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It all started with a conversation between Dale Dubbert of SAR Sensor Technologies Dept. 2345, a former rescue council volunteer, and Steve Attaway (9136), longtime group member.

“We talked about Sandia’s capabilities to do precision terrain maps and realized that this technology could be useful in search and rescue missions,” Dale says. “It had the potential of providing detailed information about terrain where searches are underway, including heights, location of crevices and cliffs, and even different types of vegetation...”

The RTV mapping system uses interferometric synthetic aperture radar (IFSAR). Two antennae, offset in elevation aboard a moving aircraft, allow the measurement of target height, as well as east-west and north-south position like conventional SAR. This produces a 3-D map that shows terrain details.

(Continued on page 4)

KAFB offers Sandians use of its Mountain View Club facilities
Aug. 19 meeting to discuss this alternative to Coronado Club

By Michael Padilla

The Mountain View Club — once known as the Officers Club — will soon be home to many Coronado Club members, thanks to the offering by Kirtland Air Force Base (KAFB) service representatives.

An information meeting to discuss membership in the Mountain View Club and other KAFB services offered to Sandians will be held Thursday, Aug. 19, at noon in the Steve Schiff Auditorium. The meeting is open to all Sandians and retirees.

Sandia announced in May that its aging Coronado Club, which has served Sandians for 54 years, will close permanently on Oct. 1 (Lab News, May 28).

“The Air Force has been generous in allowing Sandians the opportunity to take advantage of the Mountain View Club facilities. Sandia employees and retirees are fortunate to be offered the chance to be a part of the Mountain View Club at a comparable cost to what Coronado Club members pay now,” says Larry Clevenger, Director of Sandia’s Benefits and Health Services.

The Mountain View Club is located on the east side of KAFB in Bldg. 22000 on Club Road. The Mountain View Club offers Sandians lunch, dining, Sunday brunch, and full-service catering for private functions. Special programs include dinner specials, theme nights, live entertainment, and dancing. The club also houses two lounges that can also be reserved for private parties.

(Continued on page 4)

Real New Age crystal: Sandia’s John Reno fabricates the best terahertz crystals in US

Sandia thin-films used for high-tech detectors and lasers

By Neal Singer

The relatively unexplored terahertz frequency range — higher than microwaves, lower than the far infrared — has long intrigued researchers. Lasers and detectors in the THz frequency regime have wide-ranging applications in spectroscopy, astronomy, medical and other types of imaging, and in remote sensing. They are expected to be useful in chemical sensing systems for the detection of molecular absorption lines associated with trace gases.

While lasers with detectors already exist to send and receive signals from that realm, commercial lasers weigh hundreds of pounds, contain long fragile glass tubes, and cost a lot of money, says Jerry Simmons, Manager of Sandia’s Semiconductor Laser and Detector Branch. While the required cooling system for this device is bigger than a cubic meter, the overall size is still small compared to the older lasers.

Dale Dubbert of SAR Sensor Technologies Dept. (1123) is developing a terahertz semiconductor laser that should be easier and cheaper to maintain than the MIT version.

Achieving a laser that operates close to room temperature is still an issue. Currently the hottest operating temperature — 130K — has been achieved by Professor Qing Hu at MIT, using crystals grown at Sandia. While the required cooling system for this device is bigger than a cubic millimeter, the overall size is still small compared to the older lasers.

Mike Wanke (1743) at Sandia is developing a terahertz semiconductor crystal with a smaller size that should be easier and cheaper to maintain than the MIT version.

(Continued on page 5)

SAR FOR SAR — Bill Scherzinger (9123), president of the Albuquerque Mountain Rescue Council, looks at a SAR map and a standard topographic map used in search and rescue missions. (Photo by Randy Montoya)

SAR TO THE RESCUE: Search and rescue group uses Sandia synthetic aperture radar to save stranded hiker

By Chris Burroughs

A Sandia radar, originally developed for military surveillance and reconnaissance applications, is helping a local volunteer search and rescue group save lives.

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(Continued on page 4)
Standdown affects all employees, haunts some operations

Sandians have been working under the constraints of a DOE-mandated complex-wide standdown since Monday in preparation for the standdown. The standdown is of operations that use classified removable electronic media (CREM) — removable computer disks of any size, laptops, and other removable electronic storage media. But all Q- and L-cleared employees, regardless whether they handle classified matter, were affected to some degree

DOE headquarters directed a standdown at each site on July 23.

Sandia President and Labs Director C. Paul Robinson announced the Sandia standdown in a phone message to all employees July 26, effective that day. He said it would continue "until certain precautions and actions have been taken."

A number of employees worked over that previous weekend planning the standdown and preparing briefing materials. Work that did not make use of CREM continued, but a number of important Sandia programs that require their use were halted.

All employees were to receive, at a minimum, a briefing from their managers on proper procedures in handling CREM. Those who handle classified removable media had an extensive list of tasks, and documents that required a comprehensive inventory of their CREM holdings.

"I hope we can use all this standdown to discuss the best improvement approach and get them under way to improve our own record and protect us against a major disaster in the future," Paul said in his telephone message to employees.

"I'm asking, as always, that Sandians give your best efforts," Paul said. "We have the responsibility to control our classified matter, and everyone is looking on us to succeed."

Employee death

Bill Hanson of Neuron Generators Value Stream Team died June 29. He was 48 years old.

Bill was a technical team leader and had been at Sandia since April 1997. He was the husband of his wife Vivian and daughter Erin.

Retiree deaths

Carlton E. Sisson (age 70) June 1
Roger P. Anderson (83) June 3
Andrew T. Kersey (86) June 5
Ray J. Beal (77) June 5

Andrew T. Kersey (80) June 5
Roger P. Anderson (83) June 3
Andrew T. Kersey (86) June 5
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**This & That**

Recycled column — It's me, Larry Perrine, back for another one-time return engagement as Lab News columnist; I filled this valuable space 1989-2001, and I'm subbing this issue for the vacating Howard Kercheval, back visiting in his native Kentucky. We hope we don't have to dry him out from overwhelming the "indigenous liquid goods" there.

Before leaving, ol’ Howie mumbled something about visiting a new lady friend there; maybe he'll report in the next issue about how well it went, or maybe he won't return at all if they hit it off big time. Maybe I'll get this column-writing job back regularly; it certainly beats working.

How well do we know him? — Sandia President C. Paul Robinson has been using the title “recycled” as part of his formal name for quite a while now, but I'll bet few of us have a clue what the C stands for. (You think Clyde, Clen, or maybe Chester?) While we're pondering that, how many of us know what C.'s favorite hobbies are (assuming he ever has time to pursue them)? You think he likes to knit? Breed pit bulls? Grow prize begonias? Tango? Read sleazy romance novels? Play big-money bingo? I'm sure Howie (a frustrated investigative reporter at heart) will dig right into this and report on it in the next issue. (I would have, but I had to go on vacation this week.)

Semi-retired — As a walk-on single golfer at an Albuquerque course several years ago, I was grouped with a bunch of geomers who turned out to be Sandia retirees of 10 years or more. One asked if I were also retired. "Semi-retired since this spring," I said. "Now what the devil does semi-retired mean?" another one asked. I said — with a straight face — it means I go in late every day, leave early, and don't work very hard when I'm here. I got a couple of "you-lazy-slacker" looks until I could no longer suppress a smile, then "fessed up" that I now work only three days a week Monday through Wednesday — giving me four days off in a row. Seriously for a minute... . Sandia's part-time work option is a nice benefit to consider if you are thinking about retiring, but aren't ready to do it "cold turkey." (Approval is subject to your new schedule meeting the benefit to consider if you are thinking about retiring, but aren't ready to do it "cold turkey." (Approval is subject to your new schedule meeting the

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Mini-editorials — Because I get this space only every blue moon. I want to take advantage to voice my valued opinion in several mini-editorials: Hang up and drive. Use your turn signals. Pull ALL the way up to the parking barrier. One thing I definitely want to be your car stereos at eardrum-busting volume, roll up your windows! And finally to all "celebrities" of all parties: Keep your windows! And finally to all "celebrities" of all parties: Keep your

— Gotta go take that required drug-free workplace training. Too many people are convinced I'm on something.

Larry Perrine (845-8511, lgperrine@sandia.gov)

**Joe Montana and the Drive for Excellence**

Sandia Technology, Lab News win 2004 APEX grand awards; 28 others honored

Sandia Technology (Sandia's quarterly research and development journal) and the Lab News each won a Grand Award in the 18th annual Awards for Publications Excellence (APEX) 2004 national competition for communications professionals, announced July 8.

This means Sandia received two of the 100 APEX Grand Awards presented in 11 major categories. TheLab News won 462 entries to the competition.

Sandia Technology was honored for its special issue on homeland security (Vol. 5 No. 2). Chris Burroughs, Nancy Garcia, Neal Singer, John German, and Michael Padilla did the editing; Randy Montoya, Bud Pelletier, and Bill Murphy did the photography; Douglas Prout (Technically Write) did the design. Will Keener edits the technology newsletter.

The Lab News was honored for its Sept. 5, 2003, issue, whose lead article by Michael Padilla was on Sandia's role in analyzing the September 11th terrorist attacks. The Columbia accident.

In addition to the two Grand Awards, Sandia communications received 28 APEX Awards of Excellence. Two of the awards were to photographers Randy Montoya. Randy has now won at least one APEX award for 10 consecutive years.

Another two-awards winner this year was Iris Abbotto, honored in the category feature writing for her Lab News story “Sandian Brings Renewable Energy to Mexico and South America” and in health and medical writing for her Lab News story “Yoplait Names Sandian Champion in the Fight Against Breast Cancer.”

Janet Carpenter, Bill Murphy, and Patrick Mulligan won two solo Awards of Excellence.

Other Awards of Excellence went to Howard Kercheval, John German, Doug Prout and Will Keener (jointly), Larry Perrine and Michael Vittitow (jointly), Michael Clough, Neal Singer, John German and Michael Padilla (jointly), Chris Burroughs, Jerry Gorman, Sheri Mohan, John German and Michael Padilla (jointly), Chris Burroughs, Jerry Gorman, Sheri Mohan, John German and Michael Padilla (jointly).

For details on the APEX competition and all awards, see the web site www.apexawards.com.
Sandia-sponsored graduate student fellow Katie Moor studies using PDAs to monitor patient nutrition

By Nancy Garcia

A small group of patients will soon use handheld devices to record personal data — their intake of fluids and sodium — in a study led by Katie Moor, a PhD candidate at the University of Indiana-Bloomington, supported by a National Physical Sciences Consortium (NPSC) fellowship sponsored by Sandia.

A summer intern from 2000-2002, she was approached by nurses at Indiana University-Purdue University Indianapolis to create a handheld computer application for dialysis patients to monitor the limited amounts of liquid and sodium they are allowed to consume each day.

Since patients have varied abilities to calculate fluid and nutritional intake, the nurses thought this approach would allow the patients to easily record dietary information and get immediate feedback. They can have only one liter of water and a couple grams of sodium a day. However, some 80 percent of patients are unable to restrict fluid intake, risking hypertension, pulmonary edema, and death.

Normally dialysis patients rely on memory or food diaries. It was hoped that using a handheld computer would contribute to an improved awareness of the relationship between diet and health and reduce social effects. One, the Hawthorne effect, predicts that people will tend to temporarily improve their performance when they are aware they are being studied. Another, the "wow effect," notes that people will modify their use of an application because it is a new toy.

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Sophia Lefantzi to participate in NAE ‘Frontiers’ symposium

Sandia’s Sophia Lefantzi is one of 86 of the nation’s brightest young engineers selected to participate in the National Academy of Engineering’s (NAE) 10th annual Frontiers of Engineering symposium. The three-day event will bring together engineers ages 30 to 45 who are performing cutting-edge research and technical work in a variety of fields. They were nominated by fellow engineers or organizations. NAE President William Wulf says the goal is to expose engineers “to ideas outside of their specialties to spark new insights and collaborations.”

The symposium will be held Sept. 9-11 at the National Academies’ Beckman Center in Irvine, Calif.

Sophia is a limited term technical staff member in Reacting Flow Research Dept. 8351, holding a dual role with the Scalable Computing R&D Dept. 8961.

“I’m really proud of the work I’m doing here,” Sophia says. Her team is using the Common Component Architecture, developed by the Center for Component Technology for Terascale Simulation, to create a toolkit for simulating flames accurately at modest computational costs.

The toolkit incorporates techniques developed by Sandia’s Computational Facility for Reacting Flow Science group and many other labs and universities. Its modules can be used for commonly recurring mathematical problems by various scientific computing groups. The efforts are funded by DOE’s Scientific Discovery through Advanced Computing program.

About the symposium, she says, “It’s a big honor, I’m really excited.” The NAE says Sandia’s Grant Hoffelfinger (1802) helped organize this year’s event.

New NNSA principal deputy administrator tours Sandia/Calif. weapons, bioscience, materials areas

NNSA VISIT — Microsystems Science & Technology 8750 Deputy Director Glenn Kubik, left, assisted a tour for Gerald S. Paul, center, new principal deputy administrator of the National Nuclear Security Administration. At right, Georg Aigeldinger (8753) describes LIGA metrology while Joseph Ceremuga (8753) looks on in the background. Paul visited Sandia/California July 27, touring weapons, bioscience, and materials areas. (Photo by Randy Wong)
create detailed RTV SAR maps. He zoomed in on the area where the man was believed to be and printed out color maps of the location.

Steve then went to the Sandia tram, located on the west side of the Sandia Mountains where the rescuers were gathering, and took the tram up to the peak.

“The hiker was climbing the mountain using the tram cables as a guide for off-trail hiking,” Steve says. “He apparently became lost while attempting to follow the tram towers and used his cell phone to call for help. We spotted him from the tram as he waved his flashlight so we would notice him. But seeing him and getting to him were two different things.”

The terrain in the area where the hiker was lost was extremely rugged. Members of the rescue group are experts in using compasses, GPS, and topographic maps, but even for them the terrain was difficult to navigate.

AMRC President Bill Scherzinger (9123), who also participated in the rescue mission, says that’s when the crew turned to the RTV SAR maps for help.

“The detail available helped us make our way to the man,” Bill says. “The maps were color-coded for height and gave estimates of ground roughness. They also distinguished individual rock formations — known to the rock climbers in our group — that are not seen on the topographic maps.”

The initial plan was to have rescuers ride the tram to the top of the mountain and then hike down to the stranded hiker’s location. However, when they determined that the man was not near the bottom of the canyon, but instead at the top of a ridge called Dragon’s Tail, plans changed. The hiker was 100 feet down from the top in a narrow slot that was impossible to access without technical rock climbing.

“Using the RTV SAR maps to help us plan the rescue, we sent one team to nearby Echo Canyon to better determine the exact location of the hiker. A second team went along the treacherous ridgeline of Dragon’s Tail. The first team made voice contact with the man from the bottom of the bluffs at about 3 a.m.,” Bill says.

The second team rappelled to the hiker at 6 a.m., following a ridge line that was one of the most difficult and risky routes the rescue group ever attempted. Another four-hour hike using climbing gear and ropes was necessary to bring the man to safety. The entire rescue took more than 12 hours.

“There’s no doubt that if we didn’t have the RTV SAR maps, reaching the stranded hiker would have been even more difficult than it was,” Bill says. “The 3-D detail of SAR maps saved us time while we were planning our route. We expect to continue to use the RTV SAR in future rescue missions where it seems like it will help the most.”

Sandian activity involved in search and rescue
Bruce Berry
Bruce Berry (4136). He is one of five search and rescue field commanders in New Mexico State Police District 5, which includes Albuquerque, Sandia Mountains, Manzano Mountains, East Mountains, Jemez Mountains, and Clines Corners. Each State Police district has at least one search and rescue field commander. The field commanders in the district rotate on-call duties. For example, Bruce is on call 24 hours a day for one week every five weeks.

“When there is a rescue mission needed and I am on duty, the State Police will call me,” Bruce says. “It then becomes my responsibility to determine what resources are appropriate.”

He says the Albuquerque Mountain Rescue Council is one of the many tools he uses in missions. Healso has access to helicopter, dog search teams, snowmobiles, and horses. When needed, he’ll call in the Civil Air Patrol, Air Force, and National Guard.

So far this year there have been 15 missions in District 5 alone and about 68 missions statewide.

Bruce has been involved in search and rescue for more than 20 years. He started out by training search and rescue dogs and later did ground searches and took climbing classes.

Bruce’s job at Sandia is equally invigorating. As a member of DoD Security Analysis Dept. 4126, he visits military bases around the country to assess how secure they are from terrorist attacks and other threats. He then makes recommendations for improvement.

Albuquerque Mountain Rescue Council
The Albuquerque Mountain Rescue Council (AMRC) is a volunteer organization that provides a broad range of wilderness search and rescue services to the community. It specializes in technical search and rescue operations in all seasons. Council members train for activities that range from technical rock rescue to avalanche rescue.

Bruce Scherzinger (9123), organization president, says of the approximately 40 team members, eight work at Sandia. The Sandians are Bill, Steve Attaway (9134), James Flaherty (1925), Craig Johnson (1132), Roy Jorgenson (1662), Mike Lucero (10848), Bill Sweet (1743), and Nell Symons (6116).

Members are mountain climbers, cavers, and outdoor enthusiasts.

The New Mexico State Police initiates rescue missions and turns to different rescue groups for help. Annually the council assists in about 35 missions, ranging from hiking into difficult terrain to rescue someone or using ropes to rappel to a stranded person.

AMRC is a member of the Mountain Rescue Association in the Rocky Mountain Region, which includes teams from New Mexico, Colorado, and Wyoming. The council is a nonprofit organization that relies on donations, primarily through the United Way (where Sandians can donate) and its annual Cabela’s sale. The outdoor outfitter, which has stores nationwide and does a heavy mail order business, donates merchandise to the team for fundraising. The Cabela’s sale this year will be the weekend of Aug. 28-29.

Coronado Club
Sandians can enroll in club membership at the Mountain View Club. Members receive $1 off each individual lunch or dinner meal purchase of $4 or more, $2 off all prorated special functions and holiday buffets, dinners, and events, and 10 percent off member personal functions like weddings and receptions, wedding anniversaries, retirement functions, and birthday celebrations. Club members can also participate in events such as Gourmet Night, a quarterly Membership Night, and Wine Tasting Night.

In addition, members receive a 10 percent discount on goods and services at most service facilities, including the Kirkland Lanes and Tijeras Arroyo Golf Course.

Applications for membership are available at the Mountain View Club or from the marketing kiosks seen in most KAFB service activities.
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US-Russian accord seeks global use of nuclear energy

‘Considerable common ground,’ says Sandia’s Paul Robinson, chairman of US delegation

Sandia announced Monday that representatives of seven DOE national labs, including Sandia, and nine Russian scientific nuclear organizations have developed a joint document that advocates greater global use of nuclear energy.

Sandia President and Labs Director C. Paul Robinson chaired one of the seven US representatives. “These meetings were held to explore alternative research and development paths to meet growing energy needs,” Paul says. “We found considerable common ground on ways to achieve future energy needs, with use of advanced nuclear systems.”

US and Russian representatives developed the document July 19-21 at the International Atomic Energy Agency headquarters in Vienna, Austria. The meeting was a follow up to the address by Russian President Putin to the Millennium Summit in September 2000, the Bush-Putin Summit in 2002, and the speech by President Bush at the National Defense University in February 2004. On each of these occasions the idea was advanced that nuclear power should play an appropriate role in the energy mix in the 21st century while providing protection against proliferation.

The document says the participants believe that of all current or imminently developable energy technologies, only nuclear power is capable of meeting the growing world demand for safe, clean, plentiful, and economically viable sources of electricity, fresh water, and hydrogen.

“The time has come to develop a comprehensive and realistic plan to ensure the development and deployment of nuclear energy,” the joint document says. “It must preserve access to nuclear energy sources for all countries of the world, and in parallel, reduce the risks of nuclear arms proliferation, nuclear terrorism, and hazardous impacts on environment and population health.”

“With government encouragement and the right regulatory and economic conditions, nuclear energy could supply a substantial part of US and Russian energy needs and 30-40 percent of the world electricity demand by 2050,” the document says.

In addition to providing a virtually limitless supply of secure and reliable energy, greater use of nuclear energy would greatly reduce the risk of nuclear weapon proliferation and nuclear terrorism and reduce the worldwide amount of carbon emissions, the report says.

“Some sites are gallium surrounded by four aluminum, and indium at roughly 1,100 degrees C, dangerous materials like arsenic, gallium, aluminum, and indium at roughly 1,100 degrees C, and allows them to coalesce as a crystal film on a mirror-smooth gallium arsenide substrate,” says John. “The faces of the crystal that form the film are always smooth, and the crystal grows in a specific direction.”

“The process has to remain the same, whether for either the lasers or the detectors is incredibly rare, but one able to both grow and is able to cascade down the steps.”

“The VERY BEST crystal films for terahertz work in the US are made on a 10-year-old, 10-foot-long molecular beam epitaxy machine in Sandia’s Compound Semiconductor Research Laboratory.”

“The process is as suited as any armored knight facing a dangerous materials like arsenic, gallium, aluminum, and indium at roughly 1,100 degrees C, and allows them to coalesce as a crystal film on a mirror-smooth gallium arsenide substrate,” says John.

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“The process has to remain the same, whether for either the lasers or the detectors is incredibly rare, but one able to both grow and is able to cascade down the steps.”
When retirees and current staff of Sandia's Rocket Sled Track operation gathered in Tech Area 3 in late July to celebrate the facility's 50th anniversary, they heard retiree Paul Adams share his expectation about the future of the facility.

Paul, one of a couple dozen retirees who joined in the anniversary celebration, allowed as how, 50 years on he doesn't remember much. "Those of you who were more than 50 years old will remember a lot more," he said.

But Paul did remember enough to share this: "The first test was a fairly low-speed test. It was an impact test on a bomb nose cone to check out the contact fuzes. Those few of us who were here watched it from the control room down by [Division 540]. That was the main control spot for the sled, the centrifuge, and the vibration facility. We got there about two quarters of the way to the target and the front shoes failed. After that, the sled was airborne."

He paused, and with a smile and a nod, and to general laughter, added, "I don't think there have been any failures since!"

As he looked over the audience of retirees and on-roll employees, Paul continued, "Most of you I don't recognize it turns out I hired, so I apologize for all that. Fortunately for him, the guy who hired me is dead, so he's off the hook completely. I'm not off the hook yet, so you'll just have to do the best you can." (Paul is in the photo at right, in the plaid shirt, standing in front of a large-screen projection of a rocket sled test with fellow retiree Fred Brown, who was also present for the first test in 1954.)

"I'm still here, I'm not off the hook yet, so you'll just have to do the best you can," (Paul is in the photo at right, in the plaid shirt, standing in front of a large-screen projection of a rocket sled test with fellow retiree Fred Brown, who was also present for the first test in 1954.)

Mechanical Environments Dept. 9134 Manager Steve Hoffinger, who oversees several large-scale testing facilities including the sled track, realized how the stage was set for the birthday party. "About a year ago, I was going through my cabinet looking for a document and I came across the logbook for the sled track for tests numbers 1 to 501. I opened it up to the first page and the date on it was July 28, 1954. That was our first sled test that was recorded at Sandia, and I thought, boy we've got to have a party — and it was a day party."

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Tom Bickel, Director of Engineering Sciences Center 9120, headed the work done at the sled track over the past 30 years and cited its importance to Sandia's mission. "Sled 3 and the sled test in particular," Tom said, "have been instrumental in our ability to supply the information to assure the safety, the security, and the reliability of the nuclear stockpile. The folks who are here today developed a lot of that knowledge. And for that, Sandia says, Thank you."

"We are moving into a new regime now. We have evolved over the past 50 years from a test-only based approach to a test and evaluation approach with computation, and we continue to provide challenges to a new generation of folks who are here today developed a lot of that knowledge. And for that, Sandia says, Thank you."

As is appropriate for anniversary celebrations, it was a day for reminiscences. Tom recalled that on his first day on the job at the Labs, his very first phone call was from someone who said, when Tom picked up the phone: "Where do you want your fire engine?"

And he said, "I'm only here because I'm here and they're already giving me my own fire truck! This is gonna be a great place to work!"

It turned out the call was supposed to be for Dave Bickel (no relation), who was running a test at the sled track and had requested an extra fire truck for safety purposes.

"The bad news is," Tom concluded, "I had a runaway foamier on my property books for about another 15 years."

And speaking of Dave Bickel, he managed the track for a total of 22 years during the time period of 1963 to 1994. Dave recalled several of the major milestones of the track's history, including the big sled test in which a tractor-trailer was collided with a locomotive diesel engine. That test, designed to measure the survivability of shipping containers in catastrophic events, was quite a demanding setup, Dave said, and generated considerable interest. Some 600 people showed up to watch it, and the event was covered on television by the major news networks. He also took note of the famous F-4 test, in which an F-4 fighter aircraft was slammed into a massive, instrumented concrete block, at 750 feet per second to estimate the heat of a crash into a nuclear power plant containment building. The video of that test has been widely used — and misused — for the past 13 years. (In the photo at far right, Dave Bickel, right, stands with Bill Kampfe, who was the track's chief test engineer from 1989 to 1995, when he retired as a DMTS.)

Tom Bickel left the retirees with an invitation — and a challenge.

"Don't be strangers to us out here," he said. "I know how much knowledge is resident between the ears [of you folks]. As much as we like to think we know everything nowadays, and that computers will solve every problem, that's not the case. So I'm always looking for a few good ideas — and those are not discriminated by age."

Meanwhile, the facility continues to provide a controlled environment for high-speed impact, acoustic, and related testing of small and large test items. Tests can be designed to simulate unique scenarios to provide the maximum data from each test. The facility provides a 10,000-foot track for testing small items at very high speeds and a 2,000-foot subsonic track for testing very large items. The combination of ingenuity, experience, and instrumentation available at this facility makes it unique for research, test, and evaluation purposes.

The Rocket sled Track has a large suite of advanced instrumentation capabilities. The facility uses photomultipliers, laser trackers, telemetry, and hardware systems to gather data from a variety of instruments and transducers. Time-space-position information (TSPI) can be acquired at up to 1.5 KHz with 1-foot accuracy, and transducer data may be sampled at each 1.5 KHz. High-speed video, flash x-ray, and film cameras running at up to 1 MHz may be used to capture the dynamic events. Time-space-position information (TSPI) can be acquired at up to 1.5 KHz with 1-foot accuracy, and transducer data may be sampled at each 1.5 KHz. High-speed video, flash x-ray, and film cameras running at up to 1 MHz may be used to capture the dynamic events.
Spaced-out Sandia stores square feet in ‘space bank’

DOE policy requires foot-for-foot match between construction, demolition; some older projects exempt

By John Zavadil (10870)

In 2002, Sandia opened a new bank. Not a typical bank, but one holding something that's become almost as precious as gold at Sandia — space.

If you've tried to get any new office or laboratory space lately, you've probably found out the hard way that Sandia is suffering from a severe shortage. Of the more than 6 million square feet at the various Sandia sites, only about 50,000 square feet is vacant, in small chunks scattered among several buildings. Several new construction projects are underway, but those buildings have already been promised to future occupants. Sandia needs a lot of space to meet growing mission needs, particularly to support national security initiatives, but the space isn't available.

Why doesn't Sandia just go out and build all the space it needs? Aside from the more obvious reasons (funding, DOE sponsorship, etc.), Sandia has to comply with a new congressional mandate. In an effort to get rid of substandard DOE buildings, Congress now requires DOE to keep careful track of any space added or removed from its sites. Except for leased space, all new square footage — a large office building, a mobile office, or even a guard shack — must be balanced by the removal of an equivalent amount of space, either by demolishing buildings, removing mobile offices, or transferring buildings to other government organizations. The goal is zero net growth for the entire DOE complex. DOE has decided to implement the requirement by having each DOE site track its current and future needs. This is a monumental task, but so every time Sandia builds new space, we have to get rid of the same amount of substandard space.

How is Sandia handling this challenge? That's where Whitney Wolf (10854) comes in. She's the manager of the Sandia space bank. Any eliminated space, like the recently demolished Bldg. 841, is credited in the bank and applied to offset new construction projects. When ever Sandia asks NNSA to authorize a new construction project, Whitney must identify the buildings that have been or will be removed to offset it. In some cases, particularly for larger projects, the offset buildings identified will not actually be removed before new space is occupied.

It's not easy keeping the bank up to date, because most Sandians don't know about it. Whitney often gets calls from a building manager who's noticed a new shed that's popped up in some remote location. Other projects that were accounted for in the bank experience “scope creep” and end up building more space than originally expected. “We want to make people aware of the offset space requirement so they don't inadvertently affect other projects,” says Whitney. “I'm not telling anyone they can't buy a shed or build more space, but if they do, I need to know about it.”

Whitney has been banking demolished space since 2002, adding almost 175,000 square feet to date. That may sound like a lot, but Sandia is starting to feel the squeeze. So far, the banked space has mainly been used to meet immediate needs (small buildings like Bldg. 752, building additions, etc.), but the new Center for Integrated Nanotechnologies, which just broke ground (Lab News, June 11), will use almost 100,000 square feet when it's occupied.

Several more large projects are in the works. So much new construction is planned that the bank is projected to go negative in December 2005, which could threaten or halt Sandia's construction programs.

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The news isn't all bad. Again, leased space doesn't count, currently. And projects that were approved before 2003 will be added to the bank. Offset new construction through 2009, based on current plans.

What can you do?

• Contact your space coordinator if you plan to add or remove any space, even a storage shed. (Not sure who your coordinator is? Go to www-irn.sandia.gov/facilities/realstate/space_coordinators.htm.) The coordinator will help you explore the alternatives available to you and contact Whitney, who will be able to keep the bank up to date.

• If you are constructing new space, make every effort to avoid “scope creep” and to keep your project's square footage at the initial approved size.

Of the more than 6 million square feet at the various Sandia sites, only about 50,000 square feet is vacant, in small chunks scattered among several buildings.

TFT FOR TAT — Bldg. 805 was demolished this summer. Its demolition allows for another building to be constructed, following a congressional mandate to DOE.

Sandia's excellent, proactive demolition program has already eliminated most excess facilities. The program removed more than 360,000 gross square feet of substandard space before the offset requirement was implemented, and Sandia's only excess facility, Bldg. 805, has just been demolished. Sandia has identified additional facilities that need to be demolished because they have exceeded their useful life, but most of these buildings are occupied. It's a Catch-22: we need space so we can move people out of substandard buildings that we want to demolish, but we can't build new space to house those people until their current buildings are demolished.

In addition, NNSA has recently ruled that space eliminated with NNSA funding resources can only be used to offset new NNSA space. CINT, an Office of Science project, was the one exception to this, and NNSA has made it clear that CINT was not a precedent.

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Q: Tech Area Maps: Although I have been a Sandian for more than 10 years, I infrequently have to go into Tech Area 1 and more often than not find myself lost amongst the changing gate/fence patterns, new construction, and multitude of MOs and T-buildings. This has forced me to be late several times for training and meetings even after I think I have reviewed the maps posted on the Sandia website. Why can’t there be maps/di rectory within the technical areas to help identify where you are and where the major buildings/desks are located? This may not seem confusing for the residents of TA-1, but is frustrating for other Sandians like myself.

A: New employees and people who have not been in our technical areas or remote sites for a while can certainly feel lost in the “City of Sandia.” As you so adequately pointed out, the physical infrastructure and configuration of our technical areas are constantly changing and can be difficult to navigate. Right now there are no plans to install directories to locate buildings in the technical area of interest, TA-1, TA-4, and remote areas have numerous entry points so we would need multiple directory locations, similar to the multiple directory locations commonly found in shopping malls.

The cost to maintain the accuracy of the directories would be high due to the frequent changes with limited benefits derived. There is still hope. The following web sites on the SPN can provide you with the information you may need: from the Sandia home page you can access maps through the icon in the lower right side of the page or visit the following links: http://www.im.sandia.gov/2nd-levels/maps/frame.html and http://www.im.sandia.gov/2nd-levels/maps-links.html#nt/mntechareas. You can access the following link to get information on construction projects that will interrupt pedestrian or vehicular paths: http://www.im.sandia.gov/facilities/traffic_cont/trafficmain.html.

You may also visit the excellent Traffic Safety Committee home page and link to various other informational sites on traffic work at: http://www.im.sandia.gov/facilities/sh/traffic_cont/traffic.html.

I would also encourage you to read the Sandia Daily News, as most major traffic impacts and area changes are published. Another excellent source of information about major road closures is the Incident Commanders Nightly Report. Hopefully these information sources will allow you to reach your destination quickly and on time.

—Lynwood Duke

Sandia’s CMC celebrates 10th anniversary

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Q: With US health care costs projected to rise to a staggering $2 trillion dollar level by 2007, what is Sandia’s long-term plan, other than passing along more and more of the cost to the employees, to promote employee fitness? Increasing employee fitness is one of the most cost-effective ways to lower health care costs. Example: Union Pacific Railroad invested $2.5 million dollars in workplace wellness and reported a same-year $50 million healthcare cost decrease as a result. Not to detract from what Sandia has done in the past and is currently doing, many employers have no fitness program(s) at all, but Sandia could and should do better. Ironically, I type this in my organization’s building which has an exercise room sans exercise equipment.

A: Sandia has supported an onsite, preventive health initiative for more than a decade when the concept of corporate wellness was in its infancy and prior to today’s trend of upward spiraling health care costs. Since inception, $ALUDI Health Promotion Program has had wide acceptance with great employee participation rates despite the lack of an adequate facility. The absence of exercise and teaching space as an effective delivery solution, but never detracted $ALUDI from providing innovative preventive services or from demonstrating that prevention is indeed more cost effective than entering the health care system for the treatment of disease. Now, in an age of rising health care costs, informed consumerism, and epidemic disease, the contrast between managing modifiable risk factors versus treating diseases with severe complications is much clearer to contemporary corporate culture. Simply put, the difference in encouraging employees to be ever vigilant of their personal health versus treating those already suffering from the consequences of disease is more boldly highlighted by the escalating health care costs we presently endure.

At the beginning of this decade, Sandia’s Health Services Center developed a programming strategy tailored to the present and future needs of our populations and aligned with Healthy People 2010 (http://www.healthypeople.gov). We looked at the leading health risk indicators at Sandia and how to proceed in influencing the health outcomes of those covered by our health care plans. We also looked at the accessibility and delivery programs. We developed an integrated organization and brought together a multidisciplinary staff of health educators, dietitians, fitness professionals, doctors, behavioral specialists and experts from the community.

Our health care team then developed a rich strategy with the singular mission to prevent premature morbidity and extend a high quality of life to Sandia’s populations. This strategy has since and is presently being rolled out.

Here are just a few directions that Sandia’s Health Center’s present strategy has taken:

• Last year, CA $ALUDI opened its Life Design Center, which is a fitness and health education facility.

• NM $ALUDI and the Employee Assistance Program moved to a new 7,000 sq. ft. mobile with an exercise room, assessment and teaching space, and staff offices. (See http://www.sandia.gov/health/update/rchblog.html.) This building was supported by IES monies and represents Sandia’s recognition of the importance of enabling workplace accessibility to exercise, health education, and counseling services.

• An innovative Disease Risk Management Clinic (DRMC) piloted a diabetes program in July 2001. “Compelled by scientific evidence demonstrating that many diabetes complications are preventable with education, diet, exercise, and new pharmacological approaches, the Health Services Center formalized disease prevention efforts,” said DMRC Director Robert Bruggemann. It’s at http://www.im.sandia.gov/HR/health/manager/diabetes.htm. Here, we found that in implementing high standards of care and making it easy for participants to adhere to recommendations through workplace accessibility, we could achieve amazing clinical outcomes, cheaper and faster than commercial diabetes programs.

• This year, we are applying the lessons learned from the Diabetes Pilot to broaden the DRMC mission to include other prevalent diseases that plague our populations, such as hypertension and high cholesterol. We will likely expand the DRMC even further to manage obesity.

• We have, for some time, recognized that the health of any Sandia employee affects that of his/her coworkers, spouse, family, and community whether presently on-or off retirement. Therefore, we have revamped our spouse and retiree programs, making them more robust. We’ve made our same workplace services conveniently available in the community. http://www.sandia.gov/health/update/community.html

Moreover, we have solid communications channels wherein we use target messaging to attract interested individuals. And, we continue to promote on larger scales through our 15-year-old newsletter, which has some 10,000 subscribers and to centralize our customer service components. We hope you will feel free to visit us (http://www.sandia.gov/health/update) or to direct your queries to health@sandia.gov or (505) 844-6LTH (4584).

—Larry Cleverger (3300)
Family Day delayed until 2005

Sandia Family Day/NM, originally scheduled for Sept. 18, and Family Day/CA, scheduled for Oct. 9, are being postponed until Spring 2005. Family Day planning will continue, and a new date will be announced later this year. For additional information, call Family Day/NM co-chairs Mike Lanigan, 844-2297, or Debbie Johnson, 844-3570, and in Calif., Mike Janes, 294-2447.

Recent Patents

- Antoinette (Toni) Taylor, a scientist at LANL, has been named Associate Director for the Center for Integrated Nanotechnologies, CINT Director Terry Michalske (1040) has announced. CINT is a joint venture between Sandia and LANL, funded by DOE’s Office of Science. It operates as a national user facility for the design, performance, and integration of nanoscale materials. Taylor is internationally recognized for her scientific accomplishments in the development and application of nanoscale probes. She has more than 170 refereed publications to her credit. At Los Alamos, she has served as a Scientific Thrust Leader for Complex Functional Nanomaterials. Her contributions to CINT have helped define the user program and she has played a key role in building the joint Sandia/Los Alamos scientific community.

"We welcome her formally aboard in her new role," said Terry.

New owners get keys to latest Habitat for Humanity House

EDUARDO PRIETO receives the traditional hammer from Stan Hall, 9623, on behalf of the Sandia volunteers. It is a symbol of the sweat equity his family put into their home (500 hours) and the volunteer work on the Habitat for Humanity house (estimated at 2,300 hours and 275 volunteers). With Eduardo is his wife Maria and children Senica, 11; Walter, 10; and Crystal, 4. (Photos by Bill Doty)