Pilot Sandia treatment system that removes arsenic from water demonstrated at Rio Rancho well site
Cost of cleanup statewide to meet new EPA standards expected to be $500 million

By Chris Burroughs

New Mexico will be one of several western states severely impacted next year by new Environmental Protection Agency regulations that call for a significant reduction in the amounts of arsenic allowed in water supplies. Some 80 communities in the state will be affected, and costs for arsenic removal in New Mexico alone are estimated at $500 million.

This is according to Peter Davies, director of Geoscience and Environment Center 6120, who was among the presenters at a news conference earlier this month at a Rio Rancho well site where a Sandia research project designed to study ways to economically resolve the arsenic problem was displayed.

On hand were Sen. Pete Domenici, R-N.M., who secured $10 million for the research project in his role as chairman of the Senate Energy and Water Development Appropriations Subcommittee; Rio Rancho Mayor Jim Owen; and Sandia executives. The Rio Rancho pilot treatment system tests arsenic removal technologies supplied by a number of vendors.

The project is part of a research program designed to find simple, inexpensive ways water utilities can reduce arsenic levels from their water supplies to meet the new EPA regulations that go into effect Sept. 1. It required special legislation by the Texas Legislature.

The agreement with the UT System means that Sandians can now have a benefit similar to that enjoyed by Los Alamos National Laboratory employees for many years. Because LANL since its founding has been part of the University of California system, its employees and their spouses and dependent children can now attend UC schools at California in-state tuition rates.

The tuition agreement is the latest example of UT System extends in-state tuition to Sandians, families

Would apply to LANL if bid goes to UT/Lockheed Martin team

By Bill Murphy

Thanks to an agreement between Sandia and The University of Texas System, Sandians, their spouses, and dependent children can now attend schools within the UT System at Texas in-state tuition and fees. The agreement took effect Sept. 1. It required special legislation by the Texas Legislature.

The agreement with the UT System means that Sandians now have an education benefit similar to that enjoyed by Los Alamos National Laboratory employees for many years. Because LANL since its founding has been part of the University of California system, its employees and their spouses and dependent children have been able to attend UC schools at California in-state resident rates.

The tuition agreement is the latest example of UT System extends in-state tuition to Sandians, families

Sandia rolls out ‘total-body,’ corporate-wide self assessment

By Iris Aboytes

Sandia is rolling out a corporate-wide self assessment for all Sandians. According to Labs Deputy Director John Stichman, this assessment is not unlike going to a physician for a personal health assessment. "This assessment will help us understand what is or isn’t working," says John. "What can we change? What can we improve? Most importantly it will help us build a sense of confidence in the way the Laboratories are working to provide service in the national interest.

Corporate-wide self assessments will be conducted by line organizations to provide predictive information on the "state of health" for a particular policy area, like EES/H. Safeguards & Security and EES/H will be the first standardized line self-assessment programs to roll out. They will be followed by other policy areas such as finance, facilities, and human resources. Data will be analyzed and trended and by for all levels in all organizations.

As part of its risk and issues management, Safeguards & Security has been evaluating various performance indicators over the past year to identify the most beneficial areas for the line to assess. "These assessments identify Sandia security’s state of health," says Michael Hazen (4200).

Data collected through assessments will help Sandia understand performance trends, when extra attention is needed in a certain area, and whether controls put in place are effective. Assessment tools are being developed to provide Sandia with a steady stream of information during this next year.

According to last year’s performance evaluation by NNSA/SSO, Sandia has made limited progress (Continued on page 5)
What’s what
An office discussion about the increasing complexity of things more and more of us use more and more – digital cameras, watches, GPS navigation aids, etc. – reminded me of a couple of things I noted recently.
I opened a box of frozen toaster waffles and learned from reading the instructions (instructions? . . . for toaster waffles?) that toaster heating capabilities vary, that I should “attend toaster while heating” and “an adult should supervise heating by children.”
Also recently, I replayed a plastic pitcher that filters water and found in the box an instruction manual. A manual for a plastic pitcher?!
When do you suppose you’ll buy some new shoes and find in the box instructions to “insert foot into the last opening at the top of the shoe . . . ” or buy a comb and find instructions describing the proper way to pull through your hair?

Recycling’s also on Jason Zuffranieri’s (8681) mind. “I’m into recycling,” he wrote recently, “and it appears we have glass disposal receptacles near the white paper receptacles on my floor. But the containers specifically say ‘Broken Glass Disposal’ (in four different languages, no less).
“I would imagine that breaking my intact empties and then depositing the remains would be an ESAs violation. My other idea would be to hurl the empty bottle down into the receptacle with such force that it shatters upon impact, thereby fulfilling the requirements of the container. Or am I thinking too hard here?”
Well, I don’t know about “too hard.” Jason, more like bizarre. But it’ll pass. The urge to hurl anything with great force is probably just the result of stress over getting that critical LMC training finished before the end of the month.

We’ve read a lot in the last couple of Lab News issues about the upcoming open enrollment period and the changes in our health care insurance that more than we’d like to know, probably. And there’s still more: the latest on Reimbursement Spending Accounts (both health care and dependent care) on page 10 of this issue.
ESAs are good things. They allow you to set aside pre-tax money for out-of-pocket medical expenses you anticipate or might incur throughout a plan year. But before you get too excited, there are a few things you might think are covered but aren’t. The vacuum cleaner you bought because you have dust allergies? . . . forget it. No gym dues or exercise equipment, either. And don’t even think about dancing lessons.

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

Retiree deaths
Paul E. Miller (79) . . . . . . . . . . . . . . . August 23
A. E. McMurray (89) . . . . . . . . . . . . . . August 27
Dulini G. Westfall (89) . . . . . . . . . . . . . . September 2
Pierce L. Brown (89) . . . . . . . . . . . . . . September 3
Francis R. Martin (87) . . . . . . . . . . . . . . September 5
H. L. Macpherson (85) . . . . . . . . . . . . . . September 7
Charles H. Whitmer (91) . . . . . . . . . . . . . . September 8
Bernnie D. Padilla (91) . . . . . . . . . . . . . . September 19
F. M. Morris (66) . . . . . . . . . . . . . . . . . . . . September 30

Ken Frazier elected AAAS Fellow
Lab News Editor Kendrick Frazier (3651), a science writer and editor for nearly 40 years, has been elected a fellow of the American Association for the Advancement of Science (AAAS).
Ken is being honored for “distinguished contributions to the public understanding of science through writing for and editing popular science magazines that empha-
size science news and issues, critical thinking, critical reasoning and methods.” He will be officially recognized in St. Louis in February at the AAAS annual meeting.
Ken has been Lab News Editor for the past 10 years. The paper has received numerous national employee publication awards during this time. He first joined Sandia in April 1983 as a member of the public information staff.
Ken has also served as editor of The Skeptical Inquirer: The Magazine for Science and Reason since 1977. The bimonthly international journal pro-
motes good science, critical thinking, critical inquiry, and science education. It also evaluates fringe science, pseudoscientific, and paranormal claims from a scientific point of view.
Throughout most of the 1970s, Ken was editor of Science News magazine in Washington, D.C. He covered the earth sciences, science policy issues and traveled to Antarctica and the South Pole. Before that he edited the National Academy of Sciences’ newsletter. He’s a member of the American Geophysical Union and a life-
time member of the National Association of Science Writers.
Ken is the author or editor of nine books, including Solar System. Our Turbulent Sun, and The Violent Face of Nature. His book Prehistoric Chaco A Canyon and Its Culture, about the pre-Puebloan culture of Chaco Canyon, was first published in 1986. Acclaimed by archaeologists, the popular book has had multiple printings and editions and was most recently expanded and published again this spring.
Ken’s other Sandia colleagues and I are thrilled that Ken is receiving this wonderful honor from the AAAS,” says former Lab News edi-
tor Larry Perrine (3651). “It is unusual for any nonscientist to be named a AAAS fellow, and Ken richly deserves it. I don’t know of anyone who loves science and respects the scientific method as much as he does.”

Retiree Mimi Brunacini, who worked at Sandia 23 years, called to say that since retiree picnics have been deep-sixed, the Labs might consider offering retirees computer training, setting up classrooms with equipment that would otherwise go to Reapplication.
“I would imagine that breaking my intact empties and then depositing the remains would be an ESAs violation. My other idea would be to hurl the empty bottle down into the receptacle with such force that it shatters upon impact, thereby fulfilling the requirements of the container. Or am I thinking too hard here?”
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Howard Kercheval (844-7842, hckerch@sandia.gov)
Tom Hunter holds his first ‘Town Hall’ meeting in California, talks about budget, safety, and future

By Nancy Garcia

In his first visit to the California Laboratory since becoming president of Sandia, Tom Hunter talked about current concerns and the Labs’ future in a “Town Hall” meeting titled “The Laboratory Today and Tomorrow.”

One thing on his mind is the budget. In comparison to the National Ignition Facility budget, which hovers around $6 billion, the support and relief effort for Hurricane Katrina was pegged at $60 billion and may run as high as $200 billion, Tom said, which will increase deficit spending. He added that in terms of transitions of the country, Hurricane Katrina will go down as one of the key pivotal events at the beginning of this century.

The Laboratories had been operating under continuing resolution budget levels for seven weeks when Tom delivered his talk on Oct. 6, which means adhering to the lowest of any proposed funding levels (Senate, House, or FY05).

Not all bills have hit snags: In August, President Bush came to Sandia to sign the energy bill in the first presidential visit in many years other than a campaign stop. “It was my great pleasure to represent the lab and spend some time with the president,” Tom said, adding wryly, “It’s a good chance to do a presidential visit, do it.” He acknowledged the 400 people who worked virtually around the clock at short notice to make the event a success.

Tom said the main message of the energy bill — which focused considerably on renewables — was that DOE has an underlying push on science that is quite strong and getting more so, because it is important to the nation.

“We at Sandia are going to be looking at science that is a core mission. Boarding key competencies that don’t exist elsewhere, the CRF has forged a strong relationship with DOE’s Office of Science,” he continued, noting that at the Combustion Research Facility science has had a pivotal role across the full spectrum of laboratory activities. He added that the House and Senate, “there’s a lot of signal in there.”

Tom added that the House’s disfavor of Laboratory Directed Research and Development (LDRD) is causing spending to drop from 6 percent to 5 percent. Hiring has scaled back from a projected 600 people in the summer to 400, which just matches attrition. “We’ve asked the Lab not to grow,” Tom said.

About 58 percent of work at the Labs centers on nuclear weapons, with almost 70 percent of work at the California site directly involving nuclear weapons. Labs-wide it will come back down to the 1992 level of about 50 percent. Safeguards and Security is booked as nuclear weapons work and accounts for about 350 people. Safety costs are growing, with asset protection running about $100 million a year.

Work for others

Still, the laboratory has grown substantially in the last five years, mostly through work for other federal agencies. In conjunction, construction is at an all-time high, totaling $388 million. “We are building a lot of laboratory for the future,” Tom said. “The Microsystems and Engineering Applications (MESA) project, at $60 million, is the biggest project in Sandia’s history, and has stayed right on cost.

Some costs that are creeping upward are the health care costs. The costs run about 10 percent of payroll, or $100 million a year.

Retirement costs, however, are paying for themselves through a $3 billion fund that Sandia manages. Individuals have not paid into the fund since 1974, and the laboratory last paid into retirement in 1986. “We pay zero,” he said, “but the sense is that can’t continue — we think we may have to pay near the end of the decade to augment the retirement fund.”

Tom’s talk can be heard on the Labs of restructuring, which increased the number of deputy laboratory organizational vice presidencies from 12 to 10.

Operation excellence

He said the objective is to achieve operational excellence and mission success while ensuring the transformation of science and engineering. The intent is to stress the importance of the nuclear weapon mission and to enhance succession planning.

Stop, look, and consider, the focus is now on senior managers, who are deemed both close to the work and to the future of the lab and its strategic direction. Planning over the short term will largely focus on Environmental Safety and Health.

The California site as a division has almost the least number of reportable Occupational Safety and Health Administration injuries, Tom said. Programmatically, the site “has a real strong role across the full spectrum of laboratory activities,” he added. Corporately, Sandia/Caifornia has been successfully contracted to lead work in Homeland Security, and geographically, it is situated to engage strongly with industry and universities.

In all its locations, he concluded, the Laboratories “are full of great people. Anywhere you go, you touch a wonderful person.”

Sandia California News

BioEDS leaders recognized for achievements

Holding plaques at a mid-September ceremony in Monterey, Calif., are, left to center, Don Rondeau, senior manager for Force Protection Systems 5101, and center right, John Didlake (8228), project manager for BioEDS (Environmental Detection System). The pair received Notable Technology Development awards from the Federal Laboratory Consortium (FLC), a network chartered by Congress in 1986 to promote and strengthen transfer of lab technologies to the private sector.

Dan championed a Laboratory Directed Research and Development project in 2004 to undertake a biogent-neutralizing technology demonstration. EDS, a novel 8-ton apparatus developed by Sandia in 1998 for the US Army to dispose of chemical munitions in an environmentally sound manner, was used to destroy anthrax simulants (Bacillus thuringiensis, Bacillus anthracis, and Bacillus steartothemphilus).

The project extends the useful life of EDS and demonstrated a potentially powerful new tool for Department of Defense bioterrorism response personnel to safely neutralize a dormant terrorist device in a crowded location. Sandia to the left in the photos). Susan Sprake, FLC director from Los Alamos National Laboratory. To the right is Kurt Budhler, FLC Far West Regional Coordinator from the Department of Energy’s Monterey Service Center in Port Hueneme, Calif.

— Nancy Garcia
Sam Varnado testifies before House subcommittee about threats facing SCADA systems in US

Sandia has been working to improve the security of SCADA systems for 10 years

By Chris Burroughs

Sam Varnado, director of Sandia's Information Operations Center 5690, told a subcommittee of the House Committee on Homeland Security, Subcommittee on Economic Security, Infrastructure Protection, and Cyber Security, “Terrorist groups are aware of this. As noted in the June 27, 2002, Washington Post, these systems have been targeted by al-Qaeda.”

Sandia working problem for 10 years

Sam explained that Sandia has been working to improve the security of SCADA systems for more than 10 years. It has invested Laboratory Directed Research and Development (LDRD) money and other appropriate sponsor-provided funding into technologies that have direct application to homeland security and infrastructure protection. During this time, Sandia researchers have found many vulnerabilities, with the Labs “red team” assessments showing that security implementations are, in many cases, nonexistent or poorly implemented.

“Many of the older SCADA systems are operated in a stand-alone mode that is, they are not connected to the Internet or to other corporate systems,” Sam said. “Even so, these legacy systems have vulnerabilities. . . . In summary, it is easy for adversaries to take control of these legacy systems and cause disruptions with significant consequences.”

Today, he noted, the older, legacy systems are being replaced by new SCADA systems that use the Internet and are becoming part of a larger distributed defense strategy. This change is being implemented to reduce cost and increase efficiency of operation. However, this trend substantially increases the possibility of disruptions because of the large number of people with access. Disruptions can be caused by hackers who have no training in control systems engineering, and the use of the Internet exposes SCADA systems to inherent vulnerabilities of interconnected computer networks.

Grid ‘especially vulnerable’

Sam said that the electric power grid is especially vulnerable.

“What’s driving the restructuring is the grid is now being operated in a way for which it was never designed,” he noted. “More access to control systems is being granted to more users, the demand for real-time control has increased system complexity, and business and control systems are interconnected. In many cases, these new systems are not designed with security in mind.”

Other points Sam made about SCADA systems in the US include:

• Private industry owns about 85 percent of the US critical infrastructure assets. Industry, therefore, has a key role in implementing protection strategies. Currently, the business case (return on investment) for industry to invest in increasing the security of their information systems has not been convincingly made.

• Although it is known that many threats exist, specific details are elusive.

• Most of the recent emphasis in the cyber security community is on responding to hacker incidents. This effort is necessary and useful; however, the work has a short-term focus. Thinkings must be matured in the area of enterprise-wide network defense strategies.

• Currently, there is no alternative to the use of commercial off-the-shelf products in all our information systems. Most of these hardware and software products are manufactured in countries whose interests do not always align with those of the US.

• Investment in cyber security technology development needs to be expanded to address the new threat and vulnerability environments.

• The people in this country must understand that we will be attacked and plan for living through the attack and responding to it.

• More public-private partnerships need to be encouraged to share threat, consequence, and vulnerability data to implement cost-effective security solutions.

• Industries need to be assisted to develop a business case for their investment in SCADA security.

Recommendations

Sam Varnado, Center 5660 director, also offered several recommendations during his testimony. Some included:

• Reaffirm the concept of public-private partnerships and Reaffirm the concept of public-private partnerships and encourage companies and stakeholders to share information on threats, vulnerabilities, consequences of outages, training, and technology.

• Increase funding for improvements in cyber security technology.

• Establish and fully fund additional work that could provide defense against sophisticated threats.

It is easy for adversaries to take control of these legacy systems and cause disruptions with significant consequences.

Feedback

Q: Corporate policy states that employees may carry a maximum of 240 hours of vacation time at any point in time. How does that fit with managers who try and set a significantly lower vacation maximum? Is this permissible?

A: As stated in the Vacation CCR 300.6.16, under the section, Vacation Eligibility and Accrual, "A maximum of 240-hours can be accumulated in an employee’s leave balance at any time during the fiscal year. If the accumulated balance equals 240 hours, no additional vacation will be accrued until the balance is reduced by vacation taken. “ This Corporate Process Requirement (CCR) applies to all regular employees, thus managers cannot change the maximum limit of 240 hours without going through the exception process. To the extent possible, vacations are scheduled to meet employee preferences; however, the responsibility to ensure that their employees schedule vacation in accordance with Sandia’s business needs. The manager, therefore, may have the discretion of implementing additional controls to manage the needs of the business. The manager may desire to avoid situations where business needs of the Labs must be invoked and employees are forced to lose vacation because they are at the 240-hour limit. The manager may also be attempting to avoid excessive stress situations by encouraging employees to take a reasonable amount of vacation. We suggest that you discuss this issue with your manager in order to understand his or her intent and to contact an accommodation that meets both parties’ needs.

— Joe Polito (10700)
UT tuition

(Continued from page 1)

the growing relationship between Sandia and UT. Under terms of an MOU signed earlier this year, the UT System has been aligned with Sandia to provide peer review for the Labs’ research programs, to participate with Sandia scientists on collaboration research projects, and to provide for specialized courses taught by UT professors to increase educational opportunities at Sandia.

Rick Stulen, Sandia’s VP for Science and Technology and Research Foundations Div. 1000, says, "At Sandia, we've been enjoying tremendous relation with the fine public universities in New Mexico and highly value the educational opportunities those institutions afford our staff and their families. Now, this new University of Texas System policy adds significantly to the benefits for our employees and underscores UT’s and Sandia’s shared commitment to the importance of higher education to America's future.”

The UT System is one of the largest university systems in the nation. Its nine academic and six health campuses enroll some 185,000 students and employ more than 76,000 faculty and staff. It has an annual operating budget of $9.6 billion. Last year, the UT System institutions collectively received almost $2 billion in externally funded research. Areas of research include, among other fields: materials chemistry, nanoscience, nanostructure device fabrication, nuclear engineering, advanced polymer research, advanced computing, nonlinear dynamics, computational biology, plasma applications, quantum electronics, electromechanics, biotechnology, and biodefense.

“UT institutions offer a wide range of degree programs, both on campus and online, and we are pleased to make these programs available to Sandians at resident tuition rates,” says Teresa Sullivan, executive vice chancellor for academic affairs for the UT System. "We would invite Sandians to explore our wide-ranging undergraduate, graduate, and professional programs in the UT System, beginning at www.utsystem.edu, to learn about our many degree programs and our campuses.

The UT System, a partner with Lockheed Martin in the bid for the LANL management contract, has announced that if it is successful in that bid, the same tuition benefit will be extended to LANL employees, according to Sullivan.

Events celebrate Native American heritage

What began at the turn of the 20th century as an effort to gain a day of recognition for the contributions Native Americans have made to the United States has resulted in the entire month of November being designated as Native American Heritage Month.

Sandia’s American Indian Outreach Committee (AIOC) and the 377th ABW at Kirtland Air Force Base (KAFB) have joined to promote this year’s Native American Heritage Month, focusing on the theme Native Americans Yesterday, Today – A Culture with much more to explore. Related events include:

- 5K Fun Run/Relay and Health Fair, Friday, Nov. 4, 7 a.m. – 1 p.m., Hardin Field. Compete in the individual or team-relay 5K run, and get health information from Sandia Medical, which will also be conducting a ‘stretch and warm up’ prior to the run.
- Powwow Social, Native Foods Cook-off, Arts and Craft Event, Friday, Nov. 4, Hardin Field. Enjoy the Powwow Social, 10 a.m. to 2 p.m., and a Native Foods Cook-off, 11 a.m. to 1 p.m., while visiting with vendors selling their Native arts and crafts, 7 a.m. to 2 p.m.
- Luncheon/Traditional Clothing Day, Thursday, Nov. 10, 11 a.m. to 1 p.m., Mountain View Club. Keynote address by Gov. E. Chavez, Santo Domingo Pueblo, and Native people dressed in traditional clothing at each table ready to share the significance of the attire. Purchase tickets from Marie Brown, 284-3171, or Lemuel Harvey, 284-6472.
- Jemez Feast Day, Saturday, Nov. 12, 8 a.m. to 5 p.m.: Buses will transport up to 80 participants from Sandia Labs to Jemez Pueblo and back.
New Mexico water systems don’t have to deal with meeting new Environmental Protection Agency (EPA) arsenic standards on their own. Sandia is there to help.

The Labs received nearly $1 million from DOE to reach out to the approximately 80 communities in the state being affected by the EPA regulations that require arsenic levels in water supplies be reduced to the current limit of 50 micrograms per liter (µg/L) to 10 µg/L. Through the Sandia Arsenic Rural Outreach Program, over the next 16 months Labs personnel will help identify community water systems’ needs, evaluate water chemistries, and help communities develop their own individualized solutions for reducing arsenic levels.

Eligible for the program are existing water systems regulated by the New Mexico Environment Department that serve less than 10,000 people and have arsenic levels in their water at or higher than 10 µg/L. Priority will be given to systems with the greatest immediate need.

“The water chemistry is different around the state,” says Sue Collins (6118) who heads the program. “As a result, solutions will vary from community to community.”

New Mexico, like many western states, has high levels of arsenic in groundwater due largely to its mountainous geography. For example, the Rio Grande Basin, which includes the Albuquerque area, has large underground faults, young sediment, and geothermal heating. “All of these conspire to give you the potential for high arsenic levels in groundwater,” Sue adds.

For some communities arsenic removal could, in extreme cases, be very expensive. At the high end some studies show yearly costs ranging up to $400-$500 for a normal household — considerably more than most water systems can afford.

In August, water systems in New Mexico were sent letters advising them that Sandia has started a program to help utilities figure out ways to meet the new standards. Sue and her team have already personally contacted five communities, and at this rate, they will increase weekly until most of the impacted communities have been addressed.

“We’re starting with some of the communities near Albuquerque but will soon be reaching out statewide,” Sue says.

The first water systems being studied are south of Albuquerque; systems north of the city will come next. Among the initial steps is the sampling of water from each water system that seeks assistance to begin identifying the best technologies for that utility. As part of this process, Sandia will collect, free of charge, water samples using Labs equipment and test for any additional water chemistry information needed to complete the evaluation.

Then, Sandia personnel will meet with managers of each water system to evaluate the utility’s potential solutions and report back to the water system on an individual basis.

A variety of solutions are available, depending on the needs of the community. In some locations well water with large concentrations of arsenic may be blended with water from wells with low concentrations. In others the potential for treatment involving adsorptive materials will be evaluated.

Another option for smaller communities is the installation of small “point of use systems” that can be placed under a sink. These systems must be owned and operated by the utility and monitored a couple of times a year by the New Mexico Environment Department. However, this seemingly attractive picture is clouded by the cost inherent in regularly servicing many widely separated systems, and by the fact that the state regulatory agency could, theoretically, require access to sample water from the kitchen tap at any time, without prior announcement.

Because of the complex interplay of technological, social, financial, and legal issues, Sue says the solutions for arsenic problems in New Mexico are inherently multidisciplinary.

“It’s not a simple engineering problem, not a simple scientific problem, and not a simple economic problem,” she says. “Success will be determined by taking into account all these disciplines.”

Sanda researcher Sue Collins

Sue Collins (6118), Jim Krumsin (6118), Kathleen Holt (6874), Paul McCombel (6143), Heather Himmelberger, Susan Butler (both of New Mexico Tech), and Bruce Thomson (UNM)

Outreach team members

Rio Rancho

(Continued from page 1)

into effect in January 2006. The regulations require the Maximum Contaminant Level (MCL) of arsenic in water be reduced from the current limit of 50 micrograms per liter (µg/L) to 10 µg/L.

High levels of arsenic in water are known to increase the incidence of bladder and lung cancers.

Research program sponsors are the Arsenic Water Technology Partnership — a group made up of Sandia, the Awwa Research Foundation (AwwaRF), and WERC, a consortium for environmental education and technology development.

“Removing arsenic from municipal water is a pressing problem for many New Mexico communities,” says Domenic. “The costs of conventional removal methods are staggering, and that’s why I worked to fund research to find more affordable ways to get arsenic out of drinking water.”

Rio Rancho Mayor Jim Owen estimated that the cost for communities to meet the new EPA requirements will be about $300-$400 per household.

“When the new regulations were passed, many of us in the western states didn’t realize what it was going to mean,” Owen said at the conference. “It will hit us significantly in our pocketbooks if we are going to resolve this.”

The Rio Rancho demonstration project is the third implemented by the partnership in less than a year in New Mexico. The others are in Socorro and Anthony. More are expected to be established at other well sites around the state and outside of New Mexico in coming months by the project field team led by lead engineer Malinda Aragon and technologists Randy Everett and William Holub Jr. (both 6138).

“Types of arsenic cleanup used will vary from site to site because different communities have different water chemistries,” says Sandia lead Malcolm Siegel (6118). “The different experiments at the multiple locations reflect those different needs.”

The Rio Rancho pilot demonstration will obtain arsenic removal performance data for six different adsorptive materials and two reverse osmosis units for a period of three to nine months. The performance data obtained in the test will be combined with data from a previous pilot test using conventional technologies at the same well site to provide information useful to a large number of communities.
Sandia lends expertise, assistance during hurricane cleanup

Projects range from setting up computer networks to cleaning up buildings with decon foam

By Michael Padilla

After nearly two months following Hurricanes Katrina and Rita, Sandia continues to assist with the relief effort along the Gulf Coast.

A computer network to assist evacuees at the Houston Astrodome locate family members was set up by a Sandian, and a Sandia computer server was used to help map safe convoy routes during the evacuation. Sandians have also provided technical expertise in economic analyses, and Sandia continues to lead a multilab effort looking at water decontamination issues in New Orleans.

Mississippi assistance

Several Sandians spent eight days in Gulfport, Miss., in mid-October, assisting in recovery efforts from Hurricane Katrina. The team resided at a volunteer village sponsored by Presbyterian Disaster Assistance, which was a "tent city" for as many as 150 volunteers.

The team went out to various work sites and assisted in "mucking out" flood damaged homes, placing temporary roofs on people's homes, removing tree damage, and doing some home repairs. Sandians on the team included Jeffery Porter (5719), Julie Bouchard (6225), Susan (Trush) Martin (5525), Patti Valles (4311), and Dennis Johnson (2550).

Tulane support

Sandia's Advanced Materials Laboratory and the University of New Mexico's Department of Chemical and Nuclear Engineering are hosting Dr. Yunfeng Lu, a professor of chemical and biomolecular engineering at Tulane, seven graduate students, and two postdocs. Lu, a former UNM graduate student and Sandia postdoc, has been collaborating with Jeff Brinker, a Sandia fellow, scientist, and UNM professor, on self-assembled molecular materials. Lu was already partially funded by a Sandia LDRD as a result of the award of a President Early Career Award for Scientists and Engineers.

Carol Ashley, team leader in Ceramic Processing and Inorganic Materials, says Sandia and UNM are committed to assisting Lu and his students to ensure that their research continues.

Research has been conducted in three labs, including one in Sandia's Advanced Materials Labs, and two at UNM's Department of Chemical and Nuclear Engineering. Equipment has been loaned by various Sandia organizations and is being coordinated by Eric Branson (1815). Jeff Brinker (1002) authorized a line of credit at UNM Labs, and two at UNM's Department of Chemical Engineering and Nuclear Engineering.

Analyses of infrastructure impacts due to Hurricanes Katrina and Rita, done by the National Infrastructure Simulation and Analysis Center (NISAC), were completed Sept. 23. The Department of Homeland Security's NISAC is a core partnership between Sandia and Los Alamos national laboratories.

Nancy Brodky (6225) helped lead several Sandians in analyses of critical infrastructure, including energy, telecommunications, and other infrastructure sectors (Lab News, Sept. 16). NISAC completed 17 reports for the Department of Homeland Security (DHS) including two Katrina pre-event, one Ophelia pre-event, four Rita pre-event, and 10 Katrina post-event reports. NISAC also contributed to two DOE reports.

NISAC is currently looking at scenarios around the nation with the potential for severe consequences. "We are looking at other types of natural disasters, as well as accidents, and deliberate interventions," Nancy said. "We focus on consequences to infrastructure for such events."

Search and rescue

New Mexico Task Force 1 (NMTF-1) members Bruce Bany (6445), Kenneth Gwinn (1526), and Jerry Weitman (1527) participated in search and rescue operations following Katrina.

Sandia lent technical expertise and assistance during search and rescue operations. Jerry spent one day in a boat performing search and rescue operations. Jerry spent the majority of his time helping with search and rescue activities, unpacking and packing equipment. He also spent two days in a boat performing search and rescue operations. Bruce says the team is on call and can be deployed to assist with any emergency at any time. The team has one hour to respond with a yes or no.

"This is my commitment to my community and to the United States," says Bruce. NMTF-1 is one of 28 FEMA urban search and rescue (USAR) teams in the country. USAR teams were originally formed to deal with large natural disasters that overwhelm local responses in the aftermath of the Mexico City earthquake.

Sandia's contribution to NMTF-1 is to allow its Sandia members to train and respond on their own time—typically vacation. This includes acceptance of the risk of injury for those who perform engineering activities for both Sandia and FEMA.

Other relief activities

• David Ellis (6435) assisted with a Sandia computer server that was sent to St. Louis to help map safe convoy routes and help survivors locate each other.

• Sandia led a multilab effort to develop a desalination system for water decontamination in New Orleans. The team developed an initial decision tree and identified technical advisory groups for the potential major issues. The efforts were led by Mark Tucker (6245) and Richard Griffith (1517).

• The commercial version of the Sandia DF-200 decontamination foam is being used to clean up commercial buildings in Mississippi. It is being used both before and after removal of the facilities, primarily for disinfection of pathogenic microorganisms. DF-200 was also used to help clean and disinfect the New Orleans Sports Arena (the basketball and hockey arena next to the Superdome). This facility had over 1000 cases were held while the hospitals were closed.

• DHS evaluated Sandia's Portable Video/Audio Equipment for deployment to New Orleans.
Michael Tachias’s (4211) dream was to become a soldier and see the world. "Who would have known that 9/11 was going to happen," he says. Michael recently returned to Sandia from Afghanistan after serving 12 months as a major with the 3rd and 7th Special Forces Groups (Airborne). This was his second tour of duty. He spent 32 months in Bosnia-Kosovo in 2003.

Michael’s duty was to serve as the Combined Joint Special Operations Task Force Officer for both the 23rd Infantry Division and the Special Operations Command. He also served under the command of the French Special Forces leading his team, ODA 773, 7th Special Forces Group, into combat along the Afghanistan, Iran, and Pakistan border. Most of their combat missions were in the Kandahar Province, Maruf Valley, Helmand, and Spin Buldak Province. "This was the last haven for the Taliban and the Insurgants," says Michael. "Intelligence from the CIA identified this as Bin Ladin’s home turf."

"Afghans offer unbounded hospitality to guests, ruthless violence to enemies," he says. "Doohee' which means the mountain ghost, the Spirit’s Warriors.

Hazaras, Pashtuns, and Uzbeks tribes. The Russians called them the dangerous patrols. They were former Mujahideen fighters from the Afghanistan, Iran, and Pakistan border. Most of their combat missions were in the Kandahar Province, Maruf Valley, Helmand, and Spin Buldak Province. "This was the last haven for the Taliban and the Insurgants," says Michael. "Intelligence from the CIA identified this as Bin Ladin’s home turf."

One man’s Afghanistan: Maj. Mike Tachias, Sandian

"Afghanistan is a mysterious and ancient land," says Michael. "Afghan women wore the veil that covered their faces. My team considered it a quest to win the trust, hearts, and minds of the Afghan people. We called it lifting the veil." Michael was given special funds to help improve the villages in the area. He hired locals to build water wells, dams, and schools.

"US dollars were used to enhance the market and the economy," he says. "We also distributed clothes and toys sent by US organizations. The expressions of gratitude from the children were unbelievable. It made us believers in the good we are doing for their country."

Desert becomes ocean

Temperatures in the winter were in the 30s to 30 below. The summer temperatures ranged up to 120 degrees. January through March, Afghanistan got hit with rains not seen in eight years. "I witnessed the desert flood into an ocean," says Michael. "This people believed that when the Russkies, Taliban, and Al Qaeda foreign fighters arrived, the rains stopped. When the Americans arrived, the rains came back, and they were blessed again."

"Several villages in the mountains northeast of Balkhan were trapped by the winter storms," says Michael. "We helped them by providing food and medical supplies. Many people died. Military flights were implemented to save winter casualties. They were mostly old and young children. It would break your heart to see how these people endured the hardness of this country without the convenience of infrastructure, grocery stores, hospital, running water, or electricity."

"The Afghan people are beautiful and very respectful, even after decades of bloodshed and turmoil," he says.

Lifting the veil

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Reality of War

Michael had two best friends during his tour. Pedro "Papi" Munoz was mortally wounded after a raid mission in Shindad. During the mission Papi entered one of the many compounds and was confronted by a Taliban insurgent who then killed, while protecting himself and several team members. Papi later died of his wounds. "Papi was the inspiration of the 7th Special Forces Group," says Michael. "Papi was part of the entry team. I was part of the covering and blocking force."

Dave Conner was Michael’s other close friend. "Dave was tragically shot along with 17 members of his unit. His helicopter was hit by rocket propelled grenade rounds and small arms. They were hit while on a supply mission to the Kandahar Province. "Dave was our magic man when it came to scrounging supplies," Michael says.

"Their deaths opened my eyes to the tragedy, the reality of war, and how precious life is," says Michael. "It hurt my heart and soul to see my friends and wonder how their families were doing, but at the same time I was proud of them. They were courageous individuals fighting for the rights and freedoms of a poor country. It is a great honor to have served with such great individuals."

"It was a long haul," he says. "Loneliness, missing my family, the weather, and the terrain were my constant enemies in addition to the obvious ones. Fear and death are always with you. It's your comaraderie and friendship that keep your head in the game. Your faith in God keeps you motivated and brave in the face of danger. After a mission your fear for your family dissipates, praying they are safe back home."

Michael will be returning to Afghanistan early next year with the 3rd Special Forces Group. "I am ready to go back to finish the schools, water dams I proposed for irrigation, and all the projects started," says Michael. "The war has changed my outlook on life and where I want to be today. My team would read scripture before all our combat missions. I feel a sense of gratitude from the children were unbelievable. It made us believers in the good we are doing for their country."

Michael received the Joint Service Commendation Medal and the Defense Meritorious Service Medal during this tour of duty.
Reimbursement Spending Accounts (RSA) for health care and day care mean savings on taxes

Estimating out-of-pocket medical expenses for the Plan Year

Be sure to include your deductibles and co-insurance amounts for your medical and dental services.

If you have predictable expenses for prescribed medications, eligible out-of-pocket health care and child care expenses on a pretax basis through a flexible plan, actual tax savings depend on several factors, including state and local tax rates and the tax bracket of the participant.

Flex Facts

Your flexible reimbursement account plan can help reduce your taxes and increase your take-home pay.

On average, people save 23 percent in taxes (assuming federal, state, and social security taxes), by paying out-of-pocket health care and child care expenses on a pretax basis through a flexible plan. Actual tax savings depend on several variables, including state and local tax rates and the tax bracket of the participant.

Tax credit wizard, savings calculator help decision-making process

The Tax Credit Wizard is a tool to help you determine:

- If you qualify for a Dependent Care Reimbursement Account
- If it is to your advantage to elect a Dependent Care Reimbursement Account

Here’s the URL for the wizard:

To use it, click the “Next” button on each screen and answer the questions that follow.

Even if you qualify for a Dependent Care Reimbursement Account, it may not be to your advantage to make an election. There are several factors to consider, and detailed knowledge of the federal tax laws is required in order to make an accurate determination. In an effort to simplify this issue, we have developed this tool to help you make a decision.

Due to the complexity and local variation of tax laws, the result of this process cannot be considered absolute and may not address your individual circumstances. Only a qualified financial or tax consultant can make an absolute determination with regard to any advantage or disadvantage to your participation in a Dependent Care Reimbursement Account.

The Savings Calculator will help you:

- Itemize unreimbursed health and dependent care expenses
- Estimate your annual increase in spendable income if you choose to participate in the Flexible Spending Account Plan

Here’s the URL for the calculator:

Potential tax savings

Income after taxes

<table>
<thead>
<tr>
<th>Without RSA</th>
<th>With RSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>38,069</td>
<td>35,038</td>
</tr>
</tbody>
</table>

Note

This is an over-simplified example. It omits exemptions and deductions. It does not take into consideration the federal tax credit available for day care. Each participant will have a different savings result depending on that participant’s tax bracket, filing status, etc. To be certain you use the method that gives you the most tax savings, you should consult a tax advisor.

Financial planners and tax advisors advocate participation in flexible spending accounts.

Health Care RSA

Your annual election amount in the Health Care RSA (HCRSA) can be any whole dollar amount from $100 to a possible maximum of $5,000 (per family per calendar year). The $5,000 maximum is available to single employees or married couples with the employees filing joint federal tax returns. Married employees who file separate federal tax returns are limited to an annual maximum of $2,500 each. In either case, your election cannot exceed your or your spouse’s earned income. If your spouse is attending school full time you can deem his or her income to be $240 a month if you have one eligible dependent, or $500 a month if you have two or more eligible dependents. You can be reimbursed for expenses incurred for services rendered only up to the current balance in your HCRSA.

With the DCRSA, you are reimbursed for expenses incurred to have your child (under age 13), your spouse or other eligible dependent (who is physically or mentally incapacitated) at home, you can choose any amount up to $5,000 to be reimbursed by your plan. The process is similar to the HCRSA, where you can choose any amount from $100 to a maximum of $5,000 (per family per calendar year). The $5,000 maximum is available to single employees or married couples with the employees filing joint federal tax returns. Married employees who file separate federal tax returns are limited to an annual maximum of $2,500 each. In either case, your election cannot exceed your or your spouse’s earned income. If your spouse is attending school full time you can deem his or her income to be $240 a month if you have one eligible dependent, or $500 a month if you have two or more eligible dependents. You can be reimbursed for expenses incurred for services rendered only up to the current balance in your DCRSA.

More RSA Info

For more information on the HCRSA and DCRSA, refer to Sandia’s RSA Summary Plan Description. It can be found at: http://www.sandia.gov/benefits/spd/pdps/RSA2003.pdf or by calling the HBE Customer Service Center at 1-800-227-4844 (HBS 327). A Payflex representative will be at Sandia’s RSA Open Enrollment meeting on Oct. 27, in Albuquerque, which will be video-streamed. Instructions for enrolling in the RSA are available in your Benefits Choices 2006 Open Enrollment booklet.

Albuquerque:

LIVE

Oct. 27, 9:45-10:45 a.m.; Steve Schiff Auditorium.

VIDEO

Nov. 2, 3:15-4:15 p.m.; CNASAC Auditorium

Livemore: ALL LIVE

Nov. 1, 5-6 p.m.; Dobbletree Club Hotel
Nov. 1, 9-10 a.m.; Rd. 940 Auditorium
Nov. 10, 10:30-11:30 a.m.; Rd. 940 Auditorium
Nov. 14, 9-10 a.m.; Bldg. 915/W123

Debit Card

New enrollees for the RSA 2006 Plan Year will be provided with a debit ("mbi Flex Convenience®") card. This debit card is an alternative reimbursement method. You may also file paper claim forms for reimbursement. Use whichever method is more convenient. You should retain all RSA claims documentation with your tax records as Payflex may request substantiation for your claims according to IRS guidelines.

Please read carefully the agreement that accompanies your debit card. The agreement describes your responsibilities when using your debit card, the immediate notification requirement for lost or stolen cards, and the reporting of unauthorized usage or errors to Payflex Systems.

March 15, 2007, is the deadline for eligible health care expenses. The grace period will allow you to the health care reimbursement account only.

Examples of eligible expenses include, but are not limited to, deductibles, co-insurance (your 15% or 20% share of claim costs), amounts over usual and customary, pharmacy copays, dental, and amounts over plan maximums, etc. You may also be reimbursed for other medications, such as antacids, pain relief, cold remedies and allergy medications as eligible expenses for the HCRSA. A complete listing of eligible and ineligible expenses is located at:


Careful花花花花花
Will women's rights groups fall in the battle against religious extremism? Will "geezers" monitor battlesfields remotely, freeing younger people for other tasks? Will blogs fragment the opinions of conventional media? International consor-
tiums formed to avoid having to protect their properties? And will online banking become a primary source of virtual money laundering?

"These are questions that insights about the world's future were scrawled on whiteboards or spoken aloud in a two-day gathering of 49 visionaries with exceptionally varied outlooks, gathered from across the country into the marginally spartan, windowless quarters of Sandia's Advanced Concept Group (ACG) in mid-September. The ACG periodically invites outside experts to "think-fests" that investigate long-range problems that could impact national or global security.

The creative thinkers, with their distinguished resumes, were there to brainstorm the future of war and peace. There were people from Special Forces and from conciliation groups, social and political and educational theorists, and people who know how to blow things up. There were people on third careers after spending decades in the military, and people just starting out from Harvard. Eighteen were Sandians.

"The challenge here was, I want you to operate as a collective brain," said ACG leader and Sandia VP and Principal Sci-
entist Gerry Yonas (7000), as he introduced the "Future of War" Think-Fest at a dinner at the National Atomic Museum Sept. 7. "What we'd like to take out of this is one great idea.

Wendell Jones (7000), who led the ACG exercise, passed the concept of a farming exercise: "We want to plant as many seeds as possible. Some won't germinate, others will grow."

"If you go to Tibet (7000), whose background includes writing about environmental laws (Clean Air Act, Clean Water Act, Superfund, and others), and serving as Dean of the Edmund S. Muskie School of Public Service at the University of Southern Maine, told the Lab News, "My colleagues [elsewhere] found it unusual that a nuclear weapons lab in New Mexico would have such far-reaching discussions."

Look widely, Grasshopper

Wendell opened the meeting by showing two pictures of the same tiger, one with perception points recorded by Chinese students and the other as seen by Americans (images at top right). The American's looked directly at the tiger — teeth, head, shoulders, haunches. The Chinese locked first at the tiger, and then at the rocks and trees surrounding it. They wanted context.

To gain new viewpoints, therefore, said Wен-
dell, "The first few sessions will consist of putting the future of war in context, rather than doing war.

Williams, an engineer, leads the Georgia Tech Research Institute's Future Threat Initiative.

The meeting continued, "rather than 'walk softly and carry a big stick,' the meeting concluded it's better to listen to your enemies and carry a small stick, or maybe lots of small very precise sticks," Gerry continued. "If the future is Special Forces and low-intensity con-
clict, the technology that is critical is predic-
tive awareness: a persist-
tent, ubiquitous net-
work of smart sensors. This may need to be coupled to precision strike and precision understanding of the strike."

The program also took criticism from some partic-
ipants who disagreed with the choice of context.

Stewart Brand, compiler of the Whole Earth Catalog and a former infantry lieutenant, e-mailed that the requirement was too broad. "Most of our re-
commendations seemed appropriate (only) for an audience of the joint Chiefs and a bipartisan Con-
grressional committee, but they had to do with mainly reorganizing the nation's military intelligence apparatus."

"We're still discussing [in the ACG] what that means for Sandia's future."

Wendell concluded, "One of our aims was to bring people together who would otherwise never run into each other in their daily lives. I think we did that. Three genuinely diverse collaborations seem already to have sprung up. We're looking for ward to seeing how many more ideas-seeds sprout."

FUTURE OF WAR THINK-FEST participants chart talk-
ing points during a break in the action.

IN A TEST on modes of thinking, Chinese students plot more contentious "perception points" (bottom image) than do American subjects, whose perception points are shown in top image. (Cultural variation in eye movements during scene perception — Richard Nisbett, et al., University of Michigan, Copyright 2005, National Academy of Sciences, USA)

Former Naval Special Warfare Officer Kevin Baugh, now associate director of the Office of Gov-
ernment and industry liaison for the Biodesign Insti-
tute at Arizona State University, e-mailed that he "was very pleased with what I got out of the [confer-
ence]. . . . I was especially disappointed by the fact that we did not exercise a truly difficult scenario (perhaps something like a 'post nuclear war in the Midwest') in which much of the world's oil sup-
ply becomes contaminated unexpectedly and the US must suddenly cope with real shortages in petro-
leum products in a highly competitive world."

"Way out of comfort zone!"

Of the alternative scenarios posed, Wendell said, "That's the point of the diversity of the group. Some participants were way out of their comfort zone and others thought we weren't way out there enough.

"We wanted plenty of people in this crowd — like the Grimmmans and the Boeings and the mili-
tary services — to prejudge for some potent technology that could prevail in the future. Then we wanted nato science people who would contend for more artful, sophisticated influence. Interestingly, we didn't have knockdown fights between social scientists and military folks. Everybody came out and said we have to get much smarter in understanding cultures and influencing ideas, and gain technology to influ-
ence people's motives and intentions."

"It was a discon-
certing conclusion," Wendell continued. "Many of the folk there would have been happy to have a mis-
ion come rolling out [to take the technology and make it over-
whelming for the US], but it's not what came out from any group, despite the mili-
tary/DOD present."

The Fest seemed to say, wow, maybe the future of national security is all around these other features.

"We're still discussing [in the ACG] what that means for Sandia's future."

Wendell concluded, "One of our aims was to bring people together who would otherwise never run into each other in their daily lives. I think we did that. Three genuinely diverse collaborations seem already to have sprung up. We're looking for

ACG ‘Future of War’ Think-Fest produces many sparks, no fires

‘Disconcerting’ results call for fewer ‘big strikes’ and broader understanding

By Neal Singer
Family comes first as safety struggles become a way of life at Sandia

By Iris Aboytes

Sandia was involved in a beautiful and successful space mission. Sandia continuously earns praise from its customers. Sandia’s generosity is second to none. In August, Sandia made another mark in its history by hosting President George Bush. The point is, then, that Sandia is near the bottom when it comes to safety.

Already through the second quarter of the 2005 fiscal year, Sandia has continued to be near the top of the DOE national laboratory injury rates, requiring medical attention. This is not an area where Sandia would like to be number one. Of all the DOE national labs, Sandia had 138 total recordable cases as compared to Los Alamos’s 143, Lawrence Livermore’s 91, Savannah River’s 69, Y-12’s 57, Oak Ridge’s 50, Hanford’s 45, Lawrence Berkeley Lab’s 35, Argonne-East’s 24, and Brookhaven’s 22.

“Our employees are our most important asset, and we don’t want them hurt,” says VF Frank Figueroa, head of the division in charge of Environment, Safety, and Health (ES&H). “The Labs Leadership Team (LLT) has taken a hard, close look at safety and made it a priority.”

Why the high rates?

Frank is quick to dismiss a myth that all of these injuries and accidents are due to the great amount of construction work going on at Sandia. “Actually, our contractors’ injury rates are better than ours — by a factor of 25 percent,” Frank says. “Actually, our contractors’ injury rates are better than ours — by a factor of 25 percent,” Frank says. “Actually, our contractors’ injury rates are better than ours — by a factor of 25 percent,” Frank says. “Actually, our contractors’ injury rates are better than ours — by a factor of 25 percent,” Frank says.

The reasons for the injury rates are varied, from people being preoccupied to dismissal of safety as a whole. “Whatever the problems are,” says Frank, “we will address them, and we will need to fix them. LLT is committed to sending our employees home safely at the end of the day.”

As a small company committed to maintaining excellence and do the best job for our country, we need to be committed to safety, says Frank. “We can’t have one without the other; we need them both. We need to recognize that safety is a way of life — a good life.”

What will it take?

Secretary of Energy Samuel Bodman, Under Secretary of Energy Clay Sell, and NNSA Administrator Linton Brooks have indicated they expect their contractors to work in a safe, secure environment. Frank says they are no different from our families, who deserve the same expectation.

“Right now our safety record, and therefore our record of excellence, is not something to be proud of,” Frank says. “At our current recordable case rates, 215 people will be injured this year. What does it really mean? In simple terms it means 215 people too many. It just isn’t right that 215 of our families should be impacted. Will your family be next? We all need to make sure it isn’t.”

What will it take for us to become best? Frank says we are all process owners when it comes to safety. We all have the power. We all have the knowledge. We just need the desire. Ask questions, then ask more questions, then even more questions, but take action. Follow LLT’s lead or make it your own mission to become a “safety soldier.”

When a military commander sends his troops into battle, his thoughts always include the families that ache for their loved ones to return safely,” says Frank. “On a smaller scale, our families feel the same about our leaving to go to work. They want us back safely as well. We owe them our best efforts to achieve that goal. They deserve no less.”

Sandia enters into agreement with Aerospace Corporation

By Michael Padilla

With an agreement to identify opportunities for interactive research and development in a broad range of scientific areas, Sandia and the Aerospace Corporation recently signed a memorandum of understanding (MOU).

The MOU calls for interaction in space microelectronics and component technologies, sensor and instrument systems, spacecraft technologies, systems technologies, information technologies, and space simulation and modeling tools.

“We see great prospects for this relationship to bloom, as we have already identified a number of areas of mutual interest . . . .”

“Sandia and Aerospace share significant interest in developing advanced technologies for end applications and capabilities that ultimately benefit the nation,” says Al Romig, Labs Deputy Director for Integrated Technologies. “This agreement establishes a strong relationship between Sandia and Aerospace.”

The MOU calls for Sandia to identify uses of its hypervelocity impact modeling capability and its possible use for intercept debris characterization.

In this capacity until attaining his present position in 2005.

Al Romig receives National Materials Advance Award

By Chris Burroughs

Al Romig, Deputy Director for Integrated Programs, will receive the National Materials Advancement Award from the American Society of Metals and American Society for Metals at a reception at the National Press Club in Washington, D.C., on Dec. 7.

The Federation of Materials Societies is a consortium of technical and professional societies consisting of scientists, engineers, and other professionals active in the areas of materials policy as well as research and development, processing, recovery, and resource availability.

At Sandia, Al’s responsibilities include the leadership and management of development and engineering activities that provide science, technology, systems, and expertise in support of US programs in military technology; proliferation prevention; technology assessments; counterintelligence; energy science, resources, conservation, and infrastructure assurance; and homeland security.

In governmental, national, and international policy settings, Al is a leader in advisory boards and task forces. He is a member of the National Academy of Engineering and is active on a number of National Academy of Engineering/National Research Council committees and boards. He also serves on the boards of the Atomic Weapons Establishment Management Limited and Lockheed Martin Venture in the UK, and Technology Ventures Corporation, a Lockheed Martin subsidiary dedicated to new technology commercialization. In service to his profession, he has been honored as a fellow and former president of the ASM International; fellow of the Metals, Minerals and Materials Society; and fellow of the American Association for the Advancement of Science.

For his pioneering work in analytical electron microscopy and solid state diffusion, Al has received several awards, including the Burton Medal in 1988, awarded by the Electron Microscopy Society of America to an Outstanding Young Scientist; the K.F.J. Heinrich Award in 1991 given by the Microbeam Analysis Society to an Outstanding Young Scientist; the ASM Silver Medal for Outstanding Materials Research in 1992; and the Acta Metal lur gica International Leadership Lectureship for 1993-1994. He has also been named the 2003 ASM-TMS Distinguished Lecturer in Materials and Society.

Al received his BS, MS, and PhD degrees in materials science and engineering from Lehigh University in 1975, 1977, and 1979. He joined Sandia in 1979 as a member of the technical staff, Physical Metallurgy Division. After a variety of management assignments, he was named director of Materials and Process Sciences in 1992. From 1995 to 1999 he was acting director of Microsystems Science, Technology, and Components. From 1999 to 2003 he was chief technology officer for Office of Science and Technology. In 2003 he was named VP for Nonproliferation and Assessments. He served in this capacity until attaining his present position in 2005.
There’s something for everyone at science event

Sandia, Lockheed Martin sponsor Tricentennial Science & Technology Month

By Julie Hall

For the month of November, Albuquerque will become “Science City.” Residents and visitors alike will have unprecedented opportunity to participate in 23 science and technology events scheduled for the Albuquerque Tricentennial Science and Technology Month, sponsored by Sandia and Lockheed Martin.

“Sandia is involved in the Tricentennial because Albuquerque is our community and we have been an integral part of its growth and development over the past 50 years,” says Mike DeWitte, senior manager, Public Relations & Communications (3650). “Science and Technology Month is particularly relevant, and important to us because of our role as a science and engineering lab and our desire to foster and encourage interest among students and the public in science and technology.”

The month’s events, which range from demonstrations of fractals at the Lodestar Planetarium to the International Science and Engineering Fair at the National Atomic Museum, are designed to showcase Albuquerque’s science and technology diversity. Participants are geared toward children while others target an adult audience. Many events are free, and the New Mexico Museum of Natural History will offer free admission Nov. 11.

“We tried to make sure there’s something for everyone,” says Phyllis Padilla Owens, Science and Technology Month chair. A Sandia employee, Phyllis is on loan to the Tricentennial.

The celebration kicks off Nov. 1 with “X is for X-Ray,” an interactive exhibit at the Cherry Hills Library exploring the history and technology of medical imaging. It ends Nov. 30 with “Mission Engineering Night,” a program designed to introduce Washington Middle School students and parents to the wonder of engineering. Mission engineering is sponsored by Sandia and can be scheduled for other schools.

Other events put on by Sandia include:

• Sandia Student Science Symposium, Nov. 2, 6-9 p.m., National Atomic Museum. Open to all high school students, who are invited to discuss their scientific research with the public.

• Sandia Science City, Nov. 3, 5:30-7:30 p.m., New Mexico Museum of Natural History. Includes live demonstrations of energy conversion, chemistry, physics and biology. Free.

• “Sandia Science City” at Sandia’s Outdoor Education Center, Nov. 4, 1-3 p.m. Free.

• “Sandia Science City” at the new Bernalillo County Community College’s Albuquerque campus, Nov. 5. Free.

• Sandia Answers, Nov. 8, 3:30-5:30 p.m. at KAFM Public Radio, 601 Central Ave. N.W. Free.

• “Let’s Talk About Science,” Nov. 11, 3:30 p.m., in the Small Meeting Room at the Sandia Executive Office Building at 12000 NE. Free.

• KLA-Tencor Science Day, Nov. 11, 9 a.m.-3 p.m., at KLA-Tencor, 3500 Ridgecrest Drive. Sponsored by KLA-Tencor. Free.

• 100 Science Experiments in 100 Days, sponsored by the National Science Teachers Association, at the Sandia Executive Office Building, Nov. 12. Free.

• Science City@School, Nov. 16, 9-3 p.m., at Sandy Elementary School. Sponsored by Sandia. Free.

• Sandia answers on the Sandia Answers stage, Nov. 18. Free.

• Sandia Answers, Nov. 19. Free.

• Sandia Science City, Nov. 21. Free.

• “Science City” at the Albuquerque Museum, Nov. 21. Free.

• Sandia Answers, Nov. 23. Free.

• Sandia Science City, Nov. 24. Free.

• Sandia Answers, Nov. 29. Free.

• Sandia Science City, Nov. 30. Free.

Feedback: Sandian raises concern about ‘vigilance awareness’

Q: I’m increasingly concerned by the tone of our (Sandia) safety initiative to avoid trips, slips and falls. The consistent message is a warning to Sandians to be ever vigilant about routine tasks. While we should be sure to do this “solution” over control, I continue to be in a constant state of alertness to danger is a form of chronic stress that has its own set of long-term consequences. Vigilance alone is not the answer, and I’m concerned the message is tending towards “blaming the victim,” as in the new mandatory trips, slips and falls training video. I applaud the part of Sandia’s safety initiative that encourages Sandians to report hazards to T:浅enton. This makes sense for acute hazards, but I would like to point out a number of systemic, administrative fixes that would help assure me of upper management’s (VP-level) sincerity in their stated goal of helping Sandians go home injury free.

For example, the Kaizan events were not mentioned in the training video, and no one at the turnstiles. Instead, Sandia chose to “remind” people to be careful when entering and exiting. It’s been a very long time since I heard about the bicycle Kaizan IMO issued EM tags to put on m cell phones and other contraband, and deputies placed at turnstiles, instead, we just see more reminders, and threats of disciplinary action. Not much different than what we had before. Sandia’s motto is “securing a peaceful and free world through technology”; let’s live up to our own

Response: Point well-taken, but vigilance just part of larger safety effort

Specifically addressing some of your comments:

• The ME5A Kaizan initiative to avoid trips, slips and falls. The consistent message is a warning to Sandians to be ever vigilant about routine tasks. While we should be sure to do this “solution” over control, I continue to be in a constant state of alertness to danger is a form of chronic stress that has its own set of long-term consequences. Vigilance alone is not the answer, and I’m concerned the message is tending towards “blaming the victim,” as in the new mandatory trips, slips and falls training video. I applaud the part of Sandia’s safety initiative that encourages Sandians to report hazards to T:浅enton. This makes sense for acute hazards, but I would like to point out a number of systemic, administrative fixes that would help assure me of upper management’s (VP-level) sincerity in their stated goal of helping Sandians go home injury free.

• Our short-term fix is that we have extended the entrance time to the turnstiles stopping and isolating the construction hazards themselves. A third anecdote: Resi-

• For a complete schedule of Science and Technology Month events, visit www.albu-

• The current design is automotive-based, and pedestrian improvements. You will start to see more people had experienced injuries entering the turnstiles, even though the design for the road, entrances, and exits was fully reviewed by the traffic safety committee prior to the construction.

• Campus Day was cancelled not because of construction priority, but a management decision that risks of keeping construction and pedestrian traffic from interacting (including visitors, kids, and those not familiar with our culture of obeying signs) were not acceptable. We are in the largest “boom” Sandia has ever had; approximately 1,000 construction workers on site daily. The decision was made because of safety.

• We agree the pedestrian traffic and construction around BLD 400 is an issue, and this is one of our target areas for improvement.

• As an outcome of the slips, trips, and falls Kaizan events, a new program is under way that meets appropriate turn and design standards, and the design for the road, entrances, and exits was full reviewed by the traffic safety committee prior to the construction.

• Family Day was cancelled not because of construction priority, but a management decision that risks of keeping construction and pedestrian traffic from interacting (including visitors, kids, and those not familiar with our culture of obeying signs) were not acceptable. We are in the largest “boom” Sandia has ever had; approximately 1,000 construction workers on site daily. The decision was made because of safety.

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Why can’t I have my old employee ID number?

Q: I have been at Sandia a long time and I was here when we had ID numbers before. When they decided to change back to using the ID numbers instead of using the Social Security numbers, why didn’t we get to go back to our old numbers? I received a different number completely and now wonder if someone at the Labs has my old number. Will this cause any problems because they have my number?

A: We appreciate and understand the concerns that have been raised in regard to the new Sandia ID. The move to a new Sandia ID was part of the larger initiative of the Enterprise Person project, which is to support integrated access control at Sandia, https://hrprod.sandia.gov/cfdocs/prod/hris/EP/ProjectSite/index.cfm. The new Sandia ID is being used, rather than a return to the old scheme of employee numbers, for a few reasons:

1. We needed to assign numbers to a broader group of individuals working with Sandia than the old numbering scheme (limited to employees only).
2. Less than 50 percent of current on-roll employees can be identified by an old e-number since the final elimination of any e-numbers in October of 1997.
3. We can cost-effectively leverage off a current numbering/ID scheme that identifies more than 90 percent of active contractors, employees and visitors.

Our decisions are consistent with your concern to be cost-effective in rolling out this change. The rollout communication will continue to address this issue for those of us who had (or remember) the old e-numbers.

It is very likely that someone already has your old number. This should cause no problems in that we have not used the e-numbers here for any of the corporate systems for years nor do they exist in the corporate personnel or HR systems. It is very unlikely that any small local systems are still using them because there would be no e-number for at least half of the people. Bottom line is that there should be no problem. — BJ Jones (3500)
A baby cries. Why does the mother not hold him? The baby is only six months old, but the mother does not come. Shucking as it may be, it is because the mother believes the baby is being disrespectful. There are some unfortunate mothers in our community who have disabilities such as mental illnesses that prevent them from fully understanding a baby’s needs. That is what Peanut Butter & Jelly (PB&J) Family Services, a United Way agency, is helping to address.

PB&J Family Services’ mission is to help at-risk children grow and develop to their full potential in nurturing families within a supportive community. Parents are taught the skills needed to provide safe and loving homes for their children. PB&J works with families with multiple challenges, striving for family preservation.

PB&J was started in 1972 by two women, Angie Vachio and Christine Ruiz Boyd, who worked for the Bernalillo County Satellite Mental Health Office. Women with mental problems would come by and pick up their medication. Angie and Christine wondered who they had at home. Who else was impacted? Their deep caring began when they started giving these women rides home. There they often found silent kids living in dark homes.

Angie and Christine began their care in a storeroom at the Mental Health Center. They picked up the children at their homes. More and more children came. PB&J turned no one away. The children became active and robust. It was the children who named the school Peanut Butter and Jelly. They were receiving developmental stimulation.

Coming to school with bruises

Then some children started coming to school with bruises. The depressed mothers did not know how to deal with active children. Virtually all PB&J families have incomes below the poverty line and are often challenged by mental illness, developmental disabilities, substance abuse, domestic violence, or incarceration. Through art therapy, play therapy, and counseling, therapists focus on working with children traumatized by abuse or burdened with behavioral or emotional problems.

A two-hour well-baby check-up and developmental assessment welcomes each child in the Peanut Butter and Jelly Therapeutic Preschools. PB&J refers 38 percent of these babies to other agencies for outside help with developmental, health, or growth problems. Most of the families have multiple needs.

With intensive therapeutic counseling, support, parenting education, and case management services, many seriously challenged families can learn the skills they need to survive and even thrive, providing safe and nurturing homes for their children. Mothers are taught to treat the children like children, not adults. It is the toddler who bit his mom innocently while she was holding him who they worry about. Instead of using appropriate discipline, the mother began to slap the child across the face. PB&J works with mothers so they learn nonviolent ways to teach their children appropriate behavior.

PB&J also has programs for children whose parent or parents are incarcerated. For some children, incarceration is unfortunately a family tradition. PB&J is working so that these children are not the forgotten ones. Many children have been traumatized by seeing a parent taken away in handcuffs by police. PB&J works at breaking the cycle of crime.

PB&J treats about 1,500 individuals yearly. Therapeutic preschool classes are offered for children from birth to five in both the Albuquerque and Bernalillo facilities. Children are required to be accompanied by at least one parent and are in a supervised environment with trained personnel at all times. Parents are taught how to care, nurture, and love their children. PB&J provides in-home services for parents who are unable to go to them.

“Children who grow up in troubled families face challenges, but if they are nurtured, loved, and supported by at least one adult in their lives, they can grow into healthy adults,” says Angie. “Kids are very resilient. We should never give up on them.”

PB&J Receives 2005 Samaritan Counseling Center award

The New Mexico Ethics in Business Award began in 1999 when the Samaritan Counseling Center and several business leaders decided to underscore the importance and value of good ethical conduct by honoring businesses and individuals who successfully integrate ethical business conduct and social responsibility into their daily decision making. The award was presented to PB&J on April 20.

Why do I need LMC ‘insider trading’ training?

Q: I just got a notice that I am out of compliance with LMC100, “Insider Trading.” The notice says clearly, “This training is intended for All Vice Presidents, Counsel, Company President, EVP, Partnerships Director and Licensing/IP management executives (contractors are not required to take this training).”

Trust me, I do not fall into any of those categories. So, why are all Sandia employees required to take training as defined in the Lockheed Martin Compliance Plan. This includes all full-time regular employees and all post-docs, as well as student interns and LTEs, who are not represented by the Union.” Based on considerable feedback from Sandians, Becky Kraus, the Sandia process owner expanded the training requirement to include all employees, effective immediately. Employees were notified of the change on May 13.

Becky states that “Because Sandia Corporation is a wholly owned subsidiary of Lockheed Martin Corporation, thus part of the Lockheed Martin corporate business entity, Sandia employees can be at risk for insider trading.” In addressing the target audience issue, she states, “We here at Sandia are going to take the approach that while the likelihood of risk is lower in the case of represented employees, all employees will benefit from this training and require it of all.”

— BJ Jones (3500)

Sandia Student Science Symposium

Brainstorming & Solving World Problems with Science

For high school science students.

Nov. 2, 2005, 6–9 pm
NATIONAL ATOMIC MUSEUM.
Call 284-9988 if you’re interested in attending.

Brainstorm topics will include:

Will there ever be surfing in New Mexico?
Duct Tape 101 – What is “Homeland Security” all about?
Archaeology of garbage
Do you want to live to be 120?
Technology for emergencies
Avian flu and other potential epidemics