Integration, inclusion theme of nuclear weapons all-hands meeting

Executive VP Steve Rottler praises Sandians’ strong sense of purpose and loyalty to customers

By Sue Major Holmes

Steve Rottler has two words for Sandia: integration and inclusion. Integration because “there’s no such thing as a program or activity at the Labs that exists independent of any other,” and inclusion because “nothing could be more important to the Labs than for each of us to be thinking every day when we come to work, what am I doing to be open to the opinions and contributions of others?”

“We succeed or fail together,” Steve, deputy Labs director and executive vice president for National Security Programs, told a Sept. 15 all-hands meeting for the nuclear weapons mission. The meeting was video-linked to Sandia sites in California, Carlsbad, and Washington, D.C. Although the session centered on the nuclear weapons program, Steve emphasized its Labs-wide nature, saying the success of Sandia’s core nuclear weapons program relies on contributions from thousands of Sandians who don’t work in nuclear weapons.

The weapons program, he said, is relevant to everyone at Sandia. It’s not possible to execute any program without relying on other programs and the breadth of technical and non-technical capabilities throughout the Labs, he said.

Nuclear weapons are Sandia’s core mission, helping build a capability-based foundation of people, facilities and tools, and a research base that enables the Labs’ other six mission areas. Advances in the other mission areas, in turn, enable the nuclear weapons mission area

(Continued on page 5)

Inside . . .

1. United Way of Central New Mexico (UWCNM) is local, governed by a local board of directors.
2. In 2015 and 2016, UWCNM’s Community Fund will invest $3.5 million in 103 local health and human services groups.
3. Some 2,261 nonprofits throughout the state are listed in the Center for Nonprofit Excellence’s New Mexico Nonprofit Directory. Want to volunteer? CNPE lists volunteer and board member opportunities with nonprofits and schools at www.nmvolunteers.org.
4. Dial 2-1-1 to get information and referrals for assistance statewide. Calls are routed to local United Ways covering every county. UWCNM has a staff member dedicated solely to helping people who call 2-1-1.
5. Tax Help New Mexico, administered by UWCNM, offers free tax preparation to low-income families and individuals through 31 sites in New Mexico and eastern Arizona.

For more about Sandia’s 2015 ECP campaign see pages 6-7

Five things you didn’t know about United Way

By Sue Major Holmes

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Managed by Sandia Corporation for the National Nuclear Security Administration
Fridays, where rather than dressing down, employees are encouraged to dress up.

The arc from casual Fridays to casual every day is not a hard one to trace:

Our style of dress has certainly changed at Sandia. If you look back at photos from old issues of the Lab News, you'll notice that our folks on both the technical and business sides back in the 1950s and 1960s routinely dressed just about the same way bankers and lawyers did.

Considering the scope of what we're doing at Sandia in 2015, it's hard to make a case that our changing dress styles have had a negative impact on the quality of our work over the years. To the contrary, our more casual approach may actually be a net plus for us. We're still tackling the most complex challenges that science and engineering can throw our way and maybe, just maybe—because of the way we dress for work these days—we're tackling them without breaking a sweat—or wrinkling up a good dress shirt.

Yogi Berra is famously quoted as saying "It ain't over 'til it's over." Well, sadly, for Yogi, it's finally over. He passed away at age 90, a beloved American original as renowned for his big-hearted personality and his curious wise malapropisms—called Yogi-isms— as he was for his accomplishments on the baseball diamond. Yogi's Yogi-isms have been quoted with affection and good humor for decades.

Yogi's generation of ballplayers was probably the last in which baseball was indisputably the National Pastime. In today's more highly charged era where everything in our lives seems to be on hyperdrive, baseball, with its parochial roots, strikes many as too slow. In Yogi's era, baseball players were the real superheroes. Basketball and football? They were just something to pass the time until spring rolled around again. And Yogi, without a doubt, was one of the biggest names in our biggest game. He wore that mantle with typical unassuming good grace.

We loved him because he was a regular guy, an ordinary guy with extraordinary gifts. His baseball feats are enshrined in Cooperstown at the Hall of Fame. His Yogi-isms are so embedded in the popular culture that they'll never be forgotten. When Yogi said, "No one goes to heaven? I've tried to live a good life. I never missed Mass on Sundays, even when we were on the road." St. Peter says, "Of course, Yogi, we all love you up here. Why just the other day, Lou Gehrig was saying he can't wait to meet you, you practically being teammates and all...."

St. Peter laughs and says, "Of course, Yogi, we all love you up here. Why just the other day, Lou Gehrig was saying he can't wait to meet you, you practically being teammates and all...."

Yogi says, "What's that's great," says Yogi, "I'd love to meet him, but how do I find him?"

St. Peter says, "That's easy, Yogi. In fact, you already know the answer: When you come to a fork in the road, take it."

See you next time. — Bill Murphy (NS 1468, 505-845-0845, wtmurph@sandia.gov)

Breaking Bad Habits: Wellness Expo creates a chain reaction for preventive screenings

Margaret Baca (2522-1) says she appreciated the real-time results and is eager to maintain her health. "There were a lot of people and I thought they were going to rush me through my appointment but it was actually very personal. I was apprehensive about coming to this event but I'm glad I did because I got a clean bill of health. The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

The convenience of the event was a popular draw for many. "I wouldn't have had [my annual preventive screening] otherwise," admits Copeland Neeley, husband of Margaret Baca. "It was a quick and easy way to find out if I'm healthy and what the next step is to go toward."

"I'm glad I did because I got a clean bill of health. The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

By Lucy Long

MORE than 700 people attended HBE's "Breaking Bad Habits" Wellness Expo on Saturday, Aug. 29, at Embassy Suites in Albuquerque.

The Wellness Expo featured onsite biometric screening appointments with real-time results by Sandia's health plan vendors and exhibitors from 43 local organizations. Free screenings included blood pressure, BMI, glucose, asthma, vision testing, heel scan, balance testing, pulse oximetry, and more.

One of HBE's goals this year was to encourage and provide opportunities for employees and their spouses to get screened, get real-time results, and create (or sustain) healthy habits.

Event organizer Wendy Burghaus-Ruzi (3512) says she hopes the event will encourage attendees to take a proactive approach to their health.

"Many people understand the importance of screenings, but they don't always make time for them." Wendy says. "We wanted to make this process easy, with all the information in one place. The Wellness Expo was part of our ongoing efforts to educate, motivate, and empower our employees and their families to make better health-care decisions by becoming better healthcare consumers."

"The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

"The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

WELLNESS EXPO attendees receive information and screenings.

The Sandia Lab News is distributed in-house to all Sandia employees and on-site contractors and mailed to all Sandia retirees. It is also mailed to individuals in industry, government, academia, nonprofit organizations, media, and private life who request it.

Retirees (only):

To notify of changes in address, contact Benefits Dept. 3332, Customer Service, at 505-844-4237, or Mail Stop 1021, Sandia National Laboratories, Albuquerque, NM 87185-1021.

Others: To receive the Lab News or to change the address, contact Benefits Dept., 505-844-4237, or Mail Stop 1021, Sandia National Laboratories, Albuquerque, NM 87185-1021.

Employees:

To address concerns regarding delivery of the Lab News to your facility, call Mail Services Team 10268-4, Room at 925-294-2427.

For more information on free annual preventive screenings, assistance finding a doctor, or to learn more about upcoming events, go to hbe.sandia.gov.

Margaret Baca (2522-1) says she appreciated the real-time results and is eager to maintain her health. "There were a lot of people and I thought they were going to rush me through my appointment but it was actually very personal. I was apprehensive about coming to this event but I'm glad I did because I got a clean bill of health. The nurse practitioner answered all my questions and directed me toward my next steps, which I really appreciated."

The convenience of the event was a popular draw for many. "I wouldn't have had [my annual preventive screening] otherwise," admits Copeland Neeley, husband of Margaret Baca (9291). "The equipment was really fast and impressive."

The Sandia/California health fair, scheduled for Thursdays, Nov. 12, 1-3 p.m. in Bldg. 925, will focus on stress management, sleep, back pain, and nutrition topics.

HBE plans to offer additional preventive screenings events in 2016 for employees and spouses.

For more information on free annual preventive screenings, assistance finding a doctor, or to learn more about upcoming events, go to hbe.sandia.gov.
By Patti Koning

long before Andy Weir was the New York Times best-selling author of The Martian, which comes out as a major motion picture on Oct. 2, he was an intern at Sandia/California. Andy was a curious, energetic, technically savvy teenager who had the good fortune to be paired with just the right mentor in metallurgist John Krafcik. “Andy came to me after working in a couple of other groups, who I’m not sure knew quite what to do with him,” says John, who worked at Sandia from 1984-2000. “He was so full of ideas and creativity that he was bouncing off the walls. My biggest concern was roping him in and keeping him focused.”

John’s wife Karen Krafcik (8223) also knew Andy during this time. “He was a very upbeat teenager full of enthusiasm and energy,” she recalls.

Programming and ‘proper mad science’

This was the late 1980s, when computers and programming were still fairly new to many aspects of the workplace. It was an era when a kid like Weir with time to experiment with programming might know more than his Sandia mentor.

“It’s funny to recall what working with computers was like then. To transfer a file from a PC to a Mac you needed special software, or a program, said John. “Every operation was very cumbersome.”

Weir’s first assignment at Sandia was in the Combustion Research Facility. “I was sort of dumped on a group while I waited for my security clearance,” he recalls. “A manager was roping him in and keeping him focused.”

John thoroughly enjoyed the book — and recognized much of his former mentee in the main character. “Mark Watney has all of the qualities I like about myself and none of the things that I don’t,” says Weir.

Andy’s optimism is definitely reflected in The Martian through the character Mark Watney,” says Karen. “His relentless sharing of his stories with fans brought him success. It could have happened to a nicer guy.

In addition to starting him on a fulfilling and lucrative career as a programmer, Weir credits his experience as a Sandia intern with another aspect of his success. “I was told that I nailed the culture at NASA, even from people currently working there,” he says. “I didn’t research that aspect of NASA. I based it on my experience at Sandia, figuring that one large government-funded, research and science organization would be similar to another.”

The Martian

ONE-TIME SANDIA INTERN Andy Weir’s New York Times best-selling novel The Martian has been made into a major motion picture directed by Ridley Scott (Gladiator, Black Hawk Down) and starring Matt Damon (Good Will Hunting, The Bourne Identity). The novel and movie tell the story of Mark Watney, who is left for dead on Mars by his crewmates following a horrific storm. Watney, however, has survived. The Martian is the tale of how he manages to stay alive long enough to contact NASA and wait for a rescue mission to “bring him home” (the tagline of the movie).

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[Photo courtesy of 20th Century Fox]

andy weir

andy weir talks the martian at llnl

Want to hear more about Andy Weir? Use your smartphone’s QR scanning app to launch the YouTube video from his visit to LNL in September. (Alternatively, visit http://tinyurl.com/pauhx6h.)

the martian author andy weir’s path to success began at sandia

By Patti Koning

The Martian author Andy Weir’s path to success began at Sandia, according to John Krafcik, who worked there during the time Weir was an intern. Krafcik says Weir was a curious, energetic teenager who had the good fortune to be paired with him as a mentor. "Andy came to me after working in a couple of other groups, who I’m not sure knew quite what to do with him," says John, who worked at Sandia from 1984-2000. "He was so full of ideas and creativity that he was bouncing off the walls. My biggest concern was roping him in and keeping him focused." John thoroughly enjoyed the book — and recognized much of his former mentee in the main character. "Mark Watney has all of the qualities I like about myself and none of the things that I don’t," says Weir.

In addition to starting him on a fulfilling and lucrative career as a programmer, Weir credits his experience as a Sandia intern with another aspect of his success. "I was told that I nailed the culture at NASA, even from people currently working there," he says. "I didn’t research that aspect of NASA. I based it on my experience at Sandia, figuring that one large government-funded, research and science organization would be similar to another."
Two researchers on leave share their experiences

By Neal Singer

What leads a Sandia researcher to take an entrepreneurial leave? Is it money? A desire to be one's own boss? An attempt to take one’s ideas into a production phase that would be impossible at a national lab?

When people used to working in an existing management structure have to deal with each other with no role predefined, who's the boss? Whose intuitions should be followed? Which deals should be made? And how do researchers meet existing financial obligations without their paychecks arriving on a regular basis?

Sandians on entrepreneurial-leave Murat Okandan and Jose Luis Cruz Campa recently shared their experiences as they attempt to launch their company mPower (as in “empower”), an enterprise based on research performed at Sandia by themselves and others.

The company’s opening research gambit rests upon a high-profile invention known colloquially as “solar glitter”—a method of using computer chip fabrication facilities to create solar cells so small and thin that they resemble pieces of glitter. The two researchers believe their potential product to be more efficient and cheaper than those of competitors who have relied on more conventional production means to create photovoltaic units. But how can Jose Luis and Murat expect their new company to survive in today’s cutthroat business world?

“The pollution one time got so bad it killed birds and the elderly.”

Jose Luis, born in Massachusetts, grew up in Mexico City where his dad was a university professor working for the petrochemical business. “Mexico City is the third largest city in the world, but I always saw scariness,” says Jose Luis. “They would shut down the water for a few days at a time during the hot months. There was always a line to get goods and services. The subway was so crowded, it was almost impossible to get through the door. The pollution one time got so bad it killed birds and the elderly.”

On a pollution scale that topped out at 100 as the maximum tolerable, “one time we hit 500,” he says. “We’re killing ourselves,” he decided early on. “We can’t continue like this.”

But even before the licenses were issued — a time-consuming negotiation in itself — and business financial support attained, complications in the teaming arrangements almost scuttled the nascent company. Conditions at Sandia are highly structured. There’s just so much space to work with, just so much money to work with, processes that must be followed, a vision that must be explained to DOE or other funding source, managers to update, colleagues to persuade to join a project.

But in the big world, reality is hazier. If you’re good at Sandia, does that mean you’re going to be effective in the competitive commercial world? You can write a business plan in bureaucratic language, but can you write one for a private company competing for commercial dollars, that needs to persuade investors or larger companies to stick around for results? Who’s more likely to make decisions in the world of business that will enable your company to thrive: you, or the people you’re connected with as business partners, advisors, or potential investors? It’s not clear.

And in the ensuing uncertainty, several team members departed from the company for a variety of reasons. That left researchers Murat and Jose Luis, at least temporarily ex-Sandians, standing alone carrying the mantle of mPower Inc., attempting entrance to a business world about which they knew precious little.

But their enthusiasm burned brighter at the challenge.

MURAT OKANDAN, above, and Jose Luis Cruz Campa are on entrepreneurial leave from Sandia to try to bring “solar glitter” to the marketplace. (Photo by Randy Montoya)

Increasing Lab News issues intend to follow the two researchers on an occasional basis as they move forward in the entrepreneurial world.

In 2004, at the age of 23, he returned to the US to earn his undergraduate degree in mechanical engineering at UTEP. But he never forgot the environment of his boyhood years in Mexico City, where his dad was a university professor working for the petrochemical business. “Mexico City is the third largest city in the world, but I always saw scariness,” says Jose Luis. “They would shut down the water for a few days at a time during the hot months. There was always a line to get goods and services. The subway was so crowded, it was almost impossible to get through the door. The pollution one time got so bad it killed birds and the elderly.”

On a pollution scale that topped out at 100 as the maximum tolerable, “one time we hit 500,” he says. “We’re killing ourselves,” he decided early on. “We can’t put a bunch of cars in a basin [the situation in Mexico City] and burn all the oil we want.”

Put a bunch of cars in a basin [the situation in Mexico City] and you may be stuck with CO2 reclamation costs, CO2 reclamation facilities to create solar cells so small and thin that they resemble pieces of glitter. The two researchers believe their potential product to be more efficient and cheaper than those of competitors who have relied on more conventional production means to create photovoltaic units. But how can Jose Luis and Murat expect their new company to survive in today’s cutthroat business world?

“Petroleum is too valuable to burn”

Murat, with two young children and a wife who is a medical librarian, spent his first year of life in Palo Alto, California, where his parents were engineering students at Stanford. When the family returned to Turkey, his mom started a petroleum engineering department at an Ankara university and his dad was employed as a mining engineer. Murat himself achieved his bachelor’s, master’s, and PhD, all at Penn State in electrical engineering.

His background, growing up in an engineering household, made him conscious that “petroleum and natural gas are much more valuable as a complex chemical feedstock material than just something to burn. We need to use our resources in the most efficient way possible for the future.” So, over the years, he’s become a missionary for photovoltaics (PV).

“We’re not inheriting the world from our parents, we’re borrowing it from our kids,” he says epigrammatically. “The way we’re using energy, we’re not going to leave them a pretty legacy. Solar is one aspect of a solution. I just so happen to think it’s THE one.”

The sun, he says, “is a perfectly placed wireless provider of energy 24/7. And you don’t have to worry about activation products, contamination, or other challenges facing our other fusion reactors.”

Photovoltaic cells, he says, require a little bit of aluminum and copper, but they’re basically all silicon. “In energy payback, it takes two years before [a PV panel] pays back the energy it took to build it. With fossil fuels, there are mining costs, CO2, reclamation difficulties...”

A strong motivator

Believing that your business could save the world is a strong motivator when your company hits a stumbling block, and the little business did.

But at first, work at Sandia seemed to indicate that a golden road would open. News of Sandia’s first micron-sized solar particles

which, placed on a light, flexible backing, could absorb sunlight on one side of their structure and spit out electrical energy on the other, led to interest from investors around the world. Truman Fellow Greg Nielson, one of the key members of the PV research, was selected as one of the “brightest young scientists for 2013” in a contest sponsored by Popular Science magazine.

And the technology improved when Sandia researchers, including Jose Luis and Murat, were able to increase the amount of sunlight absorbed and electrical energy released per given area. Government agencies and industrial companies expressed interest. It seemed that a spin-off company to make solar glitter was a commercial possibility.

“Sandia has a direct line of sight into aerospace, but there’s consumer electronics, residential rooftop solar, and other applications,” says Murat.

So several brave souls agreed to activate Sandia’s entrepreneurial clause, which permits Sandia researchers to start a private company with a safety net: if the company fails, a return to Sandia within two years is guaranteed.

The company almost stumbled

But even before the licenses were issued — a time-consuming negotiation in itself — and business financial support attained, complications in the teaming arrangements almost scuttled the nascent company. Conditions at Sandia are highly structured. There’s just so much space to work with, just so much money to work with, processes that must be followed, a vision that must be explained to DOE or other funding source, managers to update, colleagues to persuade to join a project.

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JOSE LUIS CRUZ CAMPA, along with colleague Murat Okandan, former Truman Greg Nielson, and others, launched the solar tech company mPower, which has licensed a “solar glitter” technology. Several founding partners have left the company but Murat and Jose Luis have confidence there is a place for the technology in the solar marketplace. (Photo by Randy Montoya)
Steve Rottler emphasizes inclusion at NW all-hands meeting

Take one thing about yourself that is vitally important to who you are as a human being or maybe equally who you are as a professional, and ask yourselves, if you were forced to hide that, if you were forced to suppress it, forced to avoid any reference to it, any use of it, in the eight to 10 hours you spend here every day, five days week, how would you feel?"
Collective impact

Even a little means a lot as ECP kicks off Oct. 5

By Nancy Salem

Sandia demonstrates every fall that there’s strength in numbers, says Ted Krehfel, campaign chairman of this year’s Employee Caring Program (ECP).

“The theme behind the campaign is ‘I am a Sandian, and the United Way is one of the things I care about,’” he says. “In everything we do, we form a culture that says we care about the community. Because so many of us give, every amount makes a difference. When we work together and combine our resources, we have a collective impact.”

Since the ECP was launched in 1957, Sandia has been the single largest supporter of the United Way of Central New Mexico’s (UWCNM) annual campaign.

Sandia staff and retirees have given more than $88 million to hundreds of agencies serving tens of thousands of people needing help. The Labs’ per capita giving ranks in the top among companies of its size nationwide. “Sandia’s impact on the community is huge,” says Randy Woodcock, UWCNM’s vice president and chief strategic officer. “It cannot be overstated how much Sandia has changed this community for the better.”

Ted, manager of System Safety Engineering III Dept. 424, says people often come to a point in life where they need help. “Anyone can be slapped down by a bad set of circumstances,” he says. “Where do you turn to get over the rough spot without family or friends? If we are to call ourselves a great nation, we have to have safety nets for people in trouble. Who would help them if we didn’t have the United Way?”

Sandia employees and retirees in 2014 increased donations by 8.2 percent over the previous year, giving $6,556,666 to the charitable organization. The total eclipsed the goal of $6 million and set a record. The retiree share was $851,109. Total Labs participation was a record 77.3 percent. New employee participation rose 6 percent to 69 percent.

Of the total giving, $1,697,867 was designated to the Community Fund, up $102,344 from the previous year. The fund supports a range of nonprofits and programs that help people in Bernalillo, Sandoval, Torrance, and Valencia counties.

Reaching out to new employees

Building on that success, the 2015 ECP kicks off Oct. 5 with two key goals:

• Increase overall participation to 70 percent.
• Increase new employee participation to 70 percent.

Ted says it is especially important to reach new employees. “About 3,000 people have been hired at Sandia in the past four years, almost a third of the staff,” he says. “We need to show them who we are. We have a culture. We are people with a culture of giving, and now you’re one of us.”

Another message is that giving can be fun, Ted says. “There’s a saying that you should give until it hurts. Well, we say you should give until it feels good,” he says. “We want to create an environment where people enjoy what they’re doing for the community.”

The campaign gets underway Oct. 5, 11 a.m.-1 p.m., in the Steve Schiff Auditorium lobby and courtyard with a barbecue and the opportunity to meet representatives of nonprofit agencies supported by the United Way Community Fund for each attendee.

It runs through Oct. 23. Fundraising events are planned including book fairs Oct. 6-8 at the Thunderbird Cafeteria from 10 a.m.-2 p.m., Oct. 13-15 at the Steve Schiff Auditorium from 10 a.m.-2 p.m., and Oct. 20-22 in the IPOC second floor break room from 10 a.m.-3 p.m.

Service before self

Ted, a longtime volunteer and board member with Big Brothers Big Sisters of Central New Mexico, says his parents volunteered time to the community and foster children in addition to having six of their own. “Giving back was inbred in me,” he says. “I spent 22 years in the Air Force and went from the notion of service before self with the country to, now, service before self with the community.

“For me, it’s about a sense of responsibility for people who are down on their luck. The community is a family, and I am part of that family. We do anything we can to help our families, who we are to call ourselves a great nation, we have to have safety nets for people in trouble. Who would help them if we didn’t have the United Way?”

I give because . . .

“I give because I love and support our community. I have been around philanthropy my entire life and have seen first-hand how nonprofit, philanthropic leaders, and donors have benefited our community. Being philanthropic is a great way to support your city and state and allows you to directly care for people in need. Philanthropy lets you give a part of yourself back to the community.”

— Rachel Trojahn (5784)

“I believe in giving back, no matter how big or small. It can be food, supplies, clothes, or as simple as taking time out of a busy schedule to lend an ear. I give because I feel blessed to have my family’s health, a roof over my head, and food on our table. Many people do not, and feel lost. I am fortunate to work at Sandia and be able to contribute money through the ECP. Changing the world can be as simple as performing one act of random kindness at a time.”

— Stephanie Vigil (5001)

“Everyone needs help from time to time. I give to the United Way Community Fund because all the money donated is carefully and specifically allocated to charities that will provide the biggest impact to the largest number of people in need. We are all in this together, and helping those less fortunate ultimately helps us all.”

— Jonathan Madison (1851)

COMING ON IN — Students at the Albuquerque Sign Language Academy had big smiles for visiting Sandia staff. The charter school offers an innovative, dual-language, non-institutional educational model to improve outcomes for deaf, hard of hearing, and hearing students. The United Way-supported school uses American Sign Language and English to achieve academic excellence, encourage family involvement, and promote multicultural community partnerships.

The United Way of Central New Mexico established the Corporate Cornerstone program in 1997 to cover administrative expenses. All those costs are paid by companies that choose to direct their gifts to the program.

Because of those corporate gifts, 100 percent of money donated by individuals goes directly to help people in need. When Corporate Cornerstone donations exceed administrative expenses, the excess goes to the Community Fund.

Lockheed Martin/Sandia is among the more than 70 Corporate Cornerstone companies. The program originated in New Mexico and has been adopted by United Ways across the country.
United Way affinity groups connect donors to their passions

By Nancy Salem

About a dozen years ago, the United Way of Central New Mexico (UWCM) began forming groups of donors who wanted to share commitments to particular causes. Known as affinity groups, they have become an important part of the charitable organization’s work in the community.

“The groups bring people together to discuss issues they care about,” says Jennifer Mastripolito, UWCM’s chief development officer. “Workplace campaigns introduce people to the United Way. Affinity groups help them stay connected.”

The oldest is Women in Philanthropy, which focuses on women’s self-sufficiency. The group’s more than 860 members support programs, through time and targeted giving, that help women who are facing hardships stabilize their family situation and become financially secure.

“These programs help break the cycle of poverty by giving women life skills, providing career opportunities, and helping them engage in their children’s education so the children will have better opportunities,” says Meliecia Archuleta, senior manager of neutron Generator Enterprise Integration Dept. 2720 and the Sandia contact for Women in Philanthropy. “The best thing about being able to give money to an affinity group like Women in Philanthropy is that I can be assured the money is being used for activities that are near and dear to my heart.”

Membership in an affinity group requires a UWCM donation ranging from $500 to $1,000, depending on the group. Affinity groups engage their membership with an issue year round,” Mastripolito says. “They go on agency visits and bring agencies together to talk about the issue. They form giving circles. They learn about an issue and encourage others to be part of it.

Here are the other affinity groups and their Sandia contacts:

• Hispanic Philanthropic Society. This collaboration between the Albuquerque Hispanic Chamber of Commerce and UWCMN, which is the No. 1 Hispanic philanthropy group in the United Way system, focuses on middle school education. “This is an important time when young people are making the transition from being to kids to being adults,” Mastripolito says. “It’s when many kids decide to drop out.” The group, with about 350 members, has a mentorship program in the Albuquerque Public Schools.

• Young Leaders Society. This group of about 880 people is for people age 45 or younger and focuses on high school education. “They are effective because they can say, ‘I’m not that farther along than you,’” Mastripolito says. “They encourage students to be successful and think about college and career.” Sandia contacts are Shauna Adams (422), Imani Adams (422), and Nick Miller (19625).

• Loyal Contributors. These donors cross over all the groups and include about 11,000 people who have given to the UWCM 10 years or longer. “Sandians are a significant portion of this group,” Mastripolito says. “This is about time giving, regardless of the amount, a commitment over time.”

• Tocqueville Society. The society has 619 members who donate $10,000 or more annually. Tocqueville has won national awards for its growth and generosity. Sandia contacts are Dawn Abbott (9112) and John Abbott (9318).

• Guys Give. This is a pilot group for, as the name says, guys. “The intent is to bring together people who don’t fit into the other groups but who want to get involved,” Mastripolito says. A portion of the Guys Give pilot group to support UWCMN’s Corporate Cornerstone program, which pays the agency’s administrative costs. The Sandia contact is Jac Pier (5010).

“Affinity groups are about more than just giving money,” Mastripolito says. “It’s about giving your heart and soul to understanding and being part of an issue.”

Community Fund builds stronger cities through collaboration

By Nancy Salem

The United Way of Central New Mexico (UWCM) Community Fund is finding creative ways to get social service agencies to work together to deepen their impact.

The fund supports a range of nonprofit agencies and programs to bring people who are struggling together to better themselves. They include in Bernalillo, Sandia, Torrance, and Valencia counties. “The needs in the community far outstrip the available funding, so we try as much as possible to pool dollars so that they can all have the greatest impact,” says Justin Ford (5634), who sits on the UWCM’s grant-awarding Community Impact Council (CIC) that oversees UWCMN’s Community Fund.

“Sometimes agencies with missions that align well reach farther. We see the value in having agencies leverage each other and work together to identify where the greatest needs are and how to share services in order to meet those needs.”

For example, five agencies that work in early childhood intervention through Part C of the Federal Individauls with Disabilities Education Act (IDEA) faced stagnant reimbursement through Medicaid while costs were rising. “In the state of New Mexico, a child with a developmental delay is mandated to receive services,” Justin says. “Nonprofits set these kids up as being successful as possible later in life, get them into mainstream education.”

The five groups known as the B4-3 Network — Abrazos, Alba Mira, Life Roots, La Vida Felicidad, and Native American Professionals Parent Resources — came together to see how they could as a team address the funding gap and make the systems sustainable. They successfully applied to the Community Fund through a formal collaboration process that lets them share the fund’s resources in a single grant.

“They had to decide whether to apply collaboratively or individually, and they took the leap to collaborate,” Justin says. “They demonstrated incredible mutual trust. They interact as a team, share best practices, cross train, and share staff across a four-county area. They share specializations and help clients and families get what they need without having to travel. There are huge benefits to the clients and the funders. They are changing the way the state is administering the early intervention program.”

Another Community Fund collaboration is between the Girl Scouts and TIFLoS, or Tools for Learning Outreach Services. The Girl Scouts is a large network of school-age girls, and TFLoSpro-
Students explore brain science in after-school STEM club

By Valerie Larkin

N euroscientist Chris Forsythe (431) has found a unique way to interest teenagers in science, technology, engineering, and math (STEM) and keep them engaged.

Three years ago, Chris founded the popular Brain Hackers after-school neuroscience program at Roosevelt Middle School in Tijeras, and the students keep coming back for more. This year, Chris estimates that nearly 15 percent of the school’s students are staying after school to learn about neurotechnology and applied brain and behavior science.

The goal of Brain Hackers, Chris says, is to interest students in STEM at a critical time in their development, and to help them maintain that interest. After running an award-winning robotics club for several years, Chris noticed a pattern: Many of the students in the club were excited about STEM in elementary school, but by the time they entered middle school, that interest had waned, particularly in the girls.

A number of factors are at play, Chris says, including the students’ maturity and their changing interests during a time of self-discovery.

“That prompted me to think of how I could start a program that would hold onto these kids that we’re losing and keep them engaged in middle and high school. That is the impetus of Brain Hackers. One of the key aspects of the program is that every activity we do is geared around how I can take the science and make it directly relevant to everyday life,” Chris explains.

An engaging syllabus

Chris designs weekly activities and brief lectures around topics that naturally pique teenagers’ interest, including music and the brain, the differences between girls’ and boys’ brains, and how the brain constructs and responds to stories.

“This will be the first time I’ve merged the Brain Hackers with online applications for creating music, or making YouTube movies, and then giving them the background of how brain and cognitive processes work and how to apply that knowledge,” Chris says.

Last school year, analyzing music’s effect on the brain was particularly popular with the students. They monitored their brain activity by wearing electroencephalograms while playing musical instruments. The output was projected onto a screen for the group to see and analyze.

“One of the key aspects I wanted to introduce about the brain is pattern recognition, and how the brain is constantly making predictions and monitoring the world to see if those predictions are met or violated. I described how the brain and its circuits operate, and I did it in the context of music,” Chris says.

This year the program’s syllabus includes a focus on artificial intelligence and biometrics, a topic numerous students requested. First he will teach the students about brain circuitry, and then the group will use Lego Mindstorms robots to model how the brain accomplishes certain functions.

“This will be the first time I’ve merged the Brain Hackers activities with the robotics activities, but there seems to be a natural overlap between the two,” Chris says.

Chris is also developing a program for fourth- and fifth-grade students to teach them about basic brain science and give them practical advice for doing well in school and in sports and other interests. While Chris hopes the program will be fun and engaging, it will also address serious topics such as stress, mental health, peer pressure, and concussions.

“My goal is to provide them with an age-appropriate appreciation of the underlying physical mechanisms as a basis for understanding what is happening, and, hopefully, making better decisions,” he says.

A unique path to STEM

Chris works in Human Factors, where his research in cognitive psychology and applied brain science benefits departments across the Labs. “The common thread is how to use technology to better understand or improve brain performance, enabling people to perform better, accelerating training, and even figuring out who’s the best for certain jobs. Everything I’ve done while at Sandia has been about how to improve human performance in one way or another.”

Chris didn’t always have an interest in science, though. He grew up in a farming community in rural Tennessee where it was common for teenagers to drop out of high school and go to work. “When I was 14, I was out of school working full time doing construction. It was almost a coincidence that I decided to try college. I started out at a community college, and I did really well. I continued on and eventually got a PhD,” Chris says. “I’ve been at Sandia for 23 years, and I had kind of a weird path to get to where I am today.”

Chris says that every week when the club meets he reminds himself that instead of playing video games or watching movies on YouTube, nearly 50 students choose to spend their time learning about neuroscience with him.

“I know that no matter what they choose to pursue in college and later in life, they will benefit from having a practical understanding of their brain and how it affects their experiences in life,” he says.
By Nancy Salem

Small businesses in the clean-energy sector can apply for technical help from Sandia and other DOE labs through a new program.

David Danielson, DOE assistant secretary for Energy Efficiency and Renewable Energy (EERE), announced the launch of the Small Business Vouchers (SBV) Pilot website on Sept. 23 at Oak Ridge National Laboratory in Tennessee. The pilot, part of EERE’s National Laboratory Initiative, aims to help small businesses bring next-generation clean energy technologies to the market faster by giving them access to expertise and tools at national labs.

Earlier this year, DOE chose Sandia as one of the five leads in the $20 million pilot, along with the National Renewable Energy Laboratory and Lawrence Berkeley, Oak Ridge, and Pacific Northwest national laboratories. Sandia was awarded the pilot in the sectors of solar energy, wind, and geothermal technologies, and will receive funding to allocate to small business applicants. “Sandia is excited to manage an initiative that will allow the Labs to help clean energy companies across the country,” says Jackie Kerby Moore, Sandia’s manager of technology and economic development.

Companies can apply to Sandia through the SBV website for $50,000 to $300,000 in vouchers that can be used for a variety of technical assistance. The best business proposals focusing on a specific technical challenge will be selected in a competitive process. Successful companies will be required to provide a 20 percent cost share or in-kind services.

Nationwide, the pilot focuses on helping small businesses that are developing technologies in the areas of advanced manufacturing, buildings, vehicles, wind, water, bioenergy, fuel cells, geothermal, and solar. To be eligible, businesses must be U.S.-based and -owned with no more than 500 full-time employees.

A Sandia wind turbine at Texas Tech University in Lubbock, Texas, demonstrates Scaled Wind Farm Technology, or SWIFT.

Employee death

Meticulous, gentle Ray Fagliano will be missed.

Ray Fagliano came to Sandia relatively late in his career after many years in IT at Intel and Albuquerque Public Schools. In his three years at the Labs, Ray made an impression as a quiet, can-do professional with a positive attitude willing to take on the tough jobs and do them well. He stayed cool when the stakes were high and the going got hot. Ray died earlier this month at the age of 65.

John Nore, Ray’s manager in Scientific Computing Systems Dept. 9328, says, “Ray’s friendly nature, permanent smile, and curiosity about technology made him a perfect addition to the Data Management team when we needed an infusion of hardware expertise.”

John notes that when Ray first came on board, he didn’t know much about Linux systems or scientific computing but he learned fast. “He eagerly educated himself through classroom and self-study,” John says. “His meticulous attention to detail and insistence on process, gained from his experience in the fabrication plants, increased the efficiency of many of our own processes.”

It didn’t take Ray’s colleagues long to figure out that he was a go-to sort of worker. “I was grateful for his willingness to accept any challenge,” says Mike Martinez (9126). “If he didn’t know how he would figure it out or ask for help.” Connie Sutton (9328) saw that side of Ray, too. “I liked how Ray accomplished tasks without any fanfare or drama,” she says. “His meticulous nature was appreciated in how he designed and implemented our high performance computing systems.” Gayle Drake-Kerr (9126), too, was impressed with Ray’s attention to detail. “It was apparent he really cared about his work,” she says.

John says Ray was always the first to volunteer to help others with their work whether it was directly related to the team’s efforts or part of other activities in the Center. “He was constantly learning and on the lookout for how to apply new methods or tools in the course of his work,” John says. “His positive outlook, gained from a previous bout with cancer, helped infuse the team with a similar attitude.”

Bill Collins (9328) notes that Ray’s demeanor set a good tone for the team. “I appreciated Ray’s calm and gentle manner, no sense of hurry,” Bill says. Despite that unruffled exterior, though, Ray could get excited over the team’s successes.

Sandy Warner (8945) remembers a time when Ray was on the phone that attached to the wall in their facility. He was talking with someone about an issue the team had been trying to get resolved for a long time. “The person on the other end was finally able to help us,” Sandy says. “Ray got so excited that he turned around, phone in hand, to let me know we got help. As he turned, he jerked the phone off the wall.”

Susie McElvee (9126) remembers how much Ray enjoyed Take Your Daughters and Sons to Work Day. “I asked him if he could take the top portion off of one of our old drives and pondered what to do about the tape. Ray and I would attend the Large Tape Users’ Group each year. They had a tape drive on demo with a circular plastic top that was loading and unloading a tape. I told Oracle what we were up to and they thought it was a great idea, gave us the plastic top and a tape encased in clear plastic. Ray worked with the Oracle engineers so we could perform the demo for the kids. He thoroughly enjoyed that project and enjoyed interacting with the kids.”

So focused was Ray on his work that it was easy to forget his many other interests. For example, University of Michigan alumnus Allan Yaklin (9126) fondly remembers the “interesting discussions” he and San Francisco 49ers fan Ray would have when94ers’ coach Jim Harbaugh announced he was taking the head coach’s job at U.M. and student intern Nick Tempel (9126) says he “always appreciated Ray’s clever sense of humor.”

John says Ray worked hard to learn and apply new skills and knowledge for the team, adding, “We all came to value him, his outlook on life, and especially his constant optimism. We are all saddened by his sudden illness and subsequent death.”

— Bill Murphy

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Sandia clean-energy assistance pilot is officially open for business

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— Bill Murphy
2016 Truman Fellow’s Sandia research will boost Sandia’s quantum information sciences program

Mike Martin has been selected as Sandia’s 2016 Truman Fellow. He joins the ranks of 21 other fellows who have been appointed since the President Harry S. Truman Fellowship in National Security Science and Engineering was established in 2004.

Because the fellowships are three-year assignments, three Truman Fellows are still doing research at Sandia as part of their fellowship. Additionally, 15 other Truman Fellows subsequently joined the Labs’ technical staff upon completion of their fellowship assignments, nine of whom are still researchers at Sandia.

Mike, who earned his doctorate in physics from the University of Colorado at Boulder, will work in Physics-Based Microsystems. He will begin his fellowship on November 30.

Sandy, Deputy Chief Technology Officer Andy McIntyre (1900) says the Truman Fellowship program continues to attract a best-of-the-best pool of applicants who are already making important contributions in their fields. Sandy received outstanding research proposals from numerous individuals competing for the prestigious Truman Fellowship, Andy says. “Proposal packages are increasingly competitive each year, making the Truman Selection Committee’s deliberations difficult. Ultimately, they recommended Mike Martin be offered the Truman Fellowship. We look forward to great results from the game-changing research proposed by Mike and are confident that the research will help us advance our work in areas of fundamental importance to our research foundations.”

The Lab News recently asked Mike to describe the work he intends to pursue at Sandia. Here’s what he had to say:

“Quantum entanglement, the intricate and fragile connections between the constituents of a quantum system, lies at the heart of technologies such as quantum computers, quantum simulators, and sensors that exceed the ‘standard quantum limit’ (the optimal performance of an entanglement-free system). There are numerous systems that can reach the quantum limit’ (the optimal performance of an entangled state) and are increasingly competitive making important contributions to the development of quantum metrology and precision measurement. Significant achievements include the recent demonstration of the world’s most stable laser and the development of a new and powerful paradigm to study a many-body spin system. During his academic career Mike has received numerous awards. He is the author of 26 publications and has delivered numerous invited talks at international conferences.”

Mike Martin will boost Sandia’s quantum information sciences program by increasing the independence and flexibility necessary to pursue challenging new approaches to scaling entanglement to the many-atom regime. Mike’s research proposal, adding that “success in his work would be a substantial engineering and experimental science achievement. The project will be an exceptionally good match to Sandia’s Quantum Information Sciences program.”

Mike Martin

“ I’m looking forward to tackling these scientific challenges within the strong technical and collaborative environment of Sandia.” — Mike Martin

“Kurt Feirreza receives IEEE Early Career award”

Kurt Feirreza (1425) has been selected to receive the 2015 IEEE Technical Committee on Scalable Computing (TSC) Award for Excellence for Early Career Researchers. This award recognizes up to three individuals who have made influential and potentially long-lasting contributions in the field of scalable computing within five years of receiving their PhD. Kurt’s research interests in the Scalable System Software Department include the design and construction of operating systems and runtimes for massively parallel systems, and innovative application and system-level fault-tolerance mechanisms. In 2000, Kurt received a bachelor’s degree in mathematics and another in computer science from New Mexico Tech. From UNM, he earned a master’s degree in computer science in 2008 and doctorate in computer science in 2015. In addition to his position at Sandia, Kurt is a research associate professor in UNM’s department of computer science.

“This is a great recognition of Kurt’s contributions to the field of system software for high-performance computing,” says manager Ron Brightwell (1423). The IEEE Technical Committee on Scalable Computing (TSC) is an international forum within the IEEE that fosters research and education in scalable computing. According to its site write-up, “TSC is interested in all areas of scalable computing, including but not limited to, high-performance computing systems, cloud computing systems, grid, algorithms, applications, scheduling and workflows, and various others.”

The award will be presented to Kurt at SC’15 in Austin in November. — Neal Singer
**MISCELLANEOUS**

**REFRIGERATOR, 18-1 cu. ft., white, good working condition, located in Los Lunas/Toyo area. 305-593-7750.**

**WINDSOR FAN, Air King 9166, whole-house, wasfan & storm guard dual panels, 90%. oneword, 11 Turf boots & brands 150. 827-1982.**

**LEFT BED/DRK, w/attached shelves, full-size, made badly, not cheap like in furniture stores, $325 OBO.**

**SYMPHONY TICKETS, 2, Brahms, Beethoven & Friends, Oct. 10, Popejoy Hall, Mezezian, 512-1324. 88% OBO.**

**CONVERTIBLE CRIB, w/matching dresser, tan, high quality, heavy & sturdy, $175; double drooler, 3 years, great shape, $125. Dano, 505-619-1309.**

**iPAd 4th gen, 32 gb, all functionality works fine, $300. 25 4237.**

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**How to submit classified ads**

**DEADLINE: Friday noon before week of publication unless otherwise marked by bold. Submit by one of these methods:**

**1. INTERNAL WEB: On internal web homepage, click on classified tab.**

**2. Bldg. 802, elevator lobby**

**MAIL: MS 1468 (Dept. 3651)**

**EMAIL: Michelle Fleming**

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**REAL ESTATE**

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**NEW MEXICO PHOTOS**

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**Lab News is available in news racks at 24 locations throughout the Labs. Delivery to mail drops has been discontinued. A digital version of Lab News continues to be available on TechNet Web as well as on Sandia.gov.**

**Lab News Rack Locations:**

1. Bldg. 802, elevator lobby
2. Bldg. 810, east lobby
3. Bldg. 820, west lobby
4. Bldg. 830, west lobby
5. Bldg. 840, west lobby
6. Bldg. 850, west lobby
7. Bldg. 860, west lobby
8. Bldg. 870, west lobby
9. Bldg. 880, west lobby
10. Bldg. 890, west lobby
11. Bldg. 900, west lobby
12. Bldg. 910, west lobby
13. Bldg. 920, west lobby
14. Bldg. 930, west lobby
15. Bldg. 940, west lobby
16. Bldg. 950, west lobby
17. Bldg. 960, west lobby
18. Bldg. 970, west lobby
19. Bldg. 980, west lobby
20. Bldg. 990, west lobby
A five-man Emergency Response Team (ERT) from Sandia nabbed top technical honors at the 19th HAZMAT Challenge at Los Alamos National Laboratory (LANL). During the weeklong competition the team faced numerous simulated hazardous-material emergencies, including a downed C-130 military aircraft transporting Ebola-infected patients, industrial pipe leaks, and the rescue of a patient trapped in a clandestine laboratory filled with an unknown chemical.

The scenarios were similar to real-life emergencies that have occurred worldwide and were graded on technical approach as well as time needed to complete the tasks. Sandia team members included HAZMAT supervisor Victor Marquez, Dale Larez, John Ledet, Troy Hamby, and Richard Lovato (all 4236-1). Team, has participated in the LANL HAZMAT Challenge for the past six years. This is the first time any Sandia team has taken first-place technical honors at a challenge.

A total of 12 HAZMAT response teams from New Mexico, Missouri, and Nebraska completed a series of graded, timed exercises where seconds rather than minutes, meant the difference between first, second, and third place. Trophies were awarded for technical, best overall, and sportmanship.

“Sandia’s ERT successfully responded to the challenges presented and was awarded first place in the technical category. The competition demonstrated the team’s capabilities to respond to emergencies,” says Eugene McPeek, manager of Emergency Management Dept. 4236. “These challenges provide Sandia the opportunity to demonstrate proficiencies and, as a result, give members of the workforce confidence that these skills would transfer to real-world incidents at Sandia.”

This year the team went “is a testament to the training program” in place for Sandia’s emergency response team members. In addition, the team took Emergency Management Trainer Ricardo Paz (4236-3), a certified paramedic and medical instructor, to this year’s challenge. Ricardo monitored team members’ vital signs before and after each event, ensured safety gear was clean and ready to use, and resupplied water. Volunteers Victor Cepero (1741) and Marty Moriarty (1746, with MESA Microfabrication), also supported the ERT team, serving as stand-by members in the event of an accident, and filling water bottles and air tanks.

“Sandia’s ERT successfully responded to the challenges we have here at Sandia. Between real-world events and training scenarios, we are prepared,” says Victor. “We want people to know that we are here, at Sandia, and if they ever need to call 911, we will be on the other end, ready to respond.”

Typically, the team will start training for the challenge three months before it begins. Because real-world missions took priority, there were fewer training opportunities available compared to previous years. The team did, however, make a few trips to Los Alamos to practice on challenge props made available by LANL.

This win is a testament to the training program we have here at Sandia. Between real-world events and training scenarios, we are prepared,” says Victor. “We want people to know that we are here, at Sandia, and if they ever need to call 911, we will be on the other end, ready to respond.”

Richard Lovato took part in the 19th HAZMAT Challenge, a weeklong competition designed to test response teams on simulated situations involving potential biological and radiological emergencies.

“We’ve come so close for so many years, and we’ve lost by small points — it’s come down to one point or one-half of a point before — and it’s frustrating,” says former Sandian Steve Saddoris, the team’s HAZMAT trainer and logistics coordinator, who recently left the Labs. “This year the team went in wanting to win the technical portion and, for the first time, they got it. If you’re going to win anything, this is the category you want to win.”

This team won by 14 points, a huge margin, say Eugene and Steve. Steve credits the team’s win to the weekly HAZMAT, technical rescue, and classroom-based training Sandia ERT members take part in throughout the year, as well as their years of experience.

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Victor and Dale agreed the win would not have been possible without help from others outside the team. “Aside from the mentally and physically taxing events we do at the challenge, it also serves as a unique training opportunity,” says Dale. “We are able to talk with other responders in the field and compare tactics and equipment, which is why it means so much that management from the top down has been supportive of this event.”