SANDIA LABNEWS
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Design, construction move in-house **Page 2**

New program aims to BRIDGE gap in solar

WOMEN IN SOLAR — Native American women get hands-on training to install photovoltaic panels as part of a DOE-funded program. Native American women are significantly underrepresented in the solar installation industry – making up less than half a percent. **Photo courtesy of Red Cloud Renewable**

Installation training focuses on Native American women

By **Kenny Vigil**

Native American women nationwide are getting a special opportunity. They're receiving hands-on training in photovoltaic panel installation, with the goal to equip them to set up residential and community systems on tribal land.

Sandra Begay, a Sandia engineer and member of the Navajo Nation, serves as one of four mentors in this initiative. The training is part of a Cooperative Research and Development Agreement between Sandia and Red Cloud Renewable, a nonprofit in Pine Ridge, South Dakota,

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New centrifuge spins lasting partnership

WETL celebrates completion of new centrifuge

By **Justin Griffin** and **Whitney Lacy**

In 1893, Amarillo, Texas, was listed as a place with "between 500 and 600 humans and 50,000 head of cattle." Today, with a steady population of over 300,000 — and still a large number of cattle — it is home to Sandia's Weapons Evaluation Test Laboratory, a gem in the nuclear security enterprise with greater capabilities on the horizon.

On Oct. 2, visitors from across the country gathered at the WETL to attend the ribbon-cutting of a new centrifuge that will enable Sandia to perform more nonnuclear testing in a shorter timeframe.

On the day of the ribbon cutting, visitors were met with a palpable buzz of excitement. Hands were shaken and introductions were made. Speakers took their spots and cameras were set. WETL manager Larry Kuykendall was center stage.

SPINNING SUCCESS — Weapons Evaluation Test Laboratory manager Larry Kuykendall speaks to visitors in front of the new centrifuge during the ribbon-cutting event. **Photo by Michael Schumacher**

Larry was part expert and part host, greeting guests and answering technical questions. "Ribbon cuttings are rare 'round here," he said with pride.

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Blueprints to better buildings

In-house architects, planners, craftspeople join hands to support mission work

By **Lyndsy Ortiz** and **James Stewart**

In fall 2022, centers in Facilities were facing a growing backlog of construction and design work and were having to outsource many projects. To shorten the backlog, the Infrastructure Operations division implemented a creative solution, dubbed the Division Agility Transformation.

The project's goal was to deliver these services in a timely manner in support of mission work and to streamline operations across the division. The project, which lasted two years, resulted in new in-house design and construction services.

"We established new capabilities in Facilities to support the mission more efficiently," said Anthony Chavez, senior manager who led the transformation effort. "The in-house design and construction teams are ramping up and helping to provide additional agility that didn't previously exist."

The new in-house design team provides comprehensive design services of varying scopes and costs for Sandia. The team includes architects and civil, structural, electrical and mechanical engineers. They specialize in interior design and fire alarm, sprinkler and building automation design, and they routinely complete projects on condensed schedules.

STAGING SPACE — From left, mechanical tradesmen Daniel Sena and Eric Jinzo set up storage containers for new construction tools, equipment and staging area. **Photo by Lyndsy Ortiz**

"In 2024, the new group completed 198 projects and reduced the office modification backlog by 80%," senior manager Robin Jones said.

The In-House Design and In-House Construction teams completed a successful project in a high-security area for the Mechanical Systems and Design group in Global Security. The teams were able to complete this project two months earlier and saved $30,000. The project bolstered security at the Labs.

The design team also worked on a project to remodel a senior manager J.J. Jones's office. The team saved $2,000 and J.J. said, "All-in-all this was the best experience I've had with Facilities in my 20 years at the Laboratories."

Since its transformation, Facilities now offers project development, a process that includes stages like planning, programming, design development and cost estimation.

"Project development is essentially planning and design brought together," said Malak Hakim, strategic planner and project developer. "It informs how we prioritize projects based on their importance and available resources, ensuring that the most critical projects get the attention and funding they need."

To support this effort, Facilities recruited 13 experienced construction staff and 42 skilled craft positions across various trades, including mechanical, electrical, plumbing and structural work. Staff in these roles manage projects with budgets below $500,000. Facilities plans to fill 19 more craft positions by the end of 2024. To date, the new construction teams have completed 76 projects.

In September , the team completed remodel of the Enterprise Enabling Solutions and Service office. The space now features 17 offices and four cubicle-style touchdown areas. It can accommodate 25 employees.

"These achievements depict the dedication and hard work of our team leads, planners, support staff and craftspeople," manager Ramon Baca said. "I'm proud of what we have accomplished in such a short time and appreciate the commitment of each team member in delivering exceptional service in the national interest, which is the core of our mission."

The Facilities team at Sandia California experienced a similar transformation. They completed a final hiring plan, increasing their ability to deliver hundreds of small projects through in-house design and construction services. Their project overhead was reduced by 60% from when they began in fiscal year 2023. Time spent on design and construction was reduced by 70% for low-complexity projects and 35% for more complex projects.

FOUNDATIONAL WORK — Carpenter tradesmen Kevin Pole, in blue, and laborer Fernando Marquez lay concrete. Kevin and Fernando are members of the In-House Construction team.
Photo by Lyndsy Ortiz

To learn more about Facilities' in-house capabilities, reach out to your building manager or facilities portfolio manager.

Red Cloud

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dedicated to helping tribal members and communities achieve energy independence.

The Bridging Renewable Industry Divides in Gender Equality, or BRIDGE, Program offers an immersive five-week in-person training that includes hands-on photovoltaic installation. Sandra met with the first cohort in South Dakota in August.

"Five weeks is a long time to be away from home. I provided encouragement and reminded the women that they made the right choice to participate in this program," Sandra said. "We also used the time to reflect on what they learned."

The training covers the components of photovoltaic systems and their correct and safe installation. Sandra also helped the women understand the energy landscape in tribal communities.

"There are more than 20,000 homes on the Navajo Nation and some rural homes on the Hopi reservation that don't have electricity. These are off-grid homes," Sandra said, adding that many homes rely on diesel generators. "We're looking at a clean energy future. We want to move away from those types of fuels and look at clean energy sources such as solar."

Sandra said the Navajo Nation and Mountain Ute in Colorado are establishing large-scale photovoltaic plants.

BRIDGING THE GAP — Fifteen Native American women participated in a photovoltaic training installation program at the Red Cloud Renewable Center in Pine Ridge, South Dakota. Sandia's Sandra Begay provided some of the training as part of a Cooperative Research and Development Agreement.
Photo courtesy of Red Cloud Renewable

"This program will provide participants with new employment opportunities and a better understanding of where we're headed

MEETING THE TRAINERS— From left, Carol Weiss, Sandia's Sandra Begay, Marie KillsWarrior and Laura Walters provided photovoltaic installation training at the Red Cloud Renewable Center in Pine Ridge, South Dakota. Sandia intern and graduate student Alexis Glaudin, right, accompanied Sandra on the trip. **Photo courtesy Sandra Begay**

with clean energy," Sandra said.

Red Cloud Renewable will assist women with resume writing, interview preparation, networking and job placement. Sandra, who has dedicated her more than 30-year career to establishing renewable energy sources in Native American communities, plans to stay in contact with participants.

"I am making a long-term commitment to the women in the BRIDGE Program," Sandra said. "I will share any job openings I see with them and support them in their job searches."

Teamwork for the future

Sandra said that one non-technical aspect emphasized in the training is the importance of teamwork in photovoltaic installation.

"Photovoltaic installation happens with a team of people. How do you work through that group dynamic? How do you work with each other as a team? Those questions are underemphasized in the work we do. They're going to rely on each other when installing photovoltaic systems," she said.

Alicia Hayden, communications manager for Red Cloud Renewable, said she got a sense of joy seeing the women work together.

"What stood out to me was the incredible camaraderie among the women," Alicia said. "They were genuinely supportive of each other and grateful to be participating in this program alongside women who share similar backgrounds."

The DOE Solar Energy Technology Office is funding the project over the next couple of years, with plans to train two additional cohorts, totaling about 45 women.

"These women will be equipped to take on installer jobs within their own reservations, bringing valuable skills and opportunities for sustainable development to their people," Alicia said.

Native American women are significantly underrepresented in the solar installation field, making up just 0.05% of the industry, according to Red Cloud Renewable. Sandra believes the BRIDGE Program is a step in the right direction to change that.

"It's very gratifying both professionally and personally to see where we can help women who are underrepresented in the workforce, let alone in a unique technology like photovoltaic installation," Sandra said. "We're seeding ideas for the women that they would never have thought of doing. I think that's what's unique."

Sandra Begay: Inspiring future engineers

BIG RECOGNITION — Sandia's Sandra Begay has been recognized by her peers with an award for her work inspiring and encouraging women to join and succeed in science and engineering careers. **Photo by Lonnie Anderson**

Providing internships to the next generation of Native American engineers is a cause close to Sandra Begay's heart. In her more than 30 years at Sandia, she considers starting an internship program in 2002 for Native Americans as her most significant accomplishment at the Labs. She has mentored 52 interns, guiding them through hands-on projects and introducing them to real-world renewable energy installations.

"I enhance their learning by taking them out into the field to see renewable installations in Indian country," Sandra said. "I enjoy taking the students to tribal lands and teaching them about real-world projects."

Recognizing her extraordinary efforts in encouraging and helping women enter and succeed in STEM and promoting networking and communication among women in these careers, the New Mexico Network for Women in Science and Engineering has selected Sandra as the 2024 IMPACT Award winner.

Sandra expressed her gratitude for the award. She said a couple of STEM colleagues and friends nominated her.

"I'm honored to receive the award from my peers — my fellow New Mexican women. I've been doing this work without seeking recognition," Sandra said. "It's like icing on a cake. The IMPACT award is a wonderful highlight of my career."

Fostering connections

As a mentor, Sandra emphasizes the importance of connection to her students. Sandra knows firsthand the difficulties of pursuing a STEM career.

"The worst thing you can do as a minority in STEM is to isolate yourself and think you can do it all on your own. STEM is a hard curriculum to follow. Being an engineer and understanding all the math is challenging," she said. "I had to work really hard, and I think that's where we have to encourage our young people."

Sandra's commitment to fostering connections extends beyond her interns.

"With the help of a colleague from Argonne National Laboratory, we created a group for women of color working in national laboratories. We engage on a quarterly basis," she said. "We discuss why we enjoy the work. There's a lot of camaraderie and we encourage each other."

Inspiring innovation

Sandra believes that one of the most straightforward ways to encourage and teach future STEM professionals is often overlooked.

"Have a student by your side or have an intern. They're learning what you're doing. Teach them what you're doing, and they learn nuances," she said.

One of Sandra's goals in the internship program is to stimulate innovation.

"Technology can change people's lives. We have things in front of us that were created in the last 10 or 20 years and it doesn't happen by itself," she said. "We need to inspire the future generation to turn their thoughts and ideas into something real."

New centrifuge

CONTINUED FROM PAGE 1

WETL is DOE's only laboratory with two centrifuges that support full system-level testing; it has been housed in Amarillo, within the Pantex plant, since its inception in 1964. WETL is responsible for performing nonnuclear testing and evaluation of every weapon system in the U.S. nuclear arsenal.

And those responsibilities are always evolving. "We're expanding our workload to prepare for new systems, such as the W93," Larry said, further necessitating two working centrifuges at all times.

Reflecting on why so many were gathered to celebrate a new centrifuge, Jared McLaughlin, senior manager of the Integrated Stockpile Evaluation group, said, "If it's a nuclear weapon, it has to be tested. And there is no shortage of work."

A big job for a small team

Before unfurling the red ribbon and breaking out the ceremonial scissors, visitors from NNSA, Sandia, Pantex and elsewhere were treated to a presentation that answered the "why" of it all.

All weapon types in the active and inactive stockpile must be regularly tested to continue assessment of the safety and reliability of the stockpile. Weapons are pulled from the stockpile, disassembled and tested. Data collected informs the Annual Assessment Report, which eventually lands on the desk of the president, assuring the nation of the safety and effectiveness of the country's nuclear weapons arsenal.

Additionally, modernization program systems are tested when parts are qualified or as systems enter the stockpile. It's a big job for a remarkably dedicated team of 36 Sandians, which is double the staff from 20 years ago.

WETL's centrifuge capabilities include simulating acceleration and deceleration for mission flight profiles. For example, submarine-launched ballistic missiles come up in a bubble, with steep acceleration and deceleration due to the ejection event. "Our centrifuges can simulate these unique transient events," Larry said.

Testing capabilities like this make the WETL's centrifuges indispensable to the nation. So, in 2012, when one of the two centrifuges broke down, causing a backlog of work, the seed was sown for improvements.

Partnership was key to success

While teams worked on repairs, Sandia leaders worked with partners at NNSA to devise a plan to install a new centrifuge. In November 2022, Summit Construction broke ground to make room for the new equipment, about the same time that Ideal Aerosmith began building a centrifuge to meet weapon system surveillance requirements.

Tanya Chavez-Cropp, manager of the Ballistic Missile Tester Development group, emphasized the criticality of partnering with NNSA and Ideal Aerosmith.

"This whole team was very committed to the best outcome," she said. "It took a great amount of partnership, not only to modify and expand the building, but to design and install a large centrifuge safely and ensure it worked as intended. I'm very proud of everyone involved in this effort — it truly exemplifies partnering to succeed."

The new centrifuge not only provides additional capacity but incorporates slip-ring technology that significantly improves data acquisition.

The entire project was completed in October, and while it will take about six months to qualify the new centrifuge, there is no time for rest.

ALL SYSTEMS GO — Visitors traveled from across the U.S. to attend the ribbon-cutting at the Weapons Evaluation Test Laboratory, including, from left, Chris O'Gorman, Sandia director of Weapons Stockpile Management; Jason Meyer, NNSA director of the Office Of Stockpile Sustainment; Jeff Heath, Sandia associated Labs director of Infrastructure Operations; Rita Gonzales, Sandia associate Labs director of Nuclear Deterrence; Larry Kuykendall, WETL manager; Robert Krack, Ideal Aerosmith sales application engineer; Steve Girrens, Sandia associate Labs director for Stockpile Management, Components and Production; Joe Gazda, NNSA deputy assistant deputy administrator of the Office of Stockpile Management; and Jared McLaughlin, Sandia senior manager of the Integrated Stockpile Evaluation group. **Photo by Justin Griffin**

"With more modernization programs transitioning to the stockpile, we are booked solid. All systems go," Jared said.

Spinning into the future

To help with added work, NNSA has approved a future expansion project to add 4,000 square feet to WETL to house new equipment for testing W80-4, W87-1 and other programs.

"Every weapon has its own unique testing and collection equipment, so we need more room," Larry said.

Since WETL needs two centrifuges up and always running, once the new centrifuge is ready for work, the two existing centrifuges will each, in turn, be replaced.

And so, on that day in October, a group of key project stakeholders gathered around Larry and watched as he cut the ribbon symbolizing the future of the facility and the continued dedication in a strong national nuclear deterrence posture.

When asked what has kept him at WETL for 25 years, Larry said something many Sandians have said over their career at the Labs: "I believe in our mission, and I have a lot of pride in what we do."

Indeed, WETL was filled with pride that day — something that will fuel the vital work there for decades to come.

Goal Getters II celebrates persistence and dedication to the mission

By **Magdalena Krajewski**

Believing in your ideas and the impact they will have is the foundation of accelerating innovation and leading in modern engineering, according to four Sandians who spoke at the second installment of Goal Getters in October. From electrical grids to facilities, nuclear deterrence and global security, each of these Goal Getters is driven by their motivation to fulfill Sandia's mission of providing exceptional service in the national interest.

Rachid Darbali-Zamora

A native of Puerto Rico, Rachid's work is personal. He was living in Puerto Rico when Hurricane Maria ravaged the area, severely damaging the electrical grid and causing an 11-month blackout — the longest blackout in U.S. history. Rachid is an electrical engineer at Sandia, specializing in microgrids with renewable energy resources. Currently, he is working with utilities in Puerto Rico, Texas and Alaska to build a framework and machine learning algorithm for dynamic microgrids that utilize clean renewable energy.

Rachid explains that each community has its own unique needs: "In Puerto Rico, heating isn't important while Alaska doesn't need cooling.

"The machine learning-based controls used here can adapt to the specific challenges in these regions and optimize the available resources to deliver the most critical services."

Rachid emphasizes the connection between taking risks and being innovative. "This wasn't the first proposal I submitted," he said. "You have to take risks and continue to be confident in what you're trying to do. I don't do research for the sake of research but to solve problems that make a difference for real people. My motivation is to help people back home."

3D SCANNER — From left, Cason Brazil, Robert Tsinnijinnie and Jeff Heath at the Goal Getters II event. Robert is talking about his work getting Sandia to adopt the LiDAR scanning backpack technology, pictured here.

Photo by Bret Latter

Robert Tsinnijinnie

As a new employee at the Labs, Robert brought fresh ideas to help solve an old problem.

He is a technologist working with the Computer Aided Drafting Team to ensure that the more than 100,000 drawings of various facilities around the Labs are accurate. The challenge Robert and his team face is that many of these drawings are outdated because updates and renovations to facilities over the years are not reflected in the master drawings.

"This creates a challenge for subsequent users who rely on those drawings as part of their work," Robert said.

To update these drawings, Robert and his team rely on 3D scanning to modernize the master drawings. While Sandia has technology to conduct these scans, Robert explains that it is old and time-consuming, creating its own set of problems.

He successfully championed the effort to modernize the technology by introducing LiDAR scanning backpacks to Sandia. These devices work up to ten times faster than the existing technology. For reference, Robert and his team used both methods to scan the Steve Schiff Auditorium; the old method took five hours, while the LiDAR backpack took just 30 minutes.

"Currently, Sandia is the only national lab in the country that can self-perform 3D scanning in-house and process that data," Robert said. "Other labs have to outsource this kind of work."

In the next five years, Robert aims to create a digital twin of the entire Albuquerque campus so that when a building needs to be updated, the information is just a click away.

"Don't be afraid of new challenges or new technology that can help solve a problem," Robert said. "Some people keep new ideas to themselves, perhaps because

there's not an immediate budget or for some other reason. But if you have a new idea, share it and keep sharing it."

Dave Godsey

Dave, an optical engineer, and his team modified a Sandia 2010 design to develop an innovative system to enhance our national Overhead Persistent Infrared sensors, the main mission being missile tracking and missile defense capabilities.

"We started with a clean sheet approach, exploring various telescope designs before ultimately settling on the 2010 design," Dave said. "With our modifications to the focal plane array and telescope design, the design pushes the state-of-the art technology to meet the needs of this complex mission."

Dave and his team created a digital twin of the telescope they were designing, and as designs changed, they were able to model and simulate the sensor performance to determine if it still met mission requirements. Dave explains that this helped build confidence during the design phase that the sensor would meet and exceed customer and mission objectives.

"If you believe in something, you have to be persistent," Dave said. "It took us four years to convince stakeholders that we could use the information from the telescope to characterize targets with high fidelity. When we convinced one government agency, we enlisted them to convince another."

When asked if it was hard to pivot back to an old design after setting out to create something new, Dave points to the importance of Sandia's mission.

"It's all about the mission, which is important to our country," Dave said. "So, whatever we need to do to deliver, that's what we'll do."

He adds that being aware of past solutions can sometimes be key to innovation. "We need to know how similar challenges were addressed in the past to create the best solutions for the future."

Joanna Gardner

Persistence is the name of the game for Joanna, a cybersecurity researcher at Sandia. Her project to connect more than 200 devices to the Unclassified Operational Technology Network took just under a decade and involved multiple moving parts.

The project required ensuring cybersecurity while connecting each device to a specially configured enclave of the corporate network. Success resulted from close partnership with Sandia's Information Technology and cyber teams to do a massive amount of documentation and development over the course of eight years to obtain the necessary accreditation and approvals, and finally connecting all the devices.

"Each one posed its own challenge, and there were constant surprises along the way," Joanna said.

Joanna points to her patriotism as motivation to keep going.

"I'm very patriotic and driven by our mission," she said. "For me, the question was, what's the impact going to be for the mission? The answer was that this work will eventually make a difference by helping us work faster and be more efficient."

What does Joanna think other Sandians can learn from her story?

"Persistence. If you have a big innovative project that you believe in, stick with it," Joanna said. "If you can explain the why and help people understand the value of your project, in time, you'll get there."

GOAL GETTERS II ON DEMAND
SANDIANS CAN WATCH THE FULL GOAL GETTERS II EVENT IN THE DIGITAL MEDIA LIBRARY.

Generations of dedication

Sandians reflect on decades of service

By **Krystal Romero-Martinez**

For many Sandians, the history of the Labs is woven into their family histories. Lab News continues a series of stories from Sandians whose families have been part of the Labs for generations.

The Moya family: From homestead to high-tech

Before the Coyote Test Field, there was Coyote Springs, home to the Chavez-Moya family. Jose Chavez, also known as "Papa Grande," great-grandfather of Larry Moya, owned and operated Greystone Manor, a homestead at Coyote Springs. Coyote Springs was maintained by the Chavez family until the government took it over in the early '40s. By 1943, it became part of Kirtland Air Force Base and later, a Sandia test facility known as Coyote Test Field.

A few years later, in 1947, Larry Moya's father, Manuel Moya, began working in the Z Division of Los Alamos National Laboratory, later known as Sandia. Manuel retired in March 1978 after 30-plus years of service.

Larry began his career at Sandia as a custodian then transitioned to the machine shop, ending his career as an engineer and team lead in power sources production. He retired in 2014 and spent three additional years as a Sandia consultant.

In June 2001, Larry's oldest son, Steve , began his career as an intern while working

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Making History, Shaping the Future

RICH IN HISTORY — Greystone Manor at Coyote Springs. **Photo courtesy of Larry Moya**

on his bachelor's degree at the University of New Mexico, eventually moving to work on synthetic aperture radars, satellite projects and components and systems for the B61 and W88/ALT 370 as an engineer and manager. He is currently the senior technical adviser for the DOD in Nuclear Deterrence Policy contributing to the Nuclear Weapons Council.

Larry's youngest son, Adam, a mechanical engineer, joined the Labs in 2008 through a minority fellowship program, earning his master's in mechanical engineering from the University of Wisconsin. He is now working at Sandia's Laser Application Facility with previous roles that include sled track, modal and other testing positions.

The Moya family remembers traditions such as Manuel surprising his kids with treats from the vending machine at work and showing them the machine shop during Family Day, sparking Larry's early interest in Sandia. Steve also has early memories of Family Day, particularly the computer-aided design systems and the cool air in the server rooms, humorously dubbed "where they keep the alien bodies." These experiences created lasting memories and a deep connection to the Labs.

FAMILY BUSINESS — The Montano-Martinez family, including, from left, Jordan Martinez, Jordan Bowling-Martinez, Justin Martinez holding his son Jameson, Lawrence Montano holding great grandson Jaxon, Cecilia Montano holding great granddaughter Elliana, Lori Montano-Martinez, Jose Ben Martinez, Jaidyn Martinez, Krystal Romero-Martinez holding her son Joseph, and Benjamin Martinez.

Photo courtesy of Lori Montano-Martinez

The Martinez family: A family business

Lori Montano-Martinez started at Sandia as a student intern in 1994 and became a full-time employee in 1995, transferring to the Explosives Component Facility in 1996 where she works today. Her husband, Jose Ben Martinez, also began his career at Sandia in 1994 and is now a manager in Environmental Compliance. Their oldest son, Justin, began his career at Sandia in 2016 and is now a manager in Safeguards and Security. Their middle son, Benjamin, began his career as a student intern in 2015 and is a mechanical engineer in the Explosives Technologies Group.

"It has been an awesome experience to come full circle. My mom used to bring me to ETG for Family Day, and now I actually get to work here," Benjamin said.

In the early days of working at Sandia, Lori and her family enjoyed the Coronado Club. She and her husband often ate lunch there, while their kids frequented the pool, taking lessons and swimming for fun.

Lori volunteered at the Explosive Technologies Group's Family Day and Kids Day activities, making liquid nitrogen ice cream.

"It has been such a joy working here, bringing my family as kids and now seeing them start their own careers," Lori said. "Sandia has supported my professional growth and provided the flexibility to balance work and family life."

Ben and Lori's youngest son, Jordan, is studying mechanical engineering at University of New Mexico and hopes to join Sandia. Their daughter Jaidyn aspires to work here too.

The Sisson-Newberry family: A contribution to something greater

In July 1958, Scott Newberry's grandfather, Carlton E. Sisson, after serving in the Army and obtaining an associate degree in mechanical technology, embarked on a remarkable 36-year journey at Sandia, working in various technical roles, including computer thermal modeling on a wide variety of weapons programs and solar energy projects.

Carlton's career was marked by continuous learning that entailed completion of at least 60 advanced courses in mathematics, computer science, mechanical engineering and others through various Sandia educational programs. He concluded his career in 1994, leaving an unshakable impression

REACHING FOR THE STARS — Carlton Sisson, second from right, back row, contributed to the Apollo launch and worked at Sandia for 36 years. Inspired by his grandfather's legacy, rates analyst Scott Newberry joined the Labs in 2016. **Photo courtesy of Scott Newberry**

on Scott, who works as a data analyst in Finance and Accounting, where his role is increasingly using artificial intelligence and computer science. Scott said he feels a connection to his grandfather that inspires his own continuous learning as he begins to pursue a master's degree in data science.

"I was always aware of Sandia's significance and inspired by my grandfather's contributions to the Apollo space missions, the stories of Cape Canaveral and about how most of what he did we could never know about," Scott said.

Carlton's legacy gave Scott a desire to "contribute to something greater," so after working in the private sector for five years, Scott persevered through an 11-month application, interview and hiring process to join the one place he wanted to be: Sandia. Now eight years into his own Sandia journey, his progression mirrors his grandfather's passion for continuous learning.

His grandfather's unwavering loyalty to Sandia's missions and purpose, even during challenging times, exemplifies the strong culture and impact Sandia has on families. Like his family before him, Scott envisions a future where his children might find a path leading to Sandia.

Postdoctoral researchers compete in Bay Area SLAM

Sandia's Michael Leveille earns People's Choice Award at event

By **Lea Blevins**

A crowd of supporters turned out Oct. 3 at Garré Vineyard in Livermore to cheer on their teammates in the fourth annual Bay Area Research SLAM, organized by Sandia's Postdoc Program Office team, which is part of Academic Programs in the Chief Research Office. While the event may be about friendly competition, strong support for all presenters was apparent from the applause and noisemakers throughout the audience.

A dozen competitors each stood in front of a single slide as they took turns getting the audience enthused — in three minutes or less — about their postdoctoral research. There were three postdocs from each of the Bay Area's DOE labs: Sandia, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory and SLAC National Accelerator Laboratory.

A SUSTAINABLE FUTURE — Michael Leveille presents about his work in materials chemistry, casting a vision of a hydrogen-powered future. Michael won the People's Choice Award for his work.
Photo by Blaise Douros, Lawrence Livermore National Laboratory

WELCOMING WORDS — Associate Labs Director Andy McIlroy shares opening remarks at the Bay Area SLAM event.
Photo by Blaise Douros, Lawrence Livermore National Laboratory

"I look forward to this event every year. It's a lot of fun," said Sandia's Integrated Security Solutions Associate Labs Director Andy McIlroy, who welcomed attendees and participants. "This platform is a great opportunity for our talented researchers to share their most innovative ideas and gain valuable feedback from their peers. And it's always inspiring to learn about the fascinating projects our colleagues across the national labs complex are working on."

Andy served as host for the event as well as one of four judges, including Lawrence Livermore Deputy Director for Science & Technology Patricia Falcone, SLAC Laboratory Director John Sarrao and Lawrence Berkeley Laboratory Director Michael Witherell.

Sandia postdoctoral researcher Karuna Jetty served as one of four emcees for the event, along with Lawrence Livermore engineer Brandon Zimmerman, SLAC researcher Benjamin Ofori-Okai and Lawrence Berkeley scientist Lydia Rochbauer. The emcees were postdocs who competed in prior years.

Each of this year's competitors previously earned prizes at their respective institutions' internal postdoctoral speech competitions. For Bay Area SLAM, they were judged on the significance of the research, clearly specifying their contribution, the presentation's clarity, their stage presence and the ability to captivate a non-specialist audience. Those in attendance at the winery and watching via livestream were also able to vote for their favorite piece.

Hydrogen-baked cookies — a tempting future treat?

Sandia's Michael Leveille earned the People's Choice Award for his work in materials chemistry with the presentation, "Repurposing Natural Gas Infrastructure for Green Hydrogen Transport."

His challenge has been researching how the nation's polyethylene pipelines may hold up to hydrogen versus natural gas. The work involves studying microscopic structures to determine if pipes can handle hydrogen safety and reliably.

"Some days, I'm taking pipes, cutting them up and putting them into hydrogen and completing experiments that simply have never been done before," Michael said.

His research found what he called "a promising sign," that after one week of exposure at different pipeline pressures, hydrogen did not permanently damage polyethylene.

"Understanding how hydrogen interacts with materials has far-reaching impacts," Michael said. "In just a few years, we could be driving to visit family in hydrogen-powered vehicles, spend the holiday season warmed by hydrogen and bake 'hydrogen' cookies. Let's take this step toward greener homes and a sustainable future."

Science SLAM sensations

Sandia's Jihoon Yang and Scott Monismith also participated. Jihoon, who works in bioresource and environmental security, also presented about hydrogen as a "treasure" that can help meet our future energy demand.

"Since the environments in which we store hydrogen gas are the preferred habitats for hydrogen-consuming, methane-producing bacteria, it is essential to understand the microbial characteristics of the subsurface environments to prevent potential losses, and this is the first step toward national energy security," Jihoon said.

In power sources research and development, Scott presented on using computer simulation as a "virtual lab" to build better batteries.

"Storing enough charge is an issue that affects many aspects of the energy storage industry, ranging from small consumer electronics like your phone to massive gigawatt-scale batteries that are intended to store energy for America's electrical grid," Scott said. "Batteries are fundamentally chemistry in a can."

The judges awarded first place to Nicholas Cross from Lawrence Livermore for his engineering research, "Looking Inside Batteries to Predict Failure;" second place to Yumary Vasquez from Lawrence Berkeley for her biosciences research, "Going Viral … Literally: The Giant Virus Edition;" and third place to Caspar Donninson from Lawrence Livermore for his physical and life sciences research, "Agriculture and Solar Power: An Unlikely Alliance." The team from Lawrence Livermore won the overall Bay Area Research SLAM trophy this year.

Then and now: Sandia time capsule

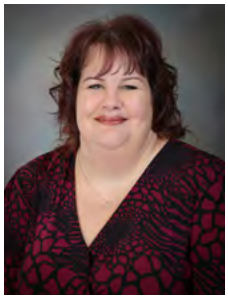
HISTORY UNCOVERED — Sandia leaders buried the time capsule during its 50th anniversary celebration in 1999, depicted in the historical photo. On Oct. 31, historian Rebecca Ullrich unpacked the 50th anniversary time capsule, which included a Z array, many documents, a letter from Paul Robinson and more items. In the recent photo, members of the Facilities team seal and lower the new time capsule during Sandia's 75th anniversary celebration.

Historical photo by Randy Montoya; Recent photo by Craig Fritz

Mileposts

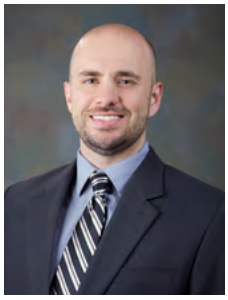
Raivo Leeto 35

Janet Linde 30

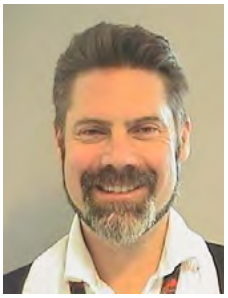


Mendy Brown 20

Jason Harper 20



Justin Smith 20



Brad Andrzejewski 15

Rafe Campbell 15

Recent Retirees

Marianne Hill 22

Sandia veterans share stories, solidarity at Veterans Day event

HONORING VETERANS — Senior manager Todd Harrison, facing camera, hugs fellow Marines veteran and technologist John Bailon after John hands him a challenge coin. Labs Director James Peery, right, handed out coins alongside panel participants and veterans John Bailon, Geoff Bacon and Kevin Stielow at the conclusion of Sandia's Veterans Day ceremony on Nov. 11.

Photo by Craig Fritz