Homeland Security Secretary Chertoff visits Sandia, speaks highly of Labs’ antiterrorism technologies

‘We don’t need to reinvent the wheel,’ he says about national labs’ R&D resources

By Bill Murphy

Taking up Sen. Pete Domenici’s suggestion that he tour Sandia, Homeland Security Secretary Michael Chertoff said during a visit to the Labs last Friday that “it turned out to be good advice.”

Chertoff spent a half day at the Labs to learn about Sandia’s capabilities, and received briefings on several specific Sandia-developed homeland security technologies and programs. The briefings came from new Labs President and Director Tom Hunter, other members of senior management, and several subject matter experts.

Following the briefings, Chertoff joined by Domenici, Rep. Heather Wilson, and Tom, conducted a half-hour news conference in the Bldg. 810 lobby to talk about the relationship between Sandia and the Department of Homeland Security. Representatives from most of the Albuquerque news media attended.

Chertoff said he was impressed with what he had learned at Sandia and expressed a hope to spend more time at the Labs in the future.

“There is a tremendous contribution [to homeland security] to be made here,” he said. “He said the energy, the dedication, and the creativity at Sandia ‘truly are remarkable.’

The 21st century challenges in national security, Chertoff said, more and more will be

(Continued on page 4)
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What's what

The mysterious Hardin Boulevard boulder is back. Charles Hanley (6216) pointed out its presence last year (What's What, Dec. 10), then it disappeared. Now, say Joseph Pavletich (6146, aka Mr. Lucky) and John Gould of the GDO, it's back — in the same location and orientation. In a field with no other rocks around.

Charles wondered originally if — among other possibilities — it had been pushed underground by industrious prairie dogs excavating their den.

Following its reappearance, Mr. Lucky suggested some possibilities:

1. It had been taken back underground by the prairie dogs, then ransomed by Kirtland.
2. It's simply back after being sent out for cleaning.

— Pressed by an impending wedding, it faked its abduction and fled to Georgia.

I don't have a clue, but if recent history is any guide, it could join the likes of grilled cheese sandwich religious art, crop circles, lights in the evening sky, and giant stick figures on the Nazca Plains. It could show up soon on CNN's American Morning “news” report, in a quickie TV docudrama, on the cover of at least two of those supermarket checkout-lane newspapers, and be the subject of an Entertainment Tonight debate about which bottlers du jour will play the lead roles in the sure-to-be-made movie.

Anyway, for whatever reason, it's back. So, as suggested originally, get a Twinkie while you still can and get out there and have a look at it.

— Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)

What's what

Preform for Producing an Optical Fiber and
Method for the Fabrication of Three-Dimensional
Microstructures by Deep X-ray Lithography.

James Aubert (1821): Method for Making
One-Container Rigid Foam.

Kenneth Tschritter (8228), Brent Haroldsen (8228), Timothy Shepodd (8762), and Jerome Solfet II (15322): Explosive Destruction System for Disposal of Chemical Munitions.

Eric Cummings (8324), William Even (8760), Blake Simmons (8764), and Paul Dentinger (8764): Tamper-Indicating Barcode and Method.

Paul Galombao (7967) and Kevin Zawadil (1283): Tailored Ink for Patent Driven Electrostatic Liquid Drop Modulator.

Dahl Klawer and Jeffrey Kowop (both B368): Program for Producing an Optical Fiber and Method Therefor.

Recent Patents

The Sandia Lab News is distributed in-house to all Sandia employees and on-site contractors and mailed to all Sandia retirees.

Retirees (only): To notify of changes in address, contact Carol Wade, Benefits Dept. 3341, at 505-845-9705, e-mail cawade@sandia.gov, or Mail Stop 1021, Sandia National Laboratories, Albuquerque, NM 87185-1021.

Julia Phillips elected Fellow of American Academy of Arts and Sciences

Sandia's Julia Phillips has been elected a Fellow of the American Academy of Arts and Sciences, one of America's oldest and most distinguished honorific associations.

Julia, director of physical and chemical sciences at Sandia, is one of 213 leaders in scholar- ship, business, government, the arts, and public affairs elected in the 2005 class of Fellows, announced April 27.

"It gives me great pleasure to welcome these outstanding leaders in their fields in this, the Academy's 225th year," said Academy President Patricia Meyer Spacks. "Fellows are selected through a highly competitive process that recognizes individuals who have made preeminent contributions to their disciplines and to society at large."

Founded in 1780 by John Adams, John Hancock, and other scholar-patriots, the Academy has elected as Fellows the finest minds and leaders from each generation, including George Washington and Benjamin Franklin in the 18th century and Albert Einstein and Sir Winston Churchill in the 20th. Current membership includes more than 150 Nobel laureates and 50 Pulitzer Prize winners.

"It's both a tremendous honor and very humbling to be included among such people," Julia says.

Among other Fellows in the class of 2005 are Supreme Court Chief Justice William Rehnquist, Nobel laureate University of Colorado physicist Eric Cornell, NASA Mars rover principal scientist Steven Squyres, Dante scholar Robert Hollander, actor Sydney Poitier, Google co-founders Sergey Brin and Larry Page, and journalist Tom Brokaw.

New Fellows will be inducted at a ceremony Oct. 8 at the Academy's headquarters in Cam- bridge, Mass. A complete list of newly elected members is at www.amacad.org.

Sandia, UNM to host regional meeting of National Academy of Engineering

Sandians invited to attend discussions of solid-state lighting

Interested Sandians are invited to attend the National Academy of Engineering's regional meeting Thursday afternoon, May 19, in Ball- room A of the Student Union at the University of New Mexico.

The meeting's theme is "Solid State Lighting: The Next Revolution in Lighting." It will be hosted by Sandia and by UNM's School of Engineering.

Luminaries expected to open the meeting at 1 p.m. include Sandia Labs Director Tom Hunter, NAE President Bill Wulf, and UNM engineering dean Joseph Cechin. Sen. Jeff Bingaman, D-N.M., who initially expected to attend, will appear in a video from Washington.

Stated to assess the current and future status of the solid state lighting field are George Crawford of Lumileds Corp., speaking on inorganic semiconductors; Princeton professor Stephen Forrest on organic LEDs and Sandia's Mary Crawford (1123), Jeff Teo (1123), and Jerry Simmons (1130) on, respectively, deep UV LEDs, an LED roadmap of the future, and solid-state lighting development; Jerry will deliver the talk.

The program ends at 5 p.m. and is followed by a reception.

Sandians who want to attend should e-mail their name, phone number, and organizational affiliation to Marsh Burfeindt at msburfeindt@sandia.gov, or by Sep 19.

Julia Phillips, director of physical and chemical sciences at Sandia, is elected a Fellow of the American Academy of Arts and Sciences.

— Neal Singer
Sandia's 'SMART' radiation detection technology is helping thwart terrorists

By Mike Janes

Homeland security experts generally agree that the threat of dirty bombs or other nuclear devices being smuggled into secure venues looms as one of the gravest concerns for those charged with keeping the nation safe from terrorists. Seaports, airports, border patrol stations, even government buildings are among locations that could be vulnerable.

Now, port officials on the East Coast — with a major assist from Sandia researchers — are capitalizing on new radiation detection technology that may serve one day as a model for other venues across the country.

Known as SMART — for Sensor for Measurement and Analysis of Radiation Transients — the technology uses sodium iodide detectors and special software to distinguish between normally occurring radioactive materials and those that might suggest ill intent.

Currently operational in test-bed mode at one major East Coast port, the technology enhances other detection capabilities in use at the facility and provides inspectors with a much greater level of sensitivity and accuracy, according to Sandia researcher Linda Groves (8114). Even better, SMART may perform just as well in different locales and scenarios where highly discriminatory radiation detection is necessary.

"It can be configured to fit your problem," she says, and in fact was deployed last year during a high-profile political event.

SMART's proprietary software, developed by Sandia researcher Dean Mitchell (5935), is key to the technology's success. The software helps operators easily and accurately identify the isotopes associated with radiological emissions. Most important, Dean and his group have worked to successfully integrate the software with the system's detection equipment and data management scheme, a complex design that enables each component of the system to "talk" to one another and work as a cohesive unit.

The most visible part of the technology is the mobile SMART. One version is on a golf-cart-sized vehicle that performs analysis of suspect vehicles, while the other is mounted on a Jeep. Both are used in concert with hand-held radiation detectors. The mobile SMART, says Linda, is appealing to port officials because of its ease-of-operation, mobility, and accuracy. The vehicle, initially, is used in conjunction with plastic inspection portals to ensure that the detection methods are reacting in concert with one another and that SMART "sees" the same alarms that the other portals see. Upon an initial alarm (signifying that radiation material has been "sensed" on an outgoing cargo truck), an operator can drive the SMART Cart around the inspection area to further inspect the truck. The SMART Cart enhances the sensing work being conducted with the hand-held detectors.

Sandia researchers, however, acknowledge that SMART technology is far from perfect. Sandia physicist Nathan Hilton (8233) and researchers at other national laboratories are discussing both "active" and "passive" detection to hash out the myriad trade-offs, safety, and cost issues associated with each approach.

"It's a classic trade-off," Nathan says. "Some active detection methods use neutrons or gamma rays to search for shielded radioactive materials, but these interrogating sources are harmful to humans. Passive detection, on the other hand, does not run the same kind of risks, but it might not detect as wide a range of fissionable materials."

Sandia has programs in both active and passive detection (the method used for SMART), Nathan says the ongoing debate within the research community is "good for science" and will likely lead to firmer conclusions in the future.

The Sandia researchers say efforts are under way to commercialize components of the SMART system. A licensing agreement with Thermo Electron Corp., for instance, will make possible the manufacturing of radiation monitoring systems that use advanced radiisotopic identification software — known as RIToDB and PASSBY — that Sandia developed. (The Thermo Electron agreement was one of 37 successes at all DOE laboratories highlighted in a 2004 annual report to Congress on technology transfer and partnering activities.)

Though the technology's applications are largely limited to defense and homeland security, SMART can function in many ways for any number of potential customers. Getting the system integrated into an earlier point in the shipping line, for instance (rather than waiting until cargo is at the tail end of the inspection process), would be ideal for a shipping company or overseas port authority.

Gene Kallenbach (5935), a project manager in Sandia's systems technology department, says authorities at other venues are keenly interested in advanced, mobile detection units and are requesting SMART units for their areas. Other venue authorities may eventually choose to integrate SMART technology with their existing detection technologies, though the program's primary sponsor, the Department of Homeland Security, maintains responsibility for deciding when or if to "shop" the capability to other potential users.

Officials seem pleased with the state of the technology. Gen. Larry D. Welch, chairman of the Department of Homeland Security's Science and Technology Committee, rode in a SMART Cart last year and gave the technology a "thumbs up." Sen. Charles Schumer, D-N.Y., toured the Homeland Security Countermeasures Test Bed to view the new, state-of-the-art equipment, noting that "for too long, our ports were sieves."

With the installation of SMART and other detection technology, Schumer said, "we're finally beginning to close the security gap."
Simulation game

(Continued from page 1)

replays of actual events.

The Special Forces turned to Sandia for help after Elaine appeared on a National Public Radio program where she discussed decision-making in stressful environments. One Special Forces officer, who worked in training and doctrine, heard her and came to Sandia to learn more about Elaine's research, and in particular the focus she placed on culture in decision-making.

After presenting a proposal to Special Forces, Elaine was tapped to lead a team to create a simulation game with both single-player and multiplayer scenarios. The game was designed to help people improve their skills in critical thinking, problem solving, situational awareness, understanding of novel situations, cross-cultural sense making, and communication.

Elaine, working with a team from Sandia and the Army Game Project directed by the Office of Homeland Security, developed the game for the Army Game Project. The game is based on the Army's "America's Army" video platform, which is based on the game engine Unreal Tournament 2004 produced by Epic Games (see "Game built on 'America's Army'" video platform, which is based on the Army Game Project last year at the E3 gaming trade show).

"We're a national laboratory with expertise in training and simulation experience design, and intercultural awareness, understanding of novel situations, and critical thinking," Elaine Raybourn says. "The Army is serious about this type of cutting-edge innovative training to help their leadership be more adaptive thinkers and leaders. Elaine says. "To drive the point home, it just put out a professional development video entitled 'Adapt or Die.'"

Two aspects of the simulation game make it different from any other video game of which Elaine is aware. It focuses on teaching interpersonal adaptability, negotiation, and communication skills. The game also uses a novel approach for which a patent has been filed to provide instructional or peer evaluation in real time. Players get feedback immediately after each decision they make.

"This simulation game is the only one of its kind focused on interpersonal and strategic communication in cross-cultural settings. It's a serious application of technologies that the entertainment industry has spearheaded."

Game built on 'America's Army'

The Adaptive Thinking and Leadership simulation game developed by Elaine Raybourn and her team is built on the Army Game platform, which is based on America's Army, a video game designed to give young people a virtual taste of the military life. The Special Forces game has less action and more adaptive thinking. But the ideas behind the games are similar.

The Army launched America's Army, a series of PC games depicting modern combat situations, three years ago to overwhelming interest. It now has more than five million registered players.

Besides being a source of information for prospective recruits, the game gives non-soldiers a realistic view of Army life. All scenarios in the game are designed to actively reflect real-life tactics. According to an official of the America's Army project last year at the E3 gaming trade show, prospective soldiers who contact Army recruiters after playing the game have a better follow-through rate than any other form of advertising or promotion.

about cultural errors they may have committed, for example. Now that the game is developed and being used, the next steps are to evaluate how well it is working in the classroom, add enhancements, and expand it into different training areas, such as humanitarian assistance.

Elaine says Special Forces began training with the simulation game earlier this year, and so far results have been positive.

"This game is not about violence," Elaine says. "It's about learning to respect and work with other cultures by honoring other people's ways of being and doing. The Special Forces are keen to improve communication skills so that if there is a problem they can talk their way through it. We believe this interpersonal adaptability ultimately saves lives.

Game testers and project support


"Today was another way to show [Chertoff] that he has a lot of resources right here. This laboratory is premier; this is first-class."

— Sen. Pete Domenici
Security: ‘Q’ clearances averaging 430 days to complete

Representatives from Sandia Clearance Office explain lengthy process

By Michael Padilla

Obtaining DOE access authorizations, commonly known as “L” or “Q” clearances, is taking an average of 256 days for a “L” and 430 days for a “Q,” according to figures compiled by Sandia’s Clearance Office. The interim “Qs” granted through the Accelerated Access Authorization Program (AAAP) process are at 100 days.

Boris Starr, manager of Personnel Security (4233), says the time it takes to get a clearance has been frustrating to many new employees.

“During the wait for a clearance, many Sandians are unable to participate in mission work requiring cleared access,” he says. However, he says, it is important for Sandians to understand the current environment for investigating applicants and processing clearances and the timeframes involved.

Sandia processing

The clearance process starts when a manager decides on an appropriate clearance level for the applicant and completes the proper form, justifying the need for a clearance. The form is sent to Dept. 4233 and if needed, a packet is sent to the applicant to be completed.

When the Clearance Section receives the completed packet of forms from the applicant, the staff will verify that all the information is complete.

Clearance Office Supervisor Brenda Wickham (4233-2) says the form — questionnaire for National Security Positions (QNSP) — is complex and must be thoroughly completed.

“Not filling out this form correctly is one of the reasons for delays associated in getting a clearance,” Brenda says, adding that this could lead to an average delay of 20 to 25 days. She says mistakes and gaps in information submitted must be corrected before the form can be sent to DOE for processing.

DOE implemented an additional requirement in April 2005 that all information (such as residence and employment) on the QNSP must be in chronological order or it will be rejected.

Processing at DOE Service Center

When the packet is received at the DOE Service Center, here on Kirtland Air Force Base, it is reviewed for completeness. Information is logged and is forwarded to the investigative agency for the next phase of processing.

Average time for cases to be initially processed and sent to the investigators is about 30 days.

Background checks

Based on the information contained in the QNSP, the investigators (usually the Office of Personnel Management) will research many aspects of an applicant’s background. Factors affecting the duration of an investigation include multiple residences, multiple jobs, criminal activity, foreign involvement, financial obligations, emotional or mental disorders, alcohol abuse, and drug use.

Multiple investigators could be working on a single case. There have been instances where an investigator has told the applicant that a particular interview will complete his work on the case. This does not indicate that the case is complete. It may reflect on only a piece of the background investigation process.

The average duration for a background investigation for an “L” clearance is 89 days; for a “Q” clearance, 256 days. “These are all averages,” Brenda says. “Many cases can take longer because of various factors.”

Adjudication phase

Once the investigation is completed a report is sent by that agency to the DOE Service Center. At that point, the case goes into an adjudicative process. During this process all of the information gathered during the investigation is reviewed and the DOE analyst uses that information to make a determination about whether the person should be granted a clearance.

Backlog

Within the last several months, the backlog of cases at the DOE Service Center has grown from 600 to more than 4,000. The DOE Service Center is currently able to process about 600 cases per month, while completed investigations have been coming into their offices at almost double that rate.

As of March 2005, the average time in adjudication was more than 120 days. Boris says the DOE Service Center has indicated it might be experiencing an average adjudication time frame of 180 days in the near future.

Granting a clearance

When adjudication is completed by the DOE Service Center and it has granted a clearance, Sandia clearance personnel are notified. The staff will verify that the information is correct and send out a notification to the applicant and the manager.

A new process is being implemented that will require Sandians and on-site contractors who have never before held a DOE clearance to attend the comprehensive security briefing SEC 150 after the notification, but prior to receiving a new badge reflecting the new clearance level.

“Both Boris and Brenda agree that requesting a status check on the process will not expedite the process. Sandia has an agreement with the DOE Service Center to follow a specific schedule related to requesting status checks on clearance processing. The initial Q check is one year and L check is six months — both the time after the case is sent to investigation. For cases that are in adjudication after 120 days, DOE will do only a system check, but requesting the status check through the tracking system to verify it is in process. After 180 days, DOE will do a physical search to verify the processing status.

‘Godspeed to you,’ Paul Robinson tells Sandians at farewell reception

DURING his last two weeks as Sandia’s president and laboratories director, Paul Robinson spent a lot of time saying goodbye.

In addition to the countless e-mails, voice-mails, and other personal notes of farewell to Paul, he participated in a couple of formal, planned send-off events as well. During an April 27 function on the plaza in front of Bldg. 810, many of Paul’s friends and colleagues had an opportunity to say goodbye to him as he embarks on a new mission: to head up the Lockheed Martin team preparing the bid for the M&O contract at Los Alamos National Laboratory.

And Paul, in turn, offered poignant words of farewell. Here are some of the excerpts from remarks he made that day:

“I’ve got two more days of the best job I ever had. I reminisced with some folks the other day that this probably is the best job in the country. One of the things I’m proud of is that actually I had a chance to tell two presidents that this is an even better job than what they had.

“We’ve come a long way together. I hear comments that Sandia is the best performing lab. I also have been proud that over these past 10 years, it’s been growing with the lowest overhead rate. . . . I think there just might be a correlation. We have trimmed down and people are doing great work.

“We have expanded our missions a lot together. . . . The most exciting part of my nearly 30 years here has been watching us move from a nuclear weapons lab to be very much a national security laboratory. . . . There’s little doubt we have risen to a $2.3 billion annual budget because of our focus on customers and exceptional service. . . .

“I really do appreciate all of you who have come out here today. To say that I’m going to miss you is a huge understatement. But I hope you’ll keep your eye on the future. I intend to keep my eye on a future that if we’re successful just might bring the possibility for us to be joined up in an even better way in years to come.”

“So all the best. Godspeed to all of you and thank you once again.”

Memory Book writers wish Paul Robinson well

As is frequent practice for retiring Sandians, an electronic memory book was set up for friends and colleagues to reminisce a bit about Paul. Here are just a few of the many messages that Paul has received (the names have been omitted):

• I’m very proud of you and your accomplishments and feel privileged to be a part of this company. We will miss you greatly. I’m sure your future will be filled with exciting possibilities and others will reap the benefits that we have gained under your leadership. Best wishes to you.

• Congratulations on the LMC decision to bid for Los Alamos. If anyone can get it back on the path to success, it is you.

• I know the great reputation of SNL was strongly influenced on your leadership.

• Under your leadership Sandia has thrived. You are leaving a wonderful legacy and, in my opinion, a worthy successor in Tom.
Sandia on fast track to seek out and control energized electrical hazards

VP Les Shephard asks everyone who works with energized electrical circuits to complete a action plan

An increased number of “near miss” dangerous accidents involving electrical work over recent months is causing tension to take the fast track and seek out and correct any possible hazards. Last month VP 6000 Les Shephard in a memo to directors and above asked all centers conducting energized electrical work to do an Action Plan to Improve Electrical Safety — Sandia defines energized work as those activities performed on or close to exposed parts of electrical circuits and equipment operating at 50 volts or more. Some 2,000 people at Sandia have taken an electrical safety course and might be doing energized work.

In his memo Les, whose division includes the Environment, Safety, and Health (ES&H) Center at Sandia, said, “During the performance of various work activities throughout Sandia, organizations continue to have incidents that indicate immediate concerns with electrical hazard awareness and identification, and the controls needed to mitigate the associated risks to personnel and equipment.”

He pointed out that between August 2004 and March 2005, there have been “eight electrical events and two electrically related lockout/takeup incidents with the potential for serious injury or fatality. Each of these incidents was associated with an unrecognized exposure to energized circuit parts.”

Hence the need to take quick action to reduce potentially deadly electrical incidents.

Prior to even starting the required action plan, all energized electrical work that could cause serious injuries had to be authorized by the appropriate level II manager. In some cases work was paused until the proper controls were established.

The action plan — developed by a team from the ES&H Center and reviewed by representatives from line organizations — has four phases. Each phase was due on four consecutive Fridays. The four phases are:

- **Phase 1** — Assessment
- **Phase 2** — Evaluate
- **Phase 3** — Control
- **Phase 4** — Feedback and improvement

*Phase 1 Assessment* Two actions were required for completion of this phase. The first was to review all electrical work activities and identify those involving worker exposure by direct contact with energized circuit parts. The second was to review electrical worker qualification and work authorization processes for such activities to ensure qualifications and authorization was commensurate with the worker health risk. This was due April 22. In some cases work was paused until the proper controls were established.

**Phase 2 Evaluate** Following Phase I where energized work activities were identified, this phase assessed the properly energized electrical work activities were absolutely required. For those required, a review of work practices was to be done to make sure that every possible method to mitigate electrical hazards or control exposure to electrical hazards are implemented. This includes making sure that appropriate technical work documents are completed, such as troubleshooting operating procedures or electrical work justification and permit forms. This phase also included a worker training and qualifications review, electrical accident review, lessons-learned training, and a work control process to determine appropriate means for change control. This was done on April 29.

**Phase 3 Control** Problems discovered in Phase 2 are to be corrected. If a problem was found in Phase 2, fix it. If procedures were missing, write them. If permits didn’t exist, get them. This was due May 6.

**Phase 4 Feedback and improvement** This is the wrap-up stage where lessons learned are presented to directors and vice presidents. This will include deficiencies identified, a list of underlying causes, actions taken to correct the deficiencies, and estimated dates of action completed. Deadline for this phase is May 13.

Gil Herrera, director of Manufacturing Science and Technology Center 14100 and chair of a newly formed Safety Standing Committee, says the four phases are consistent with what “we already do” in terms of the Integrated Safety Management System (ISMS).

“It involves scoping, evaluating, implementing controls, and feedback, just like ISMS,” he says. “From my point of view Phase 4 is the most important because it’s where everything comes together and is sustained.”

The committee was formed a couple of months ago just as plans for the electrical safety action plan were being drawn up. Gil helped plan drafters to “put a line perspective in the plan.”

Gil says over the past several months there have been many improvements in the processes and tools supporting electrical safety, particularly in lockout/takeup.

“The ES&H organization has done a good job of making the process for electrical safety simpler and more understandable,” Gil says. “But we must remember that it is a line responsibility to do this.”

So if anything is not safe enough for us to bring family members in for what may be a once-in-a-lifetime opportunity to see and learn about where we work, it is safe enough for us to be expected to be present on site everyday? Perhaps isn’t.

As a reminder that the decision to cancel Family Day was made after the time many at Sandia had finalized plans to participate that resulted in significant inconvenience and even expense for some. The impact of this decision on all Sandians and their families was seriously considered as the Laboratory Leadership Team (LLT) evaluated the situation, and while we value Family Day, our first commitment remains to the employees who must work. Our Family Day planning team had considered visitor safety and construction schedules as part of our planning process.

So if anything is not safe enough for us to bring family members in for what may be a once-in-a-lifetime opportunity to see and learn about where we work, it is safe enough for us to be expected to be present on site everyday? Perhaps isn’t.

**Feedback** Why was safety such a big problem that Family Day had to be canceled?

Q: Sandia executives have tried to explain the logic for their last-minute postponement of Family Day, which had been scheduled for May 14 in Albuquerque. They say key reasons were safety considerations combined with the significant amount of construction underway.

They always will be concerned with any experience that's not safe enough for us to be expected to be present on site everyday? Perhaps isn’t.

A: I apologize that the decision to cancel Family Day was made after the time many at Sandia had finalized plans to participate that resulted in significant inconvenience and even expense for some. The impact of this decision on all Sandians and their families was seriously considered.

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**Safety First** Work safely. Someone wants you home tonight.

**Safety First** Work safely. Someone wants you home tonight.
Beryllium Issues Management Team plans prepare to prevent future beryllium contamination

By Chris Burroughs

The Beryllium Issues Management Team (IMT) is winding down its efforts after putting together a plan that will help prevent future beryllium contamination at Sandia.

Established a year ago following the discovery of higher-than-expected levels of beryllium contamination at the Z machine in Area 4 and other buildings, the team was created to make sure that Sandia systematically addresses the potential for contamination from unexpected sources of the metal. The IMT was formed through a collaboration between VPs John Chmielewski and Lisa Hooper, who were charged with the task of preventing future beryllium contamination.

“Helping people understand the potential for beryllium contamination and providing them with the tools to help make their work safer is of the utmost importance,” says Steve Rottler, IMT chair. “Finding beryllium contamination outside of beryllium-work areas was a wake-up call, and it should change the way everyone thinks about ES&H (environment, safety, health).”

The team had several heavy tasks, including developing and implementing a plan for systematically evaluating Sandia facilities for beryllium contamination; establishing guidelines and processes for use by line management upon discovery of beryllium contamination; and identifying lessons learned and how to apply them to the future.

One of the team’s early discoveries was that no systematic process was in place for beryllium contamination investigations. The team identified a lack of standard operating procedures and processes within Sandia facilities, but it also found that employees did not always know how to proceed. As one example, the team identified that Sandia did not have a robust beryllium management plan that would help employees identify potential contamination sources.

The IMT also highlighted the need for better communication across Sandia to ensure that employees were aware of the potential risks associated with beryllium exposure.

Improving safety at Sandia will involve more than just finding and fixing safety issues. It will require a cultural shift within the organization, with a focus on empowering employees to take ownership of their safety.

“Improving safety at Sandia will involve more than just saying we want to improve safety,” says Jaime. “Improving safety requires a commitment to making it a priority.”

A key part of the IMT’s efforts was to develop a robust beryllium management plan that would help employees identify potential contamination sources.

The IMT’s efforts included:
- Developing a beryllium management plan
- Establishing guidelines and processes for use by line management upon discovery of beryllium contamination
- Identifying lessons learned and how to apply them to the future

The IMT’s work is now complete, and the team is moving forward with a focus on implementing the beryllium management plan and ensuring that employees are aware of the potential risks associated with beryllium exposure.

What is beryllium?

Beryllium is a metal that occurs naturally in rocks, coal, soil, and volcanic dust. Beryllium compounds are commercially mined, and the beryllium purified for use in defense and electronics applications. Beryllium is considered a toxic metal and thus is heavily regulated by DOE. Some people who have been exposed develop sensitivity to the metal. A small percentage of people can develop a lung disorder known as chronic beryllium disease.

Most Sandians, contractors to receive safety survey next month

As an important step in Sandia’s goal to be the best in the nuclear weapons complex for safety within three years and the best-in-class nationally within a decade (Lab News, April 2), all Sandians and contractors will receive a safety survey next month. The survey will benchmark employees’ levels of awareness and thought processes about safety at the Labs.

“This survey is the first step in improving safety awareness and our safety culture,” says Jaime. “The survey provides us with valuable insights about how employees feel about their safety and how they view safety at Sandia.”

The survey will be emailed to most employees and contractors with computers, and hard copies will be given to all without computers. Employers in Organizations 8000 and 10000 will not be issued the survey because they will be participating in a behavioral based safety program.

Some key areas that the survey will cover include:
- Extent safety rules are enforced
- Recognition for safety achievements
- Safety at Sandia is a growing concern as numbers of accidents and near misses remain high.
- Last year Sandia had an accident rate of three per 100 full-time-equivalent employees a year, which represents about 275 to 300 people annually suffering injuries requiring more than simple first aid.

This injury rate, Jaime says, is a factor three higher than the industrial standard for scientific and technical services industries, and is “unacceptable,” he says.

“Our employees are our most important asset,” Jaime says. “We don’t want them hurt. We have to get those numbers down.”

Improving safety at Sandia will involve more than just saying we want to improve safety; it will require a cultural shift, he says.

“Some examples he gives:
- Formal documentation is not valued.
- Processes are seen as stifling creativity.
- Many feel mistreated by their supervisors.
- There is a lack of recognition for safety achievements.
- The safety content of everyone’s work is not adequately recognized.
- The safety of others is not considered important.

Some employees believe that safety is not taken seriously at the Labs, and it is important to address these concerns.

The survey is an important step in improving safety awareness and our safety culture at Sandia. It will help identify areas that need improvement to raise safety on the radar screen.

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Lessons learned

As a wrap-up to the Beryllium Issues Management Team (IMT) efforts, the group put together a “lessons learned” design that helps everyone in dealing with future issues of beryllium and ES&H. They plan to implement these lessons as part of the building survey effort.

Employees in Organizations 8000 and 10000 will receive the survey. The survey will be e-mailed to most employees and contractors with computers, and hard copies will be given to all without computers. Employers in Organizations 8000 and 10000 will not be issued the survey because they will be participating in a behavioral based safety program.

Some examples of lessons learned include:
- Unrecognized safety is a huge issue at Sandia, and it needs to be addressed.
- ES&H is seen as punitive.
- Processes are seen as stifling creativity.
- Many feel mistreated by their supervisors.
- There is a lack of recognition for safety achievements.
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2005 Thunderbird award winners show us how to overcome obstacles in a big way

By Iris Aboytes

I imagine being five years old, speaking only French, and coming to this country with the promise of being adopted and finally belonging to a family. The only person you know is your brother, who is four years older and has the same expectations. Welky Theodore, Belen High School, one of this year’s Thunderbird Award winners, was the five-year-old.

Two years later on Christmas Eve, Welky’s prospective new family placed him and his brother in foster care. They were in numerous foster homes until they were 18. Sometimes they were placed together, other times they were in separate homes. His older brother lives in Oregon.

Welky, now 18, is out of the foster care program and lives with a family where he helps with some of their bills. He works more than 40 hours a week and attends school. He participates in a bowling and volleyball team and lives with a family where he helps with chores.

According to Belen High School counselor Gretchen Weebet, Welky is interested in law. He volunteered a total of 2,304 hours. She and her husband are puppy handlers. They provide a foster home for the puppies until the Assistance Dogs of the West places the puppies with a companion.

She is required to attend weekly classes that include training sessions and field trips to public settings. The mission is to produce and place assistance dogs for people with disabilities.

“Assistance dogs help people with disabilities be more self-sufficient. They “see” for blind people. They are a lifeline for people in wheelchairs, and offer therapy and love to people who are lonely or sick. With the award came $500 to help with the assistance dogs of the West,” says Welky.

The retiree Shining Eagle award winner is Stan Hendrix. The award is given to the employee volunteering the most hours. Hendrix volunteered a total of 2,304 hours. She and her husband are puppy handlers. They provide a foster home for the puppies until the Assistance Dogs of the West places the puppies with a companion.

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By Iris Aboytes

Community Involvement (12652) recently held its annual volunteer awards celebration. Volunteers recording the most hours during the last year were honored. Emily Hnat (9612) was awarded the Shining Eagle Award. The award is given to the employee volunteering the most hours during the spring semester of his freshman year and fall semester of his sophomore year. He was diagnosed with Crohn’s disease. Chris Goy, Eldorado High School, had great difficulty during the spring semester of his freshman year and fall semester of his sophomore year. He was diagnosed with Crohn’s disease. Chris Goy, Eldorado High School, had great difficulty during the spring semester of his freshman year and fall semester of his sophomore year. He was diagnosed with Crohn’s disease.

Chris’ biggest concern during this period was his GPA. He felt disconnected from his schooling. His parents were an inspiration to him, “they are both dear, but are very successful.”

Chris has worked for Relay New Mexico, where he processes telephone calls for deaf, hard-of-hearing, and speech-disabled persons. “His vastly different people’s faces.”

A new Community Service Award was developed to provide financial support for nonprofit organizations with which employees are involved. Volunteers donate 100, 250, or 500 hours to one nonprofit in a calendar year to qualify for the award. After paperwork is completed an award of $100, $250, or $500 is given to the nonprofit.

These Sandians received awards on behalf of their nonprofit organizations: Melecia Archuleta, Dennis Bateman, Virginia Creely, L. Jay Clise, Nancy Clise, Patricia Cordiero, Leonard Duda, Charles Daus, Robert Espinoza, Margaret Furman, Neill Gilbertson, Calvin Guymon, Cynthia Henderson, Jane Hillman, Bryan Ingram, Christina Jenkin, Charles Jenkins, Tim Knewitz, Steven Knudsen, Jennifer Levin, Christine Morgan, Tina Nenoff, Lewis Reid, Joseph Anthony Riffe, Dick Stoee, Sandra Tonnesen, Julian Trujillo, Jeffrey Tsao, Laila Velasquez, Barbara Wampler, Barbara Wells, Jan Williams, and Elton Wright.

Emily Hnat, Robert Rieden, Stan Hall are Sandia 2005 volunteer award winners

New database for Sandia Serves volunteers

A database for use by Sandia Serves volunteers is now in place. Sandia volunteers can enter their hours as they are completed or enter them at the end of the calendar year.

Jenkin, Charles Jenkins, Tim Knewitz, Steven Knudsen, Jennifer Levin, Christine Morgan, Tina Nenoff, Lewis Reid, Joseph Anthony Riffe, Dick Stoee, Sandra Tonnesen, Julian Trujillo, Jeffrey Tsao, Laila Velasquez, Barbara Wampler, Barbara Wells, Jan Williams, and Elton Wright.

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FIT TO A T — Bruce Fetzer (12650) and Mike DeWitte (12650) display the new Sandia Serves T-shirt. The name and logo were changed to differentiate Sandia Labs from the many “Sandias” in the Albuquerque area. A contest was held for the new name. Paul’s Rocks (9312), Liz Scott-Patterson (5010), and Jonathon Lee (14417) all suggested the name “Sandia Serves.” Wilbur Johnson (6225) suggested adding “exceptional service in our community.” Michael Wittlow (12653) designed the new logo. (Photo by Bill Doty)
Absolutely, positively: IES all-minds meeting talks mission success

T-shirt slogans have this going for them: by their nature, they’re short and to the point. That’s why the slogan on the back of the new IES T-shirts, introduced by VP Frank Figuerola during the recent all-minds meeting, resonated with the 200 or so folks at the Steve Schiff Auditorium.

The slogan: “Absolutely, Positively Enable Sandia to achieve its mission.”

He recounted how John Brown, shortly after stepping down as head of Los Alamos National Laboratory, came and talked to a group of Sandia leaders. Brown described the mission of LANL — and one he never fully got a handle on — was that everyone, while comfortably working for the same institution and with the same high purpose, wore a different T-shirt.

“If we’re going to be successful,” Frank said, “we all have to wear the same T-shirt.”

Frank spelled out a number of fundamental principles that guide Integrated Enabling Services:

• We are one team delivering the whole job.
• We are first and foremost about the interest of the nation.
• Sandia interests come before corporate or parochial organizational interests.
• Safety and security are not an afterthought or an added-on component of Sandia’s mission, but an integral, inseparable part of it.

While the IES-T-shirt slogan offers a shorthand description of IES’s ambitions, the mission statement is a bit more detailed: “[The mission of IES is to] proactively participate in Sandia’s mission success by delivering high-quality, sustainable, and affordable infrastructure systems and services.”

Frank described three IES 10-year goals, the critical one being that “IES delivers its services so well that Sandians, programs, and organizations choose IES as a partner to achieve mission success.”

Joe Polito (10700), sharing the stage with Frank, discussed some of the specifics that define IES. Briefly, IES encompasses the management and operational services of the Labs. Approximately 2,000 FTEs are associated in IES functions; they come from 16 centers spanning eight divisions. The operational budget for IES in the current fiscal year is just shy of $300 million. That investment in money and people, Joe said, provides the essential support needed by the technical team to carry out the mission-related work.

“Our job is to keep these [R&D] systems working every day,” Joe said. “Without IES, [researchers] can’t do their jobs.” — Bill Murphy

SANDIANS help author two guidebooks to the Sandia Mountains

By Neal Singer
Two books focused solely on aiding those of us who frequent the Sandia Mountains for hiking, picnicking, running, skiing, bird watching, rock climbing, hang gliding, and other healthy pastimes have been published by the University of New Mexico Press (unmpress.com). Contents of the two handsome paperbacks contain sizable contributions from Sandia employees.

The Field Guide to the Sandia Mountains has plenty of facts, figures, and, perhaps, anecdotes. It was not surprising, since six retired and three active Sandians took part in the writing and editing. It even has anecdotes.

A brief introduction by noted fiction author Tony Hillerman establishes the Indian mythology surrounding the largest natural prominence in the area.

When delivering the book with you is like having a knowledgeable, nonintrusive friend along to explain, as you want it, the background of the area’s plant life, animals, and geography. However, I confess that for me — a frequent runner and hiker in the Sandiars — the field guide was the setting — like a ring for a jewel — for its companion volume, Sandia Mountain Hiking Guide, written by Sandian Mike Coltrin (1126). This book is interesting because it chiefly discusses what one encounters in trying to get somewhere on the mountain. It suggests trails many of us may have started on, and gives enticing glimpses of what awaits you further up the trail. It gives directions to trails not often spotted. It warns when a trail becomes vague and what to look for to stay on it. Altogether, it has the intimacy of an enthusiast to whom these trails, and hiking them, matter.

Only that the Field Guide doesn’t shine with its own interests. You learn that “This flower smells like chocolate.” [Chocolate Flower, Green Eyed] or that “the tall purple deepdy ray flowers catching your eye” is the Cut-leaf Coneflower, which can be made into tea, among the authors inform us.

You learn the history behind Tinkertown, the dapper trail, Mike writes, “One or two paths go over the canyon bottom, and you will see that they start heading toward the canyon bottoms. You want to take the branch to the left of those paths and head uphill past a large boulder, it’s easy to see at the wrong fork here, because the paths appear almost equally worn.”

Admittedly, there’s a useful list and explanation of Sandia Mountain place-names by lead co-editor and New Mexico place-name guru Bob Julyan, whose interest on how places came to be called what they are called seems inexhaustible. There’s a technical explanation of the role of higher-elevation aspen in the fire cycle.

Retiree, Michener devotee Gay Dybwad edits the Michener Society Newsletter

If at first it seems surprising that a retired Sandia scientist is the new editor of the James A. Michener Society Newsletter, it soon sounds eminently reasonable when you recall that a decade ago he and his wife wrote and published a book about Michener’s early life as a beginning teacher — with Michener’s consent and collaboration (Lab News, Jan. 5, 1996).

But that’s not what Sandia retiree Gay Dybwad and his wife Joy Bliss are now doing — editing and producing the Michener Society newsletter from their home in Dominion, Texas. It’s even printed by an Albuquerque printer.

The first issue under their tutelage, Spring 2005, has just been issued.

JAMES A. MICHENER

Michener, the great historical novelist (Tales of the South Pacific, Hawaii, Centennial, Space Caravans, Texas, The Covenant, The Source, and several dozen other like works) and educator, died in 1997 at the age of 90. He described himself simply as “citizen, traveler, writer,” but his works entertained and educated generations of readers about the geography, history, and culture of lands and peoples around the globe. Shortly after his death, a group of his friends founded the Michener Society to celebrate his life and work. The newsletter is its semiannual publication.

Recently the newsletter’s editor, an administrator at the University of Northern Colorado where Michener’s papers reside in the James A. Michener Library, gave up the editorship due to time constraints. Gay, who retired in 1997 after seven years at Sandia and 21 years at Bell Labs, gladly stepped into the gap.

This was a perfect project for us, having known Mr. Michener and having written “that book with him,” says Gay. He says their experiences in design and publishing, including their now four Abbas on the World’s Columbian Exposition in 1893 in Chicago (Lab News, Sept. 12, 1993), didn’t hurt either. “Also,” says Gay, “it was a perfect time for us and is an opportunity to give something back to the Michener Society.”

Michener Society newsletter can contact Gay and Joy by phone or e-mail: 505-296-9047 or gladybwad@comcast.net.

— Ken Frazier

Advisor to the Guiding Staff
Manager promotions

New Mexico

Scott Collis from SMTS, Optimization and Uncertainty Estimation Dept. 9211, to Manager, Computational and Mathematical Algorithms Dept. 9214.

Bruce joined Sandia’s Optimization and Uncertainty Estimation Department in July 2003. Before coming to Sandia, Bruce was assistant professor of mechanical engineering at Rice University in Houston.

Scott’s specialty is in high-order spatial discretizations applied to nonlinear partial differential equations. He uses these methods to simulate and model transitional and turbulent fluid flows for aeronautical and hydrodynamic systems. He has also used optimal control theory to improve the performance of such flows using small-scale actuators and sensors within an active flow-control system. He has applied these technologies to reduce drag due to turbulence and to reduce the sound generated by unsteady flows over airfoils and rotor blades.

Scott has a BS in aerospace engineering from the University of Kansas and an MS and PhD in mechanical engineering, both from Stanford University.

J. Bruce Kelley from PMTS to Manager, Chemical & Biological Systems Dept. 6245.

As a metallurgical engineer, Bruce worked 14 years for the locomotive and gas turbine divisions of General Motors, then corrosion and failure analyst consulting for two years, just before joining Sandia. As a powertrain materials and heat-treating expert for GM, he worked on transmission metalurgy for the first “super-series” (wheel-slip control) locomotives and worked on design teams for a variety of Sandia organizations. Bruce has been actively involved in business development across the Labs since 1997 and participated in the Advanced Sales Training program.

Bruce developed funding for the SERAPHIM maglev propulsion project, and continues to serve as the industrial technologies coordinator for EE programs. He also served as Acting Manager for Dept. 6245.

Bruce has a BS in metallurgical engineering from Illinois Institute of Technology and an MS in the same field from the Colorado School of Mines.

John McAluffe from PML to Manager, Employee and Labor Relations Dept. 3501.

From 1970 to 1972, John worked for Western Electric as an internal auditing and cost accounting clerk, and got his degree in mathematics at San Francisco State University in Houston.

John joined Sandia’s Employee and Labor Relations Department in 1977 working in corporate staff and employee services management. He was promoted to Department Chief, Wage Practices, in 1986 and later to Director of Labor Relations in 1990. He also served as Labor Relations in January 1990. John has a BA in industrial technologies coordinator for EE programs. He has been involved with seniors since his graduate work developing systems to analyze electrical signals from rat brains.

In 1994, Jim moved to Sandia’s Microsystems Department, where he developed sensors for nondestructive evaluation and manufacturing process control.

In 1997, Jim left Sandia to found Sensolve, Inc. to commercialize several of the eight patented sensor technologies he developed at Sandia. He returned to Sandia in the Integrated Microsystems Department in January 2003 to develop microsystem-based products for customers. In May 2004, he was promoted to team leader of the Micro-Product Applications Team.

Jim has an MBA from University of New Mexico and BS, MS, and PhD degrees in electrical engineering from the University of Illinois at Urbana-Champaign.

First the Duke City Marathon, then Boston, what next for Vanessa Berg?

By Iris Abeytes

Vanessa Berg [15322] started running a year and a day ago. On October 16 she won the Duke City Marathon, and that qualified her to run in the Boston Marathon. Last month in Boston, Vanessa finished among the top one percent of women runners.

Vanessa first ran in the Duke City Marathon in 2003 and had an 11th-place finish. When she ran in 2004, her goal was to set a personal best and maybe break into the top ten. She ran the race half an hour faster than she did in 2003. Her time was recorded at 3:08:12. The win qualified her to run in the 2005 Boston Marathon.

In Boston Vanessa posted another personal record. Veterans who had run in Boston told her about the notorious course and how very few people set personal records or better their qualifying time. She did both by more than two minutes. She ran a 3:06:04, placing 65th overall out of 7,901 women. This also placed her in the top one percent of female runners (where all runners are ranked as if they were male).

Vanessa placed 1,028th overall out of 20,405 runners, male and female, placing her in the top five percent of all entrants. “It was an amazing experience,” says Vanessa. “I felt so blessed to be running with such wonderful runners. There was so much emotion as I crossed the finish line. I did it! It was a once-in-a-lifetime feat. It was a great race. I’ll never forget it.”

“Mentally I was strong,” says Vanessa. “I knew I would finish.” When I finished mile 10, we were in the hills, I thought ‘yeah,’ and got stronger as I got into my rhythm. I do better in the hills.”

In preparation for the Boston Marathon Vanessa ran about 80 miles a week. When Vanessa is not training she usually averages 30 to 40 miles a week. When Vanessa is not training she usually averages 80 to 100 miles a week. When Vanessa is not training she usually averages 20 to 30 miles a week. When Vanessa is not training she usually averages 60 to 80 miles a week. When Vanessa is not training she usually averages 40 to 60 miles a week. When Vanessa is not training she usually averages 20 to 40 miles a week.

20 companies will present at TVC’s Emerging Capital Symposium

Twenty startup companies from New Mexico, California, and Nevada will present their business cases before investors at the 12th annual Equity Capital Symposium sponsored by Technology Ventures Corporation, May 18-19, in Albuquerque.

The annual forum provides hundreds of investors from the US and abroad the chance to invest in new technology-based products and services. Eight of the 20 companies presenting have strong connections to the national labs or universities, including five with Sandia-specific connections.

This year’s symposium features 13 New Mexico-based companies, four from California, and three from Nevada. The companies were selected by TVC in January. Since then, the presenters have worked with TVC project managers and advisors to refine their business case, hone their business plan, and package their funding proposal. After months of work, each entrepreneur will have 10 minutes to present their company’s business case to the assembled investors.

TVC serves as a bridge between the investor community and publicly funded technology that has commercial application. "Nationally, one entrepreneur in a thousand will receive seed equity funding," says TVC President Sherman McCorrie. "We have an amazing record. One out of every three TVC symposium presenters has received funding. We have the honor to work with some very outstanding clients and advisors. Our success is really a reflection of the hard work and talent of these entrepreneurs."

For more detail about presenters and for registration information, visit the TVC website at www.techventures.org.

Sympathy

To Dan Saladin (8947) and Maria Belz (2025) on the death of their mother-in-law and her grandmother, Leonela Sanchez, May 1.
Space Day 2005 sizzles skyward

Space Day is an annual educational initiative sponsored by Lockheed Martin and dozens of other corporate and institutional partners. This year’s event, held May 5 at venues around the country, was designed to inspire young people to explore careers in mathematics, science, engineering, and technology and to realize the vision of our space pioneers.

In Albuquerque, Space Day activities were held again this year at the National Atomic Museum. The event attracted scores of students from several local schools.

Photos by Randy Montoya