Sandia researchers determine that common anthrax sampling methods need improvement

More deadly spores may remain after decontamination than current sampling methods show

By Chris Burroughs

Inaccurate sampling of biological pathogens can be deadly. That's what Sandia researcher Gary Brown (6245) and his team discovered after a year-long Department of Homeland Security (DHS)-funded study where they looked at sampling processes used to determine the number of viable organisms existing on surfaces following a biological attack with agents such as anthrax.

"We evaluated Centers of Disease Controls (CDC) recommendations for sampling methods and discovered that all current methods underestimated the number of spores, such as Bacillus anthracis, the organism causing anthrax, actually present on surfaces," Gary says. "The sampling methods are much less effective than anyone realized..."

Miscalculating the number of spores present following an attack could potentially be lethal.

The idea for the sampling study dates back to the fall of 2001 when letters containing anthrax bacteria were mailed to several news media offices and two US senators, contaminating numerous postal facilities and killing five people. Critical questions became 1) how efficient are the various methods used to sample amounts of spores, (Continued on page 4)

New, streamlined PMF to be launched

Employees have option of using old or new form

By Julie Hall

Sandia’s Performance Management Form for nonrepresented employees is undergoing a makeover to a simpler, more streamlined version. While the form had not received final approval by the Lab News publication deadline, here is a first look at the expected changes. Watch for additional details in an all-employee communication as well as a future Lab News article.

The request for a simpler PMF came from Labs Director Tom Hunter and Deputy Director John Stichman, says Compensation Dept. 3552 Manager Chuck Maheras. They not only desired a more streamlined form but also wanted to better align the performance review process with Sandia’s fiscal year while maintaining the established compensation review cycle and common merit reward date.

The new form will apply to all nonrepresented employees. Currently, Sandia uses two PMFs: one for managers and one for staff. Represeted employees have their own process that will remain unchanged.

Employees will see several changes in the form: new value-of-contribution (VOC) designators; a fixed form length to focus on significant objectives for the upcoming rating period; and reduction in the confusion created by the current Fully Contributing VOC rating and salary distribution bins of high, medium, and low.

"The new system is designed to minimize confusion and increase consistency across the Labs," says Chuck.

Labels and definitions for the new value-of-contribution designators are being finalized by executive management. The target rollout date for the new form is Oct. 18. Use of the new form will be optional this year, according to Chuck. If managers and employees have already filled out their PMF using the old form, they can just leave it or switch to the new form at their discretion. However, since the VOC designators are being changed, all employees in this rating period will be reviewed under the new system.

While Chuck expects employees to have questions about the new form, he says it’s the form (not the process) not the most important part of the performance review process.

"The form isn’t the key piece. This whole process is about honest and open communication and interaction between the employee and the manager. The form is simply the vehicle to facilitate this dialogue," Chuck says.
What’s what

You know the joke about the dog that chases cars: If he caught one, then what would he do? Well, the Cyber Security crew got a few giggles recently when a real-life analogy to the dog-and-car story happened to their colleague Sharon Walker.

Seems the Belen Chamber of Commerce was raising money during its Rio Abajo Days festival and Sharon routinely bought a raffle ticket from a friend who works for the Chamber. Unconsciously, she got a call asking what she wanted done with her steer.

“Steer? What steer?” she asked.

The steer you won in the Rio Abajo Days festival, she was told politely, which has to be removed from the Valencia County Fairgrounds. Soon.

Shaking away the disbelief, she made a few inquiries and found that the steers for the fundraiser — for which she had bought a ticket — were a steer raised as a 4-H project and bought at the recently concluded Valencia County Fair by the Wells Fargo Bank and donated to the Chamber for the Rio Abajo Days festival.

Now what to do? She wondered, until someone suggested calling a friend who developed key methods and applications of laser beam shaping. They innovated quietly to maintain control of spatially dispersive lasers. There is a nearly retired wag, noting this year’s cancellation of the long-traditional annual summer picnic for retirees at the Coronado Club (also now retired, of course), suggested that instead, retirees could be offered complimentary enrollment in ethics, ESH, conflict-of-interest, and other training courses required of employees.

Hmm... The book, published in August, was posthumously selected by Dave Borns, Manager, Dept. 6113, on the 2005 survey ranks Sandia “highest for the second consecutive year in terms of providing technological challenges, valuing its employees, and promoting diversity in the workplace.”

The Retiree Reader Service is still available, and retirees are encouraged to call Carol Wade, Benefits Dept. 3651, 505-844-3796. At Sandia/California employees may call Honario Anaya, Mail Services Team (NISAC), originally scheduled for Oct. 12 as announced in the last Lab News, was postponed and will be rescheduled.

Retiree deaths

Paul E. Miller (age 79) — August 23
A. E. McMurray (69) — August 27
Dr. G. Westfall (89) — September 2
Pierce L. Brown (80) — September 2
Francis R. Martin (87) — September 5
H. L. Macpherson (85) — September 5
Charles H. Whitmer (91) — September 8
Bennie D. Padilla (91) — September 19
F. M. Morris (66) — September 30

Retirees (only):

To notify of changes in address, contact Carol Wade, Benefits Dept. 3332, at 505-845-9705, email cawade@sandia.gov, or call 505-844-3796.

Others:

To change the number of copies of the Lab News your mail stop is receiving, contact Michelle Fleming, Media Relations and Communications Dept. 3651, 505-844-4902, email mfeffien@sandia.gov, or call 505-844-3796.

Lab News Reader Service

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Published on alternate Fridays by Media Relations and Communications Dept. 3651, 505-844-3796, at Sandia National Laboratories, Albuquerque, NM 87185-0165

How-to book on laser beam shaping applications edited by Sandians

Following up on their well-received first book, Laser Beam Shaping Theory and Techniques, Sandians Fred Dickey (2616) and Scott Holsworth (3530) have written (with David Shealy of the University of Alabama at Birmingham) a compact new vol-

ue, Laser Beam Shaping Applications. The attractive new design of this 357-page volume offers readers the thoughts of 19 prominent practition-

ers who share their in-depth knowledge of how to shape laser beams to optimize their utility and improve future development.

Contributors hail from sites as diverse as Moscow, Pretoria, Rochester, and yes, Albuquerque.

In nine well-illustrated chapters, the authors — active leaders in their respective specialties — discuss how to improve illuminators for micro lithography, any type of laser printing systems, and excimer laser imaging systems, as well as optical data storage, isotope separation, shaping via flexible mirrors, and spectral control of spatially dispersive lasers. There is also a review of the field of beam-shaping (this last by Fred and Scott).

The final chapter contains a history of beam shaping that begins thousands of years ago with the Aryans in northern Iraq who had developed “a small oval, polished rock crystal in the shape of a plano-convex lens about one-quarter-inch thick.” It also discusses Advanced, who is said to have arranged parabolic mirrors that would quickly sink wooden ships by burning holes in them. The chapter then concludes with more modern light control.

Extensive references provide intellectual meat for more in-depth study.

The book, published by the Taylor & Francis Group, is 102nd in its optical science and engineering titles.

Recognizing the remarkable lack of acknowledgments to engineers in the modern world (despite the fact that their achievements are everywhere), the authors dedicate their second volume to “the many unrecognized researchers who developed key methods and applications of beam shaping. They innovated quietly to maintain legitimate corporate advantage, so their names are largely unknown.”

The book was published in August and first displayed at the August 2000 SPE Annual Meeting in San Diego.

— Neal Singer

Sandia #3, says Aviation Week

In the Sept. 5 issue of Aviation Week and Space Technology Magazine, an article titled “The Right Stuff” asserts that aerospace and defense contractors interested in attracting the smartest people need to provide “technologically challenging jobs and a robust product-development pipeline.”

The Aviation Week survey ranks Sandia “highest for the second consecutive year in terms of providing technological challenges, valuing its employees, and promoting diversity in the workplace.”

— Neal Singer

Sympathy

To Dave Borns, Manager, Dept. 6113, on the death of his father, William Borns of Philadelphia, Pa., Sept. 6, 2005.

For the record

The ground-breaking ceremony for the new National Infrastructure Simulation and Analysis Center (NISAC) was scheduled for Oct. 12 as announced in the last Lab News, was post- poned and will be rescheduled.

Sandia National Laboratories

http://www.sandia.gov/LabNews

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Lancaster, California 93535-0969
Tonopah, Nevada 89049-0166
Carbondale, New Mexico 87185-0165

Sandia National Laboratories is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin company, for the US Department of Energy’s National Nuclear Security Administration.

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Published on alternate Fridays by Media Relations and Communications Dept. 3651, 505-844-3796, at Sandia National Laboratories, Albuquerque, NM 87185-0165.
Truman Fellow Greg Nielson: Sandia’s microfab and MEMS facilities, staff are second to none

President Harry S. Truman Fellowship in National Security Science and Engineering

Note: As Sandia embarks on the third year of its prestigious President Harry S. Truman Fellowship in National Security Science and Engineering, the Lab News asked Greg Nielson, one of the Fellows selected in the first year of the program, to talk about his experiences at Sandia. Greg holds a BS from Utah State University, and MS and PhD degrees from MIT. During his Truman Fellowship, Greg (Dept. 1769) is refining novel activation switches for microelectromechanical systems (MEMS) devices. The switches can work at speeds 10 to 1,000 times faster than current approaches. Here are Greg’s remarks:

The Truman Fellowship has provided me with a truly unique experience. It has given me the opportunity to think about, explore, and apply the research I initially proposed in an environment of very capable people with expertise in a wide variety of fields and with facilities and equipment that are among the best available in MEMS research in the world.

As I have pursued my work under the fellowship, there have been a number of people around the Labs and in a variety of departments who have given me valuable advice and feedback and have provided avenues for me to explore applications of my proposed work.

The MEMS designers here at Sandia have been an important resource for me as I have worked to optimize the mechanical structure and the control systems for my devices. The process engineers associated with the microfabrication facilities have provided significant contributions as I have worked with them to create the custom process flows required to optimize the performance of my proposed devices.

One of the most important aspects of any research for me is whether or not the research is going to have an impact. That is, will there be an application for it at the end of the day? I’ve had the pleasure of working with several people on finding applications for my work and have been encouraged at the success we have already had in finding important ways that the work supported by the fellowship may have an impact in a variety of applications at Sandia.

In addition to the exceptional people who I’ve had the opportunity to work with, I have been very pleased at the excellent microfabrication and test facilities available here at Sandia. It would be difficult to find better microfabrication facilities for MEMS research than what is available here. By allowing me access to the facilities and people here, the fellowship has made it possible for me to achieve unprecedented levels of performance from my devices.

Finally, one aspect of my experience with the fellowship that I didn’t anticipate was the opportunity to view Sandia National Laboratories from a unique vantage point. The fellowship has allowed me to meet and visit with people from all levels within Sandia and to see the workings of many departments and centers within the Labs. It has been extremely interesting to me to see how Sandia is adapting to the changing role the nation is asking the national labs to play.

Overall, the fellowship has been a really interesting and motivating experience for me. I’ve had many opportunities for personal and professional growth, have been able to interact with exceptional people, have been able to demonstrate MEMS performance never before attained with my research, and have been exposed to the inner workings of the Labs in ways I didn’t anticipate. It has so far been a really valuable opportunity for me, and I look forward to the experiences awaiting me in the remaining two years.

For more information about the Truman Fellowship, including information on how to apply (by Dec. 5), go to: http://www.sandia.gov/employment/specialship, including information on how to apply (by Dec. 5).
Water/energy

(Continued from page 1)

2) what minimum amounts of spores have to be present in air or tissue to be detected by these methods, and 3) how effective are the various methods for extracting material from samples for analysis.

Gary became involved in the study as part of a DHS-funded Domestic Demonstration and Application Program, led by Mark Tucker (6245), that was investigating the interdependency of energy needs and transportation facilities in case of a bio attack.

"If a bio attack occurs, we need to be aware of how many anthrax spores exist initially and how many remain after a cleanup," Gary says. "No one knows how effective these cleanup methods really are, and you don't want to leave material around after a building cleanup in concentrations capable of causing infection."

The question of "how clean is clean" is important for many biological and chemical agents, not just for anthrax. It has received congressional attention and is an area in need of significantly greater study, he adds.

The study's objective was to provide a robust scientific and statistical evaluation of current swab, wipe, and vacuum surface sample collection methods. The investigation was intended to empirically determine recovery efficiency and extraction efficiency, calculate collection efficiency, and determine each method's limit of detection.

Reference surfaces of coupons were seeded by dry deposition with a mixture containing Bacillus atrophaeus spores (a bacterium similar to anthrax but not toxic) and silicon dioxide particles. Forty-eight coupons, each measuring 1.25 cm x 5 cm, made from stainless steel or painted wallboard, were used as the reference surfaces.

After seeding, the surfaces were sampled using traditional collection methods — swabbing, wiping, and vacuuming.

The sampling team found that none of the sampling methods was very efficient.

"The swab system collected 40 percent of the spores, leaving 60 percent behind. The wipes collected 28 percent, leaving 72 percent on the coupons."

The biggest surprise was that the vacuum method collected only 20 percent of the spores, leaving 80 percent on the surface.

"Before this study, the vacuum method was the most highly recommended sampling method by the CDC," Gary says. "As the result of our study, CDC no longer recommends that method."

The study also showed that each collection method has its own detection limit. Through the swabbing technique, 125 spores must be present on the surface to obtain a positive culture. Five hundred spores must exist before a positive culture is observed in both the wiping and vacuuming methods.

The current EPA clean-up criterion is no positive cultures from environmental samples — meaning a site may be cleared because no samples were positive, but viable spores may still remain.

The most widely accepted estimate of inhaled spores required to produce a lethal dose in 50 percent of the population is 8,000. However, researchers at the University of Texas Medical Center using "probit" models, estimate that only 98 inhaled spores may cause lethal infection in 10 percent of the population.

Gary says the study will probably result in significant changes in the interpretation of environmental sampling data following a natural disaster, such as ongoing efforts associated with Hurricanes Katrina and Rita where naturally occurring coliform bacteria and pathogenic mold, like Apergillus and Stachybotrys species, are of concern.

Concerns raised in 2003

Concerns about sample collection method efficiency were first raised in 2003 by a Government Accounting Office report (GAO 2003), "U.S. Postal Service Issues Associated with Anthrax Testing at the Wallingford Facility," GAO-03-787T, May 2003 and during hearings by the Subcommittees of the House of Representatives Subcommittee on National Security, Emerging Threats, and International Relations. The subcommittee commissioned research efforts at that time to fill the data gaps and provide better interpretation tools in advance of another bio attack. At recent hearings held by the same subcommittee to assess progress of the research, the surface collection method evaluation work conducted at Sandia was referenced by the CDC, EPA, and DHS as a significant ongoing effort.

Anthrax

(Continued from page 1)

... (Continued from page 1)
Remotely controlled guns guarding Y-12 high-security sites

Remotely operated weapon systems modified and evaluated at Sandia, now in use at Tennessee plant

By John German

At the NNSA’s Y-12 complex in Tennessee, automated gunners are pulling guard duty at some of the site’s most secure facilities. The robotic gun turrets are controlled remotely by security officers from the safety of a control room.

Sandia developed the Y-12 systems, called Remotely Operated Weapon Systems (ROWS), in partnership with Precision Remotes Inc. of California, which invented the systems.

The work was done for DOE’s Office of Security and Safety Performance Assurance to create automated defense systems to help human security officers protect DOE and NNSA high-security facilities and high-risk materials from armed adversaries.

Sandia’s job was to modify the systems for NNSA applications and evaluate the systems in security settings against mock adversaries, says 6422 Manager Steve Scott.

Each ROWS uses a suite of electronic linear actuators to quickly and precisely aim automatic or semi-automatic rifles at a target. It is commanded remotely by a person in a control station using cameras, scopes, and other sensors.

Unlike a human, the ROWS doesn’t get fatigued, and its accuracy isn’t affected by tremor, trigger anticipation, gun recoil, or shooter fatigue. Its accuracies approach and sometimes exceed those of the best human snipers.

Out of harm’s way

Because ROWS is controlled remotely by someone who isn’t in the line of fire, better decisions can be made about when to shoot, says Steve.

“It removes some of the stress of the situation, which leads to better decisions,” he says. Other advantages include the ability to respond to multiple threats and locations from one command center; immunity of the system to biological, radiological, chemical, and other environments; and increased firepower with reduced costs.

For safety, two people are required for operation of a ROWS system.

During evaluations at Sandia, developmental ROWS systems were installed at Sandia locations, and trained operators practiced using them against a variety of threats and scenarios.

Sandia also modeled use of ROWS systems on the Joint Conflict and Tactical Simulator (JCATS), a computer program that estimates the delay imposed on an adversary by an added security feature.

In many of the simulations, ROWS systems improved the accuracy of the operators and provided additional delay, giving human responders a better chance at stopping or repelling their adversaries, says Steve.

The Y-12 system is the first deployment of a ROWS system in the nuclear weapons complex. Sandia is assisting in the development of ROWS for DoD applications as well.

Sandia and NNSA/SSO officials sign Labs’ Performance Evaluation Plan for ’06

Have a great technology?
A marketable idea?

TVC issues call for business plans

Technology Ventures Corp., a nonprofit corporation established by Lockheed Martin in 1993, is offering free services to help commercialize technologies and create jobs by helping entrepreneurs build businesses and find investors.

Attend a free workshop Oct. 18, 7:30-9:30 a.m. at Embassy Suites Hotel in Albuquerque and find out what TVC can do to help you create, start, or grow your technology company. TVC is seeking entrepreneurs interested in presenting their business plan to investors at the 13th annual New Mexico Equity Capital Symposium next May.

Call for Business Plans Event
Oct. 18 • Embassy Suites Hotel
7:30 - 9:30 a.m.
www.techventures.org
RSVP: 505-246-2882
Medical plan for 2006: More changes...and an overview

Open Enrollment Oct. 26 through Nov. 16

For non- Medicare retirees and survivors

For Medicare retirees and survivors

The UnitedHealthcare (UHC) Premier and CIGNA Premier Preferred Provider Organization (PPO) Plans will

• Allow access to a nationwide network of providers as well as provide an out-of-network benefit with a $25 copay and specialty copays in certain services provided in the physician office will fall to the coinsurance until the out-of-pocket maximum is met.
• Require co-insurance instead of copays (e.g., most in-network services will be $250 per person, it will be $3,000 per person for maximum, the Plan will coordinate with Medicare.
• The Kaiser HMO Plan in California will

• Require higher minimum and/or maximum retail net- work prescription drug and mail order copays.

The Kaiser Senior Advantage Plan will

• Require higher minimum and/or maximum retail net- work prescription drug and mail order copays.

For Medicare retirees and survivors

Medicare Payroll Premiums Plan and, the Kaiser Senior Advantage Plan are Medicare Part B plans that pick up certain prescription coverage at 100%, access to unlimited prescription drug coverage, and in-network benefits only.

Loevser Senior Plan (NM)

• No annual deductible
• No gatekeeper (PCP) required
• Must assign Medicare Part A and B to the plan
• In-network benefit only

Kaiser Senior Advantage Plan (CA)

• No annual deductible
• Self-referral to selected specialists
• Must assign Medicare Part A and B to the plan
• In-network benefit only

This plan will have an out-of-pocket maximum for medi- care beneficiaries of $3,500 for in-network and $3,000 for family. Therefore, once you meet the applicable out-of-pocket maximum, the Plan will pick up 100 percent of charges.

Important Information on Free Prescription Drug Benefit from Medicare for Medicare Participants:

On Dec. 8, 2003, President Bush signed the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 into law. The primary focus of this legislation was to provide prescription drug coverage to Medicare beneficiaries effective Jan. 1, 2006. Medicare is pleased to announce that if you, as a Medicare participant, enroll in one of the medical plans offered through Sandia in 2006 you will not be required to enroll in Medicare Part D or pay the additional Medicare Part D premium.

For Medicare retirees and survivors


Medicare for Medicare Participants:

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Exercise missile ‘accident’ shows nuclear readiness by Sandians

By Neal Singer

An explosion on a Navy loading dock destroyed one Tomahawk missile and dropped a second into 15 feet of water, where it lay buried in mud. Was the water contaminated by radioactive materials and could contamination from the plume from the explosion, caused major problems earlier by the crash of a small private plane into the dock?

Those questions formed the basis for the elaborately six-day scenario — only partly simulated — that drew 20 Sandians and a number of government agencies to a Navy base at the southern end of Georgia for an exercise called Dingo King '05 from Aug. 22-26.

Real concept for the explosion

The exercise was a real concept for the six-day dock explosion that precipitated the problem. Also, nuclear warheads had been removed from the Tomahawks.

Participants worked 12-hour shifts — some in cumbersome personal protective equipment — in temperatures as high as 90 degrees, heat in the 90+ degree range, and Hurricane Katrina on the horizon still developing. Whether to proceed up the Atlantic coast or enter the Gulf. The melded teams found, raised, dismantled, and prepared the “disarmed” missile for transport to a safe haven.

The exercise revealed the strengths and weaknesses — both bureaucratic and naturally occurring — of the massive attempt at coordinating numerous government agencies to achieve a common task. Most participants at a so-called “hot zone” were utterly unaccustomed to the exercise an overwhelming success, despite real-world glitches that had to be overcome.

For example, a crucial team called the Accident Response Group (ARG), populated by Sandia (for this exercise, six full-time and 14 volunteer employees), Los Alamos, and Lawrence Livermore national laboratories, and Pantex participants arrived a day late on the scene because a charter plane did not take off. The team was ferried across the country the next morning by a different carrier.

The delay in arrival of the 70-member main technical team, with which Sandia worked on recovering and saving the weapon but created unseized media in simulated at the exercise site. Reporters were frustrated at being unable to get their technical questions answered by Navy divers or high-ranking Navy players. (Unluckily, the most penetrating questioner among the simulating media was Rear Admiral Annette Brown, most penetrating questioner among the simulated media.)

The interview. The day after the 70-member main technical team arrived, the preliminary work on recovering and saving the weapon was underway.

The accident questions answered by Navy divers or high-ranking Navy players. (Unluckily, the most penetrating questioner among the simulating media was Rear Admiral Annette Brown, most penetrating questioner among the simulated media.)

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Recovery procedures necessarily contrasted with popular movies showing superheroes quickly recovering buried treasure as soon as they find it. This was not, after all, pieces-of-eight but (in exercise terms) an extremely dangerous device.

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Connecting real world to ‘hot zone’

Because the potential for radiological disaster was huge, the ARG team brought monitoring equipment and the expertise of nuclear designers who knew exactly how the weapons functioned.

Four on-foot Sandians deployed 3,100 feet of fiber optic cable to link four video cameras in the “hot zone” proscribed to most participants to the exercise site.

The lift plan was written in tents by five-ton air conditioners brought by the ARG. The lift plan was written in tents by five-ton air conditioners brought by the ARG. Optic lines were laid by the ARG to temporary head quarters-three-quarters of a mile away.

Pressurized water was pumped by a hose through the Bay water to blow off enough mud to insert a strap under one end of the missile and lift it slightly. More high-pressure water cleared off the heavy missile out of the mud and lay it on the dock.

Exercise just a step ahead of Katrina

Still, overall coordination was rated by many participants as “exceptionally good.” Members of the ARG were rapidly accepted and integrated with their DoD opposite numbers. Members of the two huge departments, along with participants from FEMA, the FBI, the Defense Threat Reduction Agency, Environmental Protection Agency, National Transportation Safety Board, the military, and DOE discussions and rapid communication to the front lines.

A failure in communication were noted, as when already-readied and thus potentially frayed straps were employed instead of fresh ones to lift the heavy missile out of the mud and lay it on the dock.

The ARG is a step ahead of Katrina

At the end of the week, the team was ferried back to Albuquerque, which was then veered toward New Orleans.

Visible in the distance and as high as the plane, the hurricane loomed over the normal cloud layer below like the Sandias over Albuquerque.

The next morning. It would strike New Orleans, finding terrible gaps in its preparations, despite the city’s FEMA exercises.

To the natural question of how effective the DoD/DoE exercises would be in the event of a real emergency, Tom Laiche responds, “From a purely weapons recovery standpoint, the national labs and the military, teaming together, have exercised together enough that we can recover any kind of weapon in any kind of configuration.

The problem he foresees, however, is showing “an immediate and positive reaction to public issues that’s rare. This has to do with the fact that he doesn’t mean a media presence so much as immediate government assistance, and people out there doing their job. Before Katrina, the military was not on the scene when Media developed — went dark when a vehicle drove over a cable. But the ARG quickly located the problem and got back in line.

“Those are all real-world problems,” said first-time participant Brad Michelson, manager of Nuclear Safety Assessment (12332), “and we overcame them.”

Speed, he said, was less of an issue than moving without making critical mistakes. “I think the ARG shined, and I think each expertise perspective. We’re well-respected in the accident community. Our role is significant. From a larger perspective [we field] 75 to 100 people who know what they’re doing, and not counting people back home supporting us.”

Sandia maintains most ARG gear

Sandia, under the leadership of John Hoffman of Emergency Response Systems (12345), maintains the bulk of ARG equipment for all users year round, and is responsible for seeing it get to emergency sites in a timely manner to begin the response.

Why wouldn’t the Navy divers try to locate the missile — known to have fallen close by the dock — by merely poking in the mud with a stick? “If I poke it, I have to worry about it,” Brad said. “I don’t know how much I’ve sensitized [the explosives in the weapon].”

The divers probably used magnetometers to locate the shell of the missile.

Interdepartmental problems occurred when a control line set up by Pantex employees, beyond which unauthorized personnel were forbidden, as well as by Marines attempting to retrieve their buddies at a shift change in the designated hot zone area. As the Base nuclear site manager put it, “The Marines did what Marines do, and cleared the area. For an hour and a half, they let us do the exercise. The problem was solved by the ARG and DOE discussions and rapid communication to the front lines.

Other failures in communication were noted, as when already-readied and thus potentially frayed straps were employed instead of fresh ones to lift the heavy missile out of the mud and lay it on the dock.

ARG needs you

ARG is not a phrase out of the recent “Speak-Like-Harry days from Baywatch” (Sept. 19). Nor is it a cousin of the closely knit BORG of Star Trek.

The Accident Response Group handles the most serious nuclear situations in any part of the world on short notice, without losing its cool in the heat of the moment if it must move back one step, it advances two. And it needs volunteers.

ARG’s mission, according to a DOE handout, is “to develop and maintain readiness to efficiently manage the resolution of accidents or incidents involving nuclear weapons that are in DOE’s custody at the time the accident occurred. The ARG will also provide timely worldwide support to [DoD,] involving accidents and significant incidents involving nuclear weapons in DoD’s custody.”

Using highly specialized equipment, the ARG is expected to monitor, assess, or remove nuclear weapons, components, or debris.

Do you have the skills to help? Contact Ralph Carr of Emergency Response Systems Engineering (12345) for further information.

Focused on ‘what goes boom’

The EOD folk, he said, are focused on “what goes boom,” the story of a bomb that blows itself up. They know rocket motors, propellants, explosives. They’re not necessarily conversant with the hot zone technical issues that will be generated.” By this, he means it gets to emergency sites in a timely manner to begin the response.

The problem he foresees, however, is showing “an immediate and positive reaction to public issues that’s rare. This has to do with the fact that he doesn’t mean a media presence so much as immediate government assistance, and people out there doing their job. Before Katrina, the military was not on the scene when Media developed — went dark when a vehicle drove over a cable. But the ARG quickly located the problem and got back in line.

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Sandia maintains most ARG gear

Sandia, under the leadership of John Hoffman of Emergency Response Systems (12345), maintains the bulk of ARG equipment for all users year round, and is responsible for seeing it get to emergency sites in a timely manner to begin the response.

Why wouldn’t the Navy divers try to locate the missile — known to have fallen close by the dock — by merely poking in the mud with a stick? “If I poke it, I have to worry about it,” Brad said. “I don’t know how much I’ve sensitized [the explosives in the weapon].”

The divers probably used magnetometers to locate the shell of the missile.

Interdepartmental problems occurred when a control line set up by Pantex employees, beyond which unauthorized personnel were forbidden, as well as by Marines attempting to retrieve their buddies at a shift change in the designated hot zone area. As the Base nuclear site manager put it, “The Marines did what Marines do, and cleared the area. For an hour and a half, they let us do the exercise. The problem was solved by the ARG and DOE discussions and rapid communication to the front lines.

Other failures in communication were noted, as when already-readied and thus potentially frayed straps were employed instead of fresh ones to lift the heavy missile out of the mud and lay it on the dock.

Exercise just a step ahead of Katrina

Still, overall coordination was rated by many participants as “exceptionally good.” Members of the ARG were rapidly accepted and integrated with their DoD opposite numbers. Members of the two huge departments, along with participants from FEMA, the FBI, the Defense Threat Reduction Agency, Environmental Protection Agency, National Transportation Safety Board, the military, and DOE discussions and rapid communication to the front lines.

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Manager Promotions

California

Barry Hess from Manager, Cyber Security Initiatives Dept. 8156, to Senior Manager and Deputy Chief Information Officer for Information Systems in Center 4600.

Barry joined Sandia in 1981. He designed real-time image processing techniques, used in projects with United Technologies and Bethlehem Steel. In 1993 he began full-time research on distributed system software, eventually copyrighting software that was licensed to industrial partners.

He was Manager of Security and Network Research from 1999 to 2001, where he managed Sandia’s California cybersecurity operations, information security research, cybersecurity education, intrusion detection research, and advanced network research.

He helped build and manage the Center for Cyber Defenders, where more than 100 interns have been trained.

He began managing the Information Security Department in 2001, and until 2004 served as Deputy Corporate Cyber Security Program Manager and co-managed Sandia’s corporate cybersecurity program.

He then moved to the Homeland Security Strategic Management Unit where he served as the Homeland and Security 5MU Program Deputy supporting the DHS Information Analysis and Infrastructure Protection Directorate.

In his new role he serves as Sandia’s Chief Information Architect and Deputy Chief Information Officer for Information Systems, as well as becoming a member of the Operational Planning and Analysis Group.

Barry holds degrees in electronics engineering and computer engineering from Nashville Tech.

New Mexico

Steve Rohde from Team Leader, Micro-Product Engineering Dept. 1712, to Manager, Embedded Subsystems Dept. 5337.

Steve joined Sandia in 1988. Before that, he was an autopilot systems engineer for Sperry Flight Systems in Phoenix and Albuquerque before becoming a civilian engineer for the US Navy at China Lake, Calif. Steve finished his time at China Lake as a branch manager for conventional weapon fuzing.

He came to Sandia to do conventional fuzing and has since worked in several SANDO departments on the Vulnerability Assessment Program and most recently on the Microsystems Integrator in Dept. 1712, working most notably on the 2004 Employee Recognition Award-winning Micro-Hound with Dept. 6418, formerly part of 4100 and 5800.

Steve has three joint patent applications in the field on Ion Mobility Spectrometer (IMS) construction, novel IMS signal processing, and earth location based on planetary motion (Galolocation).

He has a BSEE from South Dakota School of Mines in Rapid City and an MSEE from California State University in Northridge.

JIM brings Labs education outreach to Deming classrooms four days a week.

CrosSlinks volunteers, says Amy Tapia (3652). “We are always recruiting more. The program focuses on K-5, and we can provide volunteers with standards-based kits including lesson plans and materials.”

JIM often wondered if he was getting through to students until one day.

“I was teaching optics to a group of fourth graders,” says JIM. “As I explained how a lens works, I noticed a student looked confused. I wondered if I was totally losing him. My thought was if I had lost him, had I lost all the others as well?”

Weeks later JIM was present when the teacher was showing pictures of the class JIM taught. The photo showed him discussing lenses. All of a sudden, the student who JIM thought he had lost spoke up. “I know exactly how that works,” said the excited student. He then proceeded to explain to the class in complete detail. He described exactly what, why, and how the lens worked almost word for word from that class.

“JIM was shocked,” says JIM. “JIM was at a loss for words. JIM will never forget that. It is the reason I keep doing this. JIM do not get paid financially, but payment in the form of satisfaction will always replace money.”

For more information or if you would like to volunteer for CrosSlinks, contact Amy Tapia at atapia@sandia.gov or at 284-5207.
United Way’s Corporate Cornerstone program allows your dollars to go 100 percent to programs

By Iris Aboytes

Corporate Cornerstone members are companies, like Lockheed Martin, that choose to direct their corporate gifts to pay United Way’s administrative expenses. Lockheed Martin is a $50,000 contributor. This program enables 100 percent of the money donated by Sandians through ECP programs to go to the people least able to help themselves in central New Mexico.

Established in 1998, the program is a corporate recognition program. Because of its extensive use of volunteers, United Way’s administrative costs (15 percent) are among the lowest of most major charities and less than most agencies in our community.

Since 2002, Corporate Cornerstone companies have contributed more than the total administrative budget required each year. The additional funds are used to extend United Way’s programs to other areas, such as technology, office equipment, and volunteers. The following programs include:

The Center for Nonprofit Excellence — A collaborative effort between United Way and the Albuquerque Community Foundation, the center is designed to improve the core capacities of all nonprofit organizations in areas such as technology, board recruitment and training, fundraising, and strategic planning. It will be operational this month. The following programs, which are already in place, will come under the center.

Social Entrepreneurship — An intensive, business-based, 18-month training program that helps nonprofit organizations create new enterprises in line with their mission and which create new streams of revenue to sustain the work of their organizations.

The Initiative Against Family Violence — With reports of domestic violence escalating, this initiative works to change the culture and eliminate violence for family violence. Current efforts are focused on community education and bringing all families together to collaborate on how services can better serve victims.

The New Mexico Health Care Collaborative — This initiative is building a disease management data warehouse focusing on diabetes, pediatric asthma, low-back pain, and depression. This is particularly helpful to emergency-room physicians and school nurses who encounter acutely breathless children and often have no baseline or medication information to assist and treat them.

Priority Focus Area Funding — Remaining Corporate Cornerstone funds are added to the dollars allocated to participating organizations through the volunteer review process.

Technology Assistance Fund — This is a way for local nonprofits to apply for matching funds for technology hardware and software. The center anticipates offering technology assistance through the corporate partner companies.

United Way’s Community Fund: Where does the money go?

The dollars raised in the 2005 campaign are currently funding 125 programs in 80 agencies within central New Mexico through the Community Fund. The per-agency allocation average grant is $60,000. The competitive process is open to any nonprofit organization in central New Mexico serving the most vulnerable.

Who decides where the money goes? Volunteers decide. Each year, more than 200 volunteers provide a rigorous, informed, and onsite review for programs that seek United Way funding. Programs are examined for need, efficiency and effectiveness, and fiscal accountability. This process, unique to United Way, provides quality assurance on behalf of all donors.

Volunteers are placed on community panels and meet to review proposals from the different agencies and make recommendations. Sandians sit on panels every year.

The Community Fund is backed by a money-back guarantee. This means that if a donor does not like where the money is going, he or she can get the donation back. This offer is rare among agencies.

The Community Fund is designed for the common good. Donor gifts collectively offer comprehensive solutions for the most vulnerable people in our community with serious issues affecting their lives.

A gift to the Community Fund is more than a charitable gift. It is a new hope, a new path. It is dignity restored. It is turning dependence into independence. Giving to the Community Fund builds a better community for all of us. Be the link of the chain we call humanity. — Iris Aboytes

Sandia giving: It’s a tradition. Why?

Retiree Merrill Jones is grateful for the opportunity to participate.

Why do I give to ECP? There are many reasons. Right now, we are especially aware that there are members of our society who are builders, and those who are spoilers. I want to be among the builders. I am one way of doing that is to support the Employee Contribution Plan (ECP). The programs it supports help many people to reach their maximum potential and in the process improve our city, state, and country.

I have experienced the constructive work that is enabled by ECP. In the past, my brother benefited from training and counseling programs that were far beyond anything that our family could have done for him. Since I can’t take care of all of them myself, I try to encourage others to help as well. If I can help just one family, it is worth all the time I spend.

I challenge each Sandian to look deep into his or her heart. Your support is crucial to making Albuquerque a better, stronger, and more caring community.

Jim Felix (1752) considers it a privilege to help others.

I learned the importance of giving from the generosity of my parents. They were always helping those in need by volunteering their time and talents. Growing up and seeing them make a difference in the lives of others was awesome.

I give simply because I believe it is important to give back to the community. My achievements in life are due to the sacrifices and hard work of many individuals. I see it as a privilege to help give others the same opportunities I’ve been given.

My busy schedule makes it difficult to donate the amount of time I would like. But I can make enough money so I am able to give financially and still live a comfortable life and see the world. I could find other ways to spend my donation, but I see giving to the United Way through the Sandia ECP as an investment in our community’s future. By donating through ECP, I can be certain that my giving actually goes to those in our community who need it most.