest to both technical and support staff.

Past events have run the gamut. Jennifer Stinebaugh (30) of the Ombuds office presented on different styles of conflict resolution. Mark Timms (9329) talked about an inventive problem-solving technique. Vaughn Halford (751) spoke on ways to improve quality. Steve Rottler (2) talked about what it means to be a Sandian. Bill Rhodes (6920) presented on the getting things done methodology based on a book by David Allen. Bill's productivity talk was such a hit, ANGLE had him come back and give an encore presentation, says Amber Dagele. Many of the recent professional development talks can be found on ANGLE's website tiny.sandia.gov/ANGLE.

ANGLE is a co-sponsor for the “How to be an Effective PI” workshop series along with the Research Leadership Team and the Advanced Strategic Training Program. A full-day workshop on project planning, managing programs, and leading teams was held Jan. 20.

Making a community

“We are trying to touch on all of the cornerstones of what it takes to have a successful career here. That means both building your skills and professional relationships at work and being happy and content in Albuquerque. Making friends is really important. Meeting people and building those relationships is critical. It's important to feel like you are a part of something,” says Amber.

The first Wednesday of every month ANGLE reserves a table in the Thunderbird Café during lunch. It's a convivial gathering of old friends and newcomers. After informal introductions — name, organization number, and length of time at the Labs — conversations about the weather, intramural sports, and popular movies ensue.

Other ANGLE social events have included happy hours, biking to the Balloon Fiesta, potlucks, go-karting, and an annual holiday bowling and white elephant gift exchange.

Whether you eat lunch together or go bowling, getting to know other folks at Sandia on a personal level makes your work day more pleasant, says Amber. Meeting people in other divisions can help you with your job, as you can call them up and ask them if they know anyone with particular skills to help you with your project, she adds.

Lia says, “What we want to do is to make a community here. If you have friends and you have a strong support system, you will thrive because you're happy where you are. To be successful you need to have a support system at work, feel valued by your managers and your peers, and have a good friend group who, again, supports you.”

Connecting and giving back

Sandians have a privileged role in the Albuquerque community, says Amber. “It's our responsibility to give back. We do that through ANGLE, and it's another opportunity to connect with the community and to connect with one another.”

One of Lia's favorite ANGLE events was a science outreach activity in January 2015. Volunteers designed, prepared, and judged portions of a Science Olympiad competition. Part of what made it so special to Lia was that she participated in Science Olympiad during high school. Building trebuchets and bottle rockets were precursors to her current position as a mechanical engineer in nuclear weapons systems engineering, she says.

On Nov. 13 and 14, ANGLE volunteers helped run a booth at the Big Brothers Big Sisters Discovery Festival. Elementary, middle, and high school students from around the area attended and took part in hands-on activities at booths run by Explora, New Mexico Institute of Mining and Technology, Air Force Research Laboratory, and many others. Sandia's Robotic and Security Systems Dept. 6532 had a robot the children could direct around several orange cones and kits to construct a circuit to launch a flying saucer into the air.

ANGLE will be volunteering at the New Mexico Regional Middle School Science Bowl on Jan. 23. Beyond science outreach events, ANGLE has participated in numerous community service activities. ANGLE volunteers have cooked dinner at the Ronald McDonald House, helped out with the Stamp Out Hunger food drive, and worked at the Roadrunner Food Bank.

“If people have ideas regarding activities that they'd like to do or professional development talks that they'd like to hear, please let us know. We want to do whatever we can to help Sandians flourish in their career or their social life,” says Susan.

Other groups also are involved in ensuring the success of new Sandians. These groups include the Postdoctoral Professional Development Program, the Excellence from the Start program, Sandia Women's Action Network, and a new Early Career Outreach group.

TRUTHS AND CONSEQUENCES

REAL CASES AND OUTCOMES

ETHICS CASE #13

Ethics Advisory and Investigative Services presents *Truths and Consequences*

Truths and Consequences is based on real cases and outcomes. The purpose is to provide an opportunity for employees to learn and better understand Sandia's values and policies in action. Your management, along with Ethics Advisory and Investigative Services, takes your concerns seriously. Below are the cases and responsive actions taken by the Sandia Corporation.

ISSUE: FAILURE TO COMPLY WITH PERSONAL CONFLICT OF INTEREST (PCI) MITIGATION PLAN

Background:

Ethics has seen an increase in the number of employees who have violated their PCI mitigation plan. In FY15, there were multiple substantiated PCI violations.

- An employee signed a contract as the Principal Investigator in direct conflict with the PCI Mitigation Plan.
- Two employees used Sandia resources (computer, printer, phone, and email) to further an outside business. The employees' overall personal use of Sandia resources was well beyond incidental use.
- An employee violated a PCI mitigation plan developed with the manager, which clearly stated that no work with the employee's outside business could be conducted while working for Sandia National Laboratories.

Results:

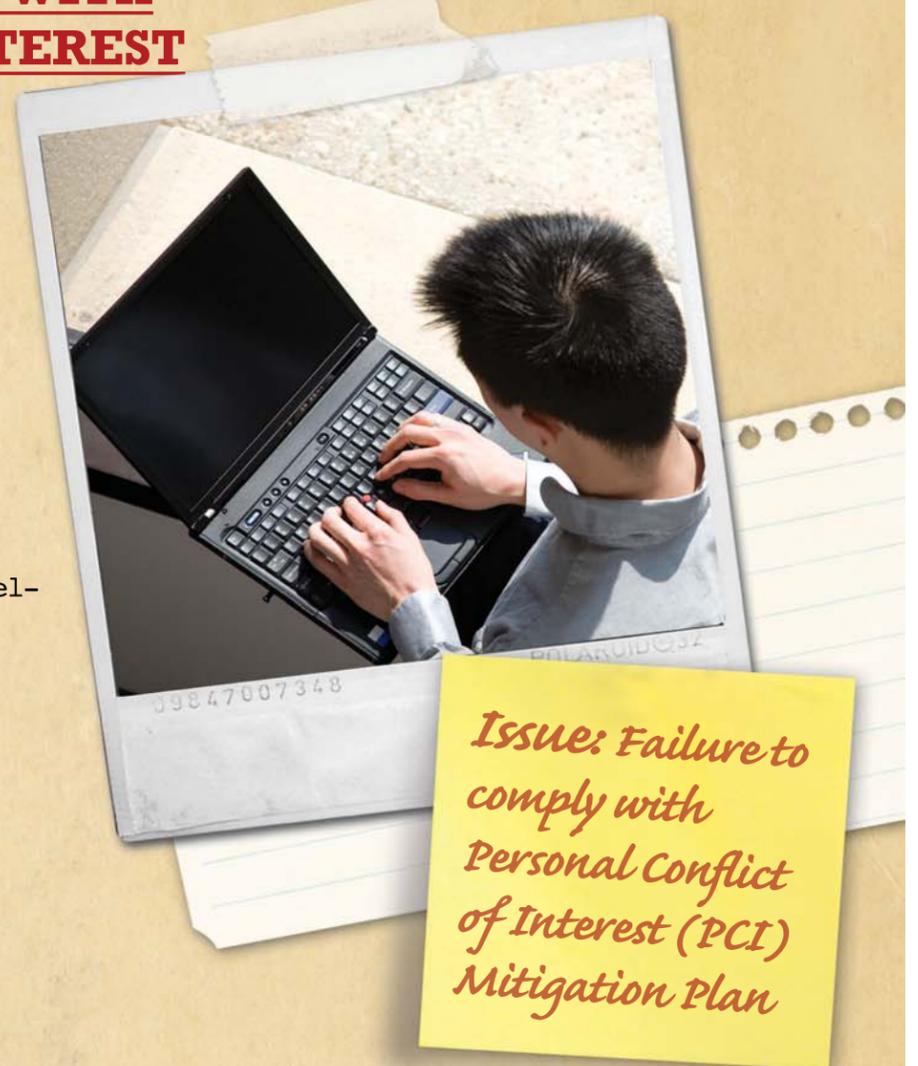
These employees received discipline ranging from one-week suspensions to termination. In addition, for those who were suspended, approval of any outside employment and any outside activities listed in the PCI was withdrawn for a minimum of one year, and computer incidental use was no longer allowed for these employees.

Mitigation Actions:

Managers should:

- Monitor PCI Mitigation Plans and review them at least annually with employees.
- Ensure the employee understands the plan.
- Contact Ethics Advisory and Investigative Services if they question an employee's compliance with the plan and need assistance.

Work outside of Sandia isn't prohibited, but please remember that PCI Mitigation Plans must be respected and followed.



Applicable Policy:

The employees in the above cases were in violation of one or more of the following corporate policies:

- CG100.4.7 – Manage Personal Conflicts of Interest
- IM100.1.1 – Gain Access to Sandia's IT Resources
- HR100.3.4 – Determining Hours of Work
- CG100.4.1 – Comply with the Standards for Ethics and Business Conduct and Sandia's Corporate Values



Sandia National Laboratories



Honoring efficiencies across the Labs



COST SAVINGS AND cost avoidance winning team members led by Jimmy Romero, left, strategize how to continue to save the Labs money. The team includes Melissa Armijo, center, Leonardo Valencia (both 10591), and Louise Britton (9542). (Photo by Randy Montoya)

By Mollie Rappe

Better. Faster. Smarter.

These are the goals for the Operational Innovation team, but they cannot improve processes and save money around the Labs alone. They need every Sandian to help, and the Operational Excellence Awards ceremony honors those who step up.

The Operational Innovation program was established in April 2012 to seek out creative ideas, reduce costs, and improve efficiencies. Over the past three years the program has led to \$228 million in cost avoidance and \$81 million in cost savings. This program not only hosts a tool for reporting cost efficiencies, but also a process by which original ideas are vetted, implemented, and validated, says Stephen Rudisell (711), former program coordinator.

In fiscal year 2015, 79 opportunities for efficiencies were submitted using the Operational Innovation database and 57 were validated. This led to a combined cost reduction of \$132.8 million, a 77 percent increase over the target of \$75 million.

Kim Sawyer, deputy Labs director and executive VP for Mission Support, was the guest speaker for the 2015 Operational Excellence Awards ceremony held Nov. 30. Kim acknowledged the hard work that went into the FY15 efficiency submissions and urged everyone in the audience to tell three co-workers about the Operational Innovation program.

Directed awards

The Top Contributor award went to Tim Knewitz (10500) on behalf of the Financial and Business Management Center, which he directs. Tim's center submitted 11 validated projects, more than any other center in FY15. These projects led to more than \$10 million in reduced spending, including the runners-up for cost savings and cost avoidance projects: PBGC Fee Savings and Eliminate Unnecessary Exempt Overtime.

The Leadership Award went to Tana Lucy (2900), senior manager of Design Engineering, for her commitment to developing efficiencies throughout her center. In FY15, Tana sponsored several Lean Six Sigma events and nine new projects throughout Center 2900.

The Inspirational Award went to Fabian Aragon (10597), a center business manager in CIO & IT Business Operations. This award honors an individual who demonstrates initiative and ingenuity in implementation of opportunities. Fabian was involved in numerous new projects including Data Center Consolidation Energy Savings and Common Engineering Environment Cost Savings.

Corporate and Strategic Purchasing, led by Jimmy Romero (10248), swept the cost savings and cost avoidance first-place awards. Through two new cost savings opportunities, Jimmy's group saved the Labs \$20.9 million. Through three new projects, the team identified \$25.1 million in cost avoidances. By reducing spending by \$46 million, Procurement was responsible for more than a third of the Labs' total FY15 efficiencies.

"We're looking for innovative ways to procure the supplies and services our customers need to get the job done at a lower overall price," says Jimmy. "Finding ways to do it better — more efficiently and at a better total price — gives even greater meaning to the important work our folks do and the impact Procurement can have on making Sandia the laboratory that the nation turns to resolve complex problems."

in Center 1400, led by Lorena Martinez (10614). The team streamlined the summer student hiring process significantly by working hand in hand with the Student Internship Programs Office, and having a single point of contact within the center who handled much of the process on behalf of the managers.

In FY16, the Operational Innovation and Lean Six Sigma



The Operational Innovation Office drives increased integration and efficiencies across Sandia by exploring opportunities, benchmarking and researching outside of Sandia, gathering ideas at all levels of the organization, providing tools, measures, Lean Six Sigma (LSS) services, and communicating results for continuous improvement of Sandia's business model.

We serve as a catalyst and change agent for new ideas and ways of doing business that increase efficiency and decrease cost while enabling Sandia's mission and balancing risk. We act as Sandia POC for tracking and reporting on improved efficiency and cost savings.



THE OPERATIONAL INNOVATION website provides tools for capturing opportunities for improved efficiencies around the Labs. Both nascent ideas and ideas that have been implemented and only require validation are welcomed. Visit the site at <http://tiny.sandia.gov/cobr7>.

Leverage awards

Three projects were honored for their potential for cross-Labs savings. The Center 2700 Electronic Customer Feedback Tool led by Marc Montoya (2712) and Chris Monroe (2722) had the greatest long-term potential. This tool streamlines the customer feedback portion of the Performance Management Form and saved the pilot group more than \$69,000. If this tool is implemented Labs-wide, it could save almost a million dollars annually.

The runner-up in the Leverage category was Implementation of Facilities Key Performance Indicators led by Mark Spoonamore (9516), a labor-saving project that replaced manual processes for generation of Facilities metrics.

Third-place went to Streamline Student Program Process

databases will be merged to improve the process of implementing ideas and capturing non-monetary efficiencies gained, says Frank Mills (711), the new Operational Innovation program coordinator. He says, "The biggest goal that we have for this fiscal year is leveraging what has been put into the database."

Pam McKeever (710), senior manager for Operational Innovation, says she would like to see more entries for opportunities that provide intangible benefits such as improving employee morale, corporate reputation, or quality. "Everyone thinks this is only about saving money, but it is really about providing benefits, tangible and intangible. This isn't just about cost-cutting. It's really about a new way of thinking, being more productive and innovative," Pam adds.

SANDIA CLASSIFIED ADS

MISCELLANEOUS

COUCH, 3-pc., \$500; kitchen table/chairs, \$150; 3 glass-topped incidental tables, \$100; loveseat, \$125 OBO; have photos. McCormick, 967-7891.

HANDBAGS, leather, Dooney & Bourke, 4, different sizes, excellent condition, prices range from \$65-\$250. Wells, 292-0179.

'THE PRODUCERS' TICKETS, 2, Popejoy, Jan. 31, 6:30 p.m., good seats in Orchestra, east side, inside aisle, \$49.50 ea., cash only. Hoyal, 505-823-1421.

CONVERTIBLE CRIB, matching dresser, tan, high quality, heavy, sturdy, \$300; double stroller, sit & stand, great shape, \$125. Davis, 505-610-1309.

ARMOIRE & HUTCH, dark cherry finish, excellent condition, \$600/both. Hennessey, 505-269-6243.

CORNER DESK, solid oak, 3-pc., \$150; queen sleigh bed frame, solid pine, \$50; photos available. Palya, 505-321-6421.

END TABLES, 2, dark brown, hardwood, 28"W x 23"L x 24"H, quality items, excellent condition, \$50. Cioce, 201-575-0319.

VACATION CONDO, Pagosa Springs, Ski Wolf Creek, 1-2 bdrs., sleeps 4-8, full kitchen, all amenities, \$90-\$120/night. Fernandez, 505-238-4722.

OFFICE DESKS, 2, L-shaped, w/1 matching bookcase, \$600 ea. Cox, 505-440-0643.

'THE PRODUCERS' TICKETS, 2, Jan. 30, 8 p.m., Orchestra, ~13th row, dead center, cost \$70 ea., asking \$100. Drayer, 401-7872.

KENMORE STOVE, gas, black, excellent condition, \$400; microwave, MasterChef, over-the-stove, excellent condition, \$125. Montoya, 342-0043.

TELESCOPE, Meade Schmidt-Cassegrain, 10-in., every extra available at time of purchase, perfect condition, \$800. Smith, 505-414-4161.

SHOES, various work boots, tennis shoes, sizes 9-10.5, all new, priced to sell. Green, 898-3791.

FREE-STANDING PELLET STOVE, Traditions T300P-2, 1,750-sq. ft., still attached to pallet from shipping, \$1,000. Carlson, 505-238-9058.

CLASSICAL CONCERT TICKET, seat ZZ307, Feb. 27, Rachmaninoff, Barber, Saint-Saens w/Maestro Nakamatsu, cost \$24, asking \$20. Wagner, 505-363-5982, ask for Stevie.

SLEEPER SOFA, Flex Steel, 84" W x 36"H, mattress 72" x 60", \$300. Nissen, 299-9305.

FOOD PROCESSOR, Cuisinart, 6-cup, w/3 blades, excellent condition, \$25. Dockerty, 828-0745.

HAIR DRYER, hard hood, \$20. Hitchcock, 299-2581.

RV TOW BAR, \$375; towing electric wiring & cables, \$195; chairs, folding tables, 7-ft. aluminum ladder, lanterns, etc.; sewing machine, \$125; much more. Garcia, 554-2690.

BABY ITEMS; Babytrend Expedition jogging stroller; Kolcraft Cradle 'n Care bassinet; Laura Ashley stroller; \$25 ea. Kerschen, 821-2848.

DESK/HUTCH, L-shaped, wood; upright piano; \$200 ea. OBO; you haul. Hill, 850-8469.

TRANSPORTATION

'07 MAZDA 6, 4-cyl., PW, PL, CD stereo, silver, grey interior, new tires, 123K miles, clean title-no salvage, great condition, moved, need AWD vehicle, \$5,800. Pohl, 917-5188, ask for Brenda.

'78 OLDSMOBILE TORONADO BROUGHAM, coupe, manual, cruise control, sun ray tinted windows, loaded, purchased new, owner manual, stored, 35K miles. Brunacini, 505-883-2557.

'14 HONDA CIVIC LX, 4-dr., AT, silver, like new condition, <20K miles, 37-mpg, \$16,000. Kramer, 821-4893.

'13 HYUNDAI SANTA FE SPORT, gray, dealer maintained, 44K miles, \$16,900. Solis, 331-8169.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday.

Submit by one of these methods:

- EMAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 1468 (Dept. 3651)
- INTERNAL WEB: On internal web homepage, click on News Center, then on Lab News link, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902.

Because of space constraints, ads will be printed on a first-come basis.

Ad rules

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

'03 HONDA CIVIC LX, 4-dr., manual, 82K miles, little use since illness in '08, very good condition, located in CA, \$2,800. Concord, 925-672-2386.

'78 CHEVROLET NOVA, 2-dr., 6-cyl, no AC, body rough, glass good, runs great, \$1,200 OBO. Marchi, 268-5940 or 917-3494.

'59 GMC CLASSIC FLATBED, 1-ton, 48K miles, starts easy, runs great, good condition, \$8,000. Skroch, 505-553-1382.

'90 TOYOTA CAMRY, 2nd owner, cold AC, interior OK, body straight, needs paint, runs/drives great, \$2,000. Langwell, 382-3591.

'14 SCION iQ HATCHBACK, 10 series, AT, AC, grey, rims, upgraded suspension, 38-mpg city, 12K miles, \$13,300. Frederick, 505-975-5741.

'04 DODGE STRATUS, V6, AT, white, tan interior, 100K miles, runs great, \$3,200 OBO. Gutierrez, 505-508-9277.

'03 LINCOLN TOWN CAR, sun roof, 170K miles, \$3,700 OBO. Clements, 865-3993.

'10 FORD TAURUS LIMITED, 4-dr., 6-cyl., fully loaded, AT, leather, 29-mpg, no issues, excellent condition, \$10,500. Smith, 489-6564.

'15 SUBARU WRX LIMITED 6SM, loaded, white, original plus custom tires & wheels, 14K miles, excellent, \$30,750. Horton, 280-4202.

RECREATION

'79 HARLEY-DAVIDSON, FXEF Fat Bob, super glide, 80-ci, rebuilt engine, ~10K miles, \$7,000 OBO. Blanchat, 239-5258.

'85 BAYLINER BOAT, 85-hp, well kept. Romero, 505-306-8815.

'06 JAYCO SENECA, Duramax diesel Allison transmission, 37-ft., 3 slides, fully loaded, 29K miles, \$65,000 OBO. Crowder, 505-238-8375.

REAL ESTATE

3-BDR. HOME, 2 baths, near shopping mall, base, 1421 Hoffman Drive NE, \$149,000. Griffin, 505-269-1819.

3-BDR. HOME, 2 baths, 1,400-sq. ft., 3-yrs. old, 1 owner, custom built, Volterra Community, quiet, great neighborhood, 11631 Pocono Rd. SE, \$199,000. Martinez, 505-417-3242.

TRIPLEX, 500-sq. ft. units, good rental investment, close to base, VA hospital, MLS#848840, \$122,000. Caruso, 505-459-8286.

3-BDR. HOME, 3,600-sq. ft., 4.11 acres, Tijeras, RV barn, 4-stall horse barn, tack room, covered patios, fully landscaped, \$749,000. Lovato, 505-980-4749, ask for Karen.

3-BDR. MOBILE HOME, 16' x 80', 9-Mile Hill MHP, large Tuff Shed, beautiful unobstructed views, \$18,000 OBO. Allen, 362-4082.

EAST MOUNTAIN HOME, newly remodeled, ~2,000-sq. ft., 1.22 wooded/fenced acres, beautiful/peaceful neighborhood, \$245,000 OBO. Glen, 505-350-8421.

3-BDR. HOME, 2-1/2 baths, Willow Wood, near Eubank gate, garden, tile roof, lots of light, \$250,000. Dinge, 505-818-8933.

3-BDR. HOME, 1,820-sq. ft., on 320 acres, w/barns, 5 miles west of Estancia, Highway 55, \$390,000. Bishop, 505-384-1162.

2-BDR. HOME, 2 baths, 1,070-sq. ft., NW Albuquerque, 10639 Quasar St. NW, wood floors, vaulted ceilings, open floor plan, refrigerated air, \$135,000. Gilliam, 892-1013.

WOODED MOUNTAIN LOT, near S-14, off Raven Road, homes on adjacent properties, only \$19,000. Gibson, 294-6831.

WANTED

RELIABLE CAR, for student, <\$5,000. Ashby, 281-1573.

GOOD HOME, Maine Coon cat, loving, 2 yrs. old, great w/kids & dogs. Shaw, 228-9571.

The facts about drugs and alcohol at Sandia



Sandia prohibits the possession, use, sale, manufacture, transfer, trafficking in, or being under the influence of illegal drugs or alcohol and the abuse of legal drugs in the workplace or while performing company business.

Per DOE requirements, Sandia's Drug and Alcohol Testing program was established to protect the environment, maintain public safety, and safeguard national security by maintaining a drug-free workplace. All members of the workforce (MOW) are required to complete pre-employment, reasonable cause/suspicion testing, post-occurrence, post-accident, and follow-up testing. In addition, everyone with a Sandia-sponsored L or Q clearance (or applying for a clearance) is included in the Testing Designated Positions program, which randomly screens 30 percent of all eligible MOW each year.

Here are some facts and resources related to Sandia's Drug and Alcohol policy:

Marijuana/THC is illegal per federal law. Despite legalization in some states, marijuana/THC is prohibited for all Sandia members of the workforce, regardless of location or possession of a medical marijuana card.

Second-hand marijuana smoke may cause a positive result on a random drug test: While previous research showed individuals would not test positive from passive smoke, THC levels of today's marijuana are up to 25 percent higher than in the 1960s and 1970s. A new

study/experiment shows that one out of six participants tested positive for THC at the federal cut-off levels after being exposed for one hour to passive second-hand marijuana smoke. This study was not performed in a "normal" house; the participants were in a smoke-filled, sealed

National Drug & Alcohol Fact Week: Resources for families and employees

From Jan. 25-31, National Drug & Alcohol Fact Week aims to use science to teach teens about the facts and myths of drug and alcohol abuse and addiction. Visit <http://teens.drugabuse.gov/national-drug-facts-week> for quizzes, planned activities, supplies, and educational information, including the following free resources:

- Marijuana: Facts Parents Need to Know (available in both English and Spanish)
- Family Checkup: Positive Parenting Prevents Drug Abuse
- Drugs: Shatter the Myths
- Toolkits on alcohol, marijuana, prescription drugs, tobacco, and new psychoactive substances (synthetics)

chamber with others who smoked for the hour. Passive exposure will not be accepted as a medical explanation for the presence of THC in a drug test at work. We all know the slogan, "Just Say No." Now we need to also say, "Just Say No and Leave" if marijuana smoke is present.

Free resources and support are available to help address alcohol and substance abuse issues. Through Sandia's Employee Assistance Program (EAP), licensed psychologists and counselors can guide employees through behavioral health issues that can affect personal health, family life, or job performance, including anxiety, depression, family issues, grief, marital issues, substance abuse, and workplace violence. The program includes confidential assessment, referral, and short-term onsite counseling services.

The EAP behavioral health team is legally and ethically responsible for maintaining confidentiality of employee information. Federal rules prohibit the disclosure of EAP records and information without written employee consent, or as otherwise permitted by 42 CFR part 2. To access the EAP, call HBE Customer Service at (505) 844-HBES (4237), Option 1.

Additional EAP resources are available from Sandia Total Health's vendors:

- BCBSNM EAP/Magellan Health: (800) 424-0320
- UHC EAP/LifeEra: (866) 828-6049
- Kaiser EAP: (800) 464-4000

If you have questions about the issues raised in this article or about drug and alcohol testing in general, refer to Sandia policy HR100.4.6 and to Q&As on hbe.sandia.gov or call HBE Customer Service at 505-844-HBES (4237).



CSI: Dognapping program honored for science outreach

By Rebecca Brock • Photos by Randy Montoya

Four hundred fourth-graders from underrepresented schools across New Mexico suited up in lab coats and goggles at Sandia's Advanced Materials Laboratory to discover that chemistry is a real blast. The CSI: Dognapping outreach program, now in its 11th year, recently received national acclaim from The American Chemical Society, winning The ChemLuminary Award for Outstanding Kids & Chemistry.

The weeklong workshop was designed by Tim Boyle (1815) and Bernadette Hernandez-Sanchez (1815), and is run by volunteers from Sandia's Materials Science and Engineering Center (1800). Students interact with Sandia scientists and engineers, following clues to find the missing chemistry dog.

The program is geared toward exciting students about careers in STEM.

Tim says, "We learned that fourth grade is when many of these kids start thinking about what they want to be when they grow up."

Bernadette says, "This national award is a huge accomplishment for Center 1800 and all of the Sandia volunteers. The feedback we get is that these kids go home viewing themselves as junior scientists and playing CSI on the playground."

