Sandia conducts materials tests at Solar Tower to benefit future NASA planetary exploration

Tests on 'advanced charring ablator' spacecraft shields apply heat equivalent of 1,500 suns

HOT TESTS — Cheryl Ghanbari (6218, right) and Steve Moon, from Gray Research, look at a 5-inch-diameter ablator sample that was tested in Sandia's solar wind tunnel. (Photo by Randy Montoya)

By Michael Padilla

Materials used for NASA's future planetary exploration missions are being put to the test at Sandia — severe heating tests that is.

For the last two years, tests have been conducted at Sandia's National Solar Thermal Test Facility to see how material can withstand severe radiant heating. The tests apply heat equivalent to 1,500 suns to spacecraft shields called Advanced Charring Ablators. The ablators protect spacecraft entering planetary atmospheres with significant radiation environments.

Under a Work for Others Agreement, researchers at Sandia and Applied Research Associates, Inc. are conducting the tests for NASA Marshall's In-Space Propulsion/Aerocapture Program. The R&D effort is tied to NASA's plan for a future Titan mission with an orbiter and lander. Titan is Saturn's largest moon.

The tests are led by Solar Tower expert Cheryl Ghanbari (6218) and Bill Congdon, project principal investigator, for Applied Research Associates, Inc.

The tests are designed to simulate atmospheric heating of spacecraft that enter Titan — heating that includes low levels of convective heating combined with relatively high levels of thermal radiation.

The primary ablator material for the Titan

(Continued on page 5)

Sandia teams win four 2005 R&D 100 awards

Sandia scientists and engineers have pulled down four prestigious 2005 R&D 100 awards, presented by *R&D Magazine*. The *Chicago Tribune* has called the awards "the Oscars of invention." Winning innovations were the ion-photon microscope; TEPIC cast-to-shape composite tooling; and Global Link secure, high-resolution, interactive remote visualization. Sandia shared an award with Goodyear for their work on the Goodyear Assurance tire. The full story and description of the work will appear in a future *Lab News*.

Sandia LabNews

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Sandia National Laboratories

Sandia purchases, installs high-capacity 'Thunderbird' supercomputing cluster

Machine expected to significantly expand Labs' computing capacity

By Neal Singer

Sandia has purchased a 4,096-node Dell high-performance computer cluster, called Thunderbird, that will provide more than 8,000 processors of compute capacity to meet the laboratory's high demand for cluster computing. The aggregated capacity of the computer will have approximately 24 terabytes memory and 60 tera-OPS (trillion operations per second) speed.

Sandia, with Dell Professional Services and Albuquerque's Technology Integration Group, will install the system at Sandia's Central Computing Facility in Albuquerque. Delivery of Thunderbird should be completed by the end of July and integration and testing will occur over the next several months. The system is expected to be fully operational in early October.

Thunderbird is Sandia's second installment of an institutionally maintained cluster. Sandia's first institutional cluster was installed October 2003 and provides approximately seven tera-OPS of capacity to the laboratory.

"Our first institutional cluster was an important investment for the lab, but it has been fully utilized from the first day it was installed," says Ken Washington, CIO and director of Sandia's Information Systems and Services Program. "Thunderbird will make a huge impact by more than quadrupling our institutional capacity. The increase allows the Labs to meet a significant fraction of previously unmet institutional capacity computing requirements in one fell swoop."

(Continued on page 5)

"Thunderbird will make a huge impact by more than quadrupling our institutional capacity. The increase allows the Labs to meet a significant fraction of previously unmet institutional capacity computing requirements in one fell swoop."

Chief Information Officer Ken Washington

New employee injury notification process in place

By Chris Burroughs

A new management notification process for employee injuries has been put in place to better emphasize prevention awareness and reinforce greater management responsibility and accountability for injuries.

Sandia Deputy Director John Stichman announced the new process, saying it comes from his "deep and abiding concern for the safety and welfare of every person at this Laboratory."

"Sandia is not where we want to be in terms of protection against injury," says John, who is charged with overseeing ES&H [Environmental, Safety, and Health] activities. "When we are measured against other companies [in terms of work-

(Continued on page 4)

DOE announces availability of Former Worker Medical Screening Program. Story on ***page 4.***

62 individuals, 60 teams honored with Labs' Employee Recognition Awards. Story, photos on ***pages 8-12.***

Health care costs are rising. How can you help control them? Story from Sandia Benefits on ***page 13.***

What's what

Maybe it's my native paranoia, but I've often had the feeling that the grocery stores I frequent have watchers who note what I like and after I buy it a couple of times, remove it from the shelf — just to see the frustration on my face the next time I show up and can't find it.

Sandia retiree Carl Smith e-mailed not long ago with a sort of reverse of that. He's living in Oregon now and says that while he can get green chile in the Northwest — although not *good* green chile like in New Mexico — he could find barely *any* chile during one of his assignments away from Albuquerque.

During the Airdrop Readiness Program (late '60s-early '70s), he wrote, four New Mexico Sandians were assigned to a project that subsequently found them sharing a rented home in Hilo, Hawaii. The project involved the installation and operation of a simulator site at the 11,000-foot level on Mauna Loa. The daily trip to and from the site was long and by the time they got home in the evening, most restaurants were closed so they "bachelor cooked" evening meals.

Being from New Mexico, they needed green chile, of course, and after a search, they found four dusty cans of it on a grocery store shelf and got all four. When that was used up, they went back, and found. . . six cans! And bought all of 'em.

That went on for six weeks, Carl says: Each time, more cans, and each time they bought out the stock. With other Sandians visiting the site — and the "home" occupied by Carl and his colleagues — their consumption of chile increased steadily.

"By the time we left, there was a case or more on the shelves," he wrote, "and after we went away, I can only imagine the manager of that market saying to himself: 'What happened?'"

* * * * *

National security's not the only complex issue we face. How about changing your Kerberos password? I had to do that recently and with every new batch of incomprehensible offerings, I equivocated like Charlie Brown agonizing over what to write in a valentine to the little red-haired girl.

Should I pick this one because it sort of sounds like granddaughter Sofi's version of "I like pretzels," or that one because I can associate "omb5tsa" with "on my boat 5 times since April," or "pwb5hn" because of the neat geometric design it makes on the telephone keypad?

Then when you settle on something, there's more anxiety. Write it down on a sticky and stick it on your wall? Not supposed to do that. Put the sticky in your wallet? What if, while fumbling for your driver license, you dropped the password note and it was lost?

The process would make Charlie Brown's head spin.

* * * * *

One of the more easily shockable souls I know — she's also a little paranoid, about having her name in print, so I won't identify her — got a shock recently when she went into Outlook to check her calendar.

There in big bold letters was the message "Take a bath!" Mentally cycling quickly through shock, paranoia, indignation and a few other emotional twists and turns, she looked again. . . and realized she had opened the calendar of the van to the group OAA's reminder to have the van washed.

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

Sandia LabNews

Sandia National Laboratories

http://www.sandia.gov/LabNews

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LOCKHEED MARTIN

Employee death

Steven Kurtz of Physical, Chemical, and Nano Sciences Center 1100 died June 29 in a rafting accident.

He was 51 years old.

Steven was an engineer and physicist and had been at Sandia nearly 25 years.

He is survived by his wife Mary and daughters Theresa and Jean.

STEVEN KURTZ

Employee death

Marilyn L. Goodrich of Monitoring Systems Center 5700 died June 23 after a long illness.

She was 59 years old.

Marilyn was a member of the technical staff and a systems engineer. She was with Sandia for nearly 20 years.

She is survived by her husband Donald (Sandia retiree), son Christopher (9342), and daughter Diana.

MARILYN GOODRICH

Jennifer Jacobs appointed a White House Fellow

Jennifer Jacobs (6956) is one of only 12 individuals throughout the United States appointed to be a 2005-2006 White House Fellow. The White House made the announcement June 20.

Jennifer earned a BS in engineering physics at West Point, an MS in environmental engineering/health physics at the University of Florida, and a PhD in nuclear engineering at the University of New Mexico.

JENNIFER JACOBS

White House Fellows typically spend one year working as full-time, paid special assistants to senior members of the White House staff, the vice president, cabinet secretaries, and other top-ranking government officials.

Currently Jennifer works as a senior member of technical staff at Sandia addressing issues of international security for the Second Line of Defense (SLD) Program. This program primarily addresses the nuclear terrorism and smuggling threat and is part of the International Borders and Maritime Security Program (6950). She also serves in the Army Reserve as a major.

The White House says selection as a White House Fellow is "highly competitive and based on a record of remarkable professional achievement, evidence of leadership skills, a strong commitment to public service, and the knowledge and skills necessary to contribute successfully at the highest levels of the Federal government."

Ruth Weiner named fellow of American Nuclear Society

Sandia's Ruth Weiner (6143), a risk analysis researcher, was recently named a fellow of the American Nuclear Society (ANS).

She was one of four fellows elected for their outstanding contributions to the field of nuclear science and engineering and recognized June 8 in San Diego during the ANS annual meeting.

RUTH WEINER

Ruth, who is active in the society, conducts research at Sandia in risk assessment for transporting radioactive materials, especially taking into account current concerns such as accidents and terrorism.

"I want to thank ANS for the recognition of my work, but in particular for recognizing RADTRAN, which is the result of 30 years' effort by many Sandians," Ruth said in an ANS release. She has helped develop and adapt RADTRAN, a software code its creators say has become the national and international standard for assessing nuclear transportation risks.

A Sandian from 1995-2000 and from 2003 to the present, Ruth received a BS and MS in physics from the University of Illinois and a PhD in chemistry from Johns Hopkins University. She spends her Fridays off every other weekend teaching a course in radioactive materials transportation as an adjunct professor at the University of Michigan. Other awards and committees include the Nuclear Regulatory Commission's Advisory Committee on Nuclear Waste and numerous conservation awards. She is an accomplished textbook author, public speaker, and linguist.

"I was very pleased to receive this award, especially since there aren't many members who are women who have been named fellows," Ruth says.

Founded in 1954, the American Nuclear Society includes more than 10,000 engineers, scientists, administrators, and educators representing more than 1,600 corporations, educational institutions, and government agencies. Its mission is to develop and safely apply nuclear science and technology for public benefit through knowledge, exchange, professional development, and enhanced public understanding, according to the Society's website, www.ans.org.

Inventors and authors honored at California site's annual royalty distribution event

Calling the California site's intellectual property portfolio "just a remarkable set of accomplishments from some of the most inventive people in the universe," California Laboratory VP Mim John (8000) welcomed inventors and authors to the 12th annual royalty and patent awards celebration on May 26.

"Why do we do this? It's not about the dollars. It really is a measure that we can tell the world that we are innovators. Our royalties are a measure of a successful transfer of our technologies to industry."

Mim John, California site VP

Last year was the second-highest for placed licenses, she said, with 46 licenses generating $1.4 million in income. This brought the total number of active licenses from the site to 193, or about 20 percent of the Labs' total. Since 1992, Sandia has distributed almost $1.6 million to 87 inventors and authors associated with Division 8000, which is about 42 percent of the Labs' total.

"Why do we do this?" Mim asked. "It's not about the dollars. It really is a measure that we can tell the world that we are innovators. Our royalties are a measure of a successful transfer of our technologies to industry."

Some licenses are useful to society and even to national security, she said.

In addition, fiscal 2004 saw 51 patents filed from the California site — a number Mim called "huge" since it normally averages around 30 — and 38 granted. The ceremony, a late-afternoon reception at Wente Vineyards, honored current and former Sandians and their collaborators who developed intellectual property from the California site.

Of the license income:

- Inventors and authors receive 20 percent (up to $150,000 per year above base salary).
- 10 percent is distributed to contributors.
- 65 percent is reinvested for discretionary R&D and technology maturation.
- 5 percent is distributed for intellectual property management, including technology assessments and market research.

Since 1992, the California site has:

- Filed more than 416 patent applications (22 percent of Sandia's total).
- Received 190 patents (18 percent of Sandia's total).
- Distributed almost $1.6 million to inventors and authors (42 percent of Sandia's total).

Mim said Sandia is recognized as a leader among all DOE labs in technology transfer, having more disclosures, patent applications, issued patents, and licenses than other laboratories. Also, Sandia exceeds other labs in the number of cooperative research and development agreements and agreements with other agencies or nonfederal entities.

"It's a pretty impressive list," she said, encouraging the people in her audience to "keep on keeping on." — *Nancy Garcia*

Sandia CaliforniaNews

Students tour Combustion Research Facility

EXTRA CREDIT — Some of the 190 student interns at Sandia/California this summer took time out of their day to attend a site tour that included stops at the Combustion Research Facility (CRF), Life Design Center, Micro and Nano Technologies Laboratory, and a materials science lab in Bldg. 916. Here, Mark Musculus (8362) explains research in his diesel engine laboratory at the CRF.

Feedback

Do report those slips, trips, and falls; small aquarium may be okay in office space

Q: *I am rather concerned after attending several department, center, and division meetings about the strong emphasis on reducing the number of work-related injuries, especially slips, trips, and falls. I fully support all ES&H initiatives to reduce or eliminate the injuries, but the message was we MUST lower the number to zero. I fear that this message may be interpreted by people to NOT report slips, trips, and falls, thereby keeping the numbers of reported injuries low. How can we prevent this from happening? I think the emphasis must be that we care about the people that work here and want to keep them safe. If they should slip or trip, we want them to report it and make sure they are examined. By reporting incidents it also has the potential of protecting others if an unsafe condition exits.*

If a person is injured at work, the injury itself is enough of a painful reminder to stay safe. The injured person doesn't need an additional reprimand. We should never fear reporting an injury, incident, or occurrence.

A: The intent is not to invoke a culture that fosters nonreporting of accidents and injuries. Reporting is the right, ethical thing to do. We intend to raise the awareness of all members of the work force and illustrate that management is committed to providing a safe work environment. We report the number of incidents as a mechanism to heighten awareness of the workforce about the issues associated with slips, trips, and falls. We also have provided advice to empower employees to prevent risk behaviors that could lead to slipping, tripping, and falling as recently reported in *Lab News* articles.

— Kathleen McCaughey (6300)

* * *

Q: *My question is regarding personal items in our office spaces. Is there a list of allowed/prohibited items that we can have in our offices? Specifically, are there rules against having a small fish aquarium (2-5 gallons) in our office areas? I tried doing searches and came up with nothing about this type of item. Any help you can provide is greatly appreciated.*

A: There are no corporate ES&H or business policies that address bringing an aquarium to work here at Sandia. There is guidance against certain types of animals because of health reasons and other concerns. The responsibility to maintain and care for the aquarium would solely reside with the owning individual, and it should not adversely impact other employees or operations.

— Kathleen McCaughey (6300)

DOE Assistant Secretary John Shaw announces new medical screening for former Sandia workers

A new medical screening opportunity will be available to all former Sandia workers beginning this fall.

John Shaw, DOE Assistant Secretary for Environment, Safety, and Health, made the announcement during a recent visit to Sandia where he toured the Labs' medical facilities.

The DOE Former Worker Medical Screening Program (FWP), already available at several DOE sites across the country, offers some 400,000 former DOE workers an opportunity to receive, free of charge, medical screening for a variety of health conditions that may be possibly related to their employment at a DOE site.

"This program is a great opportunity for former DOE workers to receive medical screening and promote health awareness."

DOE Assistant Secretary John Shaw

"This program is a great opportunity for former DOE workers to receive medical screening and promote health awareness," Shaw said.

He said screening for former Sandia workers will be provided by University of New Mexico and Johns Hopkins University. Former workers may also have the option of being screened at the Sandia Medical Clinic.

Shaw is responsible for funding and managing the Department's efforts to provide the Department's 400,000 former workers with the opportunity to participate in medical screening to check for health conditions that may be related to their employment at a DOE site.

"Energy Secretary Bodman and I are in the process of expanding this medical screening program to offer every interested former employee from every DOE site this medical screening, regardless of where they live or where they worked," Shaw said.

DOE ASSISTANT SECRETARY John Shaw and Linda Duffy (3330) review information about the Former Worker Medical Screening Program.

(Photo by Erin Gardner)

FWP was established following issuance of the 1993 Defense Authorization Act, which tasked DOE with assisting workers in determining whether they had health issues related to their prior work with DOE.

The program's mission is to identify groups of former workers at risk for occupational disease, notify these individuals, and offer them medical screening that can lead to medical treatment.

Sandia tour

During the visit, Shaw also toured the Sandia occupational medical clinic for current workers. He said he commends the work done by Dr. Larry Clevenger (3300), his deputy Linda Duffy (3330), and their staff for their innovative programs for the current Sandia workforce.

"Sandia employees are very fortunate to have such a first-rate medical clinic available to them.

Get info . . .

For additional information about the Former Worker medical Screening Program call 1-888-580-1746. For information about Medicare call 1-800-MEDICARE (1-800-633-4227) or visit www.medicare.gov.

Not only does this clinic do a terrific job screening for any potential occupationally induced conditions, but it has incorporated excellent health promotion activities aimed at reducing the incidence of diabetes, hypertension, and high cholesterol. This clinic can serve as a model for other DOE site clinics," said Shaw.

"Mr. Shaw's visit to Sandia was important because it demonstrated DOE's concern about the health of the workforce," says Linda. "The visit also showed DOE's interest in pursuing preventive health interventions and strategies such as disease management in other clinics throughout the complex."

Medicare prescription drug benefit

During his visit, Shaw also discussed DOE's role in a government-wide campaign to inform people who are eligible for Medicare about new prescription drug coverage plans.

He said every DOE site across the country has agreed help notify employees and the community. Information will be disseminated at open houses, through newsletters, and to community leaders in all areas.

The information will be shared with DOE's 150,000-person federal workforce. Out of the 150,000 DOE employees, 40 percent are eligible for early retirement and about 18 percent are eligible for full retirement.

Shaw said new Medicare coverage will help all Medicare beneficiaries pay for prescription drugs. Medicare will provide an average of more than $1,300 in federal help to each beneficiary, and starting in January, Medicare will cover 95 percent of all prescription costs once beneficiaries spend $3,600 of their own money each year.

— Michael Padilla

Notification

(Continued from page 1)

related injuries], we are not there. We want employees to go home as safe as when they arrived."

John says that Sandia has a lot of people "engaged in a variety of activities that if not approached safely could result in injuries.

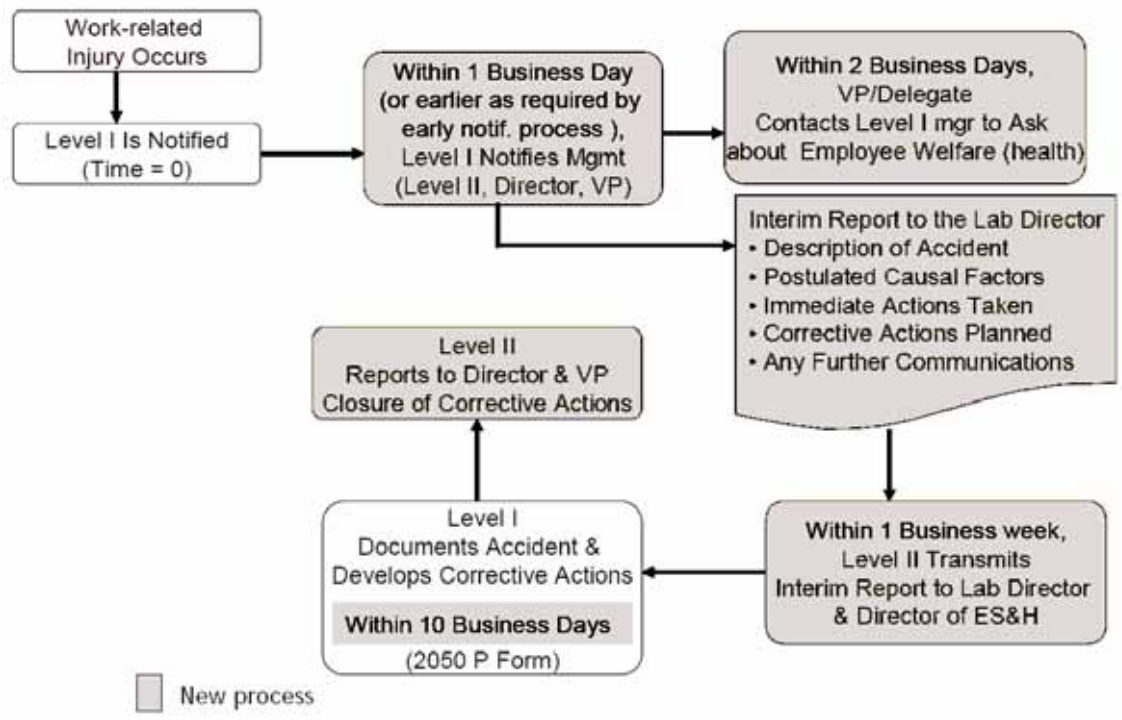
"Employees need to be aware of safety controls, and managers need to always make sure employees are working in a safe circumstance," John says.

The new notification process ensures that 1) all levels of management are notified when a work-related injury occurs; 2) management is actively engaged in understanding the cause of the injury and ensuring mitigating factors are in place to prevent future injuries; 3) new timelines are established to ensure management urgency and closure; and 4) the employee knows that the upper management is aware and serious about preventing injuries.

Here is the process that must now be followed in the instance of a serious injury:

• After an injury, the Level I manager accountable for the injured worker is notified either by the worker, coworker and/or Medical. For severe injuries, notification must occur within two hours. The "Executive Early Notification Policy" must be followed.

• After the Level I manager has been notified of the accident, that Level I manager must notify the Level II manager, center director, and vice president within one business day.



• The vice president or someone delegated by the vice president must contact the Level I manager within two business days to inquire about how the employee is doing.

• The Level I manager of the injured employee must prepare an "Interim Report to Laboratory Director: Internal Management-Notification Process for employee Injuries" and provide it to Labs Director Tom Hunter and the ES&H director within one business week.

• The Level I manager must develop corrective actions to make sure the same type of accident won't happen again and submit a 2050 P Form that details the corrective actions through the corporate workbox process within 10 business days.

• The Level II manager must report to his/her center director and vice president about the closure of the corrective actions.

"This new method provides clarification of accountability and responsibility and ensures that corrective actions are taken," John says.

NASA work

(Continued from page 1)

mission will be low-density silicones and phenolics, all under 20 pounds per cubic foot density.

To date, more than 100 five-inch-diameter cylindrical samples have been tested to the solar environment inside the tower's wind tunnel using a large quartz window. Congdon says because of Titan's relatively high radiation environment, some initial concerns had to be put to rest through testing. He said radiation might penetrate in-depth within the ablator, causing an increased "apparent" thermal conductivity and degrading insulation performance.

"Radiation could also generate high-pressure gasses within the ablator leading to spallation," Congdon says.

"We have been testing at Solar Tower to see how the candidate Titan materials can withstand the expected range of heating conditions," Cheryl says. "Titan has a nitrogen-rich atmosphere and nitrogen is used in tests to similarly reduce ablator oxidation while energy from the sun-tracking heliostats is focused on the samples."

Congdon says ground tests are necessary to understand and model surface ablation of the materials that will be severely heated during Titan entry.

During thermal radiation testing conducted in the Solar Tower all of these concerns were addressed and found not to be a problem for the ablators.

Shots of heat

The Solar Tower consists of an eight-acre field of 220 solar-collection heliostats and a 200-foot-tall tower that receives the collected energy at one of several test bays. A single heliostat contains 25 mirrors that are each four feet square. Total collection area of 220 heliostats is 88,000-square feet. Since the heliostats are individually computer controlled, test radiation can be a shaped pulse as well as a square wave in terms of intensity vs. time.

Test samples are mounted high in the receiver tower, and the heliostats direct the sunlight upward to irradiate the sample surface. The samples are mounted in a water-cooled copper plate inside the wind tunnel with a quartz window that allows entry of the reflected radiation. Exposure is controlled by a fast-moving shutter and by pre-programmed heliostat movement. Radiation flux is calibrated before and after each test by a radiometer installed to occupy the same position as the test sample. Cooling effects from imposed surface flows are calibrated via a flat-plate slug calorimeter.

The materials are subject to square pulse environments at flux levels of 100 and 150 W/cm^2 for time periods that far exceed predicted flight durations for such high heating. They are also subjected to "exact" flux vs. time environments (simulating actual flight conditions) using programmed heliostat focusing at the Solar Tower facility.

The material samples are installed in the Tower's wind tunnel and exposed to the solar beam at flux levels up to 150 W/cm^2, which is approximately 1,500 times the intensity of the sun on earth on a clear day. During the exposure, air blows past the sample at about mach 0.3, and below this, the sample is immersed in a high-speed nitrogen layer.

SOLAR POWER heats NASA space shield material.

Cheryl says tests can be conducted only during about four hours midday bracketing solar noon. Haze, clouds, and high winds that affect the heliostats can degrade test conditions.

Current results

"All of the candidate materials showed no spallation and very good thermal performance to these imposed environments," Congdon says. Recently, five 12-inch by 12-inch panel samples were tested on top of the tower. Up to 20 additional 12-inch panels will be tested late in the summer followed by testing of 2-foot by 2-foot panels later in the year.

Additional tests for convective heating have been conducted on identical material samples at the Interaction Heating Facility (IHF) at NASA's Ames Research Center.

Thunderbird

(Continued from page 1)

Thunderbird is referred to as a capacity cluster because it is ideally suited to perform many mid-sized tasks with extreme rapidity, rather than one huge task across its entire system like Sandia's highly customized and tightly coupled Red Storm supercompter.

Thunderbird consists of 4,096 Dell PowerEdge 1850 servers, each equipped with two Intel 64-bit (EM64T) processors, for a total of more than 8,000 processors.

A high-performance Infiniband interconnect from Cisco was chosen because it scales more linearly than most proprietary technologies for building large clusters — an important consideration in assembling a large number of processors. Lower cost was another factor in Sandia's selection of this widely used interconnect.

The procurement also includes a smaller 128-node developmental cluster to be installed in the Distributed Information Systems Lab at Sandia's California site. It will enable Sandia to develop and test system software solutions required to successfully integrate and deploy Thunderbird for production use.

"Thunderbird makes important strategic connections between Sandia, Dell, and other vendors," says Bill Camp, director of Sandia's Computation, Computers, Information and Mathematics Center. "Our purchase opens a venue to them in high-performance cluster computing. Together we will break new ground by deploying a cluster with commodity processors and an lnfiniband interconnect at the scale of thousands of processors."

"Sandia has been a leader in putting Infiniband on the high-performance computing map," Ken Washington says. "It is only natural that we be the place where such a large Infiniband cluster is first realized for meeting an institutional computing requirement."

"Specific thanks," says John Zepper (9320), "go to Facilities for power and cooling modifications, Purchasing for rapid JIT placement of the order; for technical contributions, Matt Leininger (8961), Geoff McGirt, Carl Leishman, and Kevin Kelsey (all 9324), David Martinez and Archie Gibson (9335), Chris Maestas (9326), Josh England (8963), Sean Taylor (9328), Jerry Friesen (8963), and Rob Leland (9300), Jim Ang (9224), and Art Hale (9900).

"Expanded capacity computing will deliver on the modeling and simulation vision for the Sandia community," says John.

Both the Ethernet Input/Output and the command and control of the Thunderbird cluster are based on the Force 10 E-Series switch/routers. The Force 10 E1200, which supports 1,260 gigabit Ethernet ports, offers the industry's leading gigabit and 10-gigabit port density — providing the scalable performance required to support the largest cluster computers in deployment.

Super Sandia Safety Fair highlights many aspects of home, workplace safety

GARY MOSES, armorer in Sandia's Protective Force, demonstrates home firearm safety at the Sandia Safety Fair June 29. The Safety Fair featured 16 booths and 14 talks on topics ranging from ergonomics to domestic violence to pet safety. Some 1,500 to 2,000 Sandians attended the event in the Steve Schiff Auditorium and parking lot. (Photo by Randy Montoya)

Sandia 'strategic supplier' Team Specialty Products undergoing 22,000-square-foot expansion

By Erin Gardner

Team Specialty Products (TSP), a company that develops, fabricates, and tests mechanical and electrical products, is expanding to keep up with the volume of business it receives from Sandia.

In 2000, TSP brought its 32 employees to its new 14,000-square-foot building in the Sandia Science and Technology Park to be closer to Sandia and Kirtland Air Force Base. The building, at 1400 Eubank Rd. SE, currently houses about 65 employees.

TSP broke ground June 15 to enlarge its building by 22,000 square feet.

"Increasing the size of the building will enable us to increase capacity, have more lab space, assembly areas, and machining capabilities," says Bob Sachs, CEO. "This will help us keep up with the increasing needs of many Sandia customers."

Johann Seamen, manager of Target Supporting Technologies Dept. 1671, says TSP's expansion will allow increasing the shot rate of the Z machine. "We are expecting 400 shots per year once the ZR is up and running in FY07," says Johann (ZR is the upgraded version of the Z Machine).

Because this facility is so close to the Labs and KAFB, TSP is able work on major projects such as the Z machine and a variety of other programs.

"Having TSP in the Technology Park allows us to work closer with them and thus a lot of time and money is saved," says Johann.

Of the several companies that occupy the Science and Technology Park, TSP works with EMCORE and K-Tech, also undergoing expansions, to create unique products that are diverse across technical areas of the Labs.

COMPANY EXPANDS — Team Specialty Products is expanding along Eubank to keep up with the volume of its business with Sandia. Here is an artist's rendering of what the new building in the Sandia Science and Technology Park will look like.

Because the services they provide are mission-critical to Sandia, TSP is a Sandia "Strategic Supplier" under the corporate Strategic Relationships program. There are nine designated Strategic Suppliers at Sandia, out of about 12,000 active suppliers from whom Sandia purchases goods and services.

Sandia recently nominated TSP for the NNSA Small Business Supplier Award of Excellence, which recognizes NNSA small business suppliers that excel beyond expectations or contract requirements.

TSP has made the "Flying Forty," a list of the fastest-growing high-tech companies in New Mexico, for the past five years in a row. It has been both nominated by Sandia and has won the 2003 Business of the year for Albuquerque Hispano Chamber of Commerce, the 2004 Small Business Administration fiftieth anniversary SBA Directors Choice award, the Awards for Excellence, for two years; 1999 and 2004.

"Without TSP we could not have been as successful as we have been," says Johann.

TSP has three locations in New Mexico: The Science and Technology location, a facility at 11030 Cochiti Rd. that specializes in high voltage and pulsed power, and a Rio Rancho location that specializes in printed circuit board and wire harness assembly and production.

The 20-year-old Albuquerque business is a family affair, run by two brothers, Danny Sachs, president, and Bob Sachs, CEO.

TSP's client list includes Sandia, Los Alamos, and Livermore national laboratories, Northrop Grumman, Bechtel Nevada, Ethicon Endo-Surgery, Honeywell Federal Manufacturing and Technologies, and Spartan Electronics.

The expansion of the TSP facility in the Science and Technology Park is expected to be complete by next March.

Z Operations earn ISO 9001:2000 certification

Photo by Randy Montoya

After a two-and-a-half-year continuous-improvement journey using the ISO 9001:2000 standard, Z Operations recently received an ISO 9001:2000 certification. Initially Z Operations staff worked to improve their business through the use of ISO 9001:2000, the certification was a by-product of those efforts.

Z operations operates Sandia's powerful Z pulsed power accelerator.

ISO 9000 Program Manager Felipe (Phil) A. Rivera (10743) says the Z Operations staff was able to accomplish developing and implementing an effective Business Management System by first embracing the spirit and principles of ISO 9001:2000.

"They did this while continuing to maintain their operations, improving their processes, addressing beryllium issues, and satisfying their customers," he says. The Z Operations staff and management developed, deployed, and currently maintain the processes and systems necessary to have an effective business management system, says Phil.

"There were many struggles along the way," says Mark Harris of Accelerator Systems Operations Dept. 1676, "but in the end the process was a fruitful one. We expect to see many improvements in our operation as a result of the hard work. Of course, this is only the beginning of the journey to improve."

These processes and systems include a robust internal audit and management review processes, corrective and preventive action-tracking processes/system, customer communications process, measures for customer satisfaction, and continuous improvement of the overall business management system.

In the future it is the intent of Z Operations management and staff to consider using NWSMU Business Management Systems processes as they become available.

Z Operations management and staff recognize they have taken a first step of a continuous improvement journey that will have no end.

"I congratulate the Z Operations staff in their journey for excellence," says Phil.

Feedback

Clarification on IJS job ladder promotion eligibility rules

***Q**: Can a director determine that within his or her center, no one will be promoted along the IJS job ladder who isn't currently paid at least 105 percent of mid-point? In what situations should current salary be a factor in eligibility for promotion? Is it permissible for a director to temporarily tailor the HR-mandated criteria for promotion eligibility either to favor an individual for promotion or to avoid the budgetary strain of automatic mid-year salary increases as determined by Dinero?*

A: Thank you for your Feedback question regarding promotion eligibility. Each Division at Sandia has the responsibility to manage its staff and the salary administration process. While Compensation may offer other alternatives, it is not unreasonable for an organization to have a practice that suggests that the top performers are getting larger salary increases and, therefore, will have a salary position closer to or higher than the market reference point. So, while not a Company policy, the practice of using an employee's salary position to market as a factor for promotion eligibility may be used by the line organizations to help manage the employee population within the job classification. Compensation has not observed managers indiscriminately applying this criterion but rather we have observed this criteria being applied similarly across an entire organization.

Your feedback question also referred to the mid-year salary increase process. The mid-year process is not an automatic mid-year salary increase for anyone, nor is it administered by Dinero. Mid-year money may be used by the Divisions to address internal equity problems. For example, a high performer who is paid below their peers may qualify for an adjustment. *— BJ Jones (3500)*

Technical Library trio makes worldwide change

Library of Congress accepts proposal for modifications to MARC Cataloging tag

By Erin Gardner

In October 2005, libraries all over the world will view a revised cataloging tag that will broaden the scope for cataloging classified or restricted documents.

The newly revised 583 action tag will be published in the *MARC 21 Bibliographic Format*, October 2005 Edition. What the librarians who receive this reference tool and catalog materials according to MAchine Readable Cataloging (MARC) may not realize is that three Library staff members from Sandia's Technical Library persevered to create this change.

Teresa Gilbert, Jennifer Miller, and Jessica Shaffer-Gant (all 9536) are the influences behind the changes to this tag, which can now be used to record report classification changes or reviews.

Previously, there was no appropriate MARC tag to record historical classification information. With the new modification to the 583 action tag, catalogers will be able to maintain records of these restriction changes, downgrades, upgrades, reviews, etc.; the authorization; date; and other pertinent information.

In October 2003, during sessions to discuss cataloging procedures of classified reports, conflicting opinions arose about how to record historical classification actions. Jennifer, who was team leader of the Technical Library's Cataloging Operations, decided to look to the Library of Congress (LC) for guidance.

LC asked for Sandia's input, and Teresa, Jennifer, and Jessica wrote a proposal to create a new MARC tag. They submitted the proposal in spring 2004.

After review, LC suggested modification to an existing tag. The Technical Library trio drafted a new proposal in May of this year. They gave examples of potential uses for the revised tag for special libraries as well as traditional libraries, globally.

Within two weeks the Library of Congress accepted the proposal.

"I'm really pleased that we could make an impact by teaming with the Library of Congress," says Jennifer.

The Technical Library has already started implementing the revised tag into its internal procedures.

"We resolved an issue rather than having to work around it," says Teresa. "Hopefully this change will be as useful to other libraries as it will be for us."

"Its really exciting that our hard work paid off," says Jennifer.

NEW ACTION TAG — Sandia technical librarians, from left, Jessica Shaffer-Gant, Jennifer Miller, and Teresa Gilbert are influences behind a new Library of Congress cataloging tag. (Photo by Erin Gardner)

Don Cook elected AAAS Fellow

Don Cook, MESA program director until last month when he went on leave to work for Lockheed Martin's Los Alamos bid team, has been elected a fellow of the American Association for the Advancement of Science (AAAS).

DON COOK

Don was honored for "outstanding technical contributions to and leadership in inertial confinement fusion and pulsed power sciences."

He was Sandia's director of the Pulsed Power Sciences Center from 1993-1999, a period of major change in which, he says, "personnel in the Applied Physics Center (today 6700, then 9300 headed by Jim Powell) and the Pulsed Power Sciences Center (today 1600, then 9500) joined to make major changes to the programs in both centers."

The two Centers made dramatic progress in the development and use of Z-pinch radiation sources that continue to be improved upon today and have widespread application in weapon science and inertial confinement fusion.

"During the same years, and continuing today," says Don, "important beginnings in compact radiography for underground measurements and the use of Z-pinches for isentropic compression experiments occurred."

Other AAAS Fellows at Sandia include Deputy Labs Director Al Romig, Julia Phillips (1100), Jack Houston (1114), just-retired VP 1000 Pace VanDevender, and Nancy Jackson (6901), who also was elected a Fellow of AAAS this year (see accompanying story at right).

Don was recognized at the AAAS annual meeting in February.

The first AAAS Fellows were selected in 1874; election is acknowledged with a certificate and a rosette. — *N.S.*

Nancy Jackson AAAS fellow

Nancy Jackson (6901), deputy director of the International Security Center, has been elected a fellow of the American Association for the Advancement of Science (AAAS).

NANCY JACKSON

She was honored for "significant contributions to catalysis research, for contributions to science policy, and for championing diversity and inclusiveness in science." She is a member of the Chemistry Section of AAAS.

Nancy did catalysis research in graduate school (PhD, chemical engineering, University of Texas) and at Sandia, where she organized the catalysis research effort. During that time she organized the workshop and wrote the report on the Catalysis Roadmap for the future of the US chemical industry. This was for a project of the five chemical societies that was supported by DOE.

Her diversity activities take many forms. At Sandia, she is a member of the American Indian Outreach Committee. At the American Chemical Society she chaired the Minority Affairs Committee, was member of the ACS Scholars Committee, and a member of the Task Force on Minorities in Academe. For five years she was on the National Academies' Board on Higher Education and Workforce, which dealt with many issues of inclusiveness and equality in science. Currently she is a member of the Board of Directors of the American Chemical Society, where she works on, among other issues, how to increase the number of women and minorities recognized with awards.

"Nowadays," Nancy tells the *Lab News*, "I get to indulge my perpetual fascination with policy and politics — I went to college, George Washington University, to major in political science — at the International Security Center as deputy director." — *K.F.*

Feedback

Q: *I think it is incredibly rude and irresponsible of Labs management to plan a Family Day, advertise it widely, go so far as to have a web site up with a schedule and registration forms, and then cancel it only two and a half weeks before the event. This is another example of management having no respect for the planning needs of staff. It seems pretty obvious that there is a lot of construction going on at the labs. Didn't anyone notice this sooner? Why not notice until now that this might be an issue? And why cancel after going so far forward with plans? This demonstrates a remarkable lack of thought and foresight from whoever was in charge of Family Day, and no, I do not understand it.*

My mother-in-law really wanted to come to Family Day and has bought some rather expensive plane tickets to fly from Madison, Wisc., to Albuquerque so that she could make it. We will still enjoy her visit, but she would have come at a less expensive time if not for Family Day being planned. Furthermore, I doubt we will attend any future Family Days, since all of our family is out of town and we obviously can't trust the date for any future Family Day to actually stay fixed. Since we will not be able to plan in advance, we will not attend any future Family Days.

A: Although I assume you have read the page one article about the Family Day postponement in the April 29, 2005, issue of the *Sandia Lab News*, the Feedback Program ground rules are that you will hear personally from someone in the accountability chain. I fit that profile.

First of all, I want you to know that I am not personally affected by the late-notice postponement of Family Day in the same way you describe so well. However, I am personally affected in another way. As a member of Sandia's Laboratory Leadership Team (LLT), I voted for and supported — although with extremely mixed emotions — the cancellation. After all, it is my center that was heading up preparations. In fact, this was actually the second date change. Please feel assured that as LLT discussed this matter, all of us were painfully aware that we would receive feedback exactly like yours. You are not alone. VP Les Shephard, also an LLT member and the Laboratory executive responsible for ES&H, offers both condolences and explanation in that *Lab News* article. Simply put, safety — in all of its forms and manifestations — must come first.

Our job as LLT members now is to do everything we can to regain your trust so that when a new date is announced we can all feel confident in it and that you will consider participating.

— Bruce Fetzer, Public Relations & Communications Center 12600

62 individuals, 60 teams

2005 Employee Recognition Awards program honors this year's 'exceptional contributors' at Sandia

Some 300 Sandians — individuals, team representatives, and their guests — gathered June 25 at the Albuquerque Marriott Pyramid for the 2005 Employee Recognition Night, Sandia's annual celebration of exceptional service, leadership, technical accomplishment, and teamwork. The celebration banquet, which itself has earned a reputation for excellence and quality, is one of the ways the Labs says "thank you and congratulations" to individuals and teams selected in the annual Employee Recognition Awards process.

This year, the awards honored 62 individuals and 60 teams for such qualities as leadership, technical excellence, and exceptional service.

"Your colleagues have identified you as exceptional contributors," said Labs President and Director Tom Hunter in an introductory note to the Employee Recognition Night program. "In you they see strong leaders, dedicated servants, technical pioneers, and outstanding teams. We are proud of you."

Each year, the gala event is built around a theme; this year it was a "A Night in the Tropics," featuring a tropics-flavored dinner menu and entertainment by Celebrity Enterprises.

Sandia's Employee Recognition Awards program carries on a tradition that since 1994 has honored Sandians — individuals and team members — for outstanding services rendered to Sandia and the nation.

The individual recipients are pictured over the next few pages. A complete listing of team winners and team citations and the names of individual team members begins below. Individual citations are on the internal web.

Not pictured

James Blankenship 4154
Charles Herrera 10872
George Kominiak 5924
Catherine Pasterczyk . . 5923
Daniel Throckmorton . . 5700
Timothy Trucano 9211

Individual honorees

The 2005 Employee Recognition Awards program, continuing a trend begun several years ago year, again found divisions placing a special emphasis on team accomplishments.

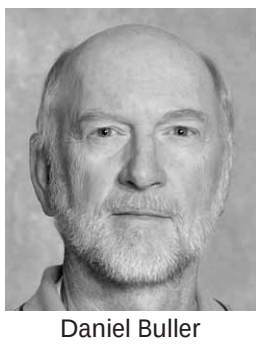
Keith Almquist
0241

Stephen Attaway
9134

Wendy Bechdel
10510

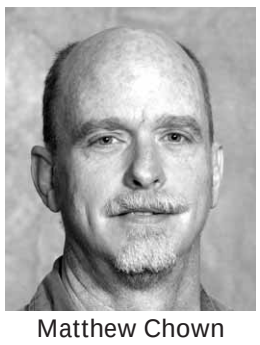
David Beutler
6744

M. Kelly Bobbe
Org. 2



Daniel Buller
1111

Carla Neumann Busick
2561



Matthew Chown
5533

David Clifford
5524

Sophia Corwell
9324

Team honorees

The teams listed over the next five pages were deemed to have made exceptional contributions to an important program or process. A few representative teams are pictured.

Managing Evacuation of Sandia Workers from Carlsbad Facilities

The team, including members from both Sandia/New Mexico (photo at left) and Sandia's Carlsbad, N.M., site (photo above), managed a long evacuation of Sandia's Carlsbad facilities while ensuring that two critical deliverables were delivered on time. Team member names are listed in the entry on page 10.

Electromagnetic Missile Launch Team

The EMML team has successfully demonstrated a unique solution to missile launch capability for the U.S. Navy, using electromagnetic launch technology.

Bill Bui, John Jojola, Thomas Lockner, Matthew Aubuchon

Sandia Enterprise Messaging System Team

For excellence, quality, and stewardship in performing the upgrade of our enterprise messaging system to Microsoft Exchange 2003.

Robert Price, Janet Padilla, Carolyn Kumashiro, Scott Stephens, G. Kelly Rogers, Mark Stilwell, Robert Pastorek, Kevin Hall, William Claycomb, Phillip Cox, Roberta Evanoff, Edward Wallace Roberts, Susan Romero-Sosa, Steven Sanchez, Ross Volzer

Welding Kaizen Team

The Neutron Generator/Neutron Tube welding Kaizen Team developed a revolutionary "kaizen" process for implementation of new equipment and processes that have been mistake-proofed.

Douglas White, John Lopez, Pierrette Gorman, Rosalie Lopez-Spinello, Gary Pressly, Kevin McBride, George Coleman, Albino Garcia, Terry Mason, Mike Morgan, Bill Pasco, Elsi Rodriguez, Curt Tenorio

Certified Earned Value Management System (EVMS) Team

The Certified Earned Value Management System (EVMS) Team developed a process for managing construction project performance, the only certified EVMS used at a DOE laboratory.

Dianne Cannon, Don Losi, Michael Kupay, Jenny Dubbs, Marlene Hyde, Jennifer Medina, Walter Heimer, Sam Rogers, Lynne Schluter, Paul Schlavin, Steven Fattor, Bruce Mercer, Walter Berkey, Donald Cook, Frank Figueroa, Jennifer King Girand, Roke Muna, Howard Royer, Tim Sisley, David Treacy

The FY04 PEAR Team

Skillfully managed the crafting and submitting the FY04 Laboratory Performance Evaluation and Assurance Report (PEAR) to DOE/NNSA resulting in an overall Laboratory rating of Outstanding.

Marsha Lou Strauch, Ruth Griffis, Elizabeth Gonzales, BJ Jones, Wilhelm Gauster, Rodney Wilson, Edward Tooley, Lynnwood Dukes III, Gary Zura, Pamela McKeever, Charline Wells, Bryon Cloer, Timothy Cohen, Donald Cook, Sandra Gonzales, Carolyne Hart, Bruce Held, Connie Martin, Judith McKinney, Susan Pickering, Joseph Polito Jr., Jim Rice, Gary Sanders, Mark Terhune, Randall Watkins

NISAC Fast Turnaround Analysis Team

Within timeframes of 4 hours to 7 days, the NISAC FTA team provides significant analysis of interdependencies and economic impacts of critical infrastructure disruptions.

Kevin Stamber, Paula Downes, Vanessa Vargas, Katherine Jones, Nancy Brodsky, Louise Maffitt

Emergency Response Software Development Team

The Emergency Response Software Development Team develops software used by responders to mitigate and thwart biological, chemical, radiological and nuclear terrorist acts.

John Fulton, Joe Clayton, Dustin Whitener, Jerry Smith, Julie Newman, William Wente

Technology Symposium Lunchtime Series Event Team

Technology symposium series debuted, providing technical staff from diverse backgrounds and work experiences an opportunity to share advancements in science and technology knowledge and experiences.

Kenneth Plummer, Kevin Linker, Brett Bedeaux, Richard Ormesher, Marcellea Davis-Sneddon, Shelby Green, Lavonne Cortez, Terrie Romero, Bertha Barreras, Henry Witek, Richard Sanderville, Tamara Orth, Jessica Dixon, Peter Merkle, Judd Rohwer, Douglas Blankenship, Mckell Carter, Ted Dellin, John Feddema, Michael Murphy, Lynna Nolan, Jay Vinson, Rogulja Wolf

(Continued on next page)

Team awards recognize achievement

W76-1/MK4A FCET-32 FLIGHT TEST ASSEMBLY TEAM

(Continued from preceding page)

W76-1/Mk4A FCET-32 Flight Test Assembly Team

Successful on-schedule delivery of the W76-1/Mk4A Fleet Commander Evaluation Test #32 Flight Test Bodies in the face of significant obstacles.

Gerald Garcia, Jimmy Aldaz, Anthony Gomez, Sandy Rhodes, Deborah Clavey, Paul Gabaldon, Shawn Kerr, Dan Scott, Brad Boswell, Patrick Hunter, Christian O'Gorman, Jimmy Allen, Roger Busbee, Daniel Cantu, Lawrence Castellano, Brett Chavez, Tom Harlow, Dennis Helmich, Deborah Holmes, Michael Newman, Edward Powell, Harold Radloff, Joseph Riggs, Eleanor Sanchez, Rosa Schmitz

Engineering Sciences Modeling and Simulation Capability Assessment Team

For providing a detailed and encompassing technical self-assessment of Engineering Sciences' modeling and simulation capability.

Stephen Attaway, Martin Heinstein, Harold Edwards, Sam Key, Sheldon Tieszen, Roy Hogan Jr., Steven Bova, Michael Chiesa, David Gartling, P. Randall Schunk, Charles Stone

Explosive Detection Vehicle Portal Development, Evaluation, and Commercialization Team

The Trace Explosives Vehicle Portal Team turned an engineering prototype into a fieldable mobile unit that is undergoing evaluations by a potential partner for commercialization.

Joon Lee, Kevin Linker, Francis Bouchier, Mary-Anne Mitchell, Gary Shannon, Edward Baynes Jr., Charles Brusseau, Lester Arakaki, Mark Baumann, Ro Garcia, Vipin Gupta, David Hannum, Juan Hernandez, Steve Higgs, Mike Noonchester, John Parmeter, Edward Rankin, Diane Ross, Kenneth Smith, Eric Varley

Supercomputing Annex (SCA) Team

A Sandia team thinks outside the box to acquire a supercomputing building for RedStorm 40 Teraflop parallel processor quicker and cheaper than sister labs.

Leonard Stans, David Martinez, Archie Gibson, George Connor, Carl Bennett, William Hendrick, William Tierney, Edward Tooley

Laser Dynamic Range Imager Orbiter Inspection System (LOIS)

Exceptional effort and dedication towards achieving delivery of flight sensors and ground station systems to NASA in preparation for the shuttle "Return to Flight" program.

David Peercy, Todd Alan Pitts, Gus Rodriguez, Richard Taplin, Ronald Akau, Robert Nellums, Aaron Niese, Stephen Gradoville, Patricia Tempel, Linda Gilkey, Lynn Fugelso, Bettie Fisher, Chuck Graham, Joel Jordan, Robert Habbit Jr., Mark Heying, David Armistead, John Sandusky, Lance Baldwin, Thomas Casaus, Dennis Clingan, Roger Jett, Steven Lebien, Randal Lockhart, Jose Rodriguez, Colin Smithpeter

Trilinos Project Team

The Trilinos Team's innovative mathematical-algorithms software framework raises the standard of scientific computing with significant impact on Sandia as well as the external scientific community.

Marzio Sala, Roger Pawlowski, Russell Hooper, Roscoe Bartlett, Heidi Thornquist, Michael Heroux, Alan Williams, Ulrich Hetmaniuk, Eric Phipps, Ken Stanley, James Willenbring, Joseph Kotulski, Clark Dohrmann, David Day, Robert Hoekstra, Robert Heaphy, Paul Boggs, Victoria Howle, Jonathan Hu, Tamara Kolda, Richard Lehoucq, Kevin Long, Michael Phenow, Andrew Salinger, Raymond Tuminaro

IFT-13C Leadership Team

For exceptional leadership of a large multi-disciplinary technical team that successfully executed the IFT-13C target mission for the Missile Defense Agency.

David Stokebrand, Alexander Gonzales, Margaret Scheffer, Wendy Brothers, Gerald Wymer, Jerry Winker, Mark Meindl, Larry Rollstin, John Moser III, David Outka, Mark Ensz, Roxanna Salazar, Brent Sims

Russia Nuclear Warhead Security Team (RNWST)

RNWST has completed security upgrades on all approved Russian Navy sites and has contracts in place at all SRF sites and numerous 12th Gumo sites.

Byron Gardner, John Hudenko, Tommy Goolsby, Dominic Martinez, Nicholas Winowich, James Lloyd, Larry Predika, Beverly Polyard, Gail Finley, Connie Adams, Tasha Perea, Laurie Bergeron, B. Lee Hall, Janice Leach, Charles Nickerson, Ian Cheng, Robert Follis, John Franklin, Todd Owen, Michael Benson, Charles Harmon, Jane Hillman, Jack Jones, James Purvis, Jose Rodriguez, Robert Salazar

Liquefied Natural Gas Import Safety and Risk Management Guidance Development Team

For exceptional support to DOE in developing a national guidance document on how to evaluate and safely site liquefied natural gas (LNG) import terminals.

Michael Kaneshige, Anay Luketa-Hanlin, Don Ragland, Charles Morrow, Michael Irwin, John Covan, Brian Melof, Sheldon Tieszen, Gerald Wellman

Innovation in Multidisciplinary Collaboration

The team has innovated and matured a variety of collaboration techniques to obtain exceptional cohesion, product, and follow-through from short-term, multidisciplinary groups.

Alicia Cloer, Jessica Glicken Turnley, Judy Moore, Curtis Johnson, Nichole Herschler, Ellen Cook, John Whitley, Wendell Jones, Thomas Karas, Ken Miller

Advanced MASINT Persistent Surveillance Sensors Development & Deployment Team

The MASINT Team designed, developed, and deployed 35 systems to support the US STRIKER Brigade operation in Iraq in the spring and summer of 2004.

Thomas Essenmacher, Eloy Cota, Mark Bishop, Art Storer, Ellis Heustess, Larry Stotts, Greg Haschke, Jo Cunningham, Heather Tate, Tommy Lynn Teague, Kevin Malone, Arlen Weishuhn, Mark Koch, David Jurjevich, Hilary Thompson

Tritium Loader Environmental Assessment Team

In 24 days, this team provided organized and vital information on the environmental controls and impact of transferring tritium loading operations from LANL to SNL.

Geno Hidalgo, Frank Chavez, Martha Chavira, Henry Peebles, Theodore Simmons, Richard Antepenko, Ken Burris, Joseph Bonaguidi, Chad Hjorth, Max Saad, Daniel Borneo, Mark Dimsha, Michael Eatough, David Hawn, Donald Malbrough, Larry Pope, Lorraine Sena-Rondeau, Craig Tewell, Robert Welberry

New Mexico Gross Receipts Tax (NMGRT) Liability Review Team

Sandia's Tax Team self-initiated a process improvement project to validate Sandia's NMGRT liability. This effort has resulted in $16.7M of costs savings to the Laboratory.

Barton Brooks, Rita Ann Padilla, Marie Gendreau, Rita M.G. Shortman, Heather Christ, Amy Woolley

B83 Joint Test Assembly (JTA) Team

For exceptional leadership and perseverance in successfully executing the first B83 high fidelity surveillance tests under post 9/11 security regulations.

Anthony Aragon, Siviengxay Limary, Kenneth Chavez, Joseph Polito Jr., Joseph Sandoval, Manuel Trujillo, Richard White, Ronald Hahn, Perry D'Antonio, Jeffery Cherry, Kyle Thompson, Donald Cook, Vernon Gabbard Jr., Steven Heffelfinger, James Larson, Alfredo McDonald, Russell Miller, Dennis Miyoshi, Jaime Moya, Steven Neely, Michael Neuman, Robert Sherwood, John Tootle, Randall Van Cleave

B61 ALT 357 High Fidelity Test Unit Logistics Team

For exceptional logistics support of the B61 ALT 357 High Fidelity Test Program.

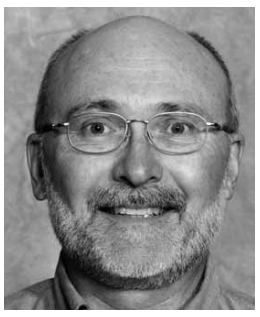
Brian Joseph, Elizabeth Turner, Yvonne Martinez, Debbie Lee Campos, Arvil Rhinehart, Kenneth Miles, Norman Schwers, Robert Dana, Paul Apodaca, Allen Stanley, Fred

(Continued on next page)

Corey Cruz
12120

Michael DeWitte
12650

Carol Ferguson
6030



Waylon Ferguson, Jr.
10517

Joselyne Gallegos
5522

Mary Garcia
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Diane Gaylord
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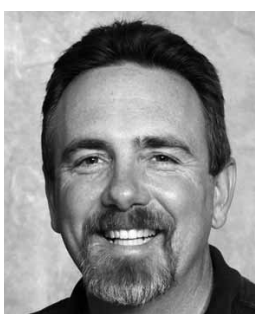
Kathleen Terena Gee
5932



Stephen Gentry
5703

Elsa Glassman
3521

Ronald Goeke
14152

Rita Gonzales
1735

Linda Groves
8154

Sharla Haley
11000


Richard Heintzleman
2353


Bruce Hendrickson
9215


Renee Holland
3331


Marion Hunter
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Dean Jones
6221


Sheila Renee Keehn
8760


Jolyn Maheras
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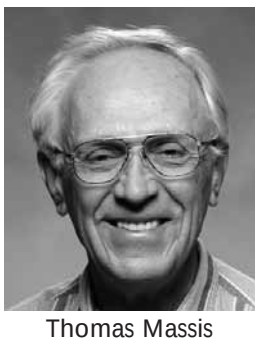
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John Matter
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Sandra Mays
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Frederick McCormick
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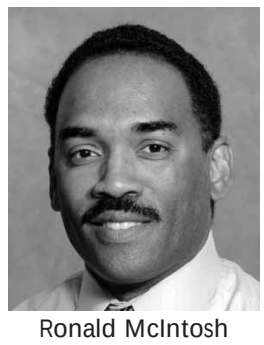
Ronald McIntosh
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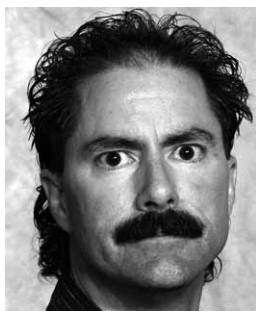
Richard McLendon
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Kari Monroe
9112


Carolyn Ann Neugebauer
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Douglas Nicholls
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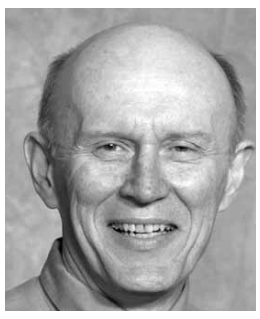
George Novotny, Jr.
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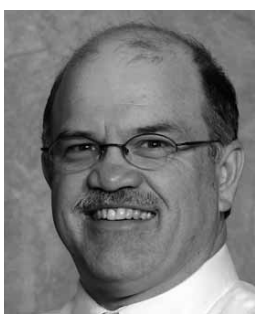
Fred Oppel, II
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Frank Peter
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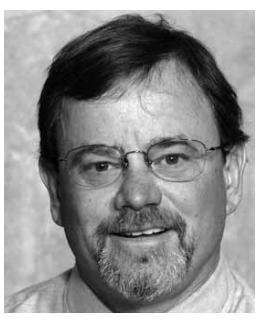

Leland Casey Phillips
4225


Jean Plummer
9532


Jane Poppenger
14133

Team honorees

(Continued from preceding page)

Ader, G. Carmelo Anaya, Anthony Aragon, Shawn Colborg, Joseph Costales, Paul Gabaldon, Paul Homan, Laura Latoma, Lee Lewis, Jose Marquez, Lilia Marquez, Dale Martinez, Ron Rodger, Kenneth Sanchez, Arthur Sena

Study of Impact of Soil Accumulation on Removable Beryllium Surface Contamination

This team pioneered a method to differentiate between natural and anthropogenic sources of beryllium in removable beryllium contamination, saving a conservative $1-2M in decontamination expenses.

Richard Vanness, Lisa Hooper, Michael Oborny, Jonathan Myers

Technical Education and Training Program Results Assessment Team

Performance Target 9.1-3: Assess results of Technical Training Program, a comprehensive workforce program including training, knowledge transfer to meet long-range core and critical skills requirements.

Tara Renee Camacho-Lopez, Andrea Barela, Lorraine West, Jessie Black, Belinda Holley, Deborah Espinosa, Hilary Bienstock, Cheryl Schuster, Lisa Barham, Sarah Atchison, Maribeth Bohley, Crystal Stein, Charline Wells

Terahertz Plasmon Detector Team

For outstanding teamwork on the development of an innovative new detector of THz radiation using new physical principles and giving enhanced performance.

Larry Stephenson, Charles Fuller, Sally Samora, Albert Grine, John Reno, Michael Wanke, Eric Shaner, Mark Lee

Harvest Moon

Exceptional technical innovation to develop new capabilities and personal commitment to perform a three-year program in three months to meet a pressing government need.

Felipe Campos, Declan Rieb, Douglas Nicholls, David Straub, Tom McConnell, Vicky Vivian, Thomas Barger II, David Marks, Timothy Drummond, Mial Warren, Tim Perkins, Robert Martinez, Vance Behr, Gerald Cessac, William Cordwell, Ireena Erteza, Peter Esherick, Huri Fraley, Charles Jakowatz Jr., Craig Jorgensen, George Kaye, Frank Lucero, Christine Mitchell, Daniel Wahl

Total System Performance Assessment: License Application/ Safety Analysis Report Team

Recognition of outstanding performance in developing the compliance demonstration needed for the Yucca Mountain Safety Analysis Report.

Mary-Alena Martell, Dave Sevougian, Kathy Shears, Bruce Baker, Don Kalinich, Patrick Mattie, Robert Knowlton, Michael Lord, Robert MacKinnon, Steve Miller, Paul Sanchez, Jon Helton, Cedric Sallaberry, Barry Goldstein, E. James Nowak, Richard Aguilar, Patrick Mattie


TOTAL SYSTEM PERFORMANCE ASSESSMENT: LICENSE APPLICATION/SAFETY ANALYSIS REPORT TEAM

TCR Aerial Cable Facility Construction Team

The TCR Aerial Cable Facility construction team overcame significant obstacles during the reconstruction effort. The new ACF will enhance Sandia's ability to support testing programs.

David Hofmann, Regina Sanchez, Paul Silva, M. Anthony Chavez, Dennis King, Paul Schlavin, Scott Rowland, Christine Cooper, Jeff Porter

Wire EDM 6S Event Team

For establishing lean/six sigma momentum within Center 14100 and Building 840.

Clarence Esquibel, Margaret Rose Sanchez, Douglas Abrams, Michael Gorospe, Thomas Gallagher, Thomas Pehr, Rick Sherwood, Victoria Abeyta, Roy Bonsack, Tom Chavez, Phap Dinh, Audrey Gallegos, Thomas Gutierrez, Michael Hulett, Robin Ryan, David Schroeder, Paul Thompson

Joint Computational Engineering Laboratory Design and Construction Team

The Joint Computational Engineering Laboratory project team designed, constructed, and occupied this new state-of-the-art facility that directly supports NNSA's Advanced Simulation and Computing Program.

Patricia Miller, Sandra Pino, Noreen Johnston, James Dawson, Michael Rocco, Russell Goebel, Dennis King, Alan Dickinson, Carl Bennett, Vicente Davis, Edward Garcia, Paul Graham, John Harding, Roy Hertweck, Rebecca Hunter, Michael Jamael, Carl Leishman, David Logsted, Jack Mizner, Michael Pacheco, Rick Ramirez, Matthew Turgeon, Anita Vasey, Joe Vigil, John Zepper

NWie Portal Implementation Team

For delivering a much-valued resource that provides an integrated view to our nation's nuclear weapon information on Sandia's classified network.

Craig Crowder, Angela Campos, Ricardo Urioste, Adrian Miura, James Johnson, Michael Hapka, Jay K. Smith, Mikael Newquist, Andrew Brooks, Edna Cardenas, Gregory Durfee, Bernadette Edge, Carol Harrison, Lisa Kennicott, Susan Lane, Gina Lucero, Art Machinger, Lisa Milmine, Robert Parks, Van Pham, Douglas Redfield, Jill Schwegel, Walter Walkow

Gel Mylar Capacitor Development Team

This award is in recognition of successfully creating a Gel impregnant-based Mylar capacitor that meets all requirements within one year of changing the chemistry.

Scott Campin, John McBrayer, Lothar Bieg, Adam Lester, Duane Schneider, Virginia De Marquis, Catherine Sobczak, Ronald Sanchez, John Schroeder, Kanamu Pupuhi, David Roesch, Joseph Lenhart, Robert Baron, Phillip Cole, Dana Thomas, Sean Winters

TACMS-P Leadership Team

For excellence in project

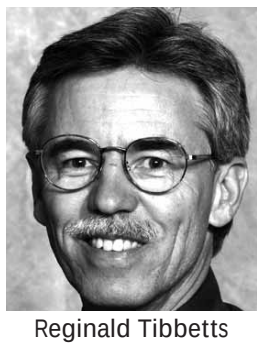
(Continued on next page)


Donna Roth
2026


Kevin Schroder
8227


Michael Sinclair
1812


Carl Skinrood
8521


Reginald Tibbetts
4232


Etta Tsosie
2341

Team honorees

(Continued from preceding page)

management and technical leadership in the TACMS-P precision strike program for the Department of Defense.

Ronald Greene, Mark Montavon, Mark Pilcher, Marc Kniskern, Walter Gutierrez, William Escapule, Colin Smithpeter

Design Basis Threat Upgrades Team

The team systematically analyzed, designed, built, and deployed upgrades for SNL's Physical Protection Operations, greatly contributing to Laboratory success in Nuclear Stockpile Testing.

Walter Smith, Russ McKnight, Anthony Aragon, Allan Swanson, Dan Armijo, Gregory Baum, Santiago Carrillo, Greg Clemens, Bruce Hazlewood, John Lavasek

W80-3 Abnormal Thermal Milestone Team

Exceptional service through dedication and commitment to excellence in the successful completion of the W80-3 Abnormal Thermal ASC V&V Milestone.

Johnny Casias Jr., Kyle Thompson, Gerald Stoker, Steven Trujillo, Amanda Jill Barra, Walter Gill, Bennie Belone, Michael Hobbs, Kevin Dowding, Roy Hogan Jr., Tre Shelton, Steven Younghouse, Ben Blackwell, Barry Boughton, Jaime Castaneda, Raymond Cote, Kenneth Erickson, Victor Figueroa, Sylvia Gomez, Charles Hanks, Dan Hestor, James Nakos, John Oelfke, Daniel Ramirez, Armando Saenz

NWSMU Safeguards and Security Technologies Program Team

Exceptional leadership and commitment in service to Sandia was exhibited by a small group of people within the NWSMU program organized to improve Sandia's security.

Ivory Alexander, Karen Higgins, A. L. Cindy Olson, Daniel Fleming, Elveta Bishop, Perry D'Antonio, Rebecca Kupay, Lyle Lininger

Work for Others OFA Oversight Transition from NA116 to SSO

SSO was delighted by implementation of new WFO/OFA requirements two months ahead of schedule. Although out of scope for the PER, SSO made special mention.

Linda Smith, John Salmonson, Mary Cocco, Darlene Hagerman, Alane Dulski, Deborah Payne, Sheryl Martinez

Integrated Contract Audit System (ICAS) Team

ICAS design and implementation provided 'one-stop shopping and sharing' of contract information for Procurement, Accounts Payable, Treasury and Travel Services, Contract Audit, and Line Organizations.

Patsy Jones, Marie Gendreau, Shari Garcia, Richard Baird, Cindy Burns, Terrence Owen

Dynamic Materials Team

For advancing dynamic material research by achieving 3 Mbar isentropic compressions and launching flyers to 33 km/s to produce accurate 13 Mbar Hugoniot data.

Morgan Roderick, Alberto Pirela, Michael Willis, Matthew Gurule, Jason Podsednik, Andy Shay, Bruce McWatters, Scott Walker, Mel Baer, Melissa Moore, Lalit Chhabildas, Dennis Hayes, Jean-Paul Davis, Kevin Youngman, Joshua Mason, Randy Hickman, Michael Desjarlais, Raymond Lemke, Clint Hall, Christopher Deeney, David Bliss, Daniel Dolan III, Henry Harjes, Marcus Knudson, Timothy Pointon


DYNAMIC MATERIALS TEAM

WIPP Compliance Recertification Team

The Sandia CRA Team successfully completed the first CRA for WIPP thus keeping the WIPP operational. This was a milestone of great national significance.

Larry Brush, Joe Kanney, James Garner, Bart Buell, Don Wall, Nathalie Wall, Steve Wagner, Byoung Yoon Park, Ross Kirkes, Richard Beauheim, Kathleen Byle, Mario Chavez, Sean Dunagan, Clifford Hansen, Francis Hansen, Tom Kirchner, Christi Leigh, Jennifer Long, David Lord, Mary-Alena Martell, Tom Pfeifle, Anna Snider, Joshua Stein, Janis Trone, Yongliang Xiong

Meso-scale Fabrication Team

This team is supporting the complex by providing micro and meso-scale parts in a variety of materials through meso-machining, rapid prototyping, and dimensional inspection processes.

V. Carter Hodges, Michael Saavedra, Lynna Esquibel, Gilbert Benavides, Jeremy Palmer, David Adams, David Dennis Gill, Andre Aman Claudet, Pin Yang, Douglas Abrams, Edwin Bryce, Bart Chavez, Marc Harris, James Paustian, M. Barry Ritchey, Michael Vasile

Sandia/Lockheed-Martin F-35 Joint Strike Fighter Fuel Tank Design Optimization Team

Sandia and Lockheed-Martin engineers collaboratively applied state-of-the-art optimization methods from Sandia's DAKOTA software to design a new external fuel tank for the F-35 JSF aircraft.

Mike Eldred, Shane Brown, Scott Mitchell, Laura Swiler, Tony Giunta, Eric Charlton, Kelly Corfeld, Bruce Davis, Todd Henderson, George Howell, Mary Hudson

Greek "Demokritos" Reactor Vulnerability Assessment Team

The team performed, in a remarkable one week's time, detailed sabotage/theft consequence analyses for the Greek Demokritos research reactor required for the 2004 Athens Olympics.

J.D. Smith, Jerry Sprung, Eric Lindgren, Paul McConnell, Charles Morrow

Facilities Grounds and Road Services Landscaping Improvement Team

Team has implemented methods through redesign initiatives to provide a campus-like atmosphere while implementing cost savings, reducing water use, and minimizing waste.

Jim Corcoran, Joseph Salazar, Steve Lucero, Victor Barba, Mark Locke, Carlos Molinar, Herman Vallejos, Wayne Breeze, Yvonne Molina, Joseph Minichello, Richard Lucero, Thomas Gutierrez, Ralph Gutierrez, Timothy Salvador, Allen Gonzales, Leroy Padilla, Jake Aragon, Malynda Aragon, Delfino Bird, Robert Griego, Donald Jaramillo, Eloy Montano, Fred Perea, Ernest Sauceda

International Biosecurity Team

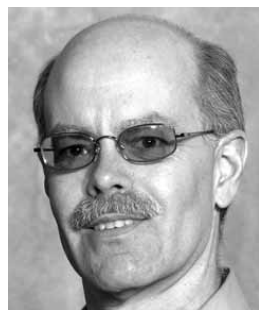
For the development of the premier, internationally accepted methodology and standards for enhancing security of global biological research facilities.

Lauren Hickok, Charla Garcia, Natalie Barnett, Susan Rivera, Lada Osokina, Reynolds Salerno, Susan Caskey, Kathleen Lowe, George Baldwin, Jennifer Gaudioso, John Milloy, Michael David Reyes, Kimberly Silver, Nora Tankersley, Michelle Margaret Zamora

Performance Testing of Trace Explosives Detectors for Vehicle Screening

This team designed and conducted field, laboratory, and modeling studies to evaluate and improve trace-explosives detection systems that are used nationwide for vehicle screening.

John Parmeter, Bayo Falase, David Hannum, Clifford Ho, Ray Atencio, Troy Chadwell, Steve Chester, Wayne Cunningham, Lorin Cyr, Brian Dahl, Michael Duncan, Jonathan Hinton, James Mitchell, Rita Thorne


J.E.R. Turner
15232


Todd West
8114


Mary Woodruff
2026


Donna Young
2341

MESA Project Controls Team

MESA Project Controls Team (PCT) has been a significant member of MESA's Project Team, providing professional and timely cost, schedule, earned-value, and what-if support.

Donald Losi, William Balassi, Jennifer King Girand, Michael Street, Michael Kupay, Marvin Clark, Richard Coy, M. Edna Nolan, Jeffrey Randall

Integrated Surety Solutions

In recognition of innovative integration of physical security and use control technologies providing unique solutions to pressing national security needs.

Carly Tanaka-Lubensky, J.T. Bergstrom, Phil Bryson, Josh Greegor, Chrisma Jackson, Timothy Gilbertson, Steven Highland, Patrick Knight, William Morse, Cynthia Nelson, Edward Shoaf, David Tobeck, Janson Wu, Frank Wunderlin

Homeland Defense, Rapidly Deployable Sensor Management Architecture Exercise Team

In recognition of excellence in engineering support of successful, short-notice, high-priority, cooperative Sandia and City of Livermore Police Department sensor management architecture exercises.

Mike Goldsby, Leroy Hahlbeck, Barry Hess, Neal Fornaciari, Ann Yoshimura, Rose Tsang, Gil Arthur, Marion Martin, Rich Gay, Herb Blair, Eddy Morales, Heidi Ammerlahn, Matt Barberis, Gary Brines, Jerry Creager, Jim Ham, Stephen Ng Mueller, Jon Ostlund, Greg Park, Timothy Sa, Justen Sheridan, Bob Tirnetta, Stuart Walsh, William Wilcox, Herb Woelffer

CMCS Project Team

In recognition of excellence, creativity, and dedication resulting in successful exploration, development, and implementation of new informatic approaches supporting distributed collaborative science and technology endeavors.

Dave Leahy, Christine Yang, Larry Rahn, Darrian Hale, Tom Allison, Brett Didier, Todd Elsethagen, Michael Frenklach, Bill Green, Deepti Kodeboyina, Wendy Koegler, Jun Li, David Montoya, Jim Myers, Luwi Oluwole, Carmen Pancerella, Reinhardt Pinzon, Bill Pitz, Branko Ruscic, Karen Schuchardt, Jing Song, Lisong Sun, Gregor Von Laszewski, Al Wagner, Lili Xu

(Continued on next page)

Team honorees

(Continued from preceding page)

Security System for Remote Access Modems (SSRAM) Assessment and Demonstration

The SSRAM team conducted an exceptional assessment that ensured the success of this critical infrastructure USAF defensive information system, and distinguished Sandia's Information Operations capabilities.

Juan Ortiz-Moyet, Mike Baca, Chuck Villamarin, Chuck Andraka, Dean Moore, Shane Ramotowski, Sammy Smith, Amy Bowen, Kye Chisman, Patricia Cordeiro, Jerry Ginn, Kevin Nauer, Gerald Rudolfo, Mark Rumsey, Juan Torres

B61 JTA SRM Pressure Measurement

In recognition of development of an in-flight direct method to measure for the first time performance of aging spin rocket motors during JTA flight testing.

Randy Clarin, Jerry Elarton, Thomas Prast, William Cain, Robert McKinnie, Raymond Sanchez, David Westgate, Helena Nolan, Peter Royval, Dennis Voss

SAFE Nuclear Weapon Security & Use Control Architecture Team

For development of the SAFE Nuclear Weapon Security and Use Control Architecture and its underlying principles and attributes.

Jeffrey Everett, Marcella Madsen, Karen Page, J. Douglas Clark, Steven Humbert, John Kane, David Carlson, Stephen Kaufman, Phil Bryson, Chrisma Jackson, Edward Talbot, Clinton Shirley, Basil Steele

W80-3 Abnormal Mechanical ASC V&V Milestone Team

In recognition of exceptional service through dedication and commitment to excellence in the successful completion of the W80-3 Abnormal Mechanical ASC V&V Milestone.

Ken Lee, Sam McFadden, Mike Jew, Bruce Kistler, Neil Davie, Daniel Bogert Dawson, Jay Dike, Patricia Hough, John Korellis, James Koteras, Sangwook Lee, Monica Martinez-Canales, Arne Gullerud, James Stewart, Jakob Ostien, Kenneth Gwinn

Managing Evacuation of Sandia Workers from Carlsbad Facilities

The team managed a long evacuation of Sandia's Carlsbad facilities while ensuring that two critical deliverables were delivered on time.

Ron Parsons, Paul Shoemaker, Chad Twitchell, Dave Kessel, Mark Rigali, Joseph Kanney, Dina Howell, Don Wall, Steve Wagner, Glen McCoy, Shannon Casey, Anna Carrasco, Wes DeYonge, Randy Buhalts, Dan Rolsma, Anne Schaub, Ed Schaub, Grace Sosa, Michelle Barela, Anthony Sanchez, Suzanne Weissman, Bill Kelly, John Geilow, Steven Knudsen, Michael Knazovich

AURA-Midnight Sun Team

For dedication to the successful completion of Midnight Sun, the final field test for the AURA (Advanced Ultraviolet Remote-Sensing Applications) Project, 1993-2005.

Mark Smith, Leslie Krumel, Michael Pedroncelli, Craig Boney, Philip Hargis Jr., Alvin Lang, Anthony Bentley, Paul Claassen, James Klarkowski, Tad Ashlock, Mark Johnson, Kevin Schroder, Gary Kirchner, Isaac Schokair, John Smith, Ricky Sommers, Howard Anderson, Patrick Brady, Robert Bugos, Roger Busbee, James Daniels, Tammy Hensen, Jay Jordan, Thomas Kulp, Randal Schmitt

Videoconference Event Management Team 2004

In recognition of exceptional service in facilitating numerous complicated high-level events to successful completion.

Alex Sotelo, Sandra Trujillo, Betty Walker, Tina Wardle, Terrie Saenz, Lanette Radliff, David Nagel, Sheila Akins, Brian Chamberlain, Annette Hoff, Diane Gomes, Michael Hansen, Corbin Stewart, Mike Wood

Bio Micro Fuel Cell (BµFC) Team

For exceptional teamwork and creativity in developing new technologies for sustainable micro-scale power sources powered by carbohydrate fuels.

Monica Manginell, Jason Podgorski, Patricia Dolan, Paul Baca, Susan Brozik, Jason Harper, Christopher Apblett, David Ingersoll, Blake Simmons, Swapnil Chhabra, Julia Crawford-Dibble, Joanne Volponi, Gregory Roberts, Christopher Cornelius, Jeb Flemming, Cy Fujimoto, Michael Hickner, Michael Kelly, Richard Muller, James Novak, Barbara Schay, Carrie Schmidt, Edwin Southwell, Frederick Wall

Micro-Faraday Array Detector Team

This team developed an innovative design for an ion detector that increases sensitivity by 3 orders of magnitude over existing detector technologies for chemical compounds.

David Alexander Jones, Luisa Archuleta, Pamela Baldwin, Philip Rodacy, Christopher Gresham, Sean Paul Madden, qand, Susan Fae Ann Bender, Kelly Donovan. From the University of Arizona, Jeff Babis, Roger Sperline, M. Bonner Denton, Andy Knight, Kent Gillig, Steve Denson

Medical procedures used on airplane cracks surrounding rivets

Technology Symposium features work done at AANC

By Erin Gardner

New inspection and repair technologies are being proposed for the airline industry that have potential applications in other fields.

These technologies were presented by Dick Perry (6252) at a recent Technology Symposium at the Steve Shiff Auditorium. The presentation, "Enduring Challenges and Emerging Technologies in Non-Destructive Inspection," can be viewed by visiting KM-SAL — Knowledge Management Streaming Assets Library at https://kmsalsa.sandia.gov/vas/accounts/admin/kmsalmain.htm.

"No other technologies have been able to see some of these cracks so consistently without disassembling the specimens."

Sandia manages the FAA Airworthiness Assurance NDI Validation Center (AANC), which tests and characterizes new aircraft maintenance and inspection technologies of both aging structures and aging systems. The AANC finds technology transfer candidates and mates them with problems associated with the aviation industry.

Technologies that were developed for use in medicine are being used to focus on cracks surrounding rivets that are mostly caused by fatigue. AANC has been testing the technology of phased array ultrasonics, commonly called ultrasound, since 1995. At that time AANC researchers were developing more effective and inexpensive methods of conducting required inspections of DC-9 aircraft.

Angle of reflected signal is key

Ultrasound is commonly used for medical procedures like looking at a fetus in a woman's womb, or projecting an image of one's internal organs without carrying out surgery.

The new application of ultrasound technology by AANC researchers is based on directing an ultrasound signal into thin sheet metal structures at a specific angle. The reflected signal enables researchers to see small cracks, even those under the head of the rivet.

At the symposium, Dick explained that fatigue is the main source of damage that causes micro-cracks around the rivets that grow together and become potentially major. This "skin stress" can cause considerable problems. The most challenging cracks in aircraft skins are those in the bottom rivet rows on the lap splices joining fuselage skin panels. They are more difficult to detect because of the geometry of the surrounding structure and because the cracks are in the second and third layers of the joints.

"This technology is very successful. No other technologies have been able to see some of these cracks so consistently without disassembling the specimens," Dick says.

Another technology, thermosonics, an infrared imaging process, involves thermographic inspection where an infrared video is made of the part of metal being inspected while a high frequency sound signal is applied. The picture in this video looks similar to an X-ray but reveals the cracks in an engine component by showing the heat differences between the normal metal and the cracks. This sound causes the two sides of a crack to rub against each other. This movement causes the heat. This heat is what the infrared camera detects. Researchers at Wayne State University in Michigan are helping to maximize the success of this technology.

The goal of the AANC is to use these new technologies to reduce the size of detectable flaws in aircraft.

The Federal Aviation Administration is the primary customer of the AANC, which has been part of the FAA Aging Aircraft Program since 1991. The center helps to increase effectiveness and reduce both the time and the cost it takes to make an inspection.

For upcoming Technology Symposiums visit http://www-irn.sandia.gov/organization/div2000/ctr2900/techsym or type in "Technology Symposium" on the Sandia Techweb Keyword search.

Recent Patents

Paul Galambos (1769), Bernhard Jokiel Jr. (1745), Jerome Jakubczak II (1703), and Gilbert Benavides (2613): Piston-Driven Fluid-Ejection Apparatus.

Tom Klitsner (9341), Thomas Zipperian (1740), Stanley Kravitz (1763), Alan Sylwester, Gail Ryba, and Andrew Hecht: Fuel Cell and Membrane.

Leonard Klebanoff (8775) and Daniel Rader (9112): Method and Apparatus for Debris Mitigation for an Electrical Discharge Source.

Peggy Clews (1746) and Seethambal Mani (1749): Selective Etchant for Oxide Sacrificial Material in Semiconductor Device Fabrication.

James Allen (1769): Erected Mirror Optical Switch.

Robert Hughes (1744), Ronald Manginell (1764), Mark Jenkins (1739), Richard Kottenstette (6118), and Sanjay Patel: Apparatus for Sensing Volatile Organic Chemicals in Fluids.

Take Note

Retiring and not seen in *Lab News* pictures: **Albert Marshall** (9745), 28 years.

Congratulations

To Doug Ruby (6218) and Linda Duncan, married on Kauai, May 1.

* * *

To J.J. (10240) and Patrick (1673) Rambo, a son, Franklin Alexander, May 31.

Lab News **Reader Service**

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

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

What can you do about health care costs?

This article is the second in a series about health care and Sandia prepared by Health, Benefits, and Employee Services Center 3300.

Unhealthy lifestyles lead to increased prevalence of disease and higher use of health care services. In 1987, obesity-related medical care comprised just 2 percent of all private health care spending. In 2002, it comprised 11.6 percent. Moreover, greater than half of the growth in health care spending among privately insured adults in that same 15-year period is the result of increased prevalence of disease as opposed to an increase in how much it costs to treat each person. According to the American Medical Association, 25 percent of all health care spending today is spent on treatment of diseases or disabilities that are the result of potentially changeable behaviors.

As we mentioned in the last article (*Lab News*, June 24), higher rates of prescription drug use and more expensive prescription drugs also contribute to increased costs. Other factors ultimately impact health care costs, but unhealthy lifestyles and prescription drug purchases are two areas with the most potential for the individual to affect health care costs.

You *can* help control costs

You're probably wondering how a change you make in your medication purchasing habits and lifestyle can impact cost trends that are endemic to the entire American health care system. Considering that the higher costs associated with unhealthy lifestyle choices are paid by all Americans through higher premiums and taxes, and not just by those making the unhealthy choices, it might seem a hopeless task. However, the situation at Sandia is unique.

With the exception of the Kaiser Traditional and Senior Plans and the Lovelace Senior Plan, all of Sandia's medical plans are self-insured. This means that Sandia pays claims and other plan costs from its operating expenses. Sandia actually creates the plans, which are unique in their design, and pays an administrative fee to Mutual of Omaha, PharmaCare, and CIGNA for the processing of your health care claims. In the case of Kaiser fully insured medical plans, Sandia designs these plans and pays a monthly fee for covered members, and Kaiser pays the claims.

Sandia and Kaiser determine your monthly premiums based in part on the actual use of health care services and the claims history of the total Sandia-insured population. This means that changes you make to your behavior can affect health care costs like your premiums and out-of-pocket expenses. You can ultimately spend less, as well as reap the obvious benefits of making intensive lifestyle changes like exercising, losing weight, quitting smoking, or changing the negative behavior contributing to any health problems you have or may develop.

Mail-order meds, generics save money

As for prescription drugs, there are significant savings — both to the employee and the employer — when you order maintenance medications through your mail order programs, which generally provide you with three months of medication for the price of two. Also, choosing the generic version of a brand-name drug whenever possible can lower costs. The FDA requires generics to have the same quality, strength, purity, and stability as brand-name drugs, so you don't need to worry about the efficacy of these substitutes.

Lifestyle changes are certainly harder to make than changes in purchasing habits. However, the need is more dire. Obesity comes with a greater risk of diabetes, heart disease, and cancer. Excessive drinking can lead to liver, heart, stomach problems, and a bevy of other disorders. Smoking can kill you. Changing these and other negative behaviors have obvious quality of life benefits. Beyond that, if you change your quality of life for the better and are using fewer health care services, you can affect the total cost for health care at Sandia.

Programs address lifestyle issues

Both Sandia California and New Mexico offer many programs to help you change unhealthy lifestyle behaviors and reinforce good behavior. Are you overweight? Come to the on-site clinic for a health risk assessment. We'll check your blood pressure, glucose, and cholesterol. Then reduce your risk for disease by working with one of our dieticians to establish nutritional eating habits and taking part in one of our on-site fitness classes. For those who have already developed complications, the NM Disease Management Clinic can help you manage diabetes, high blood pressure, and high cholesterol. California offers a 12-week Lifestyle Accountability Program, which is an intensive behavior change program designed to help people with multiple risks for disease adopt healthy life style changes and reduce risks. These screenings and programs are free for all employees, as well as for retirees in New Mexico. The screenings can also be performed by your physician through your medical plan, normally at a low out-of-pocket cost.

Additional on-site services include stress management and the Behavioral Health program, which can provide confidential help with substance abuse problems, depression, anxiety, grief counseling, and other issues. California employees should contact CA Health Services and the CA Salud program for available screenings, programs and classes.

The important thing: Positive change

Whether you use the services offered at Sandia or take advantage of similar services in your community doesn't matter. The important thing is effecting positive change. It's no coincidence, however, that Sandia makes these services available on-site. We recognize the role that preventive health can play, and these programs are designed to complement your health care plans and consequently enhance your quality of life. In the future, you'll hear more about these issues and the programs we have designed to address them. In the meantime, for further information about the programs offered by Health, Benefits and Employee Services in NM, call 844-HBES or visit us online at http://www-irn.sandia.gov/hr/health_wellness.htm. In California, call the Health Promotions Coordinator at 294-3501.

In the next article in the series, we'll examine how Sandia is responding to rising health care costs and compare Sandia's benefits to those of similar employers.

Feature, photo spread on Sandians at Nevada Test Site honored

A *LAB NEWS* TEAM of photographer Randy Montoya, left, and Bill Murphy pause in front of a model home that was erected years ago at the Nevada Test Site to gauge the effects of atomic blasts on housing structures. Randy and Bill won a major national award for their coverage of the test site. (Photo by Dan Bozman)

Last year *Lab News* writer Bill Murphy and photographer Randy Montoya visited the Nevada Test Site and talked to and photographed the Sandians who work there in support of science-based stockpile stewardship. Later Bill talked with Tom Hunter (then Sandia senior VP, now Sandia's president and Labs Director) about his early-career experiences with the field test group at NTS and then wrote an impressionistic account interspersing Tom's reminiscences with Bill's own observations at the site.

Last week Bill's three-page feature article from the trip "Boomtown: Time-traveling around Mercury, Nev., and the Nevada Test Site with Tom Hunter and Dan Bozman" and Randy's two-page photo spread "Nevada Test Site awesome in every way" (*Lab News*, Dec. 10, 2004) were each honored with first-ever Ragan Recognition Awards, for "the best in employee magazines and newsletters."

Bill received the Award of Excellence (the competition's highest honor) in the Feature Article category; Randy received the Award of Excellence in the Photographic Essay for Editorial Purposes category. There were only 20 categories in the competition, new this year, and Sandia was the only organization with multiple winners. The judges were from Chicago-based Ragan Communications and Northwestern University's Medill School of Journalism. The awards were announced at the 2005 Ragan Communications Conference in Las Vegas.

Howard Kercheval's "What's What" *Lab News* column received an honorable mention in the Recurring Features or Columns category.

Mileposts

New Mexico photos by Michelle Fleming


Donald Bailey
25 10864


Jeana Brosseau
25 3555


Rena Haynes
25 9227


Joseph Schofield
25 9516


Dana Striker
20 9343


John Torczynski
20 9113


Mark Vaughn
20 15422


Brenda Wickham
20 42332


James Cates
15 6927


David Corbett
15 2900


Linda Cusimano
15 9532


M. Wayne Davis
15 1100


Edward DiBello
15 5744


Kathryn Fortune
15 10031


Emily Lujan
15 5993


Rose Marie Marra
15 14433


Rebecca Martinez
15 10513


Connie Myers
15 6326

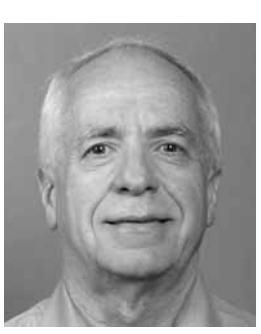

Douglas Nordquist
15 12810


Kyu Paek
15 5745


John Parmeter
15 4118


Vicki Porter
15 9142


Kent Robbins
15 14417


Everett Saverino
15 12336

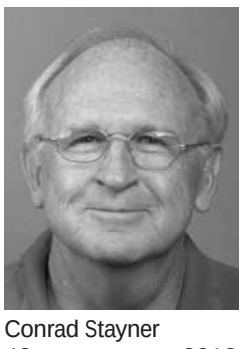

Larry Schoof
15 12347

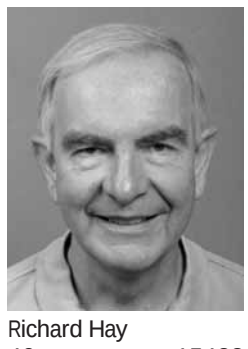

Kevin Seager
15 5935


Karen Sparks
15 3553

Recent Retirees


Fred Blottner
44 9115


Conrad Stayner
42 2913


Richard Hay
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Sandian places in shooting sports in South Africa

SANDIAN JOHN DINK (5936) takes aim during the 2nd F Class World Championships this April in Bloemfontein, South Africa. John, a mechanical engineer/process engineer in packaging design, placed 6th in the individual long-range rifle shooting competition. (US shooters filled the top eight positions.) The South African surroundings, says John, were breathtaking and sometimes distracting to the shooters, such as when meerkats, though remaining safely under the curved path of the bullets, made an appearance on the range. "You could see tons of little critters in your scope," he says. "It was a little disconcerting to see them jumping up and down." Sandian Andrew McCourt (1128) also qualified at the earlier US Nationals in Camp Butner, N.C., but was unable to attend the world championships. Says Andrew, who works with laser optics and remote sensing: "Shooting is one big applied physics problem." (Photo courtesy of John Dink)

Herman Molina thrives on small businesses' challenges

By Elizabeth Malone

For the past 18 years, Gerald Olona has known he wanted to create an automated fishing reel to allow people like his mother-in-law, who had arthritis, to catch fish for themselves. He researched torque and gear ratio, acquired a patent, but needed some assistance to make his idea a reality. About two years ago, Sandia's Herman Molina (5916) stepped in through the New Mexico Small Business Assistance program.

"We had all this information and we had nowhere to go with it," Olona says. "Herman took the ball and ran with it."

Over the course of a year and a half, Herman and Olona met on several Saturdays. After asking Olona to buy batteries and a couple of commercial reels to study, Herman went to work on the problem.

"He showed me what he wanted," Herman says. "I designed the whole reel in an hour or two here and there. I just put his ideas to work." After enlisting other Sandians' help with design and construction, he completed two prototypes of Olona's reel.

"I made his dream come true. At Sandia, there's nothing you can't build."

Herman would know. He has served in the Air Force and worked in a precision sheet metal shop, and he now creates novel devices for 5900 while assisting small businesses on the side. Soon after the start of the Small Business Assistance Program (SBAP) in 2001, a friend asked for help with an invention to punch out round disks from silver. When Herman agreed to become the "principal investigator," or primary Sandia contact, word spread of his creativity and willingness to help. He has since served as principal investigator for 14 projects and nine businesses.

"What is a small, elementary problem for a Sandian has a huge impact on the small business," says Fritz Kuckuck (1302), who coordinates the SBAP inventors' needs with Sandians' skills. Principal investigators receive a budget of $5,000 or $10,000

HERMAN MOLINA displays the steel "finger" device he crafted for the *EZ-Nichos* prototype. (Photo by Bill Doty)

to solve the problem at no cost to the small business, and the short-term, direct impact on the community shows in a better economy of jobs created and resources saved. "A lot of them have been hitting their head against a problem for quite a while. They can take their ideas to the next level, get concrete suggestions of where to go, and save time and money."

Currently, Herman is helping the latest two inventors assigned to him by Fritz to do just that. Herman Lucero sells *EZ-Nichos*, the southwestern niches that nest into the wall to hold santos or artwork. Lucero tried using plaster of Paris and foam as adhesive but needed a cleaner, neater method. With one of Lucero's nichos and a tool that bends springsteel available in his woodshop in Tech Area 3, Herman has almost completed a steel finger device that punches into studs in the wall.

Another inventor, Wes Ahlgrim, enlisted Sandia's help with the Wes Block Wire Harness, a plastic bracket to organize wires.

"I named it after him," Herman chuckles. Herman is designing the bracket to fit between studs and hold wires in place with Velcro. The use of plastic and Velcro decreases the possibility of electric shocks.

"Wes is applying for a patent," Herman says. "I took his concept and put it to work. He saw his dream come true." This is a refrain with many clients: they see their dreams realized. For Herman, his own satisfaction comes from watching the pleased inventors.

"I enjoy the challenges, and seeing people's faces when they see their dreams in their hands," he says. "They know me around the Labs, and I enjoy it when they ask me for input."

Over the years, Herman's SBAP projects have also included a tool to bend square tubing, a filing cabinet that fits under the seat of a semi trailer, and Lifeline, a safety device that anchors construction workers to a roof. Preferring to tackle the problem immediately, Herman usually skips the drawing-board stage and assembles a prototype first. He built a first model of Lifeline himself and then took it to an engineer to sketch out how it works.

"Herman is one of the people we know who does more work with hands-on prototyping. He's very efficient and enthusiastic; he gets going," says Fritz.

All three products are now being manufactured and used by the small businesses. Tina Cordova, the contractor who invented Lifeline, has tested her product and uses it for her construction work in Los Alamos.

"I provided her with drawings and gave her the names of several companies who could make the parts," Herman says.

"It's not just an abstract challenge for him," says Fritz. "He takes into account the status of the company. That's why he's so good at doing this."

Atomic Museum to mark 60th anniversary of Trinity Test

Sixty years ago, at 5:29 a.m. July 16, 1945, with a flash of incredible light, the end of World War II was glimpsed on the Jornado del Muerto Desert. The detonation of the world's first atomic device happened here in New Mexico that morning, viewed by few people but destined to change the world. The National Atomic Museum will mark this historic happening with a two-day event, "Blast From the Past," on July 15-16. Guests will relive the drama, secrecy, excitement and awe throughout the event.

The commemoration will begin with guests entering through the door "109 Palace" and are whisked into the secret world of the Manhattan Project, complete with secret identities. The evening will continue with a showing of late 1930s to early 1940s vintage cars and military vehicles provided by the New Mexico Council of Car Clubs. "Scientists," "military," and "support staff" will be attired in 1940s dress to complete the transformation back to The Hill. As guests sip period cocktails like Manhattans, Trinity Cocktails, and Kamikazes, they will enjoy the sounds of the Big Band era, Swing and pop tunes of the 40s. Dinner will be served in the Atomic Bistro, as diners enjoy slides of the war efforts, Hollywood hits, and pictures of the actual atomic test.

THE "GADGET" plutonium implosion device is mounted in the test tower at the Trinity test site. Norris Bradbury, who subsequently headed Los Alamos Laboratory, is at left.

The evening will culminate in a panel discussion among several Trinity and Manhattan Project authorities. Herb Lehr, the retired military officer who had the distinction of being the individual to transport the radioactive plutonium core into the McDonald Ranch House for assembly in the Gadget, will be on hand to recall happenings at the site the day of the test. Ferenc Szasz, UNM professor of history and author of *The Day the Sun Rose Twice*, will discuss the world's events that lead up to the Manhattan Project and immediately following the test. Chuck Loeber, nuclear weapons scientist and historian (and just-retired Sandian), will talk on what the Trinity Test meant for the next sixty years.

As they leave for the evening, guests will receive their dossiers with their assignments for the following morning's trip to the Trinity Site by motor coach. Saturday morning the participants will be treated to a guided tour of Ground Zero, Jumbo, and the McDonald Ranch House. Knowledgeable museum docents and the panel members will present talks at each of the venues. To wrap up the day, lunch will be served at the famous Owl Bar and Café, where many of the Trinity personnel used to eat and drink in 1945.

Tickets are limited to make the entire experience a more personal and intimate recreation of the anniversary. To join in the fun, call 505-242-6083 for your $125 per person ticket for the two-day package, or visit online at www.atomicmuseum.com.

— *Becky Kenny, National Atomic Museum*

Blast from the Past
National Atomic Museum
Trinity Test commemoration

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MANHATTAN PROJECT LEADS Robert Oppenheimer, left, and Gen. Leslie Groves examine the remains of one of the tower supports following the Trinity test explosion. Note the shoe coverings on Groves' feet.