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## A global shift for national security

Threats posed by terrorism, anthrax attacks still shape Sandia's mission 20 years later

By **Julie Hall**

In the days, weeks and months following the 9/11 terrorist attacks, Sandia stepped in to assist with the immediate response in myriad ways, from dispatching emergency personnel to Ground Zero to assist with search and rescue to providing equipment for K-9 rescue units that transmitted live audio and video.

When several Capitol Hill buildings were contaminated with anthrax mailed in anonymous letters, Sandia-developed aqueous foam was used to decontaminate the buildings.

“Like most Americans, the people of Sandia National Laboratories responded,” then-Labs Director C. Paul Robinson told a congressional committee in 2002. “As a result of strategic planning and the prior investment of resources for emerging threats, Sandia was in a position to immediately address some urgent needs.”

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**TIME TO SHINE** — Former Sandia researcher Maher Tadros demonstrates application of decontamination foam, which was deployed on Capitol Hill, in mailrooms and in newsrooms during the anthrax scare following 9/11. Tadros and researcher Mark Tucker co-developed the foam in the late 1990s.

Photo by Randy Montoya from the archives

## Finding meaning in a meaningless attack

Labs emergency management staff recalls 9/11 deployment

Story by **Luke Frank**

Photos courtesy of **Jim Breen**

Much of the world was horrified and felt helpless by what was unfolding the morning of Sept. 11, 2001. The World Trade Center was attacked using hijacked commercial jets filled with innocent passengers. The Pentagon was attacked the same way minutes later, and then a fourth passenger jet was brought down in Shanksville, Pennsylvania.

Reactions ranged from grief to anger as people openly wept, anxiously paced, furiously dialed their loved ones and sought other

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**INTEGRATED TEAM** — Members of New Mexico Task Force-1 team work together to safely shore up portions of the Pentagon while sifting through and removing debris.

# REMEMBERING 9/11

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## LAB NEWS Notes

*Lab News* may contain photos shot prior to current COVID-19 policies. Individuals in photos followed all social distancing and masking guidelines that were in place when photos were taken.

**EDITOR'S NOTE:** We've stopped printing the *Lab News*, but will continue to publish every two weeks. We want you to remain in our community of readers, so please send your comments and suggestions for stories or for improving the paper. *Lab News* welcomes guest columnists who wish to tell their own "Sandia story" or offer their observations on life at the Labs or on science and technology in the news. If you have a column (500-800 words) or an idea to submit, contact *Lab News* editor Katherine Beherec at [kgbeher@sandia.gov](mailto:kgbeher@sandia.gov).

# New priorities, new role

By **Michael Ellis Langley**

**A** clear September morning 20 years ago changed everyone. It also fundamentally changed Sandia, creating new priorities for the Labs and giving it a new role in service to the nation.

Then-NNSA Administrator John Gordon called Sandia less than an hour after terrorists slammed American Airlines Flight 11 into the World Trade Center at 6:46 a.m. Mountain time. He needed Sandia's expertise about an until-then theoretical scenario the Labs had first studied in the 1980s: a fully fueled aircraft crashing into a building. This first call, on a day no American who lived through it will forget, was just a precursor to a pattern that would emerge in the years following September 11, 2001



**SPINNING SPINDX** — Chemist Chung-Yan Koh, left, and bioengineer Chris Phaneuf, both former Sandians, hold the SpinDx diagnostic device. **Photo by Jules Bernstein from the archives**

— the nation needed Sandia’s expertise to confront a growing list of threats to the American people.

## Department of Homeland Security is born

One of the first priorities of the George W. Bush administration was starting up the Department of Homeland Security. Sandians were called upon to help establish the framework of a new cabinet-level organization that would encompass border operations, immigration and 20 other security agencies, including a [Science and Technology Directorate](#).

Holly Dockery, current director of Global Security Program Management, was leading Russian Cooperative Threat Reduction Programs in 2001 and was one of the Sandians called to serve on the White House Transition Planning Office, which stood up DHS and its component agencies.

“We worked almost 24/7 for 8 months to get ready,” Holly recalled. “The Transition Planning Office team was asked to stay on after the legislation was passed in March [2002] to create the Department. It was truly like being part of a start-up. You had to be prepared to do a little bit of everything. Sandian John Cummings led what we now know as the Critical Infrastructure Protection efforts, leveraging DOE’s investment in National Infrastructure Simulation and Analysis Center by modeling interdependencies. John Vitko headed the bio effort. It was his leadership that resulted in the first U.S. strategy to counter bioterror. He was recognized with a DHS Secretary’s award for his work.”

John became the first Director of Biological and Chemical Countermeasures in the Science and Technology directorate and is still helping guide the Labs as a member of the External Advisory Board for Sandia’s Energy and Homeland Security portfolio.

In fact, throughout the 19-year history of DHS, Sandians were involved in the establishment of the Transportation Security Administration, the Countering Weapons of Mass Destruction Office and, in 2018, the Cybersecurity and Infrastructure Security Agency, as well as the reconstitution of FEMA within Homeland Security.

Radiological and biological scanners used at airports, ports and borders seem



**POCKET TEST** — The BaDx pocket-sized detector has everything needed to test a sample for anthrax. It is a safer, easier, faster and cheaper testing solution for resource-constrained parts of the world.

Photo by **Thayne Edwards** from the archives

ubiquitous now, but in the early 2000s, in response to the terrorist attacks, Sandia had to figure out how to rethink detectors we had developed for many years. Most devices at that time were large, expensive, immobile and used at high-priority locations such as military bases. In response to the new demands for radiation detectors in civilian locations, Sandia began exploring solutions, and eventually developed more portable detectors that now are commonplace.

## Bio expertise put to work

In the first week following September 11, another terrorist attack in Washington, D.C., drew Sandia into action. Letters containing anthrax spores were sent to several newsrooms and the offices of U.S. Senators Tom Daschle and Patrick Leahy, killing five and infecting 17 others.

A foam developed at Sandia was deployed to decontaminate Congressional offices and to kill the spores. Once again, research [done years earlier](#) came to the fore in the nascent focus on combating biological threats at home.

Following the Homeland Security Act of 2002, which established DHS, Sandia received its first funding from the National Institutes of Health to develop a portable diagnostic tool that could diagnose disease

from human saliva. That project was based on work begun in the 1990s on the micro-ChemLab project, which laid the groundwork for Sandia’s development of microfluidic technologies and hand-portable chemical and biological sensors.

This early work helped Sandia establish a track record in medical diagnostics that includes [SpinDx](#), a lab-on-a-disk tool that can determine a patient’s white blood cell count, analyze important protein markers, and process up to 64 assays from a single sample, all in a matter of minutes. Sandia also invented BaDx, an anthrax detector that works without power, refrigerated storage or laboratory equipment to make testing safer, easier, faster and cheaper for more resource-constrained parts of the world.

The inventions have helped the nation reduce biological threats. The Secretary of Energy thanked more than 60 Sandians [in 2017](#) for their work as part of a Technology Convergence Working Group that analyzed a blood sample transport system, from treatment units to diagnostic labs, in the African nation of Liberia during the Ebola outbreak of 2014. That group made recommendations to improve turnaround time in the blood analyses needed to combat the epidemic. And in 2020, the bio expertise of Sandians was used to [combat the COVID-19 pandemic](#).

## Data modeling, cybersecurity help combat emerging threats

High-performance computing and modeling are part of Sandia's DNA. From the [Sandia Analysis Workbench](#) to [Quantum Scientific Computing Open User Testbed](#), Sandia has a long history of creating digital architectures to analyze large amounts of data. The National Infrastructure Simulation and Analysis Center, a program jointly executed by Sandia and Los Alamos National Laboratory, became the core modeling and simulation capabilities for DHS after September 11.

Starting in 2004, Sandians were brought in to help support BioWatch, a DHS early warning system designed to detect trace amounts of biological materials in urban areas across the United States. Sandia's modeling and analysis capabilities were tapped to site detectors in facilities and special events and as reachback to assist public health experts to determine the presence and geographic extent of a biological agent release in a facility. This information, provided within two hours of detection, allows federal, state and local officials to quickly determine emergency response, medical care and consequence management needs.

Sandia's cybersecurity capabilities have also been called upon time after time to

confront and deter burgeoning cyberattacks on American assets.

"In the decade following September 11, Sandia's homeland security activities centered on anticipating and countering nuclear, radiological and physical security threats stemming from terrorism and nonstate actors at our nation's borders," said Associate Labs Director Andy McIlroy, head of Integrated Security Solutions and Sandia's Energy and Homeland Security portfolio. "However, the most recent evolution in this space has been a shift to the cyber arena.

"The other threats have not gone away," he said, "but cyberthreats to our homeland from both nation-states and nonstate actors — some of which are connected to organized crime — have increased in number and importance. The work in our Energy and Homeland Security mission portfolio shows how Sandia has risen to this challenge of turning our focus in homeland security to defending our cyberspace from organizations with fairly deep resources."

### Staying prepared to help the nation


The September 11 attacks and the accompanying loss of 2,996 American lives forever changed the balance of the work done at the Labs. It altered how it does work and increased the number of U.S. agencies it works with.

"Bringing the fight to the homeland made us think about security in a different way," Holly said. "After 9/11 and the subsequent anthrax attacks, everyone in the U.S. and around the world wanted to pitch in and help make Homeland Security work."

That work continues to evolve as Sandia's Energy and Homeland Security mission portfolio focuses on securing the nation's critical infrastructures, and responding to changing tactics from international adversaries and existential threats to national security posed by climate change, she said.

For more than 70 years, Sandia's very existence has been part of the deterrent that has kept the world from nuclear war, Holly said. "We are the Laboratories that the U.S. government turns to first to solve the toughest and most urgent technical challenges, something that has remained unchanged before and after those terrorist attacks," she said.

Former Labs Director Tom Hunter perhaps said it best when he characterized Sandia's impact on national security.

"Deterrence is much broader than nuclear weapons ... our adversaries understand that places like Sandia exist and that people like Sandians are working overtime to foil their plans," he said. "Basically, our role is to deter them and outsmart them and to ensure that there is never a technological surprise we're not ready to respond to." 

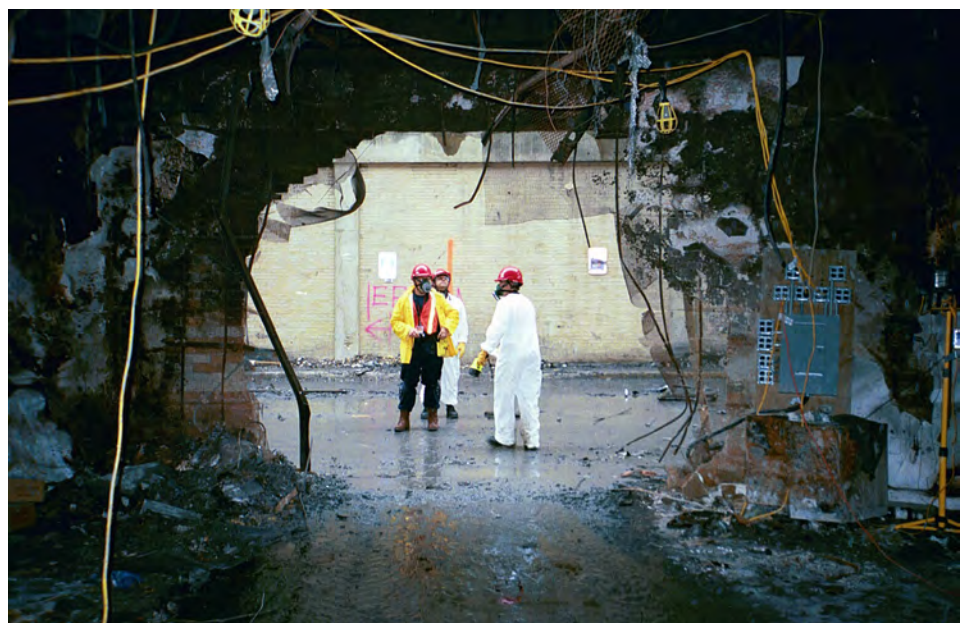
## Pentagon deployment

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ways to cope with the cataclysmic events, one after the next.

Jim Breen had his own reaction. At the time, Jim was a fire captain with Albuquerque Fire Department working his second 24-hour shift as he watched the news. He knew full well he would be called into service as a member of one of FEMA's Urban Search and Rescue Teams, New Mexico Task Force-1.

"Everyone in the fire station immediately knew to get ready for the worst. There was no question in our minds that this was an attack," recalled Jim, emergency operations manager for the Labs. "We went right to work getting our equipment ready for deployment."



**CLEARING THE DECK** — New Mexico Task Force-1 took three days to clear the first-floor deck of the Pentagon attack site. They were expected to need seven days.

Despite his best efforts to stay focused, Jim felt a huge range of emotions spinning out of the morning's events as they were being broadcast live across the nation.

## Sandians answer the call

At least eight of Sandia's current emergency management team members were called into service Sept. 16 to help with rescue and recovery efforts at the Pentagon as part of New Mexico's urban search and rescue team. They removed tons of debris, helped stabilize the structure, recovered airplane parts and identified victims' remains and gathered their personal effects.

The 70-member team reported to the site Sept. 18, 2001. After seven days, the scene was still shocking, Jim said. American Airlines Flight 77 had crashed into the west side of the Pentagon at 530 mph with more than 37,000 pounds of fuel. The aircraft penetrated 310 feet into the building and ignited a fire that severely damaged a large swath of the complex. Portions of the Pentagon collapsed within 40 minutes of impact and fires raged for more than 32 hours.

The team immediately began shoring up damaged structural columns and beams and removing the debris. Command and safety officers, search teams, medical teams, rescue teams, hazardous materials teams and heavy rigging specialists worked in concert to sift through and clear the debris. Jim and Robert Sanchez were responsible for team deployment and managed the rescue squad of four smaller specialist teams, including two heavy riggers to work with cranes.

"It was pretty intense work dealing with security checkpoints, hazardous materials and an unstable structure in waist-high debris," Jim said. "And, of course, there was the emotional toll of securing the remains and personal effects of the victims."

Emergency planner Rick Chadwick, an equipment operator and rigger with the team, distinctly remembers the solemn process that emerged as remains were located.

"When human remains were found, a U.S. Army infantry squad would step up in their Class A uniforms, white gloves and spit-shined shoes and march into the rubble in perfect formation, step and cadence," Rick said. "Then they would come out of

## Current Sandia Emergency Management staff deployed

### Jim Breen

**Sandia title** — Emergency operations manager

**Role at Pentagon recovery site** — New Mexico Task Force-1 rescue squad manager

**Primary tasks** — Responsible for the squad's overall deployment. Oversaw four teams of six rescue squad specialists each and two heavy riggers working with big cranes to remove debris from the interior of the building, while identifying human remains, personal effects, airplane parts, evidence, etc.

**Takeaways** — We were able to contribute to the response while most could only stand by and watch on the TV. Being deployed was a position of honor and there was a great sense of purpose. Teams came together and accomplished seemingly impossible tasks under extremely difficult conditions.

### Rick Chadwick

**Sandia title** — Emergency planner

**Role at Pentagon recovery site** — Equipment operator/rigger

**Primary tasks** — Rigged tools, equipment, rubble and debris for crane lifts. HVAC units and concrete slabs were lifted out of the building and a skid steer was placed onto the second floor to remove rubble. Operated skid steer. Used cutting torch to clean off rebar and hazards suspended from upper floors.

**Takeaways** — The work was like looking into a cutaway of peoples' lives. I remember a pristine office on the third floor; a coffee cup and picture of a woman sitting neatly on the desk. Everything in perfect order, just a little dusty.

### Tomas Benavidez

**Sandia title** — Emergency planner

**Role at Pentagon recovery site** — Rescue team member

**Primary tasks** — Duties included building shoring and stabilization, document recovery, evidence and remains recovery.

**Takeaways** — Deployment was the first for many team members, and all involved were committed to supporting the response effort in any way. The initial response teams on scene before our arrival did an amazing job. I was absolutely impressed with the support that volunteers provided, including medical attention, logistics, food and more. Made me proud to be part of the response effort.

### Robert Sanchez

**Sandia title** — Emergency planner/Offsite interface coordinator

**Role at Pentagon recovery site** — Rescue team manager

**Primary tasks** — Managed two rescue squads of six persons each. Shored up the unstable interior portion of the Pentagon to allow for search and recovery operations. Integrated canine search specialists and military agencies in the operation while providing for their safety and security. Structural shoring and stabilization, document recovery, evidence and remains recovery.

**Takeaways** — I was privileged to experience this country at its finest. United as one, supportive instead of divisive.

### Troy Hamby

**Sandia title** — Emergency planner

**Role at Pentagon recovery site** — Rescue squad leader

**Primary tasks** — Led a group of five rescue squad specialists in debris removal, victim recovery and building stabilization. Team also worked closely with the FBI for evidence preservation. Secured numerous vaults and safes.

**Takeaways** — Was part of the privileged few who could go and render aid. It was important that I represented not only my team but the entire state of New Mexico.

the structure in perfect formation carrying the remains, providing the utmost respect and dignity to every single victim.”

Each Sandia responder holds a distinct memory of their work at the Pentagon.

“The whole experience was surreal,” said emergency planner Troy Hamby. “It was so hard to process. We would find personal articles in that debris, like pictures from people’s desks, shoes or even stuffed animals, and would be overcome with a flood of emotions. Nothing could have prepared us for what we saw.”


Jim remembers coming across a single high-heeled shoe. “It struck me very powerfully,” he says. “This shoe was worn by somebody’s wife or mother or daughter and it was the biggest single item I saw that crystallized the human toll this attack had taken on the loss of life and opportunity of innocent people. It’s burned into my memory.”

## 20 years of reflection

After three grueling days of 12-hour shifts, New Mexico’s urban search and rescue team had completed its mission to remove debris and stabilize the site and was on its way home.

“The support from the citizens of New Mexico was overwhelming,” Jim said. “We received care packages and letters from school children, which made our work even more gratifying and purposeful amid all of the destruction and death.”

Troy said, “The reception we received upon returning to New Mexico was incredible. Our families were terrified while we were away, and it felt good to be back with them on familiar soil. I remember everyone being very proud of us.”

All told, 184 innocent people died, and 106 people were injured at the Pentagon that morning. “We were able to contribute to the response while most could only stand by and watch on the TV,” Jim said. “There was a great sense of purpose and determination knowing that being deployed was a position of honor. Given the circumstances, men and women came together and accomplished seemingly impossible tasks with resolve under extremely difficult conditions. What unites us makes us stronger and what divides us makes us weaker and more vulnerable.” 

## Current Sandia Employee Health Services staff deployed

### Lloyd Rantanen

**Sandia title** — Paramedic

**Role at Pentagon recovery site** — Rescue specialist

**Primary tasks** — Deployed as part of a team to help search through the damage and debris.

**Takeaways** — People from across the country were able to come together to try and help in any way they could.

### Richard Lovato

**Sandia title** — Sandia Medical Clinic paramedic

**Role at Pentagon recovery site** — Rescue squad specialist

**Primary tasks** — Building stabilization, securing classified information and aircraft parts and recovery of human remains.

### Richard Collado

**Sandia title** — Emergency medical technician/paramedic

**Role at Pentagon recovery site** — Task force rescue squad officer

**Primary tasks** — Shored unstable structure to help locate and remove victims and collect evidence. Decontaminated recovery crew members exposed to chemicals and particulates during operations.

**Takeaways** — My brother, Ruben M. Collado, who was a Sandia employee, succumbed to cancer January 23, 2021. His illness was contracted during the 9/11 deployment.



**STRUCTURAL STABILIZATION** — Before the team could begin its recovery work in earnest, Pentagon walls and ceilings had to be safely stabilized.

# Redesigning radiation monitors at U.S. ports

*Sandia's new modular design to decrease costs, enhance threat detection*



**RETHINKING PORTAL MONITORS** — Building upon deep expertise in system engineering and radiation detection, Sandia developed a prototype RAPTER portal monitor that was deployed for testing at Pacific Northwest National Laboratory's Interdiction Technology and Integration Laboratory.

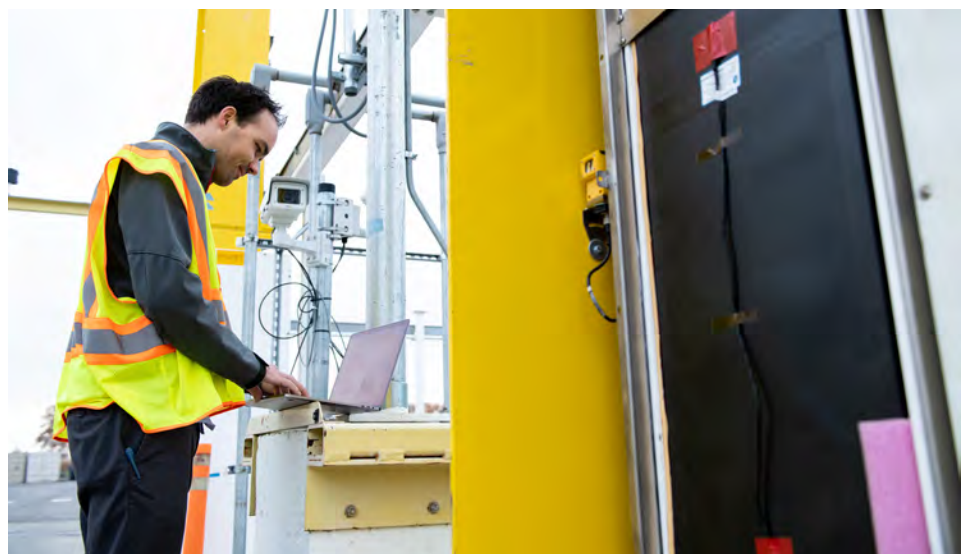
Photos by Andrea Starr, Pacific Northwest National Laboratory

By **Paul Rhien**

Every day at ports of entry, hundreds of thousands of vehicles and containers cross into the country. Since 9/11, all incoming vehicles and containers at land crossings, rail crossings, mail facilities and shipping terminals are scanned by Customs and Border Protection officers to detect potential threats, including radiation.

It is now time to replace and upgrade the aging radiation detection systems before the end of their effective life.

The Department of Homeland Security turned to Sandia and Pacific Northwest national laboratories to create the blueprint for a new generation of radiation



**THREAT DETECTION** — Sandia physicist Will Johnson demonstrates the potential capabilities of the new radiation portal monitor design.

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**X-RAY VISION** — In a training session, bomb technicians use Sandia's X-Ray Toolkit software to stitch together X-ray images of a suspicious package.

Photo courtesy of the NNSA

## Global security

*CONTINUED FROM PAGE 1*

Even as Sandia was immersed in the immediate response to the attacks, changes were beginning to take shape in its mission in response to newly recognized threats. Some were more immediate while others evolved over the past 20 years. Clearly, the definition of national security changed and the concept of homeland security had become paramount.

Evolving to address new national security threats was not new for Sandia. Throughout its history, Sandia's mission has evolved while it continues to focus on its primary mission—sustaining and modernizing the nuclear arsenal.

The Lab News takes a look at some of those changes to its mission below.

### Focus shifts to nonstate actors, bio threats

The focus of much of Sandia's work prior to the 9/11 attacks centered on countering threats posed by nation states, such as securing nuclear materials in Russia or training delegations from various countries on the role of cooperative monitoring

in implementing treaties and other regional security arrangements. Sandia's Cooperative Monitoring Center, established in 1994, was built on the premise of applying science and technology to build trust and reduce tension among countries in global hot spots.

"The issue of nonstate actors was almost absent," said senior scientist Amir Mohagheghi. The potential threat of nonstate actors, individuals or groups that are not allied with any particular country or state, was on the radar of some staff members in Sandia's International Programs group, but efforts to obtain funding for further study from Washington sponsors had been unsuccessful.

"After 9/11 and the 2001 anthrax attacks, there was a surge of interest in threats from nonstate actors and also biological agents, leading to the formation of the international biological threat reduction program in 2003," Amir said. A chemical threat reduction program was added soon after.

The events influenced Amir as well. A physicist by training, he said the attacks sparked his interest in global security and the role of nonstate actors, prompting him to seek a job in 2002 in International Programs,

now the Center for Global Security and Cooperation, where he's worked ever since.

Biologist and systems engineer Sue Caskey said her work prior to 9/11 focused heavily on "state-based concerns," such as safeguards, treaty work, and securing Biopreparat, the biological warfare labs of the former Soviet Union. In the 1990s, interest was high in verifying compliance with the Biological Weapons Convention and Chemical Weapons Convention treaties. "After the fall of the Soviet Union in 1991, there was concern over the need to secure pathogens from falling into the wrong hands although what was meant by 'the wrong hands' wasn't specifically defined," Sue said.

The 2001 anthrax attacks focused biosecurity on domestic facilities, while 9/11 changed the state of chemical security. "Suddenly there was a big initiative to help secure domestic chemical facilities and protect them from being terrorist targets, which ultimately expanded internationally," Sue said. "Additionally, there was a paradigm shift from the Cooperative Monitoring Center's work focusing on transparency between states and trying to get states to agree with each other to being focused on nonstate actors."



Since 2007, Sue and other team members have produced an annual global threat prioritization analysis that uses modeling to evaluate the potential for nonstate actors or terrorist organizations to exploit chemical, biological and nuclear materials in a country to develop a weapon of mass destruction. “The models help us understand the legitimate infrastructure in various countries, how it’s protected, and the potential interest by nonstate actors to exploit them. This allowed us to be able to prioritize efforts to help secure these materials,” she said.

The 9/11 attacks also changed the focus of government sponsors and what they were willing to support. “The field of biosecurity didn’t really exist pre-9/11,” said Director Jen Gaudioso, who joined Sandia as a postdoc in 2002. “It really was the catalyst for the change in awareness of the threat and the need to broaden research to look at biological agents and facilities and the potential misuse of these materials.”

Before 9/11, the DOE had a small chem-bio defense effort. The 1991 Nunn-Lugar Cooperative Threat Reduction program provided for a small chem-bio effort as well. But Nunn-Lugar was primarily created to secure and dismantle weapons of mass destruction and associated infrastructure in the former Soviet states of Russia, Ukraine, Belarus and Kazakhstan. After the Department of Homeland Security was formed in 2002, DOE’s chem-bio work moved to DHS and became the science and technology directorate.

In 2003, Sandia announced it was pursuing biotechnology as a focus. While the Labs had engaged in some biotech research in the previous decade, the mission driver for renewed interest came from the realization that it was critical to countering bioterrorism and biowarfare. Sandia created a Biotech Science & Technology Council in 2000 to lead efforts to become the biotechnology laboratory of choice for national security challenges.

Within the Center for Global Security and Cooperation, Sandia established the International Biological Threat Reduction program to advance U.S. threat reduction and counterterrorism goals by developing and implementing systems and practices to promote safe and secure use and

management of high-risk biological agents across the globe. At Sandia/California, the Biological and Materials Sciences center was formed to meet national security challenges in biodefense, emerging infectious disease and energy security.

As Sandia built up its chem-bio-related programs over the years, the Labs produced numerous cutting-edge technologies and was called upon to support numerous national and international incidents:

**BaDx** – Sandia developed a credit card-sized pathogen detector used to identify anthrax. Popular Science named BaDx as one of 100 best innovations in 2015.

**Ebola** – Nearly 60 Sandians contributed to mitigating the effects of the 2014 West Africa Ebola epidemic by developing a sample delivery system that cut wait times and reduced exposures.

**Laboratory Biosecurity Handbook** – Written by Jen Gaudioso and former Sandian Ren Salerno, the book covers the principles for laboratory biosecurity to reduce the risk of bioscience facilities becoming sources of pathogens and toxins for malicious use.

**Amerithrax** – Using advanced microanalysis tools developed at Sandia in support of nuclear weapons work, Sandia showed that the spore materials in the anthrax-containing letters most likely came from the same source and that no chemical additives were used to make the spores more dispersible.

Following Amerithrax, the U.S. government turned to Sandia for assistance in designing biosecurity at U.S. Department of Agriculture and Centers for Disease Control and Prevention biolabs, work that helped spur the creation and promulgation of laboratory biosecurity around the world.

More recently, Sandia’s chem-bio expertise was mined for the response to the COVID-19 pandemic, including in the development of a clinical testing laboratory on-site. “We would never have been able to stand up a COVID testing program if it hadn’t been for the formation of the Biological and Materials Sciences center,” Jen said. Having the biotechnology expertise and infrastructure on-site allowed us to do that.”

In March 2020, a team of bioscientists from the center established a federally

registered diagnostic lab and FDA-authorized diagnostic test that enabled Sandia to perform tests for the virus on-site and, in most cases, return test results in less than 24 hours. This allowed Sandia to continue mission-essential classified and laboratory work safely during a stay-at-home order.

## Physical security takes on more urgency

Shortly before 9/11, Randy Peterson, then a staff member in Sandia’s physical security group, briefed an Air Force general on Sandia’s Remotely Operated Weapons System, a security technology that removes the operator from the line of fire. This later became the Remote Target Engagement System. The general said “there was no way in hell they were going to use that technology” because it was “too risky.” Two days after 9/11, Randy got a call from the Air Force asking, “How soon can you put that in the field?”

“That was a big change,” said Randy, now director of weapons and force protection. “After 9/11 they were willing to look at things differently, to look at performance-based solutions for physical security and nuclear weapons.” The Remotely Operated Weapons System was deployed at numerous locations, and Sandia is working on the fourth generation of the system.

Sandia has also performed extensive modeling and simulation for the Air Force since 2001 to better understand potential threats and vulnerabilities. Prior to that time, much of Sandia’s work with the Air Force was focused on security for nonnuclear sites and facilities. “There wasn’t a sense at the time that the weapons storage areas, many built in the 1960s and 1970s, needed much in the way of upgrades,” Randy said.

With the collapse of the World Trade Center, that all changed. Sandia is currently in the process of replacing all Air Force weapons storage areas with heavily bermed facilities called Weapons Generation Facilities. These facilities consolidate weapon maintenance, storage and training functions required to support the intercontinental ballistic missile and bomber missions.

“That all came about because of 9/11, which was kind of a wakeup call from continuing to do things status quo,” he

said. It also served to reestablish Sandia's role of providing turnkey physical security systems for the Air Force. Today, the Department of Defense is a major customer of weapons and force protection, second only to DOE and NNSA.

## A new philosophy for nuclear incident response

The terrorists who boarded four commercial jetliners on September 11 were not seeking money or the release of political prisoners. They gave no warning or deadline to meet any demands. Their sole goal was to incite terror and take as many American lives as possible.

Although the 9/11 attacks did not involve a nuclear device, they led to a significant change in philosophy and approach for those involved in the nation's nuclear counterterrorism response, said Art Shanks, manager of the Nuclear Incident Response Program. Until that point the threat of hostile action had been used as leverage to achieve the fulfillment of other demands — for example, to extort money or demand the release of prisoners. The Nuclear Emergency Support Team program operated under the assumption that they had time to locate, analyze and ultimately neutralize the threat.

“That type of threat scenario was the basis for the response posture against nuclear threats but the attacks definitely changed the game for NEST teams across the DOE complex,” Art said. Responders now had to assume that the terrorist was potentially going to use the device at any moment with no warning, that it could be equipped with automated triggers or timers and that there might not be any advance demands or deadlines. “The response posture was changed to one where the teams expect to be dealing with a bomb that could be ticking down, remotely detonated, or could go off at any second,” he said. “So time from identification to resolution became one of the single biggest issues.”

The need to shorten the timeline for response and become more agile drove numerous changes to the protocols and technologies used by the nation's nuclear response teams, comprising individuals across the nuclear weapons complex, DOE, Department of Defense and Department of Justice. Many of the changes were not

immediate and some had started prior to 9/11; however, the 9/11 attacks definitely solidified the changing threat, and accelerated the pace of progress, Art said.

The increased need for speed led to an initiative to train and equip specialized regional teams in a number of U.S. cities to respond to a potential nuclear threat device. Sandia is a key lab involved in developing technologies and providing training to these regional teams.


“The decision to regionalize the response capability allows expertly trained response team members with highly specialized equipment to get hands on to a device more quickly once it's been discovered,” Art said. “That's an entirely new response posture that's been generated over the last two decades.”

Sandia is also involved on the technology front. A team in Asset Protection and Weapons of Mass Destruction Response is leading the development of a directed energy laser, a new tool in the arsenal for disablement. Another team is working to better understand and characterize the performance of shaped charges, using CT

scanning to analyze the charges, which are used to surgically disable key components in a threat device.

Sandia has developed a hyper-concentrated version of its aqueous foam, which is used in blast containment structures. Responders used to bring a dozen 5-gallon buckets of foam concentrate to the site, requiring significant manpower and transportation resources. Now they bring a couple small containers of the hyper-concentrated version that they dilute on-site to make the concentrate, which in turn is used to generate large volumes of aqueous blast suppression foam.

Sandia continues to make enhancements to the X-Ray Toolkit, radiography software developed for bomb technicians in 2009. The development of the toolkit was driven by the need to rapidly analyze X-rays of suspicious devices and make decisions quickly.

“In addition to new equipment and tools like XTK, numerous small changes have occurred over the past 20 years as a result of 9/11 that have put better information in the hands of explosive ordnance disposal specialists more quickly,” Art said. 

MISSION FORWARD

This is why I got vaccinated.



They're safe. They keep you safe. They keep others safe.
coronavirus.sandia.gov

# Military Support Committee gets new executive sponsor

*Head of HR, Communications looks forward to serving Sandia veterans*

By **Manette Newbold Fisher**

Following a 22-year military career and human resources leadership roles in Texas, Ohio and Oregon, Sandia's new Executive Director and Chief Human Resources Officer Brian Carter is looking forward to using his experience to serve as the executive sponsor of the **Military Support Committee**.

The Military Support Committee is a Sandia employee resource group created more than 15 years ago to support and engage veterans, active military personnel, guardsmen, and reservists, along with non-military employees who have family members deployed. The committee's goal is to foster a military-friendly community and culture that supports Sandia's mission.



**MILITARY BEGINNINGS** — Brian Carter's military career began in 1991 when he enlisted in the U.S. Air Force. He is now serving as executive sponsor of the Military Support Committee.

Photo courtesy of U.S Air Force

"Service to our country is important to me, and I'm looking forward to the opportunity and privilege to serve and work with Sandia's military veteran community," he said. "It is a tremendous understatement to say that I appreciate their service to our nation, and I value the experiences and attributes they bring to Sandia."

Brian's role as executive sponsor of the Military Support Committee follows Associate Labs Director Mike Burns, who left Sandia in August.

Traditionally, the Military Support Committee leads Sandia's annual Veterans Day events that take place at Sandia's Albuquerque and Livermore sites to mark the holiday and honor the achievements and sacrifices of Sandia military personnel. The committee also



**CHANGE OF COMMAND** — Brian Carter (right) was named commander of the 433rd Training Squadron during a ceremony in 2012. It was his last tour in the military.

Photo by Edward Rivera, U.S. Air Force



**NEW ROLES** — Executive Director and Chief Human Resources Officer Brian Carter joined Sandia this summer after a decades-long military career and work in multiple human resources roles.

Photo by Lonnie Anderson

played a role in increasing the number of veterans hired at the Labs in the last few years. In fiscal year 2018, Sandia **tripled the number of military veterans hired**, marking the highest veteran hiring rate in the history of the Labs.

Because Brian is the executive director of human resources and communications at Sandia, he also champions Sandia resources that can help veterans through tough times. He said the Military Support Committee and other employee resource groups can help veterans connect with each other. He also endorses the **Employee Assistance Program** for members of the military and relatives of veterans who would like to seek additional assistance with life stresses.


## 'Something larger than myself'

Brian's military career began in 1991 when he enlisted in the U.S. Air Force. After transitioning to the Arkansas Air National Guard and later becoming a commissioned officer, he served in numerous roles including executive officer for the 189th Airlift Wing, personnel officer in the Arkansas National Guard Human Resources Office, commander of the 188th Mission Support Flight, and 188th Fighter Wing Inspector General.


Brian said his last tour was with the Air Force Reserves where he served as commander at the Air Force Basic Military


Training School at Lackland Air Force Base in San Antonio, Texas. It was the same school he attended for basic training upon enlistment, bringing his military career full circle. He retired from the military in January 2014.

“Military service afforded me the chance to be a part of a something larger than myself, to contribute to a mission of immeasurable importance, and to belong to a community of professionals with a shared commitment to the values of integrity, excellence and selfless service,” he said.


Brian also credits the military for providing leadership development, professional training, and multiple opportunities for higher education pursuits. While in uniform, he earned a Bachelor of Science degree in accounting, a Master of Military Operational Art and Science and a Juris Doctor degree. 

## Mileposts







**Angela Ortiz** 30




**Michael Wong** 30



**Julie Cordero** 20




**Kevin Pedretti** 20



**John Richards** 20

# REMEMBERING 9/11



## at Sandia

**6:46 A.M. MST**  
The first airplane, American Airlines Flight 11, strikes the north tower of the World Trade Center.

**7:03 A.M.**  
A second airplane, United Airlines Flight 175, strikes the south tower.

**7:45 A.M.**  
A third airplane, American Airlines Flight 77, strikes the west side of the Pentagon.

Then-Labs Director Paul Robinson was home and getting ready for work when he heard the first televised report of the tragedy.

**8:15 A.M.**  
Then-head of NNSA Gen. John Gordon calls to ask for Sandia's help. Paul agrees to send a Sandia-led team to Washington, D.C. as soon as possible, though he is unaware the Federal Aviation Administration already had made the decision to ground civilian air traffic.

**8:27 A.M.**  
Emergency Operations Centers are activated at Sandia sites. EOC staff begins a massive phone campaign to determine the status of traveling Sandians and get them home.

**9:30 A.M.**  
Sandia's EOCs receive a notice from NNSA to send non-essential personnel home. Site evacuations begin in New Mexico and California. "It was not an insane rush. People left in a very organized manner," then-protective force chief of operations Wes Martin said.

**10:20 A.M.**  
The Sandia/California site evacuation is complete.

**11:30 A.M.**  
All guests at the National Museum of Nuclear Science & History are escorted out of the museum by Kirtland Air Force Base security personnel.

**2:00 P.M.**  
Both Sandia site evacuations are complete, and Kirtland Air Force Base is virtually empty. Sandia's Leadership Council meets to decide who is required to report for work and determine how to get essential staff back on site.

**7:00 P.M.**  
Sandia's EOCs close for the evening.

**9/12**

EOCs open the next morning to resume operations in the aftermath of 9/11. Gate traffic is slow due to heightened security, time-consuming vehicle inspections and, for the first time, identification checks for all entering the base. Sandia's New Mexico EOC was activated for months following the attacks.

# Well-positioned for the unpredictable

*Sandia expertise proved essential in weeks and months following 9/11*

By **Rebecca Ullrich**

In the early 2001 State of the Labs interview, Sandia Labs Director C. Paul Robinson and Deputy Labs Director Joan Woodard were elated with relief and success. The preceding years were difficult. The end of the Cold War brought mission uncertainty and a dearth of weapon programs; security concerns at Los Alamos National Laboratory affected the whole nuclear weapons complex, bringing security shake-ups and stand-downs, as well as diversity issues; the creation of the NNSA to streamline and focus nuclear weapons operations and oversight within DOE was a new unknown; and funding declines resulted in ongoing workforce realignment and voluntary separation programs in 1996 and 1997.

But by February 2001, funding was up, John Gordon was the administrator of the new and stabilizing NNSA, the W80 life extension program was well underway and approved for Phase 6.3 and tech transfer was having notable success as, for example, technology for the Extreme Ultra Violet Lithography research agreement neared commercialization. Multiple programs were producing, and management was pleased.

## Counterterrorism efforts before 9/11

It is not that no one was worried about terrorism as part of national security. Terrorist attacks increased in the 1990s, and technological responses and preventatives were in development. Sandia started a program in physical security after Israeli athletes were taken hostage and killed during the 1972 Munich Olympics. The famous 1988 sled track test that slammed an F-4 Phantom into a concrete wall was done on a contract studying the potential behavior of the concrete used in nuclear reactor containment. The data from that test advanced over time, feeding new models like a



**CALM BEFORE THE STORM** — In February 2001, former Sandia Labs Director C. Paul Robinson and Deputy Labs Director Joan Woodard delivered a State of Labs interview marked by successes over the previous decade. After 9/11, much of this research was critical to national security.

Photo by Randy Montoya from the archives



**ANTICIPATING THREATS** — In this 1999 photo, Sandia researcher Mark Tucker examines two petri dishes: one with a simulant of anthrax growing in it, left, the other treated with the decontaminating formulation developed at Sandia.

Photo by Randy Montoya from the archives

sourdough starter for further analysis. In the same period, technology developed for nuclear treaty verification included nuclear-radiation detection capabilities.

By the mid-1990s, national defense efforts to secure the former Soviet nuclear arsenal relied on Sandia's transportation technologies and spurred advancement of verification-based detection research. Sandia was also involved in radiation detection technology deployed at airports and other sites, focused largely on systems analyses and architecture. As threats of weapons of mass destruction increased in 2000, Sandia finalized the Haystack study about smuggling nuclear devices into urban environments.

### Chemical-biological defense in the market


The 1995 Aum Shinrikyo sarin gas subway attacks in Japan focused attention on chemical-biological and asymmetric

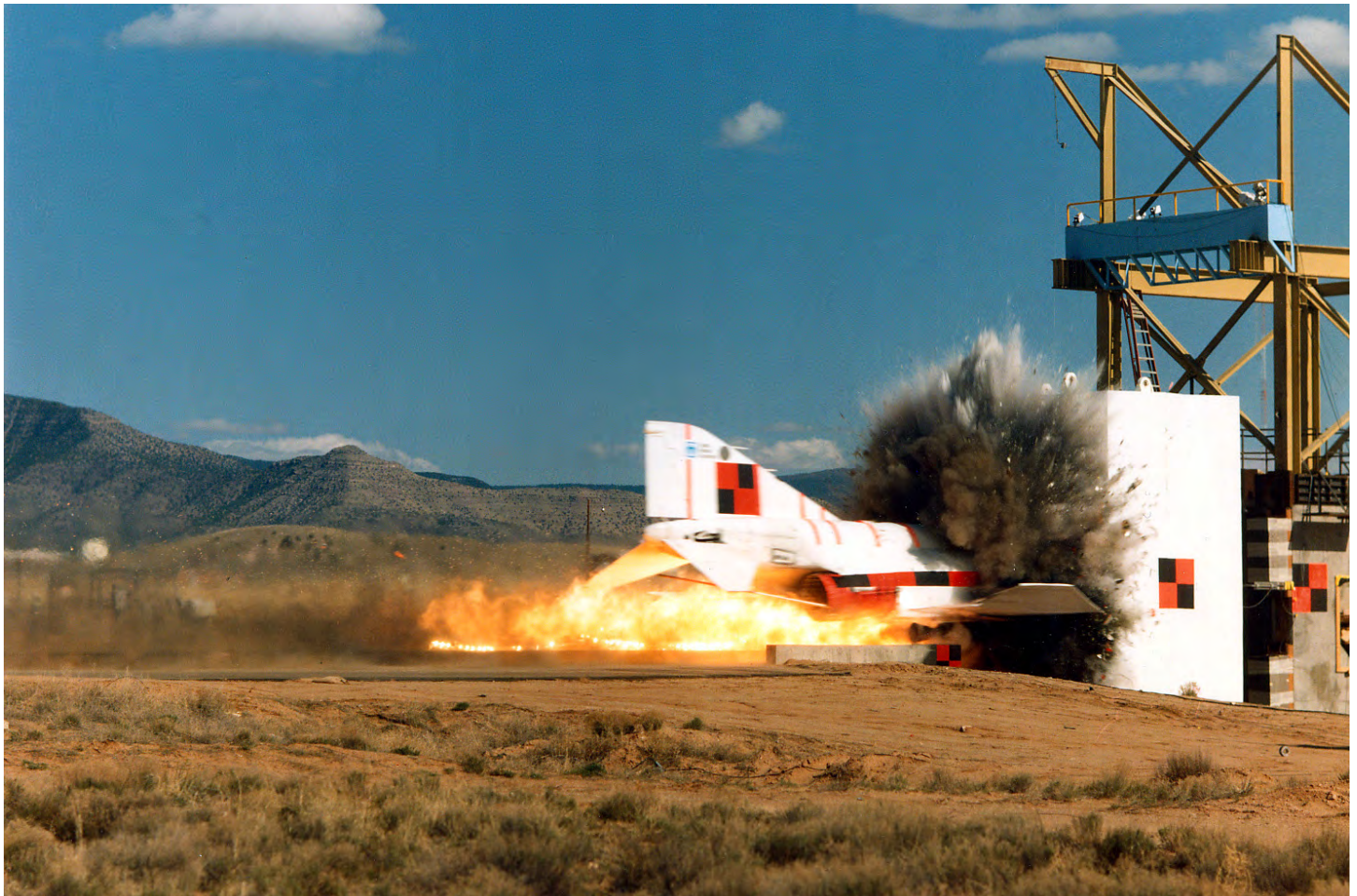
attacks. The following year, DOE created a program for civilian chemical-biological defense to develop intelligence capabilities, sensors and other technologies to detect, deter and respond to terrorist attacks involving weapons of mass destruction. In 1997, under this program, Sandian researchers Maher Tadros and Mark Tucker developed a decontamination foam that would neutralize any number of chemical-biological agents. In July 2000, the foam was licensed to Modec Inc. and, later, to EnviroFoam Technologies. At the same time, Sandia began funding projects in chemical-biological detection, including the MicroChemLab. In 2000, a handheld, portable MicroChemLab prototype was able to detect the biotoxin proteins from biological warfare agents. Multiple technical solutions blossomed in the late 1990s as a result of this attention and funding.

On 9/11, counterterrorism technology was not immediate priority, as the attack

had already happened. In the hours and days following the attacks, the NNSA and DOE requested, and Paul Robinson provided, Sandia's expertise in systems analysis and knowledge of technology and research status across the country. Systems analysis, already considered the Labs' specialty, had been specifically directed at weapons of mass destruction threats in the few years prior to 9/11.

The technology Sandia had on tap, ready to serve the nation, that was used in the aftermath of 9/11 was decontamination foam. EnviroFoam Technologies successfully deployed it to clean up the anthrax attacks on Capitol Hill, in mailrooms and in newsrooms following 9/11.

After laying a firm foundation of research and development at Sandia in the 1990s, it did not take a lot of redirection to build the extensive counterterrorism programs that the Labs are known for today. 



**CRASH COURSE** — To test the strength of concrete used in nuclear reactor containment, researchers launched an F-4 Phantom jet at 500 mph into a concrete wall. Data from this test advanced over time to inform new models.

Photo from video courtesy of Sandia Photometrics

# Q&A with Kelly Brooks: Survival and resilience in national crisis

By **Katherine Beherec**

**Q** After the attacks on 9/11 and since the beginning of the COVID-19 pandemic, the nation faced and faces a long road to recovery. How do you define resilience amid national crises?

**A** There are differences between survival and resiliency. A lot of people compare COVID-19 to 9/11, but 9/11 was a one-time incident, and this virus is an ongoing crisis. There's no endpoint. After 9/11, the country was able to shift its way of being. Saying goodbye to family members at the gate and walking out on the tarmac feels outlandish to us now. 9/11 changed the world and how we travel and manage security.

COVID-19 is different because we all respond differently to it. There's not a unified front like there was after 9/11. We have survived up to this point, but have we practiced resiliency? We do that by taking care of ourselves physically, mentally and spiritually. Resilient people also experience tragedy in deep, profound ways, but they have tools to help when those bumps come.

We are asking better questions. What does it mean to be in community? What does it mean to be you, as a person in this world? We like to think we're resilient and that we made it, but that doesn't mean you're truly resilient. There's nuance there.

**Q** Resiliency can be especially difficult during hard times. In those cases, is there value in just surviving?

**A** Absolutely. We have an all-or-nothing mentality, like resiliency is good and

just surviving is not good. But sometimes survival is all we can do, and that's a good thing. Resiliency is a different piece. We need our basic needs met, which is survival, before we can practice resiliency.

Regardless of your situation, there is grief in COVID-19 because there is a loss in the systems in which we operated. It's OK to grieve that. When we lose a loved one, we go through a grief process. COVID-19 is still grief — it's the loss of how we lived. Many Sandians' work is about understanding and getting to answers, but there are no

answers in national crises, which also creates a lot of grief.

**Q** What does it mean to experience grief nationally, like after 9/11 and during COVID-19?

**A** I like to think about how systems work within families, communities, neighborhoods, our country and the world. When you think about how these systems overlap each other and how they experience COVID-19 differently, it's hard to see how we're going to move forward as a country. When there's the death of a loved one, everyone grieves differently because of their relationship with that person. Similarly, everyone experiences COVID-19 in a different way, so how they're dealing with it varies a lot. It's a complicated grief.

The systems will adjust, but I don't know what those adjustments will look like. After 9/11, people felt a loss of security. We assumed we were safe, but now it felt like "this thing came into my house." After 2001, we adjusted to a different sense of safety for ourselves, our communities and the larger community that is our country.



**STAY ENGAGED** — National tragedies, like 9/11 and COVID-19, impact our communities in immeasurable ways. "Staying physically engaged, mentally engaged and connecting with others are all things that build resiliency," Sandia mental health counselor Kelly Brooks said.

Photo courtesy of Kelly Brooks

After 9/11, we showed both survival and resiliency. There was an outpouring of care and support for others and a sense of protection for others, and there was hope in that. We did not give up on who we were becoming. We can learn lessons from that: we all have a sense of resiliency in us, and we can come together as community to care for each other.

**Q** What are practical ways that people can build resilience despite challenges?

**A** Focus on what you can control. You can control your physical being and how well you take care of yourself: sleeping, eating, exercise, when we do our work. If we're working from home, we can control our physical space, and we should try to dedicate a space for work. Otherwise, you're checking your email 24/7, and there's not a lot of separation from work.

There's a mental piece as well. Work is obviously engaging, but maybe we read a book or magazine that doesn't relate to our work. Journaling is really important, even if you burn what you wrote. We should try to connect with other people and talk to them about things that have nothing to do with work.

Also, try to connect with the world around you. Can you clean the Bosque or pick up trash in your neighborhood? It's important to connect with something

greater than ourselves. Whether we do that through reading, prayer, mediation or being outside, finding space to meet our spiritual needs is really important.

Staying physically engaged, mentally engaged and connecting with others are all things that build resiliency.

**Q** How does someone know that it is time to see a professional?

**A** Being a therapist, I will say that if you're asking the question, it's time to see someone. In those moments when you're getting testy about things you weren't testy about, if you're struggling to be in community and have a light conversation when everything feels heavy, if you're a little too snappy with your kids, a friend, colleague or partner, it's time to see someone. It doesn't have to be a huge time commitment. Some folks just need to have a one-hour conversation, and they're feeling good. Giving air to what you're thinking with someone who doesn't know you

personally can really, really help. A lot of people need a few times to talk to a person that is not a personal friend or family member to give air to what is happening.

**Q** How has therapy changed since COVID-19 began?

**A** Before COVID, there were a handful of people who did tele-mental health, but some therapists insisted that therapy had to be done in person. While that may be preferred for some, tele-mental health is very effective.


I'm a big advocate of tele-mental health anyway because there are a lot of preconceived ideas about what therapy looks like. Tele-mental health removes many of the barriers that previously prevented people from seeking help. I think tele-mental health will be with us for the long haul.

We typically offer in-person services, but those are mostly on hold right now. Most of my sessions are on Team Meets.

**Q** How can Sandians take advantage of counseling services?

**A** Call medical and make an appointment with the Employee Assistance Program. Once they have an appointment on our schedule, they can complete a questionnaire prior to meeting. If it's an urgent or elevated situation, we work closely with Employee Health Services and refer to outside providers.

## About Kelly Jackson Brooks

Kelly is a licensed mental health counselor in Employee Health Services at Sandia. She holds a Doctorate of Ministry with a focus on mental health from Claremont College and bachelor's and master's degrees in psychology and counseling from the University of New Mexico. She also holds a master's degree in divinity from the United Theological Seminary. Prior to joining Sandia, Kelly owned a private practice working with children and families. She has provided counseling services for local nonprofits, like the Rape Crisis Center, New Mexico Aid Services, Saranam and Family Promise. 

## Radiation monitors

*CONTINUED FROM PAGE 7*

portal monitors that eventually will replace more than 1,400 monitors deployed across the United States. Homeland Security manages the work through its Radiation Portal Technology Enhancement and Replacement project for the Countering Weapons of Mass Destruction Office.

The blueprint, known as the interface specification, outlines a redesigned radiation portal monitor based on modular, open-systems architecture. That allows upgrades or replacement to each module or unit in the system as new technologies emerge, or as new threats arise, without replacing the entire system, said Will Johnson, a Sandia physicist.

The modular design includes built-in diagnostic tools for state of health monitoring and predictive maintenance and is


expected to simplify upkeep and upgrading of the monitors over time, lowering the government's lifetime operating costs.

The plans also make possible enhanced threat detection by deploying the most advanced alarming algorithms in the new monitors, while collecting the data to develop even better algorithms in the future.

"This means scanning cargo and conveyances to detect radiological and nuclear threats with a greater level of accuracy, resulting in increased protection, decreased costs and reduced delays at ports of entry," Will said.

Cutting down on the number of nuisance alarms means fewer vehicles and containers will need secondary inspection, so the flow of trade and commerce at ports of entry will keep moving, even though these more sensitive detectors can better detect nuclear or radiological threats.

"Our work on this project is a really good example of using Sandia's radiation detection hardware expertise and our nuclear threat detection knowledge and systems engineering capabilities, while partnering with other labs for their deep operational and testing experience," Will said. "This has been a tremendously successful partnership to solve a national security challenge."

To test and validate the potential capabilities of the interface specification, the team constructed a proof-of-concept demonstration portal at Pacific Northwest national laboratories' [Interdiction Technology and Integration Laboratory](#). The Department of Homeland Security is [engaging industry partners](#) through a federal acquisition process. Once awarded a contract, vendors will use their experience and expertise to develop individual modules or devices to integrate with existing infrastructure. 



Ethics Corner

# Ethics a catalyst for a better Sandia



By **Aimee Richardson-Zadra**

**E**thical decisions aren't always clear cut. So many pros and cons. So many choices. So many paths forward.

Sandia's Audit and Ethics center helps staff make principled decisions and fosters a positive, professional and respectful culture for the Labs.

Sandia's Ethics office was established in 1993 and has grown to include corporate and Equal Employment Opportunity investigations. The Ethics/EEO Department seeks to act as a catalyst for a better Sandia.

Many are familiar with Ethics/EEO as an investigative team, but much of their time is spent helping staff make ethical decisions based on the Labs' policies, the [Code of Ethics and Standards of Conduct](#) and [Sandia's Core Values](#).

Can I accept an Amazon gift card as a door prize? Should I update my Personal Conflict of Interest form because I joined the school board? Should I accept an honorarium for giving a presentation at a conference?

Ethics officers can provide advice on all these ethical dilemmas and more. Contact them [online](#) or at the anonymous helpline, 505-845-9900, or by email to [ethicsteam@sandia.gov](mailto:ethicsteam@sandia.gov).

There is never a penalty for contacting Ethics, and it's always advisable to "ask before you act!"

Ethics/EEO conducts neutral and objective investigations of concerns or allegations of work-related misconduct. Ethics officers examine allegations of waste, fraud, abuse, theft, violence or threat of violence in the workplace; allegations of discrimination, harassment and retaliation; and allegations of compliance, employee conduct and personal conflicts of interest.

To help staff better understand their own role in investigations, Ethics/EEO has published informational documents under "[Learn more about investigations](#)." They offer information for those who report information to Ethics/EEO, or are the subject of an investigation, a witness in an investigation or the manager of the subject of an investigation.

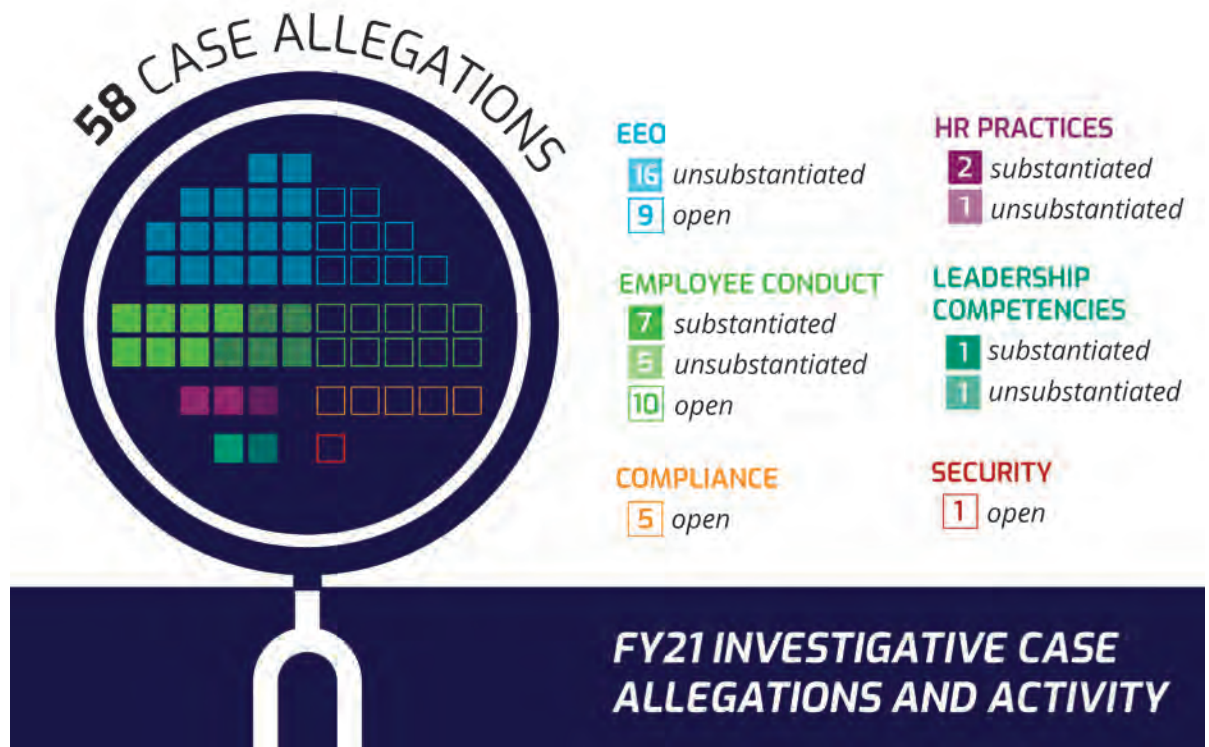
Additionally, the Ethics office will be sharing case studies of past ethical dilemmas in upcoming issues of Lab News.

During the first three quarters of fiscal year 2021, Ethics/EEO received 545 calls

on its anonymous helpline. The vast majority were resolved informally by Ethics officers who provided guidance to callers or conducted brief inquiries to determine whether a policy or Code of Ethics violation occurred.

As to the rest, the officers opened 47 investigations into 58 different allegations, with the difference attributable to investigations that included more than one allegation. Decisions are reached on each allegation investigated. Outcomes of the 58 allegations investigated are shown in the chart accompanying this article. Some level of corrective action resulted for all substantiated allegations.

The Ethics office encourages staff to seek advice or express concerns about ethical misconduct to managers, Human Resources Business partners, the Inclusion, Diversity, EEO and AA organization or an Ethics officer. All members of Sandia's workforce are essential to creating a respectful, positive and ethical environment. The Ethics officers act as catalysts for your best decision-making.



## FY21 INVESTIGATIVE CASE ALLEGATIONS AND ACTIVITY

# Museum pushed off base, onto Eubank by 9/11

By **Jim Walther** and  
**Jennifer Hayden**

Everyone can remember where they were as the United States began to realize it was under attack by terrorists on the morning of September 11, 2001. The team at the **National Museum of Nuclear Science & History**, then known as the National Atomic Museum and located on Wyoming Blvd. on Kirtland Air Force Base, was gathered around a small television set kept in the museum library for viewing breaking news. Many staff were in tears watching the towers burning, which then turned to shock as the towers came tumbling down.

As the museum's team was watching the events in New York and Washington unfold on the news, museum Executive Director Jim Walther was called to the front desk. Sure the visitor was there to discuss the tragic incidents unfolding across the nation, Jim composed himself and walked to the front of the museum, to be greeted by four Air Force military guards. Due to heightened security measures, all museum visitors and non-essential personnel were asked to vacate the museum immediately and were then escorted off base. Shortly thereafter, Jim received word from Air Force Base Wing Command Headquarters across the street that the National Atomic Museum was to be closed immediately until further notice.

By 3 p.m., the small staff had gathered their belongings and left for the day, not knowing when they would have access to the museum and reopen to the public. Though more than half the staff were Sandia employees at that time, a number were employed by the nonprofit National Atomic Museum Foundation. There was understandable worry by some, as certain jobs were in jeopardy without the museum remaining open to earn money.

After two days with no word on reopening, and the base still closed to the public,



**THE ORIGINAL** — The museum, formerly the National Atomic Museum, was located on Kirtland Air Force Base from 1969 to 2001. Photo courtesy of Jennifer Hayden



**NEW AND IMPROVED** — Visitors gather outside the museum to celebrate the long-anticipated opening of the new facility in April 2009. Its original home, a high-bay hangar on Kirtland Air Force Base, became unviable after the 9/11 attacks led to tightening base access. Photo by Randy Montoya

Jim requested that the team member who ran the museum gift store reach out to the local malls to see if it was possible to rent one of the small carts in the open concourses to generate some revenue by selling museum store merchandise while the museum remained closed. The museum rented a whole storefront at Winrock Mall, and museum employees began moving the museum store merchandise into the mall, opening a small store on September 21, 2001, just 10 days after the attacks. The store in the mall did so well as the holiday season approached that the foundation did not have to lay off anyone.

Due to very heavy restrictions on base access and visitors, there was a growing possibility the museum would never be allowed to reopen at its location of 32 years on Kirtland Air Force Base. Since the National Atomic Museum was and still remains the only congressionally designated museum in the nuclear field, it is and was required to be open to the public, and the Department of Energy needed to ensure that it was. It was a call to Senator Pete Domenici's office by the museum foundation's president that helped move along the process of reopening. On May 11, 2002, the National Atomic Museum reopened in a temporary home in the old REI building in Albuquerque's Old Town, and the museum's board of trustees set their sights on a new facility that would include a \$10 million capital campaign.



**TAKING WING** — The wing assembly of the B-52 aircraft that stood sentry in front of the original National Atomic Museum location on Kirtland Air Force Base is hoisted away from its fuselage. The B-52, along with many other large static displays of Cold War-era rockets and aircraft, moved to the new museum location on Eubank Blvd., SE in April 2009. **Photo by Randy Montoya**

As the effort to realize a newly created museum facility began to bear fruit, Sandia decided to separate the museum as its own operation. In doing so, the museum became more responsive to community needs, lowered Sandia operating costs and off-loaded the risks to build and run the new facility to the partner organization, the National Atomic Museum Foundation. On April 3, 2009, owned by the foundation and operating independently of Sandia, the National Museum

of Nuclear Science & History reopened to the public in a new facility with a new name, exhibitions and programs.

In the intervening years, over 1 million visitors have enjoyed the new museum, over 40,000 students have participated in programming and over 10,000 local children have engaged in "Science is Everywhere" camp activities. The 9/11 tragedy was a horrible loss to the nation but became a generator of new growth for the National Museum of Nuclear Science & History. [📺](#)



**LIVING BY THE CODE** — Navajo Code Talker Albert Smith greets then-Labs Director Tom Hunter during opening ceremonies at the new museum. Behind them is a model of the Fat Man atomic bomb that was dropped on Nagasaki, Japan, to effectively end World War II. **Photo by Randy Montoya**



**A CLEAN REOPENING** — Jim polishes the entry tiles to the museum in anticipation of its grand opening in April 2009. The entry tiles are laid out in the pattern of the periodic table of the elements. Jim has served as director of the museum for 25 years, starting at the location on Kirtland Air Force Base. **Photo by Randy Montoya**