Sandia researchers tackle urgent problems at the extreme ends of the earth

Many have been asked of Sandians from the very beginning. Since its founding in 1949, the Labs’ extraordinary mission work has required researchers to travel to the far ends of the world to test nuclear weapon components in every conceivable environment. Over the years, that has meant weeks — and even months — away from home, living in tents in remote locales ranging from jungles to deserts to frozen slopes to tropical islands.

While exotic travel related to weapons work doesn’t occur with the intensity or frequency of years past, Sandia’s mission still requires expertise across a wide range of disciplines, because of that expertise, the nation continues to turn to Sandia and much is still asked of Labs researchers.

Case in point: In recent months, Sandia teams have found themselves doing vital, unrelated work in both the arctic and antarctic regions of the globe.

Four Sandia researchers recently went to the icy southern continent to test a Sandia-modified miniaturized synthetic aperture radar (MiniSAR) sensor to demonstrate that it could detect buried or bridged crevasses, a real danger to aircraft making deliveries to remote outposts across the vast southern landmass.

The antarctic team flew MiniSAR experiments on a National Science Foundation-sponsored Twin Otter. The device was able to detect virtually invisible crevasses hidden beneath the snow. The equipment will eventually be flown on LC-130s, the workhorses of the south.

Meanwhile, Sandia has had a long-term presence in Point Barrow, Alaska, working with researchers from many national labs, federal agencies, and universities to better understand high-latitude atmospheric phenomena and how those phenomena may impact or indicate trends in global climate change. The DOE Office of Science-sponsored work is generating data that are helping refine existing global climate models.

Lab News writer Michael Padilla wrote about the MiniSAR work begins on page 8; Darrick Hurst writes about high-latitude climate research on pages 10-11.

### Ice created in nanoseconds by Sandia’s Z machine

Sandia’s huge Z machine has turned water to ice in nanoseconds. However, don’t expect anything commercial just yet: Z’s ice is hotter than the boiling point of water.

“The three phases of water as we know them — cold ice, room temperature liquid, and hot vapor — are actually only a small part of water’s repertory of states,” says Sandia researcher Daniel Dolan (1646). “Compressing water customarily heats it. But under extreme compression, it is easier for dense water to enter its solid phase [ice] than maintain the more energetic liquid phase [water].”

In the Z experiment, the volume of water shrank abruptly and discontinuously, consistent with the formation of almost every known form of ice. (One might wonder — given the common experience of frozen water expanding to wreck garden hoses left out over winter — why this ice shrank instead of expanding. The answer is that only “ordinary” ice expands when water freezes. There are at least 11 other known forms of ice occurring at a variety of temperatures and pressures.)

“This work,” says Daniel, “is a basic science study that helps us understand the physics of water.”

### Budget cut, participation increase put pressure on Tuition Assistance Program

Rumors of the demise of Sandia’s Tuition Assistance Program have been greatly exaggerated. However, the program’s financial issues have not yet been completely resolved.

An email sent earlier this year to Sandians enrolled in the Tuition Assistance Program (TAP) touched off a flurry of rumors about the program. The email asked students graduating in 2007 to provide information on the number of classes and tuition needed to graduate, and estimated graduation date.

A budget cut accompanied by a significant increase in participation prompted the email as staff in Corporate Learning & Professional Development (CL&PD) studied the potential impact of funding shortfalls. While they

(Continued on page 4)

### Energy, water closely linked, DOE report to Congress says

By Chris Burroughs

The US should begin looking at energy and water needs as one issue so that each resource can be sustained in the future.

That is the crux of findings of a report recently submitted to Congress by DOE. A team from Sandia, Los Alamos National Laboratory, the National Energy Technology Laboratory, and the Electric Power Research Institute investigated the information collection and report development efforts, with Sandia taking charge of writing it. “Basically the report notes that energy and water are closely linked,” says key report author Chris Cameron (6335). “The production of energy requires large volumes of water.

(Continued on page 5)
What’s what

They may not be funny from the point of view of the would-be sellers, but sometimes the offerings in the Lab News classifieds make you wonder.

In the March 2 issue, for example, a baseball bat “used once” was available. Why? Used once and it didn’t work! Used once and the better discovered baseball wasn’t his (or her) sport? Why would someone buy a baseball bat, use it once and then sell it? Odd.

And in the same issue, someone was selling a “Battle of the Sexes” board game that was used only once. That’s maybe a little more understandable.

... And while I’m wondering about stuff, why is there such a concerted effort to label Sandians “Members of the Workforce,” or MOWs? What’s the problem with calling us what we’ve been since the beginning: Sandians?

The consensus seems to be that, regardless of whether you’re an actual lab employee or someone working at the lab under contract, you’re a Sandian in the general sense. We’re all engaged in the same mission, and the security.

Also, Member of the Workforce or MOW is such a utilitarian title, so “gray,” compared with “Sandian.” Like labeling a building “Concrete General-Purpose Structure” instead of Stratchona Hall or Memorial Coliseum or The Fit.

There are members of millions of workforces around the world, but only one collection of Sandians. Granted, not everyone everywhere knows about Sandia, but in the universe of our peers, everyone does. Say somebody is a Sandian and everybody in that universe knows who and what they’re talking about. But MOW? Member of the Workforce? What’s up with that?

... During an around-the-coffeepot conversation recently, the talk turned to parking spaces. (It was a really slow day.) There was the usual discussion about king-cab, long-bed trucks leaving little room to squeeze by; the nearly ground-level front fairings on new cars, whose drivers sometimes stop three or four feet from the bumpers to keep from damaging those fragile structures; and special designations like second-shift and carpool, where there are almost always vacant spaces.

When the talk turned to the frustration of weaving back and forth through a parking lot looking for a space, someone brought up the analogy to stadium seating. A stadium can be “sold out,” but still have seats available. Why? Used once and it didn’t work? Used once and the batter wonder.

Maybe the people who plan parking for Sandia are operating on the same principle.

— Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)
**Lawrence Livermore/ Sandia design gets RRW nod**

Sandia/California will play key systems integration role, tapping into full resources of the Labs

Note The following is adapted from an official NNSA news release. More detail about Sandia’s role in the RRW program will be published in an upcoming issue of the Lab News.

NNSA has announced that the design team from Lawrence Livermore National Laboratory and Sandia has been selected to develop the Reliable Replacement Warhead (RRW). The announcement signifies the Lawrence Livermore/Sandia design team can be certified without requiring underground nuclear testing, a major factor in its selection.

Sandia/California will lead the program and subsequently produce the RRW project plan and cost estimate for development and subsequent production.

As part of the program, the Navy will lead the overall project team. An integrated team of designers and engineers led by Lawrence Livermore will provide the production plants to develop the nuclear explosive component of the weapon. Sandia will develop the non-nuclear components and ensure compatibility with the DoD’s Trident submarine-launched ballistic missile.

Sandia/California will play a lead systems integration role utilizing the full capabilities of the Labs. Both Sandia/New Mexico and Sandia/California will lead the design and development of significant components.

The decision clears the way for a joint NNSA and US Navy program to provide a replacement warhead for a portion of the nation’s sea-based nuclear weapons that will provide means to ensure long-term confidence in a more secure, smaller, and safer nuclear weapons stockpile.

NNSA and the Navy will develop a detailed Design project plan and cost estimate for developing and producing the system. The work will support a future decision to seek congressional authorization and funding in order to proceed into system development and subsequent production.

The Navy awarded a contract to the Lawrence Livermore/Sandia design. The Lawrence Livermore/Sandia design can be certified without requiring underground nuclear testing.

The RRW design concept utilizes modern technology that was not available during the Cold War when our nuclear weapons were designed and built,” said Thomas D’Agostino, NNSA’s acting administrator. “This will permit significant upgrades in safety and security features in the replacement warhead that will keep the same explosive yields and other military characteristics as the current ones. RRW will take advantage of today’s science to ensure the long-term confidence in the future stockpile. RRW builds on the successful scientific accomplishments of our Stockpile Stewardship Program, which helps to maintain our nuclear weapons without underground testing.”

The Nuclear Weapons Council (NWC) — a group of senior officials from the DoD and NNSA established by law to oversee nuclear weapons programs — made the final design selection. The NWC evaluated two proposals, one submitted by a Lawrence Livermore/Sandia team and another submitted by Los Alamos/Sandia team, and determined that although both designs fully met all RRW requirements, higher confidence in the ability to certify the Lawrence Livermore/Sandia design without underground nuclear testing was the primary reason for its selection.

During the three-month design competition, Lawrence Livermore/Sandia was the front-runner, with Los Alamos/Sandia closely behind. Features of the Los Alamos design were highly innovative and will be developed in parallel with the Lawrence Livermore/Sandia design.

A joint statement released by the three lab directors said all three laboratories and the production complex will work together on RRW as an integrated NNSA project team. “Today’s announcement is an important first step in the RRW program that will enable a sustainable nuclear deterrent for our nation. . . . We support this acquisition strategy and stand ready to participate in the transformation of the weapons complex,” the joint statement said.

**Sandia/ University of Texas Medical Branch postdoctoral fellowship program underscores growing partnership**

By Mike Janes

Sandia’s ongoing strategic institutional partnership with the University of Texas Medical Branch at Galveston (UTMB) reached a high point in November when the two entities established a jointly funded postdoctoral fellowship program.

The program will enable the alliance between the two organizations to grow even further, says Tony Martin, manager of Biomedical Analytical Imaging and Analysis (BioAIMA) at Sandia National Laboratories. BioAIMA has worked with UTMB. The fellowship program was highlighted during a joint workshop on Collaborative Research in Biotechnology for Biodefense and Emerging Infectious Disease.

Tony says the workshop represented “an important step in fostering individual partnerships with UTMB researchers and multidisciplinary research teams.”

The workshop was conducted in Galveston, Texas, the site of UTMB’s Galveston National Laboratory, one of two national biodefense laboratories to be constructed under grants awarded by the National Institute of Allergy and Infectious Diseases/National Institutes of Health. The workshop featured several breakout sessions, including technical presentations on the Microscale Immune Studies Laboratory (MISL) Grand Challenge, an initiative that has worked with UTMB. The fellowship program was highlighted during a joint Workshop on Collaborative Research in Biotechnology for Biodefense and Emerging Infectious Disease.

Tony says that the workshop represented “an important step in fostering individual partnerships with UTMB researchers and multidisciplinary research teams.”

Sandia’s rich history in science and engineering, as well as our commercialization savvy and our capabilities in high-performance computing, are very attractive to UTMB,” he says. “Conversely, UTMB enjoys incredible depth in its study of emerging diseases and the biomedical aspects of that line of research. We value that expertise tremendously.”

John Glenn also points to the $167 million Galveston National Laboratory (GSL) — largely funded by the National Institutes of Health and managed by UTMB under the direction of Dr. Stan Lemann — as a key driver for the UTMB’s commitment to advanced medical research.

At GSL, research will focus on therapies, vaccines, and diagnostic tests for naturally occurring emerging diseases such as SARS and West Nile encephalitis, as well as for viral and bacterial agents that might be employed by terrorists.

Glenn noted that UTMB has been named by the National Institute of Allergy and Infectious Diseases as one of 10 Regional Centers of Excellence for Biodefense and Emerging Infectious Diseases. So the UTMB’s mission is to create a national agenda for joint research, with an understanding of the importance of building strong research teams.

The new fellowship program represents a significant commitment on the part of UTMB, one which pleases us enormously,” says Rick UMB’s Gorenstein also acknowledges the importance of this joint fellowship program to “stimulate unique, multidisciplinary research between Sandia and UTMB — bringing together two of the national laboratories.”

Sandia and the University of Texas joined forces in early 2005 when the UT System Board of Regents unanimously approved a memorandum of understanding (MOU) between the system and Sandia. The MOU has three objectives, including one that specifically called for increased interactions and collaborations between individual staff, faculty, and students at Sandia and UT System academic and health institutions.

As recently as last October, Labs Director Tony Hunter and Rick led a Sandia delegation to the UT System offices in Austin to meet with UT Chancellor Mark Yudof and members of his team to talk about issues related to the relationship, with an underlying goal of identifying how to jointly create a national agenda (see Lab News, Oct. 13, 2006).

Glenn says Sandia and UTMB continue to offer collaborative capabilities that will make both organizations stronger, particularly in the area of biodefense.

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than 50 percent increase. Increased from 420 the previous year to 640 — a more effective with our budget and at the same time provide a high quality of education for Sandians."

Daniel Dolan

"Apparently it’s virtually impossible to keep water from freezing at pressures beyond 70,000 atmospheres."

One unforeseen result of Daniel’s test was that the water froze so rapidly. The freezing process as it is customarily observed requires many seconds at the very least. The answer, says Daniel, seems to be that very fast compression causes very fast freezing. At both Z in Area 4 and also Sandia’s nearby STAR (Shock Thermodynamic Applied Research) gun facility in Area 5, thin water samples were compressed to pressures of 50,000-120,000 atmospheres in less than 100 nanoseconds. Under such pressures, water appears to transform to ice VII, a phase of water first discovered by Nobel laureate Percy Bridgman in the 1930s. The compressed water appeared to solidify into ice within a few nanoseconds.

Nucleating agents, of course, are often used to hasten slugs of water, such as when clouds are seeded with silver iodide to induce rain. Daniel already had demonstrated, as a graduate physics student at Washington University, that water can freeze on nanoscale time scales in the presence of a nucleating agent. However, the behavior of pure water under high pressure remained a mystery. Sandia’s instruments observed the un-nucleated water becoming rapidly opaque — a sign of ice formation in which water and ice coexist — as pressure increased. At the 70,000 atmosphere mark and thereafter, the water became clear, a sign that the container now held entirely ice.

"Apparently it’s virtually impossible to keep water from freezing at pressures beyond 70,000 atmospheres," Daniel says. What he and his colleagues learned was that under the proper conditions by magnetic compression. Twenty million amperes of electricity passed through a small aluminum chamber, creating a magnetic field that isotropically compressed aluminum plate roughly 5.5 by 2 inches in cross-section. This created a shockless but rapidly increasing compression across a 25-micron-deep pad of water.

The multipurpose Z machine, whose main use is to produce data to improve the safety and reliability of the US nuclear deterrent, has compressed spherical capsules of hydrogen isotopes to release neutrons — the presupposition for controlled nuclear fusion and essentially unlimited energy for humanity.

This work is sponsored by the National Nuclear Security Administration. Other authors on the paper are Chris Deeney (now at NNSA), Mark Knudson (1646), and Clint Hall (1646).

Tuition program

In FY06, the number of Sandians participating in the Tuition Assistance Program (TAP) unexpectedly increased from 420 the previous year to 640 — a more than 50 percent increase, says financial analyst Donna Robertson (3012). By cutting back in other areas and reallocating some of their budget, efforts are still underway to locate additional funding sources for students for long-term funding.

"We have funding to handle the balance of this fiscal year," says Charlene Wells, CL&PD senior manager. "There’s a strong feeling on the part of Sandia’s executive management that we need to do whatever it takes to make this work and honor our commitment to employees participating in this program."

Charlene says that she and her staff are also looking into other funding mechanisms and ways to avoid situations like this in the future.

More Sandians pursuing more education

In FY06, the number of Sandians participating in the Tuition Assistance Program (TAP) unexpectedly increased from 420 the previous year to 640 — a more than 50 percent increase.

1. Under CPR300.6.30, regular (full-time and part-time) employees, and temporary employees (such as recurrent staff, postdocs, faculty sabbatical appointees, limited-term employees, and student interns at the undergraduate and graduate level) may apply for telecommuting at the discretion of their immediate manager. The ability of the company to allow telecommuting is based on many factors and considerations with the primary factor being the needs of the business. In many cases, the work to be completed may not be done off-site and telecommuting is simply not an option. In other cases, partial telecommuting may be allowed contingent on the availability of resources to complete the work and other factors. Telecommuting is a program that balances the needs of an employee within the requirements of the company, with company requirements and needs taking precedence.

2. If a Telecommuter’s Authorization form is completed and submitted before a telecommuting arrangement can begin. If the off-site work location is outside of New Mexico or California the employee will need both the manager’s and director’s approval.

Feedback

Q: Under what conditions can full-time salaried employees or postdocs work from home for an extended time (9 months or more)? Is there an approval process? A: Under CPR300.6.30, regular (full-time and part-time) employees, and temporary employees (such as recurrent staff, postdocs, faculty sabbatical appointees, limited-term employees, and student interns at the undergraduate and graduate level) may apply for telecommuting at the discretion of their immediate manager. The ability of the company to allow telecommuting is based on many factors and considerations with the primary factor being the needs of the business. In many cases, the work to be completed may not be done off-site and telecommuting is simply not an option. In other cases, partial telecommuting may be allowed contingent on the availability of resources to complete the work and other factors. Telecommuting is a program that balances the needs of an employee with the requirements of the company, with company requirements and needs taking precedence.

The approval process consists of requesting a telecommuting arrangement from the manager and discussing what work will be completed, how progress will be measured, how contact will be maintained similar to working on site, and other factors. If the request is approved by the manager, a Telecommuter’s Authorization form is completed and submitted before a telecommuting arrangement can begin. If the off-site work location is outside of New Mexico or California the employee will need both the manager’s and director’s approval.

For telecommuting arrangements that are not regularly scheduled work hours (core hours must be in accordance with CPR300.4.1, "Hours of Work"), you would need to follow the exception process and go through HR for clearance. The approval process for Telecommuting is designed to terminate the agreement when he/she no longer telecommutes by terminating the agreement and sending it to the telecommuting coordinator. Failure to complete this information will not create negative tax complications for the employee as well as financial risk for the company.

— BJ Jones, Director (3500)
Water study (Continued from page 1)

“Those of us from the West already know how real the threat of limited water availability is. But the rest of the country should also be concerned because water is increasingly relied on in every aspect of energy production.”

— US Sen. Pete Domenici

while the treatment and distribution of water is equally dependent upon readily available, low-cost energy.”


Mike Hightower (6332) coauthored the report. “As population has increased, demand for energy and water has grown,” the report says. “Competing demands for water supply are affecting the value and availability of the resource. The operation of some energy facilities has been curtailed due to water concerns, and siting (building) and operation of new energy facilities must take into account the value of water resources.”

Chris says that in preparing the report, it became obvious the availability of adequate water supplies has an impact on the availability of energy, and energy production and generation activities affect the availability and quality of water. This becomes particularly alarming as populations grow in water-scarce regions of the country like the South and Southwest where demand for power is increasing.

Water used throughout energy sector

Water is used throughout the energy sector, including resource extraction, refining and processing, electric power generation, storage, and transport. Large energy-related facilities, such as power plants, mines, and refineries can have a significant impact on local water supplies and water quality.

US Sen. Pete Domenici (R-N.M.), ranking member of the Senate Energy and Natural Resources Committee, says the report should “serve as a wake-up call to those working to diversify our nation’s energy supply.”

“Those of us from the West already know how real the threat of limited water availability is,” he says. “But the rest of the country should also be concerned because water is increasingly relied on in every aspect of energy production.”

The report notes that thermoelectric power generation accounts for 39 percent of all fresh-water withdrawals and 20 percent of all nonagricultural water consumption in the US. If new power plants continue to be built with evaporative cooling, consumption of water for electrical energy production could more than double from 3.3 billion gallons a day used in 1995 to about 7.3 billion gallons a day by 2030. This would be equal to the entire country’s domestic water consumption in 1995.

Alternatives: Solar, wind

On a positive note, there are a number of alternatives to producing electricity that do not use much water, including wind and solar energy — although they do not necessarily produce the electricity when it is most needed.

“More importantly, while not much water is currently consumed in producing transportation fuels, future transportation production fuels may be obtained from the production of biofuels, hydrogen, and coal liquefaction, all of which require more water than is used now in refining petroleum.”

— Chris Cameron

Examples of energy-water conflicts

- Arizona rejected a permit for a proposed power plant because of potential impact on a local aquifer.
- Idaho opposed two proposed power plants because of impact on aquifers.
- As a result of a 1999 drought, water-dependent industries along the Susquehanna River reported difficulty getting sufficient water supplies to meet operational needs.
- Low water on the Missouri River leads to high pumping energy, blocked screens, lower efficiency, load reduction, or shutdown at power plants.
- Southern States Energy Board members cited water availability as a key factor in the permitting process for new merchant power plants.

ENERGY PRODUCTION AND WATER USE are inextricably linked. A report to Congress by DOE, written with key input from Sandia researchers, calls attention to the often overlooked relationship and its implications for national energy and water policy.
Sandia makes considerable strides in assessment of diversity maturity

Labs jumps from score of 2.2 to 3.3 in annual Lockheed Martin Diversity Maturity Model assessment

By Chris Burroughs

Jumping from a score of 2.2 in 2005 to 3.3 in 2006 on a scale of 5.0 in the Lockheed Martin Diversity Maturity Model (DMM) assessment, Sandia has made considerable strides in assessing the Labs' diversity progress.

That is according to Margaret Harvey, manager of Diversity, EEO & AA Services Dept. 3512. “We did significantly better this year as a result of commitment on the part of Sandia leadership to diversity, as well as an improved process for responding to the assessment,” she says. “In addition, we were much better at documenting our processes relevant to our diversity efforts, better at communicating the process, the effectiveness and impact to the peer reviewers.”

According to Lockheed Martin Chairman and President Bob Stevens upon announcing the 3.2 average for the corporation as a whole, a “three on the scale means an organization has reached a level where diversity and inclusiveness are embraced.”

Rochelle Lari (3512), diversity program lead for the Labs, says that Sandia’s 2006 assessment efforts involved “a lot more rigor” than in the previous two years, engaging a broader set of subject matter experts, as well as adding pink and red team reviewers, and involved leadership from senior management.

“It took us a full year to prepare for and participate in the assessment,” she says. “We had monthly subject-matter meetings attended by a variety of people ranging from representatives of the student intern program, supplier diversity, recruiting, mentoring, EEO, diversity, and corporate quality processes, and external customer satisfaction.”

The Diversity Maturity Model takes a three-pronged approach:

- **Diversity self-assessment.** The assessment of processes and their effectiveness is determined by responses to more than 70 questions in the areas of leadership commitment, organization climate and culture, workforce strategy and development, and customer experience management. Sandia’s responses to the questions included many pieces of evidence. The self-assessment was reviewed and validated by a Lockheed Martin peer review team, which conducted on-site visits to 14 business areas/units during the fall of 2006.

- **Employee survey.** The survey measures employee perspectives regarding leadership commitment, organization climate and culture, workforce strategy and development, and customer experience management with questions related to manager accountability, reward and recognition for good work, respect for employee ideas, and creating a work environment for company loyalty, for example. It was sent to 50 percent of the regular workforce, randomly selected, between Aug. 30 and Sept. 20, and at Sandia had a 38 percent response rate.

- **Objective data adder** (score adjusted up to 0.5 points, plus or minus). This looked at data concerning the hiring and retention of minorities, women, and short-service employees. Sandia’s score included a 0.15 adder based on performance against pre-established standards.

New in 2006 were two internal reviews, done before the Lockheed Martin peer review team visited for the formal review. The internal reviews involved a “pink” team that did a preliminary review and a “red” team that did a final review prior to submission of the self-assessment.

Rochelle says that last year, the second year of the assessment, 80 percent of participating business units failed to meet their targets, with many scores falling from the first year’s assessment. That prompted Rochelle and others from across the enterprise to participate in a process improvement review. Several improvements were adapted, including:

- On-site peer reviews with reviewers representing the various Lockheed Martin business areas.
- Leadership at each of the visited sites could meet with the peer reviewers and had the opportunity to provide an overview of the business and discuss their commitments to diversity.
- Sandia and Lockheed Martin employees performed self-assessments.
- Leadership at each of the visited sites could meet with the peer reviewers and had the opportunity to discuss the results.

“While our Diversity Model score improved greatly between 2005 and 2006, we still have much work to do in these dynamic times to ensure continued progress toward a more inclusive work environment,” Margaret says.

By Iris Aboytes

Take Our Daughters and Sons to Work Day will be held April 26 at both Sandia/New Mexico and Sandia/California.

Sandia employees and contractors can invite children to visit their workplace and learn more about their parents’ work and Sandia’s mission. This can be an avenue to encourage students to pursue science, technology, engineering, and math careers.

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Children in grades six through 12 are invited to visit their workplace and learn more about their parents’ work and Sandia’s mission. This can be an avenue to encourage students to pursue science, technology, engineering, and math careers.

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Amy Tapia, Coordinator
Robin Jessen
Machielle Karler
Lori Cameron
Ernest Sanchez

Division Representatives
Debra Chavez 1000
Rachel Wilson 2000
Sharon Delgado 2000
Lupita Serna 3000
Elissa Thompson 4000
Kathryn Crowder 5000
Carmen Good 6000
Stephanie Cotsinoa 10000
Debbie Chavez 10000
Richie Spangler 10000
Katherine Rivera 10000
Tiffany Aragon 12000

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This year’s activities will be targeted at 8- to 12-year-olds. Children ages 13-17 are welcome; however, they must be accompanied by an adult. Please bring a lunch for your child. No outside food is allowed on site.

For questions or a registration form, contact Kristi Miller at 294-6205 or Shannon Yeoman at 294-6840.
Changes make way into Sandia’s ethics culture
Director Carol Yarnall wants to make center more proactive in advancing ethics considerations

By Chris Burroughs

Since Carol Yarnall (12400) became director of the new Ethics and Business Conduct Center, changes are making their way into Sandia’s ethics culture.

The changes are showing up in more contacts with the Ethics Office and people in general becoming more aware of what is ethical business behavior, Carol says.

“Sandians are beginning to realize that not only is the quality of our technical results important, but how we behave or achieve those results is equally, or perhaps even more, important,” she says. “Our center is trying to be more proactive in getting the word out that Sandia takes ethics and the way it conducts its business seriously.

“We encourage people to call us with any questions they might have — no matter how trivial they may seem.”

The Ethics and Business Conduct Center was formed in early fiscal year 2006 when the Ethics Office was separated from the Audit Center. The intent was to make ethics more visible, to provide independence for fraud, waste, and abuse investigations; to be the focus for all Sandia personnel-related investigations; to ensure consistent processes to collect and analyze investigatory data; and to provide administrative support for the Sandia Ombuds office.

Among the changes and activities that have taken place with Carol at the helm of the new center are:

• Talking to leaders along the Labs about the impact of ethics and business conduct on Labs’ business.
• Revamping ethics and business conduct training for new hires and new managers.
• Activating an Executive Business Conduct Advisory Council to review data never compiled before and provide evidence and oversight for the center and investigative functions at Sandia.
• Initiating an award program to recognize individuals doing “extraordinary actions or behavior” that exemplify the Sandia commitment to “Setting the Standard” for ethical business conduct and compliance.

Carol says that so often the Ethics Office is situated as looking for the negative, and “we wanted to change that image.” To achieve that goal the office recently established a new program to promote positive ethical behavior. If an employee knows of or observes someone demonstrating an act of positive ethical behavior, he or she should let the Ethics Office know. This could include an action such as accidentally denting a neighboring car and leaving a note with your name and phone number. After receiving the report, the Ethics Office will recognize the individual’s positive behavior with a letter of appreciation from executive management.

A place at the table
Carol, who became center director after serving as executive staff director for several years, remains a member of the Labs Leadership Team, which she says is very appropriate because “ethics should have a place at the table.” She sees her role involving Sandia’s conscience, helping to ensure that ethics and corporate values are part of executive decisions.

Sandia’s ethics program is modeled after Lockheed Martin’s, which has been recognized as one of the best in the country by the Society of Human Resource Management.

“We have a close working relationship with Lockheed Martin’s ethics program and communicate with them daily,” Carol says. “They oversee our ethics program, provide a critical review of our investigations and guidance requests, and set goals for us around case closure time and the investigative process.” Additionally, Corporate Investigations has a close relationship with the Sandia Site Office, ensuring they are aware of Sandia’s cases. Corporate Investigations also maintains frequent communication with the office of the DOE Inspector General (IG) regarding fraud, waste, and abuse cases. Criminal cases are automatically referred to the IG to determine the proper investigative office.

Two senior managers lead the day-to-day functions of the center. They are Doug Nordquist of the Ethics Office (12410) and Chris Padilla of Corporate Investigations (12420). Doug says the Ethics Office provides training, advice, and guidance and also investigates allegations of ethical misconduct. People can anonymously or confidentially call the Ethics Office.

“Our office wants to foster a free and open atmosphere that allows and encourages employees to make inquiries, express work-related concerns regarding ethics issues, or report business ethics violations or violations of law, regulations, policies, or procedures without fear of retribution or retaliation,” Doug says.

327 requests for guidance
In FY06 the Ethics Office answered 327 requests for guidance and investigated 35 cases. Hiring or job related, intellectual property, and charging practices were the top three allegations. Of the 35 ethics cases officially investigated, eight resulted in discipline actions, including one suspension and seven oral reprimands.

The Investigations Office, headed by Chris, investigated 13 cases, conducted 40 preliminary inquiries, and forwarded 165 security concerns to the DOE Personnel Security Department. As a result of these investigations, nine persons were terminated, one retired, one received a letter of reprimand, and one was suspended for a day. The 13th case resulted in three contractor personnel being terminated by their companies.

In FY06, approximately $329,000 in lost, missing, or stolen personal property was reported to Corporate Investigations by members of the workforce. Electronic equipment was the largest category of items reported with 28 computers and nine Blackberry® personal digital assistants (PDAs) lost or stolen. A number of these losses occurred during travel and in the course of residential and auto burglaries. Because of the valuable information stored on these items, employers encourage employees to take extra security precautions with these devices.

Carol says the Ethics and Business Conduct Center is positioned to help navigate issues involving conflict, legal or policy violations, or unethical behavior.

“We want to ensure that Sandia’s customers can be confident that Sandia is a high-integrity laboratory, and we want employees to know that they can trust that Sandia will deal with them in a timely, objective, and fair manner,” she says.

Five Sandians recognized for ethical behavior

Five Sandians were recently recognized by the Laboratory Leadership Team by nomination for The Chairman’s Award honoring “extraordinary actions or behavior” that exemplify the Lockheed Martin commitment to “Setting the Standard” for ethical business conduct and compliance.

John (Jack) Loye (10320) was selected as the Sandia submission to Lockheed Martin Information Systems and Services (I&TS) for ensuring that ES&H decisions are carefully thought through, researched, and most importantly adhere to the principle of “doing the right thing.”

The other nominees were William Moffatt (12377), Karon Ely (9241), Annette Sobel (303), and Tracy Garcia (8528). They were recognized for not settling for the status quo, being homegrown leaders, exhibiting a principle-based approach in maintaining and fostering program development and continuously identifying and resolving areas of concern.

Contacting Sandia’s Ethics and Business Conduct Office

• Sandia Ethics Hotline — 505-844-1744
• Sandia Corporate Investigations Hotline — 800-563-8442
• Lockheed Martin Ethics Hotline — 800-688-5713
• DOE/NNSA Employee Concerns Program Hotline — 800-541-1625
• DOE Office of Inspector General — 800-514-1625

www.im.sandia.gov/ethics
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Mission: Antarctic

Sandia team tests new modified MiniSAR sensor that could detect buried or bridged crevasses

By Michael Padilla

Photos by the Antarctic team

in one of the coldest parts of the world, four Sandia researchers recently took advantage of what is considered to be one of the warmest time of the year in Antarctica last year.

At peak temperatures of 35 degrees outside with the sun shining continuously, the researchers worked diligently on a highly planned project. There was no room for error or equipment failures because there is no overnight escape to Antarctica.

The goal of the mission was to test a Sandia-modified miniaturized synthetic aperture radar (MiniSAR) prototype sensor that could detect buried or bridged crevasses for the New York Air National Guard (NYANG). Flying for the National Science Foundation, the Air Guard must land planes safely in this remote area of Antarctica. The use of the Sandia sensor would augment or replace the present method of manually finding the crevasses.

"We were highly successful in demonstrating our ability to detect snow-covered crevasses in Antarctica using Sandia’s MiniSAR detection radar," says Tim Mirabal (5341), project manager.

The Antarctic team, led by Grant Sanders (5342), included Jeff Bradley (5348), Doug Bickel (5349), and Jeffery Bach (5345). The team left on Thanksgiving Day 2006 and stayed there for nearly three weeks.

Technical homework

Sandia began working on the crevass detection radar (CDR) in March 2006 when funding was received from New York Air National Guard to create a system using Sandia’s existing MiniSAR technology. The first step was to change the normal KU-band frequency to X-band. KU-band frequency is 12 to 18 GHz and X-band frequency is 8 to 12 GHz. A lower frequency was needed to penetrate the snow. The snow in Antarctica is unique in the world as it is very dry; whether the radar would perform well in other climates would need to be investigated, says Tim.

In addition, the team built an external X-band converter and changed the front-end components as well. New engineering had to be done in order to accommodate the X-band frequency.

A gimbal arm and electronics were redesigned to allow free movement and antenna banana. This design had to allow for easy assembly and disassembly, says Grant.

"Conly were able to do the gimbal assembly and make it perform better," says Tim. "This included reducing the wiring.

In addition, the team developed specifications for data formats, mechanical and electrical components for installation on the plane, and software tools to accommodate the X-band frequency.

The technical design team, consisting of more than 30 Sandians, worked day and night to bring the project on schedule. The team built two systems, with one serving as a backup.

When a few hours away, it would have to complete assembly in your back pocket," says Grant.

Jeffrey Bach, who served as hardware specialist on the trip, says that there was a potential interference problem from the radar systems, but the solution didn’t arrive in time to apply it before shipping the radar.

"Luckily, my skills weren’t needed, as the hardware performed well," says Jeffrey. "I made myself useful in other ways, such as helping to retrieve radar targets from the field at midnight, with the sun still shining brightly."

Road to Antarctica

The hidden crevasse problem was first brought to Sandia’s attention in 1999 when the Guard needed assistance in locating deep cracks in the ice. The crevasses made it difficult and dangerous to land airplanes. Historically, millions of dollars have been lost due to crevass-related incidents. Until Sandia developed the MiniSAR, the Guard had to demonstrate CDR technology.

The NYANG uses the LC-130 aircraft, which has special landing gear, to operate off the snow and ice at McMurdo Station, Antarctica’s largest community. McMurdo is built on the bare volcanic rock of Rte. Point Peninsula on Ross Island, the farthest south land accessible by ship. McMurdo, established in 1956, has grown from an outpost of a few buildings to more than 100 structures including a harbor, an outlying airport with landing strips on sea ice and shore, and a helicopter pad. There are above-ground water, sewer, telephone, and power lines linking buildings. During the winter about 200 to 400 people work at McMurdo, swelling to some 1,500 people in the summer.

The team flew commercial airlines from Los Angeles to Auckland, New Zealand, then on to Christchurch, New Zealand. From Christchurch they took an eight-hour military LC-130 flight to McMurdo.

Before arriving at McMurdo the researchers underwent numerous rigorous medical and extensive physical and dental exams. Each team member had a backup who also went through the rigorous exams and was being flown. They included Marty Thompson (5348), Mike Pedroncelli (5348), Tim Bickel (5349), Steve Haber (5348), Phil Kahn (5348), and Mike Taylor (5342).

At Christchurch the team were fitted for extreme cold-weather gear and upon arrival at McMurdo they participated in a two-day “Snow Craft I” boot camp — also known as “happy camp school." The camp prepared the team on what to expect and taught them various safety and survival techniques.

The hunt for crevasses

"Most people don’t realize how large Antarctica is because of it being at the bottom of the world," says Grant. "This is the area at which the Guard is dealing with when it comes to the remoteness that they need to supply." The team collected data in several locations including McMurdo Station, Peary((*)) Wharf, Shear Zone (Mina Bluff Area), Shear Zone Traverse, and Tres Hermanas. The crew were working to find a feasible site to land the LC-130 aircraft.

"First we mapped McMurdo, Scott Base, and the nearby pressure ridge. Then we flew the Tres Hermanas — a very remote area," says Jeff. "SAR imagery of the Tres Hermanas is invaluable in remote regions and is one of the most effective tools for remote sensing.

"We were able to grow the gimbal assembly and make it perform well," says Tim. "Being that far away, it was good to have a complete spare in your pocket." The team continued to collect data in the Tres Hermanas area. The MiniSAR imagery of the Tres Hermanas was very helpful in locating the crevasses. The Tres Hermanas are relatively narrow — around four meters wide — and are covered with a snow bridge. Loose snow blows across and camouflage the crevasses, making it look like all the other terrain, especially from the air. The bridge in these crevasses is very loose snow and only a couple meters deep.

"Maj. Armstrong, who is also an LC-130 pilot, was thrilled that we could detect these crevasses using the CDR, especially because of their size and the difficulty in seeing them from the air," says Tim.

CDR outcomes

The mission was a success for Sandia because it was able to demonstrate the CDR technology. ny

"The Antarctic MiniSAR CDR can identify hidden threats, clearly show hazards, and effectively covers large areas," says Tim.

The efficacy of the sensor for this application has now been proven," Jeff says. "I hope the project has the opportunity to carry forward to a fully deployable system that the Guard can use to make its role of supplying the remote camps and conducting emergency operations safer and more efficient."

Another successful part of the trip was gathering radar imagery of the Antarctic ice sheet. Major Armstrong, a member of the miniSAR team, says, "From the first patch of radar data onward, we recognized the potential for the technology."

"We saw crevasses from the first patch of radar data onward," Jeff says. "We knew at once the crevasses were there."

"The miniSAR imagery was staring at us," Jeff says. "We could see hazards, and effectively cover large areas," says Tim.

"The miniSAR imagery gives a new perspective on the terrain," Jeff says. "It was a great success story for the Guard and the project."

"It’s an example of how technology can be used to help save lives," Jeff says. "This is the ability to use technology in remote areas to save lives."
Arctic dreams

Growing our understanding of climate change
Alaskan North Slope site offers new insights to climate researchers

By Darrick Hurst

On the cold tundra near the Arctic Ocean in northern Alaska, researchers from around the world are transforming scientists’ understanding of what the future may hold for the Earth’s climate.

Located just east of Barrow along the coast of the Chukchi Sea, the North Slope of Alaska (NSA) site’s unique location provides researchers with a rare, ground-based window into the cloud and radiative processes that take place in the earth’s atmosphere at high latitudes. The research performed here has resulted in NSA arguably being today’s most successful atmospheric research program.

“What makes the North Slope site important is that climate processes differ depending on where on Earth they occur. At the North Slope and in other cold regions, different processes are important because water there is mostly in solid, rather than liquid, form.”

— Bernie Zak

The extended NSA locale has become a modern-day center for atmospheric and ecological research activity. These high latitudes are receiving increased attention by climate researchers as they work to better understand the interactions of the atmosphere-land-ocean system. The Arctic, specifically, is predicted to undergo more intense warming than any other region on earth because water undergoes a specific seasonal phase change there. Scientific evidence indicates, in fact, that this warming is already happening.

(Continued on next page)

Born at Sandia, raised in the Arctic
Mark Ivey’s first job with the Atmospheric Radiation Measurement program was to manage the team that integrated and tested the first Atmospheric, Radiation, and Cloud Station (ARCS) mobile instrumentation unit.

“The first ARCS ended up in the tropical western Pacific,” says Mark. “We had a great team that worked on the ARCS unit at a site near the Eubank gate at 20th and H streets.”

The extended ARCS team included colleagues from Los Alamos, Argonne, Pacific Northwest National Lab, and the National Renewable Energy Laboratory.

Work at the ARCS integration and testing site came to an end in late 2000 or early 2001 after the ARCS was deployed to other locations around the globe.

We integrated and tested the Polar ARCS (PARCS) at the North Slope of Alaska site with help from our colleagues at the Pacific Northwest National Lab,” says Mark. “The PARCS was a polar version of the ARCS that was used on the icebreaker for the Surface Heat Budget of the Arctic Ocean (SHEBA) experiment, where an icebreaker was driven into the pack ice and left there for a year. An international team, including researchers sponsored by ARM, investigated the arctic atmosphere and ocean from onboard that ship. That PARCS instrumentation was placed at the NSA in Atqasuk after the SHEBA experiment concluded.”

Researchers on ice
Extending south to the vicinity of Atqasuk, west to Wainwright, and east toward Oliktok, the

(Continued on next page)
Climate study

(Continued from preceding page)

“The arid cold during winter at the North Slope provides a ‘window’ into space,” says Bernie. “Under these conditions, infrared radiant energy can escape more easily through the atmosphere — it’s something that’s part of the earth’s natural energy balance. This is one of the ways that high latitudes are quite different from temperate or tropical regions, and reinforces the importance of our research here.”

The value of these different regional factors is that the researchers have the chance to study how longwave energy gets trapped to varying degrees inside the atmosphere by different conditions from chemical constituents that include water vapor, carbon dioxi-
des, methane, nitrous oxide, chlorofluorocarbons, and liquid water droplets that absorb the energy emitted by the surface of the Earth.

“Essentially, our work at these facilities enables us to contribute to improvements in climate models that simulate global climate change,” Bernie says.

Such global climate models are tools for calculating atmospheric, land, and oceanic conditions all over the earth. By providing cloud and radiative transfer information to climate modelers, say Bernie and Mark, the site’s data will help to improve the performance of general-circulation and related models of the atmosphere as tools for predicting future global and regional climate changes.

“For the North Slope site is fairly cold year-round, we often observe clouds that are composed of ice and/or water in mixed phases,” says Mark. “In 2004, the ACRF sponsored a field experiment to specifically study mixed-phase clouds in the arctic. The results of the Mixed-Phase Arctic Cloud Experiment — or MPACE — have changed our understanding of arctic clouds and how they should be represented in climate models.”

“Our high-latitude NSA location also allows researchers the opportunity to study surface optical properties with and without snow and/or ice cover as a function of temperature history,” says Bernie. “Snow and ice surfaces are more reflective to visible light than soil or vegetation, and that plays an important role in high latitude and global climate.

A strong indicator of the value of the site’s work is the number of researchers who make use of the data obtained there. Academic, foreign, domestic, and other researchers from many different areas of research use data collected from the NSA. Many also come to the site for field campaigns to temporarily add their own unique measurement capabilities to the existing instrumentation suite and study specific phenomena.

“People are still publishing peer-reviewed articles based on the 2004 MPACE data,” says Bernie. “We found far fewer ice nuclei than had been expected — that is, far fewer aerosol particles capable of nucleating ice crystals. This means that water was staying liquid even at very low temperatures. That has direct implications, not only for climate, but for the Federal Aviation Admi- nistration as well, because when this liquid water comes into contact with planes, it instantly converts to ice. These icing conditions can bring down aircraft.”

“Our work isn’t just limited to climate research,” says Mark. “The Army has done research on the atmospheric phenomena that cause the twinkling of the night sky, and how distant objects can be seen more easily through the atmosphere at certain times of the day, under certain meteorological conditions. Our location and instruments at the North Slope provide data sets that are useful to a wide range of research interests. That is one of the reasons the NSA locale was chosen as part of the ACRF.”

At the end of a hard day of work, Bernie and Mark say the thing they’re most grateful for is the caliber of the team members they work with.

“The NSA is a cold place with a lot of equipment and little in the way of creature comforts — without guys like Jeff Zirzow (6338), and our local native technicians, Walter Brower and Jimmy Ivaunoff, I don’t know how we’d get anything done,” says Mark.

International Polar Year and International Geophysical Year

2007 marks the International Polar Year (IPY), when scientists the world over will focus research on the Arctic and the Antarctic.

This year is also the 50th anniversary of the International Geophysical Year (IGY), a similar international scientific effort that occurred from 1957 to 1958.

Organized through the International Council for Science Unions (ICSU) and the World Meteorological Organization, this is actually the fourth polar year, following those in 1882-1883, 1932-1933, and 1957-1958.

In order to have full and equal coverage of both the Arctic and the Antarctic, IPY 2007-2008 covers two full annual cycles, from March 2007 to March 2009, and will involve more than 200 projects, with thousands of scientists from more than 60 nations examining a wide range of physical, biological, and social research topics.

Similarly, the IGY was proposed by the ICSU in 1952 and initiated a comprehensive series of global geophysical activities to span the period July 1957-December 1958. The IGY was modeled on the International Polar Years of 1882-1883 and 1932-1933, and was intended to allow scientists from around the world to take part in a series of coordinated observations of various geophysical phenomena. Although representatives of 46 countries originally agreed to participate in the IGY, by the close of the activity, 67 countries had become involved.

The seeds of current concerns about global climate change were planted during the IGY. Prior to IGY, it was not known that the burning of fossil fuels was progressively changing the composition of the global atmosphere.

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improve the yield of natural gas fields.

...to determine if nuclear explosions could...

A SANDIA-LED TEAM prepares a site east of Farmington, N.M., for the Gasbuggy project test. Gasbuggy research has been designed and built at Sandia Laboratories. A series of laboratory tests on working models is now underway before 10 of the seals are sent this spring to the International Atomic Energy Agency (IAEA) for field tests. The seal is the size of a padlock and opens and closes like one. It employs a 900-strand fiber optic loop as its shackle; both ends connect to a complex electronics package, which includes a loop integrity sensor, display generator, tamper-responding container, and batteries. Each seal is programmed to display unique sequences made up of different letters and numbers. For each seal, digit changes will occur at selectable intervals — once every 1, 2, 4, 8, 16, or 32 hours. When these tests are completed, 10 units, along with a programmer and verifier package, will be sent to the IAEA, which will install the seals at selected locations.

...to study the unexplored ultraviolet emission of natural aurorae in relationship to the visible out-

A SANDBAGUEY project, Gasbuggy was intended to determine if nuclear explosions could improve the yield of natural gas fields.

...to study the unexplored ultraviolet emission of natural aurorae in relationship to the visible out-

Laura Carpenter

50 years ago . . . Van de Graaff Accelerator to Be Installed at Sandia — High Voltage Generator for Nuclear Research — A Van de Graaff accelerator has been designed and built at Sandia Laboratories. The purpose of the LASL instruments was to study the unexplored ultraviolet emission of natural aurorae in relationship to the visible output, and to gain, indirectly, information of the magnitude and energies of the primary particle fluxes.

30 years ago . . . Labs Has New Role in Oil Recovery — DOE recently authorized Sandia Laboratories to manage part of the nation’s enhanced oil recovery program, a segment called “Deep Steam.” The Sandia project is funded at $23 milli-

on the over the next five years. Advanced Develop-

ment on Ice . . . Instrument Package Assembled at Sandia Heads for Arctic Ocean — North to Alaska! That’s the rallying cry of an interdisciplinary group of Sandians and fellow researchers from DOE, other national labs, universi-

ities, and a wide range of government agen-

cies as they mount a major campaign to study the Arctic climate. The Sandians are one element of a multi-agency, multipronged, international initia
tive to scrutinize, with an unprecedented depth of detail, how high-latitu-
dude climate works, bringing to the effort the most sophisticated and advanced instruments available. Some of those instruments, configured into an integrated package at Sandia, are bound for an icebreaker in the Arctic Ocean more than 400 miles north of Barrow in the Beaufort Sea. The instruments, to be housed in and around a specially designed shelter, will ride out a full arctic year aboard the icebreaker. The instruments will gather data as DOE’s contribution to SHEBA, the Surface Heat Budget of the Arctic project, sponsored by the National Science Founda-

tion and the Office of Naval Research to investi-
gate predicted changes in the earth’s climate. Sandia is involved in the project through its par-

cipation in DOE’s Atmospheric Radiation Mea-
surement (ARM) program.

Janet Carpenter

GIVING THEIR ALL — Sandia has won the Armed Services Blood Program (ASBP) traveling trophy two times in a row. Sandians provided the most pints of blood for the ASBP in November and January. These blood donations go directly to military personnel serving overseas. Colonel James Ice, 37th Medical Group deputy commander, presented the ASBP trophy to Sandia’s Kelly Rogers (4329). The trophy is awarded bimonthly to the ASBP tenant group with the highest participa-
tion in the ASBP blood drive. The ASBP has its own appointment site with tons of useful donation information. Click on the blood drop at the bottom cen-
ter of the home page (www.military-

blood dod.mil); on the resulting page, type “Kirtland” in the zip code field to locate blood donation centers. (Photo by Bill Doty)
Employee death
Jeneane Taylor was a multifaceted person with a heart of gold
Mother hen to 1300 Center Office died Feb. 28; fought for causes she believed in

"Jeneane was a kind and loving person who thought of her co-workers as part of her big, extended family," says coworker, Marlene Keller. "She was dedicated and diligent in her work and direct in her speech as she managed her assignments. She treated everyone with kindness and consideration."

Jeneane Taylor, senior management assistant to Jim Lee, died Feb. 28. "Jeneane was a tireless advocate for employees who faced special challenges," says Jim. "She served this community as chair of Sandia's Disability Awareness Committee."

"She was mother hen to those of us in the center office," says colleague Elizabeth Scott-Patterson. "As a strong believer in environmental protection, she managed her work phone, read on the Sandia radio station (AM 1640), and available on the Sandia Information Line are typically sent to all employees via work emails. In addition, they are often sent to each person's individual email account or private phone, such as a cell phone (work or owned or private) would be excellent, too. People could be reminded of these messages could be sent to our cell phones (company owned or private) that would allow these notices to be read by employees who don't have access to a computer, when otherwise we wouldn't know to check our company email accounts, and wouldn't have to repeatedly check our Sandia Line phone system for messages.

Along these lines, a TXT system whereby these notices to employees during nonwork hours? Would it be possible to set up a list (voluntarily subscribed to) that would allow these notices to be sent to home email addresses? This would be a more effective way to convey this critical information to employees during nonwork hours. In this way, we would be "pushed" this information, when otherwise we wouldn't know to check our company email accounts, and wouldn't have to repeatedly check the Sandia Line phone system for messages.

For more information regarding the study, contact Donald Guy at dwguy@sandia.gov or 284-2859.

Feedback
Isn't there a better way to get emergency info to Sandians during nonwork hours?

Q: In light of the recent bad weather, I've noticed that many emergency updates and weather closures are sent to our work email addresses but outside of work hours. Access to work email may be inconvenient or technically impossible for many people. I find it ironic that work email is used for the communication of safety and emergency information when we work hours to an audience with limited or inconvenient email access while away from work. This isn't in the best interest of the employee, particularly in light of the importance of these messages.

Woulld it be possible to set up a list (voluntarily subscribed to) that would allow these notices to be sent to home email addresses? This would be a more effective way to convey this critically important information to employees during nonwork hours. In this way, we would be "pushed" this information, when otherwise we wouldn't know to check our company email accounts, and wouldn't have to repeatedly check the Sandia Line phone system for messages.

A: Thank you for your thoughts and suggestions. As you stated, notices and emergency messages are typically sent to all employees via work emails. In addition, they are often sent to each person's work phone, read on the Sandia radio station (AM 1640), and available on the Sandia Information Line at 505-846-6277. This is easy for any employee to check from any location including home or while on travel. Given the number of options, it is felt that using home emails and cell phones are unnecessary.

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Sandia teams, individuals make mark on Mt. Taylor

Sandia teams and individuals did themselves proud in the annual Mt. Taylor Winter Quadrathlon near Grants, N.M., the legendary competition that combines running, biking, cross-country skiing, and snowshoeing. The team Lab Ratitude won the overall team competition and posted the third fastest time of the day, less than 1 percent slower than two individual Colorado pros in their twenties. The team posted the fastest overall uphill ski time and downhill bike time and were consistent in the other events. Jason Strauch (biker in 1723), Darrell Armstrong (skier in 2125), and Ed Heller (snowshoer in 1723) raced their way up the 21-mile, 4,700-foot ascent of Mt. Taylor and then back down again in 3:45:58, competing in the male teams 40-49 age division. Larry Walker (2110) and his teammate were the second fastest male pair as Pokey Okies, and Pam Walker (2555) helped out at the run-to-ski transition.

Doug Vangoethem (1534) was the 21st overall male and 3rd in his age division. Jason, the Lab Ratitude biker who has competed at Grants seven times, including solo, says: “This is just a great event and a great excuse to go up in the mountains and get some exercise. The people who do it solo are so strong and motivated. I just love working at a place where the people are exceptional in both intellectual and athletic pursuits, and us putting this team of working professionals together and doing that well is a thrill for all of us.”
Looking back at my career . . .

“In James Autry’s book, Confessions of an Accidental Businessman, the following could have been written by me,” says Ron.

“I worked hard but was surprised every time it was promoted . . . a series of surprising decisions of my bosses followed by a lot of scrambling and self-preservation . . . Looking back at my career . . . I understand the overall lesson: We frequently understate our success, we refuse to say more than we think we know, and our instincts and judgement are more reliable than we think.”