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DBIDS — the Defense Biometric Identification System — is here
New Kirtland Air Force Base access requirements affect all Sandians

By Tim Santor
Beginning June 15, Sandia-issued local site-specific only (LSSO) badges — striped badges — will no longer be accepted to access KAFB. Anyone wishing to enter the base will need to have an HSPD-12 federal credential (badge with the gold square feature embedded on the front), a DoD Common Access Card (CAC), or a military ID, or be escorted by an authorized individual.

If you have an LSSO badge and haven’t enrolled in DBIDS yet, you should visit a DBIDS office to apply for a DBIDS pass right away. Cleared LSSO badge holders (i.e., those with an L, Q, S, or TS clearance) will receive their DBIDS pass when they visit the DBIDS office. Uncleared LSSO badge holders will need to complete a criminal background check before being issued a DBIDS pass. Processing for passes that require a background check takes approximately 10 days.

The DBIDS pass does not replace a Sandia-issued badge. It only grants access to KAFB. A Sandia-issued credential (HSPD-12 or LSSO badge) is still required to DBIDS — the Defense Biometric Identification System — is here

Stretch a dollar
New website gives Sandians a place to share money-saving ideas
By Nancy Salem
It takes most Sandians about 15 minutes to get to the Steve Schiff Auditorium to hear a speaker. The return trip is another 15 minutes. Some can’t get there at all, so a few years ago Sandia began webcasting events from Schiff.

“There’s been a surprise upside to those webcasts. “The webcasting we do at Schiff has resulted in a documented efficiency improvement of more than $8 million a year,” says Pam McKeever, senior manager of Operational Innovation (710). “The webcasts have about 9,000 logins a year, and if you multiply that by a half hour of work saved per login, the productivity improvement is significant.”

Webcasting is one of the many innovative ways departments across the Labs are saving money. But few people knew. The strategies had rarely been reported or shared.

“There wasn’t one place where you could go to provide and get information on
(Continued on page 4)

National Engineering Forum looks at impact of US engineering
By Sue Major Holmes
For more than six decades, Sandia has believed it’s a privilege to bring the highest standards to engineering and assure high-reliability systems for critical national security needs, Sandia President and Laboratories Director Paul Hommert told a group looking into the future of engineering in the United States.

“We anticipate emerging threats and assess vulnerabilities to technical surprise,” Paul told the National Engineering Forum (NEF), which brought together about 70 people from industry, academia, and national laboratories May 29 for what was billed as a regional dialogue to discuss the impact of engineering on US security and prosperity and how to sustain engineering in the nation.

The event was one of a series of regional meetings scheduled this year in cities that play a prominent role in shaping engineering in the nation. The (Continued on page 9)
That’s that

Albert Einstein, who thought deeply about the subject, concluded, maybe only half-jokingly that, “The only reason for time is to keep everything from happening all at once.” Ernest Hemingway said, “Time is the least thing we have.” Groucho Marx observed that “Time flies like an arrow. Fruit flies like a banana.” Yogi Berra weighed in with, “The future ain’t what it used to be.” Some of our country’s thinkers, in other words, have wondered at the concept of time. And while each offers insights into the subject, none really defines what it is, exactly. So, what is it, then?

J. Burns out Alan Alda and some colleagues have tried to come up with an answer. Alda, best known for his role in the TV series M*A*S*H, has a passion for science. He was host for more than a decade of Scientific American Frontiers, a highly regarded PBS science program. In 2009, Alda was instrumental in working with the State University of New York at Stonybrook to establish the Center for Communicating Science, part of Stonybrook’s School of Journalism. Earlier this year, in recognition of his central role in its founding, the center was renamed The Alan Alda Center for Communicating Science.

In 2012, Alda and the center issued the “Flame Challenge,” asking scientists to come up with the best explanation for a flame for an intended audience of 11-year-olds. The contest went over so well that the center decided to make the competition an annual event.

This year’s question was “What is time?” Some 400 scientists took a stab at an answer; submissions were judged by 20,000 school kids from around the world. Winners were selected in two categories, video and written. The video winner was a chemistry grad student from Cambridge, while the best written answer was submitted by Nick Williams, a retired engineer from Lawrence Livermore National Laboratory, almost one of our own.

Williams’ explanation resonated with the 11-year-old judge.

“I think of time as Forward Movement.” He wrote. “Think about it! Everything moves forward, from the universe to every second of your life. And because everything moves forward, our lives keep moving ahead in a way that’s forward. And called it time. . . . I also think of it as a Forward Motion that will never change, will never stop, and can never be reversed.”

Einstein, who thought deeply about the subject, concluded, maybe simply that time would come to a halt.

“Over the millennia — I’m sure this is nothing new — human beings have distinguished between ‘now’ and ‘then.’” Einstein wrote. “We have a ‘sense of time’ as we get older, not in any great rush to get there. But we defy time, resolved to fit more life into the time we are given, and we may not be able to stop it or reverse it. Even Dick Clark grew old and left us. We don’t get those minutes, hours, days, back. But then, despite the protestations of the early Jay Gatsby to the contrary in F. Scott Fitzgerald’s The Great Gatsby, we cannot repeat the past, old sport. We can’t reverse time, or stop it. We don’t get those minutes, hours, days, back. But then, despite Fitzgerald’s assertion that “There are no second acts in American lives,” I’d say, of course there are. We are, almost all of us, living second, third, Fourth acts, exercising our most fundamental American right: to reinvent ourselves. To begin again. To be better. Kinder. More generous. (No one I know resolves to be exactly. So, what is it, then?)

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See you next time.

— Bill Murphy (505-845-0845, NS1468, vtmurphy@sandia.gov)
Sandia honors young women for outstanding achievement in math and science

By Patti Koning

On May 22, Sandia/California presented its annual Math & Science Awards to 22 young women from area high schools. The event celebrates the academic accomplishments of the recipients as well as their great potential as they prepare for the next phase of their lives.

“Science, technology, and engineering are so important for this country as we move forward,” said Bob Carling (8300), director of the Transportation Energy Center. “We hope every one of you continues to have the same enthusiasm you have today for these subjects.”

Now in its 22nd year, the Math & Science Awards program is sponsored by the Sandia Women’s Connection. The event was held in the Combustion Research Competition and Visualization building at the Livermore Valley Open Campus.

Before the recognitions began, the awardees and their families met their Sandia hosts, women with careers in math and science. Sandia researcher Donna Djordjevich-Reyna (8116) shared her Ground Truth Homeland Security training video game platform, which seeks to immerse first responders in an interactive gaming environment depicting high risk, high threat situations.

To start off the awards ceremony, mechanical engineer Patricia Gharagzoulo (8365) and software engineer Ariane Mancieri, math award recipient from Livermore High School. “It is reassuring that they didn’t know exactly what they wanted to do in high school,” she said. “I decided that I was interested in people, culture, and communication. This realization led to a master’s degree in international communication at American University in Washington, D.C., and a job at a consulting company managing the expatriate population.

After five years, Kelly and her husband returned to San Francisco Bay Area, where she grew up. “I was looking for a job and Sandia really appealed to me,” she said. “I learned about the work-life balance here and the mission, which was much different than that of the consulting company. The projects the scientists and engineers are working on really make a difference in people’s lives, and that’s something I can get really excited about.”

She also spoke about internship opportunities at Sandia. Over the years, the Math & Science Awards has become a mentoring program, as awardees stay in contact with their hosts, and a recruitment pipeline, as each year more awardees return to Sandia for internships.

The MOU with SRI International is the first collaboration to be based within the Center for Infrastructure Research and Innovation (CIRI), a facility whose goal is to accelerate the introduction of hydrogen and natural gas infrastructure technologies into the marketplace. The collaboration also will capitalize on research at Sandia’s renowned Combustion Research Facility (CRF).

By Mike Janes

Sandia and SRI International, an independent research and innovation center, will join forces to explore, test, and evaluate a broad range of hydrogen and natural gas fuel systems and components for transportation applications under a new agreement.

The five-year memorandum of understanding (MOU) is the first agreement in Sandia’s new Center for Infrastructure Research and Innovation (CIRI), a facility whose goal is to accelerate the introduction of hydrogen and natural gas infrastructure technologies into the marketplace. The collaboration also will capitalize on research at Sandia’s renowned Combustion Research Facility (CRF).
Efficiencies

(Continued from page 1)

cost savings and efficiencies,” Pam says. “Lab management knew efficiency improvements were taking place everywhere, but it wasn’t always documented or reported. We want to capture those activities and give people the tools to push the thinking and culture on affordability.”

Deputy Laboratories Director and Executive VP for Mission Support Kim Sawyer asked Pat Smith, Director of Mission Support and Corporate Governance, to create a Senior Management position to drive integrated integration and efficiencies across Sandia. This position would serve as a catalyst and change agent for new ideas and ways of doing business, and provide enabling tools to track and report on cost savings. Pam was selected to take on the challenge in March 2012.

As part of the effort is the recently unveiled Operational Innovation website, a repository of information on where money is being saved, how, and how much. Millions of dollars in savings have been documented on the website in FY13.

Pulling in information

Pam started small at the beginning. “I had to get a handle on who the players were and what had been done in the past,” she says.

Pam worked with Steve Rudisell, who was matrixed to 710 from Facilities. Pam and Steve began building the web-based Operational Innovation management system to pull together information, working closely with Ann Marie Ryder (10591), who was managing and reporting the Labs’ savings and efficiencies to the Sandia Field Office. Pam wanted to be sure the infrastructure was in place. “I didn’t want to find out too late that we couldn’t handle the demand when a lot of people started submitting ideas,” she says.

Pam created submission and evaluation processes, tapped organizations for data, and developed program, implementation, and training plans. Key collaborators have been the business and finance groups, who attend the kinds of meetings where cost-savings come up. “We brought them into the project. There are lots of things going on around the Labs that contribute to this,” Pam says. “If they hear about something, we want to make sure it gets into the OI system. We needed to gather it all up.”

About 90 Sandia financial analysts have been trained to use the system, entering and reviewing ideas and doing cost-savings estimates. “We want the estimates verified by a financial analyst so they are valid and not just someone’s guess on what a particular strategy will save,” Steve says.

Operational Innovation offered other training. About 240 people have attended the Lockheed Martin Affordable Training workshops that were held several times during the past year. “It’s more than just the web tool,” Pam says. “It’s about changing our attitudes and mindset, thinking differently.”

Check it out

It’s easy to enter a cost-saving idea. Type “OPPI NNO- VATION” in the Internet Explorer browser web address window to open the Operational Innovation SharePoint site. When the home page opens, click on the “Submit an idea” icon, fill out the three fields as best you can and send it in on its way with “Submit.” You’ll receive a confirmation that your idea has been received and the process has started.

The Operational Innovation address is https://sharepoint.sandia.gov/sites/Ops_Innovation/ Pages/Home.aspx.

KAFB implements new DBIDS base access requirement

(Continued from page 1)

access all Sandia security areas and facilities.

If you received your HSPD-12 federal credential prior to Sept. 30, 2011, you may have been enrolled in DBIDS automatically. Those who received their credential after that date should have been contacted and instructed to enroll. You can visit a DBIDS office to verify your enrollment; however, if you have an HSPD-12 credential, you will still have base access until July 15, even if you are not enrolled. Therefore, those with HSPD-12 badges should wait until after June 15 to verify enrollment in the DBIDS database, so the DBIDS offices can focus on those holding LSSO badges.

Some delays in entering KABF during rush hour are expected initially due to the process change; however, Kirtland and Sandia have spent the last two years preparing for this change and most people already have an approved credential.

Visitors who are not enrolled in DBIDS may be escorted on base by an individual who is enrolled in DBIDS and has escort/sponsor authority (e.g., someone who has an HSPD-12 or cleared LSSO badge).

Visitors who need unescorted access to KABF need to apply for a DBIDS pass through a DBIDS office.

For further information, look up DBIDS on Sandia’s Security Connection website, or contact Security Connection at 321 or 505-845-1321.

Tracking in the OI website isn’t just for indirect savings. Significant savings have been realized on the direct-funded side as well.

A work in progress

Pam says Operational Innovation is a work in progress, evolving all the time. “We want Sandia to be the leader in operational excellence for the entire complex,” she says. “If there’s a good idea in one area, maybe that’s a good idea for all areas. We want to reach out to other labs, other companies, and share ideas.

“We are stewards of taxpayer dollars and want to show we provide value, and that will sustain us into the future. Right now there are a lot of people working on projects and making spending decisions. Everyone is challenged with making dollars go further and getting more bang for the buck. We want to know how people are actually making this happen.”

Kim says the website is a positive for the Labs. “I especially like the innovation component where we can harvest the ideas of all the employees at Sandia National Laboratories,” she says.

And the larger Operational Innovation project, which improves the effectiveness and efficiency of operations, is integral to Sandia’s Strategic Objective 3: Lead the Complex as a model 21st century government-owned-contractor-operated national laboratory, Kim says.

“The Operational Innovation initiative has played an important role in providing an integrated picture of how we achieve that objective,” she says. “It also supports Strategic Objective 3: Amplify our national security impact, as we continue to strengthen our partnerships with key customers.”

A work in progress
Snapshots: Engineered Safety Practice

Engineered Safety and Sandía’s Advanced Materials Laboratory Department

By Cathy Ann Connelly

Note: This is the first in a series of article snapshots about Engineered Safety in practice at Sandia. These summaries focus on how groups are using this model for work planning and control to shift away from a strong reliance on the procedures to achieve safety (checklist or checklists), to one based on safety by design intent in which assurance of safe operation comes from critical thinking in the design and the operation aspects of the system. New activity level work is now conducted under the Engineered Safety procedures and policies, which may be found in Integrated Laboratory Management System (ILMS) under Environmental Safety & Health for ES.1000, IWP-1. Plan and Control Work (http://tiny.sandia.gov/mv4qq). As part of the Engineered Safety implementation team, co-led by Charles Barbour, director of Physical, Chemical, and Nano Sciences Center 1100, and Sid Gutierrez, director of Radiation Protection, Waste Management, and ES&H Center 4100 and Sandía’s Chief of Safety, Natalie Carter (4115) consults Labs-wide to provide guidance concerning the revised work planning and control framework and how to implement it. Her message is, “Call me with any type of Engineered Safety question. I can directly help and get specific about what you require.”

The Engineered Safety Repository (ESR), (http://tiny.sandia.gov/zv52h), is also now available online— a repository for Division Implementation Plans, decision documents, and safety cases.

Background basics: The Advanced Materials Laboratory (AML) staff uses a wide range of characterization techniques, including a diverse set of 1,500 or more chemicals from elements across the periodic table. The AML develops and tests new ways to get nano-scale particles and thin films, metal-particle inks, and ceramic slurries to stick or coat surfaces. Some materials may improve solar energy conversion, CO2 sequestration or improve the safety of chemical operations or experiments.

Engineered Safety is the most important feature at Sandia. The Engineered Safety online resources may be viewed at http://tiny.sandia.gov/gka0s as part of the Engineered Safety Portal. Additional details: The AML team used a National Fire Protection Agency (NFPA)-graded approach to improve the safety of chemical operations or experiments, based on four grades of chemical properties— Red/Flammability, Blue/Health, Yellow/Reactivity, White/Special. Within these grades are tanks from 0.4. The AML Engineered Safety system requires manager authorization to use chemicals ranked in the 0.3 category, but does not require additional consultation beyond the laboratory chemist. Using chemicals from the level-4 category requires authorization from the senior manager (Terry Amodel, 1819) and consultation with an outside subject matter expert (SME) to evaluate the risks, along with discussion of what engineered safety protocols are required. This helps minimize the potential negative consequences of these higher-risk chemicals and brings outside perspectives to those using them.

Benefits of Engineered Safety: As Bill says, “There are benefits in having the staff develop their own Engineered Safety work processing controls that fit into the already established behaviors exhibited by the AML staff and students.”

The AML’s unique learning environment is strengthened by including student input. “Our students made significant contributions in identifying areas of concern to them,” he says. This approach reinforces and invigorates all researchers to practice engineered safety in their everyday activities. Bill says, adding that further, positive assurance is addressed in “routine” work activities. Among sample controls are requirements that “closed glass systems are not heated,” “the fume hood is working properly,” and for “weekly/monthly maintenance on Schlenk lines” prior to starting reactions.

As new Engineered Safety protocols are discovered and developed, they are presented in a number of systematic ways—through individual discussions, at weekly group meetings, and at biweekly operations meetings that include operations, ES&H1 and Industrial Hygiene personnel for broad dissemination of information,” says Bill. The AML staff sees the protocols as an evolving, continuously improving process for safety of the chemists who work there as well as all researchers at the AML, its vendors, and nearby members of the public.

Acknowledgements and resources: This case summary for Engineered Safety use content from a video created by writers Timothy Boyle, Richard Kemp, Carol Ashley, and Bernadette Hernandez-Sanchez, and produced by Brent Peterson, Sandia Creative Services Department. It may be viewed at http://tiny.sandia.gov/gkbh as part of the Engineered Safety online resources.
The DOE National Science Bowl - an event like no other

You couldn’t ask for a more exciting conclusion. At the second-to-last question of the championship round of the DOE National Science Bowl (NSB) for high school, two teams from opposite ends of the country — Mira Loma High School from Rancho Cucamonga, Calif., and North Carolina School of Science and Mathematics from Durham, N.C. — were tied at 52 points each.

Mira Loma buzzed in first on the final question and gave the correct answer about which damaged cranial nerve would account for a list of specific symptoms, including facial muscle paralysis and an inability to wink the forehead. Then Mira Loma answered the bonus question correctly, making the final score 66–52.

In the middle school competition, Creekside Middle School from Carmel, Ind., defeated Takoma Park Middle School from Silver Spring, Md., to take the national title. Both teams met their goal of making it into the double elimination rounds for the championship rounds.

The highlight of Blount team captain Lily Turaski’s NSB experience was being asked to sing the National Anthem before the model electric car race, although winning first place in the Electric Car Competition Design Document competition was a close second.

To interrupt or not to interrupt, that is the question

“One of my favorite things was meeting so many other people with similar interests,” Lily says. “I also really like being in, especially in buzzing in early.”

In the academic competition, participants take a risk when they buzz in early or “interrupt.” Before the moderator has finished reading the question. If the participant then answers the question incorrectly, the other team is awarded four points and has the opportunity to answer after the moderator re-reads the question.

To interrupt or not is a calculated risk. Technically, a team could win a match without answering a single question correctly on interrupt points. As far as I know it has not happened, but that doesn’t mean it won’t.

The NSB is full of the unexpected, like when a moderator mispronounced the word “kingdom” in “Kingdom.” The room burst into laughter and we stopped the clock while everyone regained composure.

I can’t pick a single thing that I liked most about the NSB. Over the five days, I learned a few theories on why there is no street in Washington, D.C., and that there is a nearly etched mistake on the Lincoln Monument; reminisced about my hometown of Oake Ridge, Tenn., with volunteers who live there now; hung out with amazing teachers and coaches from across the country; heard fascinating stories about places like Boise, Idaho, Maryville, Tenn., and Wasilla, Alaska; picked up a few tips on the AP calculus test during a review session; and was blown away by the intelligence, maturity, and enthusiasm of the 575 kids. I think the best thing about the NSB is the hope it gives you for the future of this country.

Stories by Patti Koning

(Tracks by Jack Dempsey, DOE Office of Science)
The art of the question

A lot goes into putting on the DOE Office of Science National Science Bowl (NSB). On the other hand, dedicated volunteers, weeks of planning, a fleet of 17 buses, meals for more than 800 people each day — but nothing is more crucial than the questions.

“The questions are, without a doubt, the biggest challenge,” says Jan Tyler, NSB coordinator. “Getting the questions right takes countless hours of review and revision, and then more review and reviews. But the questions are what keep the students coming back year after year.”

Questions from previous years also guide many teams in preparation. Lily Turasi, team captain for the Blount County Homeschoolers team from Tennessee, says she and her teammates reviewed thousands of questions to get ready.

“When we didn’t know the answer to a question, one of us would research it and give the answer to the rest of the group,” she says. “It was hard work, but it really paid off.”

A good NSB question needs to be clear and unambiguous; worded so that it makes sense verbally, only the moderator sees the written question, and with enough information contained in the right places so that it can be answered in 5 seconds.

Questions must be challenging yet appropriate for middle and high school students and increase with difficulty as the competition progresses. “It’s not a trivia contest,” says Tyler. “The questions need to demand critical thinking and test a student’s breadth of knowledge.”

Tim Shepodd, who has a PhD in chemistry, says the chemistry questions in the final rounds of the NSB are at a level of third year of college to graduate school. As an example, here’s a high school round 17 sample bonus question to solve in 20 seconds.

**Question:** Calculate the one-atmosphere boiling point elevation, in degrees Celsius to the 2nd decimal place, for a solution made by dissolving 1 gram of solute in 0.1 liters of water. Assume the formula weight of the solute is 300 and the boiling point depression constant is 2.0°C per mol.

**Answer:** 0.07 (ACCEPT: 0.06)

The entire NSB, from the regional competitions to the finals, requires the teams to know approximately 5,000 science questions every year. There are up to 18 rounds of competition in a regional event, and each round requires 25 toss-up questions and 25 bonus questions. Because some regional events are geographically near one another, there are two different sets of questions. An additional 1,900 questions are needed for the national event, for up to 20 rounds of competition by high school and middle school teams. And that’s just what is used if everything goes according to plan — there are also backup questions and the questions that are tossed out during the review process.

The process of developing questions for the 2014 Science Bowl will be underway soon. Contractors spend several months writing questions out of thousands of questions, which are then reviewed by regional coordinators and other question experts that include professors at top universities and lead scientists at national labs. The second draft of the questions goes out to regional coordinators and moderators, who then review them and revising the questions right up to the day of competition.

What it takes to win

What does it take to win the DOE National Science Bowl? James Hill, coach of the Mira Loma High School team, says a team needs to be very knowledgeable in all of those disciplines — chemistry, physics, biology, math, earth science, general science, astronomy, energy — they influence how coaches build their teams. The more successful teams have members that specialize in different areas.

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The entire NSB, from the regional competitions to the finals, requires the teams to know approximately 5,000 science questions every year. There are up to 18 rounds of competition in a regional event, and each round requires 25 toss-up questions and 25 bonus questions. Because some regional events are geographically near one another, there are two different sets of questions. An additional 1,900 questions are needed for the national event, for up to 20 rounds of competition by high school and middle school teams. And that’s just what is used if everything goes according to plan — there are also backup questions and the questions that are tossed out during the review process.

The process of developing questions for the 2014 Science Bowl will be underway soon. Contractors spend several months writing questions out of thousands of questions, which are then reviewed by regional coordinators and other question experts that include professors at top universities and lead scientists at national labs. The second draft of the questions goes out to regional coordinators and moderators, who then review them and revising the questions right up to the day of competition.

As coordinator for the Sandia/Los Alamos national competitions and a moderator at regionals and the national event, Tim spends a lot of time reading questions.

“In reviewing the questions, you have to look for every nuance and every possible interpretation,” he says. “The cover up is that it takes a team of experts to check for technical errors and typos, which can be quite subtle.”

Multiple choice questions are simpler because the student must supply the best answer from the four given, they also are more time-consuming to create and to read in the competition. With short answer questions, the moderator has a harder time in determining a correct answer. In either case, the students can challenge the scientific content of a question.

“The students don’t hesitate to raise scientific challenges; so the questions need to be very precise and the answers must truly be the best possible answer,” says Tim. “If something is not quite right, they’ll call it out.”

One year at the finals of the National Science Bowl for high school, a student raised a successful challenge to then-Secretary of Energy and Nobel laureate Stephen Chu, who was serving as the scientific judge.

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Approximately 30 staff, students, and faculty from Sandia, Lawrence Livermore National Laboratory, and several minority serving institutions (MSI) gathered at Sandia May 28-31 for the MSI K-20 Workshop. Participants included students and staff from Morgan State University, Claflin University, Clemson University, Coastal Carolina University, Fayetteville State University, Jackson State State, Norfolk State, North Carolina A&T, South Carolina State, Texas A&M Corpus Christi, and members of the Charleston County School District.

Workshop attendees, meeting at Sandia’s Cyber Engineering Research Laboratory (CERL), focused on potential solutions and ideas to stimulate STEM education efforts to meet the growing need for experts in computer science and other STEM-related fields, with a particular focus on cybersecurity. Participants brainstormed possible new educational activities to attract and develop K-12 students for post-secondary STEM education, as well as the associated curriculum and faculty development needs and potential supporting roles for the national labs.

The workshop was part of a larger DOE/NNSA initiative to strengthen partnerships between the DOE labs and the nation’s minority serving institutions, ultimately leading to a more productive pipeline of technically qualified students who are motivated to pursue careers in DOE and the national laboratories.

The week after the MSI K-20 conference, approximately 15 students from several MSIs participated in a week-long cybersecurity training exercise in CERL’s RECOIL lab using Sandia’s established Tracer FIRE program. The students, seen in the photos here immersed in the exercise’s challenges, were taken through an accelerated cybersecurity curriculum covering topics in forensics and other areas before receiving hands-on training in various cybersecurity analysis tools. The event culminated in competitive exercises simulating real-world incident response scenarios, with the students competing against one another in small teams similar to what might be found in typical operational setting.

The workshop and the training exercise were funded out of NNSA’s minority serving institution partnership program overseen by NNSA Chief Scientist Dimitri Kusnezov.
New Faces in Engineering
Honoree Greg White finds Sandia a good fit

By Sue Major Holmes

Greg White says that when he started college, he was
romanced by the idea of becoming a professor. But along
the way to an advanced degree, he realized his interest had
veered toward working for a national laboratory.

"It's important for me now, and it was at the time, to have an
impact on our national security," says Greg (1835), who
researches the aging of polymers and the resulting changes in
how they perform.

The National Action Council for Minorities in Engineering
selected him this year for New Faces in Engineering, a recognition
program the National Engineers Week Foundation began in 2003 to
highlight the work of engineers ages 30 and younger.

Greg's first glimpse into engineering came when he was in high
school and attended a precollege initiative weekend at Virginia
Tech sponsored by the National Society of Black Engineers (NSBE).

It was his first exposure to a large university and engineering
students, and the weekend was made all the better by the engi-
neering projects the students got to do, he says. He recalls a Rube
Goldberg device that created a domino effect.

"There was a lot of fun involved in that weekend," Greg says.
Since he enjoyed math and science and liked solving prob-
lems, the precollege initiative program and his contact with
NSBE "kind of lit that fire for engineering," he says.

Greg went to Virginia Tech for his undergraduate work, starting
out in computer engineering.

"Then I started doing programming, and that was awful," he
says. He turned to chemical engineering instead and earned his
bachelor's in 2006. He was debating graduate school or a full-time
job when one of his Virginia Tech professors interceded. As Greg sat in the office,
the professor picked up the phone and called a former graduate
student who had gone on to become chairman of Clemson Univer-
sity's chemical engineering department. "I've got a student in my office," the profes-
sor said, and handed Greg the phone.

"That was awkward. I didn't know what to say," Greg recalls. But with his profes-
sor's urging, he applied to Clemson. He drove from Virginia to South Carolina for an
interview and to meet faculty and students.

"It felt like the right place to be, so I took that opportunity and went to Clen-
son," he says.

On the advice of another professor, he skipped a master's degree and went straight
to a doctorate, doing his dissertation on nanomaterials synthesis and processing.

Greg began questioning his idea of staying in academia when he was in his last
year or so of graduate school. He had married by then, and he and his wife, also a PhD
student, were the first of two sets of three sons while in graduate school.

"At the end of your grad school tenure, you're tired, and being young parents was
also difficult," Greg says.

At the same time, he says, he was watching his adviser go through the labyrinth of
the tenure process, "and I didn't know if I wanted to go through that rigor." Greg
also decided that he probably did not want to teach the defense contractor Battelle as an undergraduate and did research on his dissertation at Oak Ridge National Laboratory in Tennessee and the
National Institute of Standards and Technology near Washington, D.C. When he began looking into post doc programs, those experiences influenced him to consider
the national laboratories as a path between industry and academia, he says.

Greg came to Sandia as a postdoc in May 2011 and joined the staff in August 2012.
Sandia, he says, was an excellent fit because of his interest in the high impact
work of polymers.

"Whether it's for nuclear power or assistance to the Department of Energy, those
are all high consequence and I enjoy that," he says.

Engineering

(Continued from page 1)

forums will culminate next year with a gather-
ing in Washington, D.C., to bring together ideas from the regional events to emphasize
the importance of engineering to the nation’s eco-

nomic security. Lockheed Martin Corp., the
Council on Competitiveness, and the National
Academy of Engineering launched the National
Engineering Forum in 2012.

Sandia was proud to host the forum and to
help raise the national consciousness about
engineering's critical role "in driving US pro-
ductivity, prosperity, and competitiveness in a
global context," Paul told the meeting at the
National Museum of Nuclear History & Science.

He quoted President禾er Hoover, who also
had happened to be an engineer, as saying engi-
neering is a great profession. "There is the fasci-
nation of watching a figment of the imagina-
tion emerge through the aid of science to a plan
on paper," Hoover said. "Then it moves to real-
ization in stone or metal or energy. Then it
brings homes to men or women. Then it ele-
vates the standard of living."

Julia Phillips, Dir. 7000 VP and chief tech-
nology officer, outlined the course of engineer-
ing in New Mexico, beginning before written
history with "significant engineering" by early
Native Americans to build the impressive structures at Chaco Canyon and deal with a harsh, dry climate to
control water and realize a reasonable way of life.

She described the engineering history of the state's mining industry beginning in the mid-1800s; the state
engineer's office established before statehood to deal
with water issues; the completion of Elephant Butte
Reservoir in 1916, and the Manhattan Project that built
the first atomic bombs in World War II. What are now
Sandia and Los Alamos national laboratories formed
the foundation around which much of New Mexico's science and engineering community grew, she said. Julia also
cited engineering at the state's universi-
ties, particularly the three in the Rio
Grande corridor, and the growth of high-
tech companies in the state.

New Mexico had more than 49,000 technical workers in 2010, the 5th high-
est percentage of private-sector technical
workers in the US, she said.

Jeff Wilcox, vice president of engineer-
ing for Lockheed Martin, said the
nation's technical revolutions — the
steam engine, transportation, communi-
cations, the Internet — were all related to
engineering.

"Engineering is fundamentally the
act of creation," Wilcox said. "It's about
having a thought, having something you
want to see come to fruition."

He stressed the importance of sci-
cence, technology, engineering, and
math, or STEM education. But while people understand what science and math do and see technology in their
pockets, "the E is silent. "People must understand that "engineering is the
wellspring that takes science to technol-
gy," he said.

Ray Johnson, Lockheed Martin's
senior vice president and chief technol-
ogy officer, said the US is competitive not
because its workers are smarter, more innovative, or
more creative. Rather, he said, the nation is competitive
because of its diversity.

He urged the NIH participants to "accept diversity, think innovatively, and celebrate engineering."
Ron McIntosh (4258) has been named the recipient of the 2013 DOE Office of Classification Award of Excellence. Ron led Sandia’s Classification Office for six years as both the manager and classification officer for Sandia/New Mexico before recently moving into a new role as the corporate classification officer.

In a letter nominating him for the award, Edith Chalk, director of the Office of Technical Guidance at DOE’s Office of Classification, said, “Mr. McIntosh has been the epitome of a classification professional and a valued asset to both the Department of Energy and the National Nuclear Security Administration.”

Ron, a Chicago native who came to Sandia in 1983 and is in a unique position to be able to engage in some aspect of each of these activities to ensure our national security assets are protected.”

“DOE has by far the best classification program in the government,” he says. “Given this and the fact this is the highest recognition that an individual can receive from the agency for their contributions to the program, I am truly grateful. Although this award has my name on it, it is the result of the contributions and efforts of numerous individuals in Sandia’s Classification Department who make our program outstanding. I am humbled and very appreciative to have been selected for this award.”

During his 30-year career at Sandia, Ron was involved in a wide range of programs, including nuclear Weapons and other mission areas, before moving to the Classification Department in 2001. It was in that capacity that Ron found the sweet spot suited to his experience, his training, his temperament, and his interests.

“This role poses a never-ending challenge,” Ron says. “As a national security lab, Sandia has a very significant role on the national security stage. As the classification officer, I’m in a unique position to be able to engage in some aspect of each of these activities to ensure our national security assets are protected.”

At Classification, Ron was responsible for ensuring development and keeping up to date 16 local Sandia classification guides that Chalk characterizes as "models for local classification" throughout NNSA.

In a bid to keep the classification office current with evolving technologies, Ron implemented a process to scan all technical reference material in the Classification vault. The effort resulted in a notable reduction in the amount of paper holdings and in turn the security footprint at the labs. The process was a major undertaking. Almost 70 years’ worth of paper-based documents were mapped and methodically scanned into an electronic database accessible to the entire Classification staff, resulting in a user-friendly system that has tremendously increased staff efficiency.

During his tenure as classification officer, Ron has been responsible for appointing, training, and maintaining technical currency of some 500 derivative classifiers. Additionally, he has been a leader in the electronic distribution of classification guides to derivative classifiers. His approach has been adopted by many other field classification officers across the weapons enterprise.

Ron’s innovative and proactive leadership of the Classification Office, Chalk wrote, as well as the customer service approach he instilled in his staff, elicited praise from all levels of management at Sandia and from his peers across the nation’s nuclear weapons enterprise.

According to Chalk, Ron’s “influence, sound advice, and technical expertise are sought after” from classification professionals throughout DOE.

“Above all,” Chalk wrote, “Mr. McIntosh is a team player, one whom everyone in the Classification community enjoys working with. He never fails to tackle a problem and provide a meaningful, workable solution. He is respected by his staff, his peers, and his superiors for his excellent character and sound judgment.”

CLASSIFICATION AWARD OF EXCELLENCE — Sandia Corporate Classification Officer Ron McIntosh has been awarded the 2013 DOE Office of Classification Award of Excellence. Ron has been described as "the epitome of a classification professional." (Photo by Randy Montoya)
In the club

Sandia manager joins New Mexico’s 40 Under Forty

By Nancy Salem

Louis Griego says a little stress can be a good thing if it means he’s busy, challenged, and balancing the many activities in his life. “I really enjoy new opportunities at work, spending time with my family, and giving back to the community,” he says. “We all get busy. We have to make time to fit all the pieces together.”

Louis (10672) is a manager at Sandia, the father of a 2-year-old, and actively involved in charitable organizations. He was recognized for his professional and community accomplishments by being named to the 2013 Albuquerque Business First 40 Under Forty, a prestigious program that honors young professionals who are making an impact on the state. They will be recognized at a gala event June 28 at Sandia Casino.

Growing up with the railroad

Louis’s parents are from Belen. His father worked for the BNSF Railway, starting as a clerk at age 18 and continuing through retirement. The family moved around, from Southern California to Texas to Illinois. “Every time my father was promoted it required a move,” says Louis, who was born in Clovis, later lived outside Belen in Los Chaves, and went to high school in El Paso.

Louis returned to his home state in 1999 to attend the University of New Mexico in Albuquerque, where he earned a bachelor’s degree in accounting in 2003. He interned at Sandia his senior year doing financial reporting for solar programs. He was hired as a limited-term employee after graduation and worked as a financial analyst on the W76-1 Life Extension Program and then as a corporate center support analyst. He stayed in that job several years then made a move to the international group as a matriculated financial analyst and business partner to Org. 6821, International Nuclear Threat Reduction.

“We always knew we were the smartest, brightest, and just nicest I’ve ever met.”

His third rotation was to the Lockheed Martin Financial Leadership Development Program and rotated into three jobs over three years. The first was in the W76-1 program where he had been working. He moved to the Energy Resources and Non-Proliferation SMU.

“It gave me a perspective on how money comes into the Laboratory, processing work authorizations and working project funding,” Louis says. “I also worked in the Division 6000 business office on projects at the division level.”

His senior manager, Ernie Limon (10670), says he knew he wanted Louis on his team when he first met him in 2008. “What impresses me is his willingness and ability to seek external interest as a corporate and community citizen by volunteering for various boards and charities,” Ernie says. “I am extremely pleased to have him on our management team.”

Louis’s goal was to become a manager. In 2010 he was named business manager for Center 2500, Energetic Components. Since July he has managed the Nuclear Weapons SMU Business Office Dept. 106/72.

He says he enjoys being a manager and his work at Sandia. “I enjoy building a team and being challenged, and each assignment has been a new opportunity. Our national security mission is very important, and the people at Sandia are the smartest, brightest, and just nicest I’ve ever met.”

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