

Sandia engineers test cruise missile to qualify W80-3 in electromagnetic environments

By Michael Padilla

Multiple electromagnetic qualification measurements have been performed at Sandia on two types of cruise missiles that carry the W80.

The measurements are part of the W80 Stockpile Lifetime Extension Program (SLEP). SLEP is an extensive qualification program to ensure that the W80 meets its operational and nuclear safety requirements in a wide range of environments.

The electromagnetic qualification program includes testing a refurbished W80 under a variety of electromagnetic conditions. These include simulations of friendly and hostile radio frequency transmitters, electromagnetic pulse, nearby and direct-strike lightning, accidental contact with electrical power lines, and electrostatic discharge.

The electromagnetic qualification program started by characterizing the behavior of the cruise missiles that carry the W80.

Project lead Matthew Higgins (1653) says it is important to characterize the payload bays and warhead interface cables of the Air Launched Cruise Missile (ALCM) and Advanced Cruise Missile (ACM) because the W80 spends time mounted in the cruise missiles for logistical operations and remains in the missile from carriage on a B-52 to launch and delivery.

"The transfer function measurements will help define further qualification tests in which W80-3 electrical systems will be tested," he says.

W80 refers to the current stockpile weapon system. The W80-3 refers to the upgraded system

(Continued on page 4)



QUALITY CHECK — Michele Caldwell (1653), here with a cruise missile, manages the group that is testing the W80-3 in a variety of electromagnetic environments. Michele says the test capabilities have allowed the group to take a comprehensive set of data that wouldn't be possible in other places. (Photo by Randy Montoya)

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Nuclear Weapons SMU restructure announced

A restructuring of the Nuclear Weapons Strategic Management Unit was announced last week. Its stated goal is to enhance customer interface, strengthen line involvement, and achieve greater shared vision around the nuclear weapons strategic objectives.

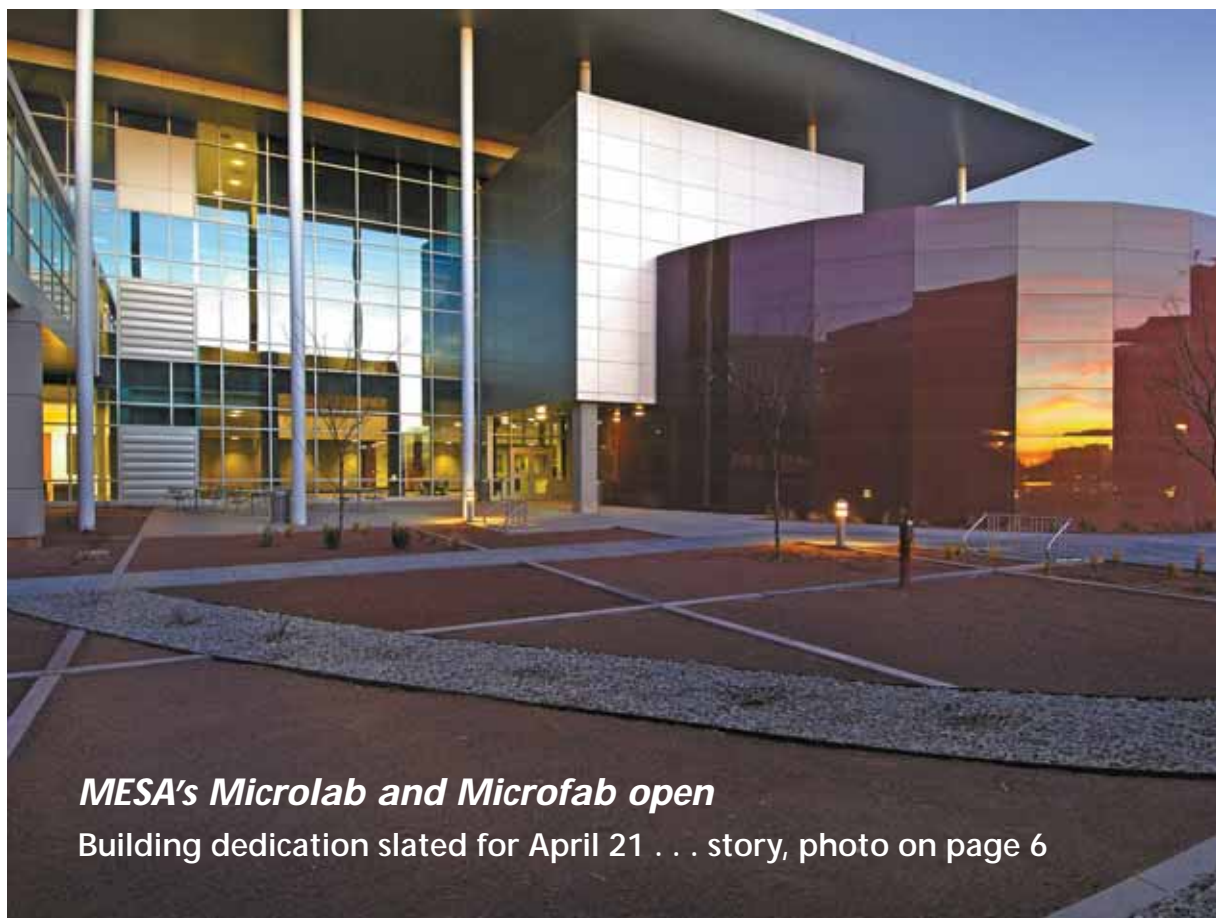
"The basic structure of the SMU will remain the same, but with increased attention to customer interface," says Labs Deputy Director for Nuclear Weapons Joan Woodard.

NWSMU Chief Operating Officer Dave Carlson (200) is the nuclear weapons program's primary interface with the Sandia Site Office assistant manager for defense programs and quality assurance, and continues to head the Program Director Leadership Team.

Existing program directors will continue, with responsibilities being redistributed to provide greater focus on the customer as well as workload balance. Particular emphasis is being placed on key areas of transformation — transformation of the stockpile and nuclear weapons complex to a responsive, agile, affordable enterprise.

Doug Henson (8800), recent California weapons system director, joins the team with responsibility for current stockpile programs. There is a greater role for line directors to strengthen program-to-line relationships and interface.

Two new line director roles have been established — line director counterparts and line director advisors. Over the next month, those who will fill these roles will be identified and specific responsibilities will be further defined through discussions.



MESA's Microlab and Microfab open

Building dedication slated for April 21 . . . story, photo on page 6

Photo by Bill Doty



NYC assignment exposes Sandia specialist to metropolitan bioterror mitigation. Story on page 3.

- Earth Day activities page 5
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- Sandia women among honorees of Rep. Heather Wilson page 9
- Are you a digital immigrant? page 9



Environmental photo contest winners capture beauty, wonder of natural world. Photos on page 7.

What's what

If you ever wonder how the media get information about Sandia, and what information they look for and/or request, have a look at the newly revamped Newsroom website at <http://www.sandia.gov/news/index.html>. The site makeover consolidated information journalists most often look for that had been scattered around sandia.gov, or that required a lot of clicks to get to.

Under Corporate Information on the new site you'll find selected history information (formerly found under "About" on Sandia's home page, and still there, too) and executive biographies. An expanded array of fact sheets grouped by topic can be found under Publications, and news tips are posted under Resources (they also remain on the top-level news page. A new feature of the site includes a rotating selection of Randy Montoya's photos, which designers of the site hope to enlarge in the future.

And in a true innovation, the Newsroom is the first Sandia website to include an RSS feed feature. RSS stands for Really Simple Syndication or Rich Site Summary, depending on who you ask. It allows you to identify and have web content delivered directly to you, either via e-mail or a web browser. Many journalists use RSS feeds to track the latest news related to their beats.

It represents a great job of reorganization. Give it a look.

* * *

By the way, if you've ever entertained thoughts of writing for a living, you might try your hand at some of the humorous and/or whimsical literary contests. Probably the best known is the Bulwer-Lytton Fiction Contest, a competition sponsored by the English Department at San Jose State University that spoofs the opening lines of Edward George Bulwer-Lytton's 1830 novel *Paul Clifford*: "It was a dark and stormy night. . . ." You can find information at <http://www.bulwer-lytton.com/>.

For those who prefer Ernest Hemingway, there's the Imitation Hemingway Competition - also known as "Bad Hemingway" - at <http://www.2camels.com/festival33.php3>. And William Faulkner fans can go to <http://www.mcsr.olemiss.edu/~egjbp/faulkner/faux.html> to try emulating the Mississippi master in the Faux Faulkner Contest.

If you're interested, but inexperienced, dash off some words and send them to the e-mailbox listed below. Our astonishingly erudite staff will be more than pleased to give you their unqualified opinion of your work.

* * *

Before we get back here for the next issue of *Lab News*, Earth Day 2006 will have come and gone. It's April 22 this year, the 37th observance of an event meant to make all of us more aware of the value of our home planet and of the perils that tax it.

Nobel laureate Mario Molina (1995, for chemistry) will present the keynote address of Sandia's Earth Day Symposium April 20 in the Steve Schiff Auditorium. His talk is titled "The Impact of Human Activities on the Atmosphere." You'll find more on Sandia Earth Day activities on page 6.

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

Bill Murphy named next Lab News editor, to succeed Ken Frazier

Longtime *Lab News* staff member Bill Murphy will become the next editor of the *Lab News*, beginning with the April 28 issue. He succeeds Ken Frazier, who is retiring April 28 after 23 years with Sandia, the last 11 as *Lab News* editor.

Bill has been at Sandia and a member of the *Lab News* staff since 1995.

"I am delighted Bill is succeeding me as editor," says Ken. "He is the natural choice. He has, in effect, been our associate editor for years. He has broad knowledge and excellent judgment,



Photo by Randy Montoya

BILL MURPHY at Sedan Crater at the Nevada Test Site.

and his decisions about all manner of things are reflected in every issue. He's worked closely with the Labs' top executives and technical staff, reporting and writing about Labs activities, and he has been absolutely key in getting every issue of the *Lab News* out for the past decade."

Chris Miller, manager of Media Relations and Communications, said Bill's education, experience, knowledge of Sandia, judgment, and personal integrity make him the ideal choice as *Lab News* editor. "Bill has been a big part of why the *Lab News* is such a nationally recognized publication that has won so many awards," Chris said. "Bill will work closely with an excellent staff of writers as he draws from his skills in journalism, public affairs, and love for science and technology to bring new ideas into what already is an outstanding publication. But I know, and Bill will agree, he has big shoes to fill as he takes the reins from Ken Frazier."

In addition to his regular tasks, since 1996 Bill has also had total responsibility for editing and producing each of the annual *Lab News Labs Accomplishments* issues, published in color on glossy stock each March.

He has received a number of awards for his Sandia work, most recently Crystal Communicator and Ragan Recognition awards for his multipage article "Time Traveling around Mercury, Nev., and the Nevada Test Site with Tom Hunter and Dan Bozman." It first appeared in the Dec. 10, 2004, *Lab News* and was republished as the cover article in the Winter 2005-2006 *Sandia Technology*. He has twice been nominated for Sandia Employee Recognition Awards for his work with the *Lab News*.

Before coming to Sandia, Bill worked for the Greater Albuquerque Chamber of Commerce, the Red River Chamber of Commerce, and Albuquerque Public Schools. Early in his career he was a reporter for the *Bangor* (Maine) *Daily News*. He also served as a congressional intern in the office of Rep. Don Young of Alaska. He is an honors graduate of the University of Montana in journalism.

Lab News editors over five decades

Bill Murphy	2006-
Ken Frazier	1995-2006
Larry Perrine	1989-1995
Bruce Hawkinson	1982-1989
John Shunny	1968-1982
Thomas Heaphy	1967-1968
Bob Colgan	1965-1967
Robert Gillespie	1950-1965

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Take Our Daughters To Work Day April 27

Sandia employees and contractors can bring their daughters, granddaughters, sisters, nieces, and female friends between the ages of 9 and 16 (no exceptions) to work on April 27. All participants must complete a registration form (PDF).

Through job shadowing, Take Our Daughters to Work Day provides an opportunity for girls to actually see career opportunities available to them. Take Our Daughters to Work Day



is sponsored by the Sandia's Womens Action Network (SWAN). Sandia has participated in this nationally observed event since 1994.

For more information, visit <http://www-irn.sandia.gov/HR/eoo/swan/todtwd/index.html>.

New York City assignment exposes Sandia specialist to metropolitan bioterror mitigation

Isabelle Chumfong works six months with city's health department on bioterrorism response and planning

By Nancy Garcia

One of the newer researchers on site, Isabelle Chumfong (8114), gained a new perspective during a recent unique assignment in which she spent six months working with New York City's Department of Health and Mental Hygiene (DOHMH) to develop an in-depth understanding of and contribute to the city's bioterrorism response planning and preparedness efforts.

The goal of the collaboration was to develop better strategies for collecting information about the impact of bioterror agent releases in real time, to both support bio-defense systems studies for the Department of Homeland Security (DHS), which partially funded her participation, and to improve New York City's response activities.

Isabelle first came to Sandia/California in the summer of 2003. She then completed a master's in chemical engineering at Yale during a year on campus through Sandia's University Programs. In May 2005 she returned to the East Coast for the temporary assignment, in which she spent three weeks each month in New York and one week in Livermore.

The Sandia-DOHMH team focused on improving methods and approaches for post-incident environmental sampling, which typically would be used to confirm and characterize a



BEING SYSTEMATIC — Isabelle Chumfong is a systems studies staff member who went on assignment in New York City to collaborate on bioterrorism response planning.

bioterror event. Air and surface samples are collected to understand if an actual release has occurred, examine the properties and viability of the agent released, and determine the extent of contamination and population exposure.

"It was really enlightening to be there," she says, because her exposure to the real-world concerns in the public health department put into perspective some of the issues and priorities of end-users of Sandia research.

She got to see how decisions are made and goals overlap, for instance, with public health officials dedicated to preventing and treating illness and law enforcement being concerned about obtaining forensic evidence of a crime.

She visited areas of the city being considered for sampling, noting the possibility of operational complications due to urban grime and unfavorable weather conditions, as well as the potential reaction of passersby to hazardous materials teams suited up in protective gear, an eye-catching sight that would affect how potential threats are communicated to the public.

She says her New York colleagues' special expertise is appreciated and they are called by other cities because they are ahead in planning responses to terrorist attacks. "New York City has actually been attacked," she notes, "so the idea [that a bioterror attack] could happen is much more real to them."

The preliminary study examined the city's responsive architecture for bioterrorism events and proposed a methodology, based on modeling, for identifying promising sites for environmental sampling. These sites were chosen by analyzing an extensive set of agent release scenarios deemed most likely by New York City law enforcement and emergency management agencies. Initial conclusions from this work were recently presented to city officials, who were supportive of follow-on analysis and product development.

Part of the work involved modeling different hazard footprints based on different bioagent release scenarios using historical weather data, undertaken with Tony McDaniel (8367) and Todd West (8114). She says the archived footprint data

set can be mined for other applications and the study method can be readily applied to other cities.

Collaborators in New Mexico, Gary Brown (6245) and John Brockmann (1517), carried out related experimental work, releasing simulated bioagents in test chambers to approximate the limits of sampling methods on various surfaces, which were then incorporated into the model.

Isabelle says she appreciated learning what day-to-day questions key decisionmakers need answered, based on their goals and responsibilities. The concept of sending someone to the city agency came about early last year in a Bay Area meeting of public health, law enforcement, and environmental officials who wanted to better understand the potential hazards of bioterror releases and how to gather information about them in real time. Decisionmakers at DOHMH were eager for assistance, having heard of Sandia's initial modeling of plumes that might be generated from releases of a bioterrorism agent.

"Our studies for DHS are ultimately directed toward enhancing the preparedness and capabilities of end-users who are responsible for responding to emergencies," says Isabelle's manager, Susanna Gordon. "It is tremendously beneficial to work closely with agencies such as these to better understand needs and priorities that are paramount in creating effective operational plans and tools to deal with new threats, such as bioterrorism."

Isabelle frequently visited New York City while attending college just 90 minutes away, she says, so it was appealing to spend several months there exploring the city as a resident. Flying back once a month helped maintain continuity with her project team and life here.

During her assignment, she sat in the department's Bureau of Communicable Disease, in a section devoted to mitigating the consequences of bioterrorism. There she was able to interact with public and environmental health professionals, as well as the New York Police Department and the city's Office of Emergency Management.

Feedback

Q: It is my opinion that Sandia sometimes — not always — misapplies the shelter-in-place safety measure. However, rather than debating this I have two questions:

What is the legal opinion of shelter-in-place drills and the following practice (from the March 20 Sandia Daily News)?

1) "Building evacuation team members will block all exit doors and prevent occupants from leaving the building during the drill" — This smacks of false imprisonment. I see no problem being barred from entering a building but exiting seems like a different story. Assuming I am not under arrest, if I need to exit a building (for a personal or medical reason) and no actual emergency exists then it seems to me that I should not have to tell anyone why. It is simply enough that I need to.

2) "In the event of a real emergency" — If I give careful and thoughtful consideration and still honestly and truly believe that shelter-in-place is not the correct action and if I assume full responsibility for my safety am I allowed to ignore a shelter-in-place order and exit a building? I think yes. I base my belief on the following statement on the back of my Mission Success/ES&H badge "You have the obligation and authority to: Refrain from participating in activities you believe are unsafe."

If I truly believe a specific shelter-in-place activity is unsafe then it seems like I have the authority to not participate. Yes? If no, then what other activities must I participate in even if I feel the act of participation is unsafe?

A: Shelter-in-place is performed across the country as a protective action. For Sandia Corporation (Sandia), it is a requirement under the current DOE Order 151.1C, an Order that is part

Sandia California News

of the Prime Contract requirements and which enables Sandia to respond efficiently and appropriately to emergency situations. This is an important element of worker safety and Sandia takes that obligation very seriously.

Specifically, shelter-in-place is used when evacuation would cause a greater risk than remaining in place inside the building. An example of when you would apply such a protective action is for an airborne toxic or radiological material and your exposure to the material is then limited by virtue of remaining indoors, windows and doors shut, and ventilation turned off for the duration of the hazardous situation. Similar to fire alarms, drills and exercises are required to prove capability. Accordingly, ES&H Manual, CPR 400.1.1, Chapter 15, on Emergency Preparedness and Planning contains the important element of planning and conducting of emergency drills. Under that CPR, members of the workforce are required to obey the instructions of emergency response personnel and fire protection and assist the Emergency Operations Center in planning and conducting emergency drill and exercise events.

An employee's refusal to cooperate in a drill would constitute a violation of the CPR and would be reviewed for discipline as appropriate. Sandia employees are required to comply with

all CPRs and other directives as appropriate by virtue of their employment. Use of the legal term "false imprisonment" is inappropriate. "False imprisonment" implies an intentional illegal action, which is an inaccurate characterization of the Sandia employment relationship. Frankly, these drills are not only a good business practice but the failure to engage in such drills and exercises would no doubt be viewed as negligence by Sandia, given the Laboratories' workplace environment. Be assured that the emergency management professionals are acting for your safety when they ask you to shelter-in-place and you are participating in a safe activity.

— Amy Blumberg and Marianne Hill, Legal Infrastructure Support Center (11100)

Q: I have a question regarding severance pay for impacted or surplus employees. If an employee is deemed eligible for severance pay due to lack of work, how does this impact his retirement? Are retirement benefits impacted at all?

A: Severance pay is not recognized in the pension benefit formulas of either the Retirement Income Plan or the Pension Security Plan (for represented employees). Consequently, receiving severance pay would not have any impact on your Sandia pension benefit.

— Jennifer Crooks (10500)



PROJECT LEAD Matthew Higgins (1653, left) conducts pre-test preparations, and Dawna Charley (1653) shows where measurements on two types of cruise missiles that carry the W80 have been performed in the Mode-Stirred Chamber. Other tests are performed in the Electromagnetic Environments Simulator. (Photo by Randy Montoya)

W80-3 tests

(Continued from page 1)

being developed for the Stockpile Lifetime Extension Program. The measurements looked at electromagnetic leakage into the payload bays and interface cables of both missiles. The W80-3 shipping container has also been tested, and the W80-3 itself will be tested next.

The electromagnetic transfer function testing determines the leakage of electromagnetic energy into a test object. Using the external threat environments as defined in the W80 stockpile-to-target sequence, the exact amount of leakage can be calculated over a wide range of frequencies.

"With the cruise missile data, we can calculate the leakage into the W80-3 through the missile," Matthew says. "While it might seem intuitive that a cruise missile would provide some protection, this is not necessarily the case. People tend to assume that metal structures provide sufficient shielding from electromagnetic environments. In reality, the metal structures typically have penetrations, such as control cables in a missile, and openings, such as engine inlets and outlets."

In addition, cruise missiles have quite a few cables, which can act as antennas that can pick up energy at certain frequencies. Small details such as cable shield terminations can have a big impact on the leakage into an object.

Shielding effectiveness is measured to deter-

mine how much electromagnetic energy gets into the missile payload bays. To do this, Sandia engineers exposed the missile to electromagnetic radiation (EMR) over a wide range of frequencies and measured the electric field strength outside the missile and, simultaneously, inside the payload bay. The ratio of the field strength inside the payload bay versus outside the missile is described as shielding effectiveness. A well-shielded enclosure helps protect internal electronic packages from inadvertent malfunction or damage due to exterior EMR.

Energy can also couple into the missile cabling system, which can then create voltages on internal cable wires. In the right circumstances, this voltage can be delivered straight to the W80. To determine the degree of cable coupling, engineers expose the missile to EMR and measure the cable pin voltages. These types of measurements are called effective height, a quantity similar to the effective area of antennas. The less energy that couples into the missile cable, the lower the voltages induced inside the weapon.

Electromagnetic test chambers

The measurements of shielding effectiveness and effective height are carried out in two of Sandia's RF facilities, the Electromagnetic Environments Simulator (EMES) in Tech Area 1 and the Mode-Stirred Chamber in Tech Area 4.

Low-frequency testing (100 kHz to 250 MHz) is performed at EMES and high-frequency (220 MHz to 40 GHz) is done in the Mode-Stirred

Tests providing data never before possible

Michele Caldwell, manager of Electromagnetic Qualification and Engineering Dept. 1653, says her team is working closely with its customers, the W80-3 systems and qualification departments. The team has been planning and coordinating the project testing since 2003.

"We've been able to take data on the cruise missiles that have not been taken before," Michele says. "Our range of test capabilities has allowed us to take a comprehensive set of data that wouldn't be possible in a lot of other places."

Sandians working on the current aspects of the project include Michele Caldwell (project lead/manager), Dawna Charley, Matthew Higgins (project lead), and H. Gerald Hudson (all 1653). Contractors are DeShawn Black and Bill Derr. The entire department has contributed to the qualification of the W80-3 to electromagnetic environments.

Chamber. The two facilities are needed because of the wide range of frequencies required for weapon testing.

"It has been to our advantage that for weapon-related testing, both facilities are vault-type rooms," says Matthew.

The Mode-Stirred Chamber is essentially a broadband microwave oven, where the fields are deliberately mixed to uniformly bathe a test object in electromagnetic fields. The advantage of this method is that every penetration in a test object will be exposed in a single test run. The disadvantage is that because all potential leakage points are exposed at once, it is difficult to know sometimes where the dominant leakage point is.

"We will find out if it 'leaks' and at what frequency, but we may not be able to say where it is leaking from," Matthew says.

EMES is essentially a building-sized coaxial cable, called a transverse electromagnetic, or TEM cell. Like a coaxial cable, it has a center conductor and a return conductor surrounding it. At EMES, the center conductor is in the middle of the structure, 13 feet away from the return conductor at its highest point. While the Mode-Stirred Chamber bathes a test object in all directions, EMES produces a vertically polarized plane wave that travels the length of the cell like a two-dimensional sheet across a test object. To get a good characterization of a test object in EMES, it is usually desirable to make measurements of a test object rotated in several orthogonal orientations. The main advantages of EMES are its large size and the ability to test at frequencies all the way down to 0 Hz (DC static fields).

Intertribal Information Technology Company locates in Sandia research park

The Intertribal Information Technology Company (IITC), a consortium of Native American information technology firms that specialize in data conversion and data management, celebrated the grand opening of its new quarters in the Sandia Science & Technology Park (SS&TP) on April 6.

The organization recently signed a lease for 1,250 square feet of space in the Sandia Synergy Center, a multitenant building owned by Union Development Corporation.

"We are thrilled to have our first Native American company in the Sandia Science & Technology Park," says Jackie Kerby Moore, executive director of the SS&TP.

The IITC chose the SS&TP location because

of its close physical proximity to Sandia, says Malcolm Bowekaty, chief executive officer for IITC. "Successful commercial application of new technologies in fields such as information technology, microsystems, and nanotechnologies will enable our members to create jobs in remote and underserved areas of the country," he says.

Dick Fairbanks of Sandia's Partnerships Program Office says the IITC has worked closely with Sandia over the past five years "to fashion a unique technology partnership involving a Native American technology company. Moving into the SS&TP is a key and historic milestone for the IITC, and will solidify a relationship that will benefit the IITC, Sandia, and the nation."

Earth Day 2006

Energy conservation: Sandia's doing pretty well, but here are some tips for more energy savings

John Zavadil (10871)

I know what you're thinking: "Another article about energy conservation?" It's true that Sandians receive weekly, if not daily, reminders to cut back on use. But it's for a good cause — energy conservation is one of the least painful ways that we can all help save operating funds in these days of flat budgets and ever-climbing utility costs.

Sandia has a proven record of reducing energy use. We're already using almost 40 percent less energy per square foot in office facilities than we did in 1985. However, as you may have heard, Energy Secretary Bodman has asked DOE sites to comply with President Bush's Presidential Directive on Energy and Fuel Conservation by Federal Agencies; the goal is to reduce FY2006 energy use by 10 percent from FY2004 levels. That means we have to do even better.

Past successes

Sandia has already taken some significant steps to cut back on energy and water use:

- Since December, most office and corridor spaces controlled by the centralized Facilities Control System (FCS) at Sandia/New Mexico were changed to cool only if the temperature rises above 78 degrees F and to heat only if the temperature falls below 68 degrees. This change could save as much as 239 billion BTUs and \$1.5 million each year.

- New computerized irrigation systems save 3 million gallons of water per year.

- A program to replace obsolete light fixtures has saved us 2.2 megawatts per year (which works out to \$325,000 a year).

- Work is under way to connect existing chilled water plants in Area 1 into a district chilled water system. During most times of the year, the system will use only the most energy-efficient water chillers to cool buildings. Energy conservation projects like this are a big reason for much of the infrastructure construction currently inconveniencing us around Area 1.

Future ways to save

If you're in a building not controlled by the FCS (about two thirds of Sandia/New Mexico's buildings fall into this category), you probably use a pneumatic thermostat to set the temperature. These are unsophisticated controls, so heating and cooling can cycle on and off at any time to maintain the goal temperature — that's why the air conditioning sometimes comes on in January. Although it seems counterintuitive, the most energy-efficient way to heat and cool buildings with these thermostats is to set them to a mid-range temperature (about 73 degrees) year-round until we can replace them with the more advanced controls.

Another huge source of potential savings is "plug load" — computers, task lights, refrigerators, coffee pots, microwaves, printers, space heaters, fans, etc. A Sandia team recently evaluated Bldg. 969, one of Sandia newest facilities, to determine the most cost-effective opportunities for saving energy. The results might surprise you. While heating, cooling, and lights did comprise the majority of the energy use, plug load's share was 41 percent. That means that no matter how efficiently we design office buildings, almost half of the energy use depends on human behavior. So if you think that leaving your computer on at night, over the weekends, and on holidays doesn't really drain electricity, think again.



Earth Day Celebration '06

Thursday, April 20 at Steve Schiff Auditorium

Solutions to Climate Change

"The Impact of Human Activities on the Atmosphere"

10am – Lecture by Nobel Prize Laureate, Dr. Mario Molina

11:30am – 2:00pm
BBQ, Booths and Giveaways

Featuring:

PNM's Sky Blue™

State of NM RailRunner Program

City of Albuquerque Transit Department

Atmospheric Radiation Measurement (ARM) Program (DOE)

...and more!!

Nobel chemistry laureate Mario Molina to speak at Earth Day ceremony April 20

Nobel laureate Mario J. Molina will attend Sandia's April 20 Earth Day ceremony to discuss the impact of human activities on the atmosphere and climate change in particular. The ceremony will be held from 10 a.m.-2 p.m. in the Steve Schiff Auditorium, and Molina will



MARIO MOLINA

speak from 10 to 11:30 a.m. A question and answer period will follow.

Molina is an expert in the chemistry of the stratospheric ozone layer and its susceptibility to human-made perturbations. He is currently a professor at the University of California, San Diego. He was a co-author, with F. Sherwood Rowland, of the seminal 1974 publication in *Nature* on the threat to the ozone layer from chlorofluorocarbon gases that were being used as refrigerants, solvents, propellants in spray cans, etc. Molina received the 1995 Nobel Prize in Chemistry for his work in atmospheric chemistry, particularly concerning the formation and decomposition of ozone.

Earth Day 2006: Solutions to climate change

Reducing energy use also reduces the amount of carbon dioxide and other pollutants we release into the atmosphere. That's the theme of this year's Earth Day, "Solutions to Climate Change." Sandia has invited Nobel laureate Mario Molina to speak at the April 20 event (see the article above). Molina is an expert on how human activities are affecting the atmosphere and causing climate change.

What you can do

- If your building has pneumatic thermostats (ask your building manager if you're not sure — go to <http://facilities.sandia.gov/bldgmgr/index.asp>), make sure your thermostat is set to 73 degrees year round.

- Turn off your lights, computer, monitor,

printer, space heater, and fan every night. This could save as much as \$60 per year per person. Multiply that by 10,000 Sandians and contractors and you're talking serious cash.

- Purchase an occupancy-controlled power strip for office equipment. I have one that turns off my monitor, printer, scanner, and computer speakers when I've been gone for 10 minutes. It can save up to \$100 per year.

- Become an Energy Nag. Turn off the lights in unoccupied offices or conference rooms, switch off copy machines at the end of the day, and turn off printers and monitors when not in use.

So take a look around and see if there's anything you can do to reduce your use. Remember — small savings here and there can really add up in a place as big as Sandia. For more information, visit the Sandia Energy Management Program website, <http://www-irm.sandia.gov/facilities/energymgt/index.htm>.



The scenic entrance to Sandia's just-completed MicroLab building. The cylindrical portion to the left will be used for meetings and instruction. (Photo by Bill Doty)

MESA really beginning to take shape

MESA's Microlab and Microfab open; building dedication slated for April 21

By Neal Singer

Once again defying a world rampant with cost overruns and unmet deadlines, Sandia's massive MESA project will hold a building dedication at 10:30 a.m., Friday, April 21, to celebrate the formal opening — on-time and on-budget — of its Microfab and Microlab facilities.

Senators Pete Domenici and Jeff Bingaman, Rep. Heather Wilson, NNSA Defense Programs head Tom D'Agostino, and Sandia President Tom Hunter are among those slated to attend.

The Microlab building, attached by a second-floor skywalk to Sandia's Microelectronics Development Laboratory at the southeastern end of Tech Area 1, is possibly the most architecturally

scenic building Sandia has yet built, as well as the most secure.

Ringed by closely spaced boulders to protect against vehicular security incidents and using for the most part only basic materials like cement, steel, and glass, the imaginative, ecofriendly design — with light coming in from external walls of glass and large skylights three stories above the building's central corridor — is expected to encourage interactions among groups formerly separate in the Sandia work force.

These include microelectronics workers in both silicon and compound semiconductors as well as computer visualization researchers. The intent is to combine the expertise of the three groups to more quickly imagine and design better microelectronic devices. These, produced in the

MESA facility itself, would improve US security and also produce designs and methods that later might be found suitable for the consumer needs of US industry, which could use commercial manufacturing plants to produce products in the large numbers needed to satisfy a mass market.

The MicroFab replaces Sandia's aging Compound Semiconductor Research Laboratory. The new three-story facility is one of the most modern and complex buildings at Sandia and was the first of three new facilities that make up the MESA complex. Its structure includes sophisticated safety systems and controls because of the hazardous materials used in the production of compound semiconductors.

Still to be completed for the MESA project is the Weapons Integration Facility, expected to be structurally finished later this year and operational in FY 2008.

The Microsystems and Engineering Sciences Applications (MESA) construction project supports the NNSA Defense Programs mission for research, development, and simulation. Upon completion, MESA is expected to provide the essential facilities and equipment to enable the design, integration, and qualification of microsystem technologies for the nuclear weapons complex of the future.

There have been no increases to the total project cost, project schedule, or original scope objectives since the project was originally baselined in October 2002.

Leading the way are Mike Cieslak, MESA Program Director, and Bill Jenkins, MESA construction project manager.



Next up: WIF

A KEY PIECE of the Microsystems and Engineering Sciences Applications (MESA) complex, the Weapons Integration Facility, or WIF, is expected to be structurally completed later this year and operational by FY2008. The completed WIF will occupy approximately 400,000 square feet of space and be home to more than 600 researchers. It is seen in the photo at left in an earlier stage of construction.

Winning environmental contest photos span subjects from Pecos to Pacific



THE FIRST-PLACE PHOTO was the result of several trips to the Six-Mile Dam area on the Pecos River, which resulted in this early morning shot. Photo by Randall Roberts (6822).



FOR HIS SECOND-PLACE PHOTO Lance Bollinger (10328) went only as far as his xeriscaped yard near Kirtland Air Force Base to photograph this butterfly.

Two earth scientists, a radiological protection specialist, and a photographer are winners in the 2005 Annual Site Environmental Report photo contest. Photos entered in the contest are used in the annual report and other web and printed publications of Environmental Management Dept. 10331.

For his first-place photo, hydrologist Randall Roberts of the Labs' Repository Performance Dept. 6822 in Carlsbad staked out the Six-Mile Dam area on the Pecos River. He made the photo using a digital camera threaded to a spotting scope about a quarter of a mile from the great blue heron in the shot. Early light and cold weather provided the color and mist. "I liked the spot and finally everything came together," Randall said.

Lance Bollinger photographed the second-place butterfly photo with a telephoto lens from about 20 inches. A retired Air Force lieutenant colonel, Lance enjoys the close-up work and colors he finds shooting insects and birds, but also does landscapes and other subjects. He works as a contractor in radiological protection (10328) at Sandia's Tech Area 4.

Diana Helgesen, a long-time professional photographer at Sandia, who is known to most of us for her shots of rocket launches, chose some sunflowers near the Kauai Test Facility for the third-place photo. Diana works in the Kauai and Remote Ranges Dept. 5419, where her launch photos help tell the story of Sandia-DoD missile defense efforts. Two of her launch shots earned honorable mentions in the contest.

Mike Sanders, a contractor in Sandia's Environmental Restoration Groundwater Dept. 6146, took a break while drillers were pulling pipe out of a test well near Coyote Springs to walk to some nearby cottonwoods. Using the camera he keeps to record fieldwork, he made several exposures of the springs, earning an honorable mention in this year's contest.

Tess Goering and Stephanie Salinas, 10331, coordinated this year's contest. *Lab News* photographer Randy Montoya and writer Will Keener judged the contest. Winning entries can also be seen at this website: http://www-irm.sandia.gov/esh/depts/envmgmt_intgtraining/photocontest.htm.



DIANA HELGESEN (5419) turned her lens on some sunflowers near the Kauai Test Facility for the third-place photo.



MIKE SANDERS (6146) earned an honorable mention in this year's contest with his photo of these cottonwoods near Coyote Springs on lands near the eastern Kirtland Air Force Base boundary.

Sandia retiree Bob Baca flunks retirement

Restless retiree works part time for FBI and National Center for Missing and Exploited Children

By Iris Aboytes

Retiree Bob Baca was an Albuquerque police captain/area commander by the time he was 37 years old. He retired four years later after 21 years of service to come to Sandia. At Sandia he had several Safeguard and Security positions, the last being Safety and Security Training Manager. In the interim he also retired from the USAF Reserve/New Mexico Air National Guard as a Senior NCO after 25 years of service.

Bob retired from Sandia in late 2002, after 21 years of service, to take advantage of lower medical insurance premiums for retirees.

He and his wife Rita traveled to Alaska, Panama, Hawaii, and Spain. That took about nine months. Returning home from his last trip he announced to Rita, "I'm flunking retirement. I've had enough traveling, I'm getting bored, and I need to get back to work."

In August 2003, he sent resumes to the FBI and the National Center for Missing and Exploited Children (NCMEC). Both agencies hired him part time. Bob is now a member of Team Adam, a program of the NCMEC made up of retired law enforcement officers who respond to missing children and Amber Alert (abducted children) cases throughout the US.

At the FBI Bob conducts background investigations. He says it is a good way to return to Sandia and visit with former co-workers and friends. He still misses Sandia and says it's like a homecoming for him every time he comes to the Labs. He also conducts background investigations for DOE, Los Alamos National Laboratory, the FBI, and other US government agencies.

As a member of Team Adam, he has had about 20 deployments in New Mexico, Colorado, Utah, Texas, and Louisiana. Immediately after Hurri-



BOB BACA

cane Katrina, he was sent to San Antonio, Texas, for two weeks, and worked in an evacuee shelter locating and reuniting children with their families. In one instance, four women with babies were evacuated from Louisiana to different hospitals and shelters in Texas. The infants and the mothers were separated. Through the efforts of Bob and other NCMEC consultants they were reunited. One mother and her baby were reunited using only the hospital wrist bands as identification. They had been evacuated with no other identification or personal belongings.

"The Katrina experience was the most humbling and rewarding experience I have ever had," says Bob. "I cried, prayed, and gave support to the many evacuees who had lost everything. Finding children and seeing family reunions was extremely emotional. My heart ached for them. It was sad to see. The people were so broken."

Bob's other deployments have been connected to Amber Alerts and missing children. In El Paso, an eight-year-old boy was missing and an Amber Alert issued. All information of the abductor pointed to a non-custodial grandmother, but she continually told the police she had not taken the child. Bob interviewed her at the request of the El Paso detectives. He explained to her the extensive effort being undertaken by the police and the National Center for Missing and Exploited Children to find the child. Most of the conversation was in Spanish, and the grandmother admitted taking the child and hiding him. She was subsequently arrested.

"I have been involved in only two deployments where the missing child has not been found," says Bob. "I fear for their safety."

Team Adam has 54 retired law enforcement consultants. They have to be ready for rapid deployment for missing children and Amber Alert cases, and natural disasters such as Katrina. When Katrina hit, 4,710 children were missing in Louisiana, 339 in Mississippi, and 39 in Alabama. With Hurricane Rita there were 28 children missing in Louisiana and 76 in Texas. Today all cases have been resolved. "I am not recommending other retirees flunk retirement," says Bob, "but I am glad I did. I have enjoyed and continue to enjoy my many years of public service."

Feedback

Why the new requirements for OAAs in job bidding process?

Q: This feedback questions the new assessment and interview process conducted by Secretarial Services (SS) for OAAs who wish to lateral to another OAA position.

OAAs may now bid on other OAA positions at the Find a Job website instead of calling or emailing SS (jobs were formerly published in the SS weekly). After bidding on a position, an experienced OAA must now go through a two-step process: 1) an assessment by an ASA in SS who is completely removed from the job being bid on and 2) an interview with the prospective manager with an ASA present at the interview. This interview takes place in the SS office at Research Park. (One step forward and two steps backwards?)

If experienced OAAs with the required 18-months Sandia experience or more can bid on job postings outside of the OAA category without the assistance of SS, then they are competent enough to review and bid on job postings within their own OAA category, and assess/interview/negotiate with the prospective manager — directly and privately — without any intrusions from SS. Secretarial Services need only be involved if there are no bidders for a job, or a list of unassigned OAAs is provided to the prospective manager for consideration.

I don't find any mention of the change in OAA interview procedures in the latest OPEIU contract nor am I aware of the tiers or other represented folks having to go through this process. Job interviews with multiple interviewers are typically from the same organization, all with a vested interest in selecting the best candidate to fill the position. The SS person does not meet this requirement.

The experienced OAAs I've talked with prefer bidding and dealing directly with the prospective manager (including interviewing at the manager's office if they are considered for the position, a much more convenient arrangement for busy managers). Apparently, the OAAs and managers have been coerced into going along with this change and there is no room for negotiating. The services that SS provides by conducting assessments of experienced OAAs and then sitting in on interviews should be an option, not a mandate. Oddly, this change was launched around the same time that SS gave notice

that they would no longer be a resource for OAAs who are having problems and would no longer keep copies of OAAs' REPEP forms in their personnel files.

Please explain why OAAs are held to a different standard than other employees and why they must be scrutinized by a third party in order to lateral to a different position within their job classification, especially when they have performed their duties successfully for many years and have good references. Why place impediments in front of experienced OAAs, or chase them away with an unpleasant process, when their assistance is so greatly needed throughout Sandia? Where is the value added in this new process?

A: Current process

The current process was updated in early July 2005 in response to the announced Labs-wide restructuring in late spring, which impacted the OAA population. In the past, there were very few times that Secretarial Services had internal competitive bidding. The result was that, if there was an internal OAA bidder, the OAA was placed into the first available position because no one else had bid on the open requisition. Because of the onslaught of multiple candidates bidding, there was an immediate need to change the bidding process in response to tracking, assessing, and justifying hiring selections.

In order to meet the OPEIU requirements to fairly assess, assist, and justify all hiring, Secretarial Services implemented a new process that would address both Sandia managers' needs as well as current OAA skills and capabilities. The OAAs had very little experience interviewing or assessing their skills. In addition, we were bound by contract to consider seniority in the final justifications for selections. A process that was fair and consistent in assessing the required skills for each job, for each candidate, with a defined skill set had to be implemented to circumvent inappropriate hiring selections.

The managers were often not aware of the scope of tasks required for OAAs. In addition, the managers had not identified clearly the "required" and "desired" portion of the requisition unique to their work sites. The managers

had not previously been in a position to have other managers competing for the same OAA candidates.

Customer feedback

A survey is under way with one-on-one contact with our customers and is close to completion. This survey will close out FY2005 and will include the old process vs. new. The largest concerns in the old process were that there were never any choices — you were stuck with what was available at the time, and the process took too long. In our new process, our customers and our OAAs are quite pleased with the added "customer service" value. We receive positive unsolicited feedback daily from both managers and OAAs who have gone through the new process. The response-time for placement has decreased, the candidate pool is diverse, the external candidates excellent, the staff responsive, and the overall support of the process outstanding. We would be happy to share our results when the survey is complete.

— BJ Jones, Director (3500)

Retiree deaths

G. Dean Miller (age 94)	March 1
Joseph H. Cowham (82)	March 2
Kenneth J. Bennett (83)	March 3
Leopold F. Daniel (74)	March 4
Frank R. Garcia (83)	March 7
Arthur C. Finlayson (71)	March 11
Albert D. Smailer (83)	March 13
Martin H. Wempe (87)	March 16
William Buckalew (82)	March 16
Della Mae Jelski (85)	March 16
Roland C. Hewitt (76)	March 17
Fred F. Gonzales (88)	March 17
Dora Walther Dyer (93)	March 19
Frank T. Owens (85)	March 23
Robert A. Jeffrey (83)	March 23
Marlon W. Hancock (79)	March 27
Glen L. Knauss (72)	March 28
John M. Wilson (85)	March 31
Fidel Baca Zamora (86)	March 31

Three Sandia women among Rep. Heather Wilson's Builders of Community and Dreams honorees

By Iris Aboytes

Sandians Margaret Harvey, Cynthia Phillips, and Mary Crawford were honored in March by Rep. Heather Wilson, R-N.M., for their efforts as Builders of Community and Dreams as part of Women's History Month.

"Every day women in our community change America and do it without recognition," said Wilson. "This is our chance to shine a spotlight on them and to say thank you."

Margaret Harvey, manager of Diversity, EEO, & AA Services Dept. 3553, was honored for her role in "addressing social justice issues within the workplace and community," say her nominators Rochelle Lari (3553) and Pat Jerabek (Ibis Consulting). "She is an unsung hero because of the quiet and humble spirit with which she addresses complex challenges of change. "Margaret is committed to fair process and creative solutions when presented with challenge," says Rochelle. "She inspires excellence through her example of thoroughness and fairness."



MARGARET HARVEY

Margaret shares her energy and wisdom with the community by supporting staff and providing leadership to such groups as the Diversity Leadership Council, New Mexico EEO and Diversity Council, and Martin Luther King Multicultural Council. She ensures resources for diverse communities of youth through Sandia's Hands on Minds on Technologies (HM Tech), The Manos Programs, and Dreamcatchers.

Cynthia Phillips (1415) was honored for her past work serving as a science advisor, coach, and judge in New Mexico's annual Supercomputing Challenge, serving as science advisor to Zia Elementary School, and a planner of the national forest exhibit at the Explora Science Museum. She is the lead mathematician and chief architect of the annual Go Figure Mathematical Challenge. More than 50 percent of Go Figure participants are from minority or underserved communities.



CYNTHIA PHILLIPS

Cynthia designs and analyzes algorithms for combinatorial optimization problems and designs and implements codes for solving them on high-performance computers.

Current and past applications include network reliability, scheduling, sensor placement in networks, protecting computer networks from hacker attack, and computational biology.

She is in great demand internationally, having chaired and lectured at numerous high-performance computing events worldwide.

"Cynthia Phillips is an accomplished and dedicated leader in our community," says her nominator, Randy Wilson of Technology Ventures Corporation.

"Her work — seemingly esoteric to those of us without her extensive technical background — directly contributes to our nation's security, and her passion outside work inspires young people to pursue studies in math and science. She is a true Builder of Community and Dreams."

Mary Crawford (1123) was nominated by Julia Phillips, director of Physical, Chemical, and Nano Sciences Center 1100. "Mary Crawford has been one of the leaders of the Sandia team working to lay the foundation for solid-state lighting," says Julia.

Solid-state lighting is a technology that involves replacing standard incandescent and fluorescent lamps with compact, robust semiconductor-based light-emitting diodes (LEDs). Much of the research performed by Mary and her colleagues is focused on improving the energy efficiency of LEDs over the visible spectrum to enable high-performance white lighting. If LED efficiency goals can be met, it would have dramatic impact:

Worldwide electricity consumption due to lighting could be decreased by more than 50 percent and total consumption of electricity could be decreased by more than 10 percent.

"Mary and her teammates have achieved a number of technical records important to achieving this dream," says Julia. "She has been recognized by numerous awards from Sandia, other organizations, and the National Academy of Engineering. She is also a member of a Sandia team that recently developed milliwatt-level deep ultraviolet LEDs for applications such as fluorescence-based bioagent sensing and water purification. Along with solid-state lighting, these applications have the potential for global impact."

This is the fifth year that Rep. Wilson has recognized women through this program. This year 26 New Mexico women were honored.



MARY CRAWFORD

Diversity workshop . . .

Are you a digital immigrant or the most educated?

By Iris Aboytes

Did you know that in 1900, 13 million people in the US were over the age of 45? Today there are nearly 100 million. Did you know that it's not so much what you say as how you say it? Bet you did not know that conversation builds communities of thought.

All these thought-provoking statements were addressed at the 17th Annual Diversity Leadership Council (DLC) Forum sponsored by Sandia Diversity and the University of New Mexico (UNM).

Breda Bova, professor and Senior Advisor to the president of UNM, talked about perspectives, values, and issues across generations. She identified the generations and current population as:

- The Silent Generation (1925-1942) — approximately 63 million
- The Boom Generation (baby boomers, 1943-1961) — approximately 77 million
- Generation X (1962-1981) — approximately 44 million
- Generation Y (1982-1998) — approximately 70 million

Bova said the generation gap is most apparent in the workplace. Other than the family, it is the place where we most frequently interact with our different generations.

Some of the differences identified between generations are communications styles and expectations, work style, attitudes about work/life balance, comfort with technology, views regarding loyalty and authority, and acceptance of change.

She referred to the silent generation as the veteran generation because of its war veterans, to baby boomers as the digital immigrants because of the influx of new technology during this period. Generation X she described as the most educated and Generation Y as the Net generation (as in Internet).

The workshop continued with Rochelle Lari, Diversity Program Manager (3553), talking about nonverbal communications. "Meanings are in people, not in words," she said. "The smile on your face, a firm handshake or casual embrace, unconscious signals all set the stage for the play — your words." Have you thought about how communication occurs before words are spoken?

Body language influences 55 percent of our communication and voice 38 percent. Only seven percent of communication is totally influenced by words, Rochelle said.

Todd Conklin of Los Alamos National Laboratory talked about humor in the workplace. "Conversation creates communities of thought," he said. "Humor facilitates communication. Humor provides perspective, reduces

stress, promotes attending, energizes, builds relationships, and, best of all, humor helps maintain self-esteem."

He talked about not getting hung up if you don't have the answers in the workplace. "Find the person who has them," he said. "Conversation and humor can help you get there."

The workshop offered attendees some background and personal glimpses into our psyches. Conklin's advice about not spending life's energy collecting nouns instead of verbs (verbs take action, nouns just sit back) and having an internal driver with job satisfaction providing the fuel were very thought-provoking.

Who are you? Are you a digital immigrant? Do you collect verbs? Or nouns? Do you believe laughter is the best medicine? Does your body language tell your story?

IES SMU All-Minds meetings coming up in N.M., California

Members of IES (Integrated Enabling Services) are invited to attend one of three All-Minds meetings to celebrate successes and learn about future plans of the IES Strategic Management Unit. The theme is "Celebrating Effectiveness; Moving Toward Efficiency." The New Mexico sessions are in the Steve Schiff Auditorium, the California one in Bldg. 904.

- April 26 New Mexico 1-3 p.m.
- May 4 New Mexico 9-11 a.m.
- May 9 California 1-3 p.m.

The agenda will include remarks by Frank Figueroa, IES SMU VP and VP of Infrastructure Operations and Business Management; an overview by Joe Polito, director of IES Support and Lab Management System; a Q/A session; and a celebration with refreshments and appreciation gifts.

The IES SMU includes divisions 10000, 3000, and 11000, centers 4200, 4300, 4500, and 12400, and California centers 8500 and 8900.

Sandian appears on reality TV show *Chasing Nature* after completing the OYOC program

Josh Arvizu and his team faced the challenge of imitating nature — in this case, a bighorn ram

By Erin Gardner

Josh Arvizu (2455) appeared on the reality TV series *Chasing Nature* in November 2005 after completing Sandia's One Year On Campus Program at Stanford University.

Josh was chosen by Sandia to participate in the One Year On Campus (OYOC) program that provides the opportunity for minorities with a bachelor-level degree to receive a master of science degree from a renowned university. Josh completed the program at Stanford, where he received his master's in mechanical engineering in October 2005.

Near the end of his last semester at Stanford, Josh was interviewed for an appearance on the new Animal Planet television show *Chasing Nature*. He stood out over more than 30 other Stanford students interviewed for the show.

Josh did not expect to be selected for the position on the show. It was a long shot; Josh was actually the last student to be interviewed for this episode.

The series, produced by Beyond International, features teams of four amateur engineers who are sent to Royal National Park in Australia. The team must build a human-scale model of a specific physical characteristic of an animal and then test it in a five-day period with only the help

of an experienced stunt team.

Josh was included on a team of mechanical engineers from Purdue University, Duke University, and the University of California, San Diego.

Prior to their arrival in Australia, the team had no idea what they would be asked to build, what part of nature they would have to imitate.

Josh's team had to build an apparatus to protect an artificial brain from damage caused by head-on, high-speed collisions. The goal was to imitate the bighorn ram.

The team designed a skull-like device to surround a liquid-filled glass replica of the brain of the bighorn ram. The team then attached the apparatus to the front of an old car then a member of the stunt team crashed it into large foam blocks, to mimic head butting of the rams with each other.

"I was actually able to ride in the back of the car," said Josh. "It got pretty intense as the speeds increased," said Josh. The speed of the car went



JOSH ARVIZU and his team transformed an odd and assorted heap of materials into an artificial bighorn sheep "brain case" able to withstand severe "head-butting" for Animal Planet network's reality show, *Chasing Nature*.

from a 5-mph test, to a 10-mph test, to a 15-mph test, all the way up to a 25-mph test.

Josh and his team were successful in their task. The structure they built could withstand all four of the tests conducted.

Since last October Josh has worked in Meso Manufacturing and Systems Development Dept. 2455.

Feedback

Doesn't 'normalizing' benefits with industry mean 'reducing,' after all?

Q: I commend Tom Hunter for taking the time to present his views at the recent All Hands Meeting. The "future state" of the Laboratory is a bit clearer, if only at a fairly high level.

In his view of the world and national situation, Mr. Hunter spoke of the fact that many jobs in the US are being "outsourced to places like Pakistan" and other countries. He also said that private industry is reducing or eliminating benefits, including pension plans, as those costs continue to increase. Further, Mr. Hunter stated, "DOE has asked for a normalization of our benefits with private industry."

There are two key concerns for at least a few Sandia employees in this area euphemistically termed "rewards and benefits":

1) Salary: If we "normalize" salaries to those of private industry, Sandia employee salaries will probably decrease, as outsourcing of jobs to foreign countries continues and the labor market softens. The obvious exception, of course, will be management personnel, who will continue to get their increases based on management pay in private industry — whose salaries are increased based on profits from corporate outsourcing. (This model doesn't fit Sandia exactly, but who in Sandia management will step up and acknowledge that? Integrity, anyone?)

2) Benefits: Just as salary is earned by employees through their daily work, benefits (including insurance, health care, and pensions) are also earned by the employee. They are not a gift, as some persons in management, DOE, the GAO, or other government agencies would seem to believe. Rather, benefits are a part of the total reward package that an employee considers when accepting a job and continuing to work. Let us not forget this, please. "Normalization" will surely serve to reduce benefits that were earned by current employees, or that will be offered to future employees.

Fortunately, a national laboratory like Sandia is not "private industry." If we were to follow the private industry model, we would be outsourcing national security, which is a ludicrous concept but one that apparently some folks would have us pursue in an effort to contain costs. Sandia employees have traditionally had to meet some investigative scrutiny in order to become "Q" or "L" cleared. This is different than private industry and is just one example of the factors that "raise the bar" for the quality, integrity, and competence of Sandia employees.

It is naïve and quite short-sighted to believe that

Sandia National Laboratories will be able to attract and retain the best engineers and scientists in the nation if we continue to submit to customer demands for "normalization" that make no sense for the long-term quality of our Laboratory or the benefit of the nation. Normalization will surely lead to mediocrity.

There is hope, I suppose, that the high management salaries that result from salary normalization will attract more folks to upper management — managers who are also keenly aware that the success of Sandia relies on skilled and competent engineers and scientists, as well as management skill and integrity. Perhaps some among those managers have already or will be willing to stand up and tell DOE: "No, we are not going to be able to attract and retain competent and skilled staff if we are handcuffed by salary and benefit normalization."

Maybe Sandia should become the model for how Corporate America (or the rest of the world for that matter) might compensate employees.

Take a look at the numbers. The bloated federal budget is not a result of Sandia, the Nuclear Weapons Complex, or the other national laboratories.

What is the position of Sandia's management team concerning the "normalization" issue? Has there been discussion between Sandia and DOE or NNSA with regard to this issue? Is the management team so insulated by their own normalized salary position that they are unaware of these concerns?

A: There are many stakeholders involved in the operation of Sandia National Laboratories: employees, customers, and citizens, to name only a few. While all have a vested interest in the mission of the Laboratories, the needs or desires of each are often in conflict. For example, our customer is fully supportive of our mission and the excellent work that we perform, but is driving even more performance under declining budgets. Our desired solution would be to provide more performance with increasing budgets. However, these are simply not the economic realities we are working under today or in the future. Our focus as a laboratory must be on becoming highly competitive in accomplishing our outstanding mission work in a very cost-efficient and effective manner. The benchmark for this competitive posture is the private business sector, a core concept in the government-owned, contractor-operated (GOCO) business model.

You mention some very serious consequences from a "normalization" perspective. These consequences are real and are voiced to all members of management by the professionals within the company who manage and analyze these Sandia pay and benefit programs for all of us at the Laboratories. This team must balance the desires of our customer and the cost of our programs today and in the future with the impact on our ability to attract, retain, and engage the right mix of employees needed for Sandia's current and future business success.

Equally real is our customer stakeholders' need for Sandia to become more cost-effective and efficient with the funding congressionally provided to us through the NNSA or other agencies. With a growing national deficit and steady to declining nuclear weapons budgets, this pressure will continue to increase. Pressure to increase our performance in all aspects of our operation from containing rising medical and pension costs, proactively managing our salary expense, and minimizing operational costs associated with project-generated waste streams are all examples of trying to work this problem and deliver more resources; i.e., funding through savings, to our mission work.

We will need your, as well as all Sandians', help to achieve the results our stakeholders are expecting. Private business runs on the success of its economic efforts to successfully deliver its products and services. Sandia too must run on the success of our economic efforts in our delivery of national security technology as well as the economic realities of the US government and the funding provided by the taxpayers.

So, to answer your question directly, yes, we are concerned with the consequences of normalization, as well as the myriad other issues challenging the long-term sustainability of our laboratory. The conflicting pressures by our various stakeholders and the results of these pressures are what keep our managers awake at night. Senior management is not insulated from these realities and we are working hard to implement the best possible solutions to balance the needs and desires of all stakeholders; e.g., employees, customers, and citizens.

— Kim Adams (3000), VP Human Resources, Communications, and Executive Support

Sandia Serves volunteers help build Habitat for Humanity House for the Quinones family

Home is seventh built by Sandia/Lockheed Martin; family pours in 500 hours of 'sweat equity,' too

By Iris Aboytes

Sandia Serves volunteers, led by dedicated retirees, are hard at work pounding nails, pouring concrete, and cutting lumber as they build the seventh Sandia/Lockheed Martin Habitat for Humanity house. The house is located near Bridge and Isleta.

The house is being built for David and Maria Quinones and their three children, Jesus, 13, Jose, 9, and Mary Ann, 5.

To qualify for a Habitat house the family must currently be paying more than 30 percent of their income for housing, living in overcrowded housing, and have a reliable monthly income above 25 percent and below 50 percent of the median income set by the 2004 HUD guidelines. In simple terms, that means a family of five can qualify if their income is not lower than \$14,625 or higher than \$29,250.

The family makes a one percent down payment upon closing and will pay an average mortgage payment of \$500 per month. They will also pay insurance and property taxes on their no-interest mortgage.

David was born in the US but raised primarily in Mexico. David and Maria had a baby that died soon after he was born. "Nacio y me lo pusieron en mis brazos," says David. "Yo sabia que estaba enfermo." (He was born and they put him in my arms. I knew he was ill.) David and Maria think that if they would have lived here the baby would have survived. He has returned to the US to make a better life for his family.

David works two jobs seven days a week. He attends TVI to improve his English. (This interview was conducted in Spanish.) "Yo les digo a mis hijos que sabiendo Engles y Espanol es como ser



THE QUINONES FAMILY stands in front of their new home, now taking shape with lots of help from Sandia volunteers. (Photo by Amy Tapia)

dollars, so we could not buy it. With what?

David began working on the lot in December. Habitat houses are built with a contribution of 500 hours of "sweat equity" labor on the part of the families. By investing themselves in the building process, Habitat hopes families gain self-reliance, self-esteem, and new skills. "We have taken our children to help," says Maria. "We want them to learn."

"My children like little animals," says David. "Maybe I will get baby chicks. The house has a large back yard. Last summer I planted melons and watermelons in the place that we live now. We had a very abundant harvest. We were able to share with our neighbors, our friends, and my co-workers. I look forward to having a garden on our lot."

He has dreams of how perfect his house will be.

David is very appreciative of all the volunteers who are helping

him build his home. He said the response is unbelievable. David has worked in construction, has been a landscaper, and he can even fix cars. The Nissan he drives was given to him. He fixed it up and it runs great. He thinks car repair shops are very expensive. He helps his friends by fixing their cars.

For more information or if you would like to volunteer, contact Amy Tapia at 284-5207 or astapia@sandia.gov or visit the Web Teaser on Sandia's internal home page. Construction experience is not required.

Retirees are especially needed during the week. Cash donations may be made by calling SLFCU at 293-0500 to transfer funds, Habitat for Humanity Account No. 508200, or by mail to P.O. Box 23040, Albuquerque, NM 87182-1040.

"Maybe I will get baby chicks. The house has a large back yard. Last summer I planted melons and watermelons in the place that we live now. We had a very abundant harvest. . . . I look forward to having a garden on our lot."

dos personas (I tell my children that knowing English and Spanish is like being two persons)," says David.

"Some time ago we found a house we wanted to buy," says David. "By the time we completed the paperwork, the price had gone up \$10,000

Appropriate workplace attire

With an influx of summer interns just around the corner, the Employee and Labor Relations (E&LR) Dept. 3011 April newsletter featured the following brief item highlighting Sandia's common-sense approach to dress code issues.

E&LR often receives inquiries as to appropriate workplace attire, especially before the influx of summer interns. However, it should be noted that appropriate attire is appreciated from ALL employees.

Sandia's employee handbook, *You and Sandia*, reminds employees that "Although Sandia does not have a dress code, common sense and mature judgment must be used to determine appropriate and suitable dress."

Appropriate dress can have many positive outcomes in the workplace. Utilizing proper dress, employees have the opportunity to avoid and minimize safety issues and workplace hazards. In addition, professionalism is paramount when it comes to impressing others in the workplace. Exercising mature judgment when determining appropriate work attire can have an impact on Sandia's business settings by giving visitors and customers a positive impression of our employees.

From an intern's point of view, it's very important to make a great impression while at work because the internship in itself is a form of networking. Managers, although Sandia doesn't have a specific dress code, *USA Today* has a relevant article that you may use as an opportunity to remind ALL employees of the need for appropriate work attire. The web address for the *USA Today* story is http://www.usatoday.com/life/lifestyle/2004-11-30-work-clothes_x.htm.

[The chart at right is from the *USA Today* article. The story refers to the list as "loose guidelines."]

Managers are responsible for making the final determination for their organizations and imposing appropriate dress requirements. Those requirements need to pass the test of reasonableness and be administered fairly.

Probably OK	Not OK
Sleeveless tops	Spaghetti straps
Leather mules	Rubber flip-flops
Multiple gold earrings	Nose rings
Highlights	Blue hair or other colors not found in nature
Above-the-knee skirts	Micro-minis
Cropped pants in dressy fabrics	Shorts
Neatly trimmed beard	Three-day stubble
Colorful cashmere socks	No socks
Sport coats	Denim jackets
Lace camisole peeking from blouse	Underwear as outerwear

USA Today

Heavy lifting for managers



SANDIA EXECUTIVE VP John Stichman, left, and Div. 5000 VP Jerry McDowell hoist keynote speaker Tom Crum into the air during the Spring Manager's Conference in Albuquerque. Crum spoke to Labs managers about what he calls "the magic of conflict," which his web site describes as "a way of thinking" in which (among other things) conflict can be seen as an opportunity for choice, change, and growth.

(Photo by Bill Bartholomew)