

Job structure division reps talk about development of compensation structure

Hearing concerns is part of process

As Sandia revises its job structure with a goal of creating a new, more effective, and equitable compensation system, employees naturally have many questions: Who is making decisions about their future? By what methodology? And who is looking out for individual Sandians?

Recently the *Lab News* spoke with four division representatives on the job structure implementation team — the group of people working with Human Resources to formulate the new job structure — to give Sandians deeper insight into the process.

Why do it?

The team comprises one director or senior manager from each division, two representatives from Human Resources, and an outside HR consulting firm that specializes in the implementation of new compensation structures.

Representation from each division helps ensure the process is inclusive of the unique needs of each division. That's because the people making the decisions are invested in the success of the people and divisions they represent.

"We want to pay people for the job they're doing and be commensurate with external market salaries," says Mike Knoll, senior manager for Electronics Flight and Space Subsystems Dept. 5330,



"Certain jobs don't fit well into the [current] two-ladder system. We're creating a broader system that will accommodate these and future jobs."

— Dennis Miller

representing Div. 5000.

"Certain jobs don't fit well into the [current] two-ladder system," adds Dennis Miller, senior manager for Sensor & Fuze Engineering 2620, representing Div. 2000. "We're creating a broader system that will accommodate these and future jobs."

Incidentally, Dennis notes, the term "Member of the Technical Staff" dates back to Bell Labs days circa 1925.

According to Len Napolitano, director of Computer Sciences & Information Technologies Center 8900, representing Div. 8000, "One enhancement will be that an employee's skills and occupation description will take precedence over what his or her degree says. For example, if a person with a degree in biology is putting his or her web programming skills to good use at Sandia, the fact that he or she has no formal computer science degree will no longer impact compensation."

"Our current job structure forces us into either a technical or administrative ladder, but today's occupations don't neatly fit into one or the other of those boxes so we [have difficulty] benchmarking specific occupations to the market," says Connie Wenk, deputy controller in CFO & Business Operations 10510, representing Div. 10000.

What's out there?

Job One for the division reps was to understand various compensation systems, their permutations, and methods of implementation.

Compensation Manager Melissa Eakes (3002) and Sandia's outside consultant provided the team with a great deal of information. Several Sandians who went through compensation system changes while at other organizations, including Mike, spoke with the team about their experiences. The team also looked at systems in place elsewhere. According to Connie, they invested a lot of time

(Continued on page 4)

Molten diamond appears — then disappears — in Sandia nano experiment

By Nigel Hey

The very word diamond coaxes ideas of beauty and romance to the mind. Yet the gem is a carbon cousin to the relatively unlovely graphite we find in pencil leads, brake linings, and lubricants. Diamond is very hard and brittle, a good conductor of heat, and an electrical insulator; graphite is fairly soft, a poor conductor of heat, and electrical conductor. Put the two minerals under a microscope, and you'll find they are made up of differently shaped crystals.

Diamonds are easily as mysterious as they are beautiful. Though it has colorless tetrahedral crystals, like stretched-out cubes, its carbon sister graphite has more complex, hexagonal crystals. Nature requires that crystals are formed when solid structures are formed from liquid. How then can carbon, which has never been reported in liquid form, become a diamond? Apparently the transformation occurs very quickly. This magic of mineralogy has now been replicated and witnessed in the laboratory — at Sandia, by research scientist Jianyu Huang.

Natural diamonds form deep below the Earth's surface, when extremes of heat and temperature melt concentrations of carbon-bearing materials into a new material capable of being cut and polished into brilliant gemstone.

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JIANYU HUANG in the tunneling electron microscopy lab at the CINT facility in Albuquerque. (Photo by Randy Montoya)

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THE
SHINGO
PRIZE
for OPERATIONAL
EXCELLENCE
Utah State University
COLLEGE OF BUSINESS

Lean journey leads to Shingo Prize

Sandia's Responsive Neutron Generator Product Deployment Center 2700 wins prestigious award

By Bill Murphy

Center 2700 — the Responsive Neutron Generator Product Deployment Center — has a vision: to be the model of operational excellence for the entire nuclear weapons complex. Now that it's won the prestigious and coveted Shingo Prize for 2008 — the first and only public sector organization so honored — it can validate that it is on track toward achieving that vision.

Shingo, more than any other business prize, promotes awareness of lean concepts and recognizes companies in the US, Canada, and Mexico that achieve world-class status in lean transformation.

BusinessWeek, as authoritative a voice as there is in matters related to US business activity, has called the Shingo Prize "the Nobel Prize for manufacturing" because it establishes a standard for excellence through focused improvements in core manufacturing and business processes.

The Shingo Prize was established in 1988 by the John M. Huntsman School of Business at Utah State University. The prize is named for Japanese industrial engineer Shigeo Shingo, who distinguished himself as one of the world's leading experts in improving manufacturing processes. He helped create and write about many aspects of the

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Library users, management seek to define best future

All around the technologically literate world, people are debating the ultimate balance between old-style print and new electronic media. As such, it's not surprising that as Sandia management moves to transform the Laboratories' own Technical Library from mostly print to mostly electronically based media, cautionary voices within Sandia are raised. They say, in effect, "Not so much, not so fast."

Read Neal Singer's detailed story about the status of the Technical Library beginning on **page 8**.



Also inside . . .

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That's that

Got an email a few days ago taking me to task for asserting in this column that President Harry S. Truman challenged Sandia to "render an exceptional service in the national interest." Ever since its establishment in 1949, Sandia has embraced those words to define its core purpose. As my correspondent pointed out, however, "Truman did, indeed, make that statement, but it has been taken out of context and misinterpreted. In his letter to AT&T President Leroy Wilson asking AT&T to take over the management of Sandia, he wrote: 'In my opinion, you have here the opportunity to render an exceptional service in the national interest.'"

It's clear from the context that it was AT&T, and not Sandia, that was being challenged to render that exceptional service. And it had to do with management, not mission work.

I acknowledged to my correspondent that he was absolutely correct — from a purely historical perspective. I defended Sandia's appropriation of the phrase, however, based on the John Ford principle. John Ford was a big-time Hollywood director and his principle, which informed most of his dozens of Westerns, was spelled out explicitly in his movie "The Man Who Shot Liberty Valance," starring James Stewart and John Wayne.

In the movie, Stoddard, the character played by Stewart, builds a successful political career out of the fact that he faced down and shot Liberty Valance, the baddest bad man terrorizing the Wyoming territory. If you've seen the movie — SPOILER ALERT — you know that the shooting didn't really happen quite the way it had always been told. In fact, the reality was nothing like the legend. In his twilight years, feeling a bit guilty about having built his career on a deception, Stoddard confesses the truth to a newspaper editor about the man who really shot Liberty Valance. The editor hears him out and then proceeds to burn all his notes of the interview. Stoddard says, "You're not going to write the story, Mr. Scott?" To which the editor replies — famously — "This is the West. When the legend becomes fact, print the legend."

Well, Sandia is the West, too, and the legend about the exceptional service charge is a good one, one worthy of organizing ourselves around. I guess what I'm saying is that even if President Truman wasn't really talking about Sandia and its mission, he should have been, and we're right to embrace the phrase as our own. After all, we can, should — and do — render exceptional service in the national interest.

* * *

Have you been called yet to get your new federal credential badge? I have, and I must say, the folks who are organizing this process are doing a bang-up job. When you go to the website to set up your appointment — you'll get the link in an email when your turn comes around — you select a specific 15-minute time slot. It turns out you probably won't need more than 10 minutes; there's no wait and the staff couldn't be friendlier. Basically a painless process, one that we're going through along with the rest of the federal workforce in response to a presidential directive aimed at bringing some uniformity to federal IDs. Let's hope the new drug-testing process works half as well.

See you next time.

— Bill Murphy (505-845-0845, MS0165, wtmurph@sandia.gov)

With the new school year, volunteer opportunities abound for Sandians

With school starting up again, there are scores of volunteer opportunities available in Albuquerque, many of which include A280 time for Sandia employees. (A280 is time paid for science and technology outreach efforts.) Retirees and contractors are welcome to volunteer too, but contractors are not eligible for A280. Here are some opportunities and contact information:

- **Crosslinks** — Volunteers share their love of science in local classrooms using provided inquiry-based science kits. Frequency is negotiated between volunteer and teacher. Amy Tapia, 284-5207 or astapia@sandia.gov.

- **Tutors** (reading, math, science) — Volunteers tutor on Monday-Thursday, 2-4 p.m., at various locations (schools, community centers, libraries). Volunteers commit to 24 hours. Tutoring can be done once a week or more to meet the 24-hour requirement. Training is provided. Tutors work with individual students or with small groups of two or three students. Contact the Community Academic Initiative Resource Center - Lovie at 256-8306 or Frances at twolove06@aol.com

- **Junior Achievement** — Volunteers teach business concepts to local elementary and middle school students using a prepared curriculum. Most units include five 30-minute sessions and all materials/instructions are included. Junior Achievement, 344-0861, office@newmexicoja.org.

- **Mentoring:** Big Brothers Big Sisters and YDI's Mentoring Initiative — Volunteers meet once a week for one hour with a child during the school day at local schools to promote self-esteem and problem-solving skills and provide a positive adult role model. BBBS: 837-9223 or visit www.bbbs-cnm.org or YDI, 271-2066 or 338-2944.

- **Albuquerque Reads** — Volunteers tutor kindergarten students at Bel-Air, Wherry, and Atrisco elementary schools once a week for one hour to help them learn to read. Contact Nena Perkin at 764-3736 or by email at nperkin@abqchamber.com for information and enrollment forms.

- **Rocket Reader** — Volunteers tutor students at Mitchell Elementary School, 10121 Comanche NE, once a week for one hour to help them learn to read. Peggy Mahon, 938-1642, PMahon@campfireabq.org.

- **Aim Higher Tutoring Program** — Volunteers tutor students in first through fifth grades at A. Montoya Elementary School in Tijeras. Doris Hartenberger, 286-1911, dphartenb@yahoo.com.

Benefits News Briefs

Delta Dental ID cards

You can print a personalized Delta Dental ID card for you, your spouse, and dependents by registering on this website: www.toolkitsonline.com. Once you set up an account, the rest is easy. Delta providers don't require presentation of a card at time of service; however, for dependents living outside of New Mexico, it may help expedite claims processing.

Have you moved lately?

Employees can update home address and phone number information by using the "HR Self-Service" link on Sandia's internal Techweb. After selecting "HR Self-Service" (it's in the column on the left), select "Sandia Directory." You can then modify personal or work contact info. Retirees should contact HBE at 505-844-HBES (4237) with address change information to ensure prompt delivery of important mailings.

2009 Open Enrollment Benefits Choices is coming Oct. 20-Nov. 10

The 2009 Open Enrollment period dates are Oct. 20-Nov. 10. This is a good time to start estimating your predictable 2009 Flexible Spending Account expenses (formerly known as Reimbursement Spending Accounts). Important: Effective Jan. 1, 2009, employees can choose to contribute an annual election amount of \$100 to \$5,000 (in whole dollars) each year in the Health Care Flexible Spending Account. To learn more about the Health Care and Dependent Care Flexible Spending Accounts (FSA), visit the FSA administrator website at www.payflex.com. The website contains valuable educational information about eligible expenses, as well as general information detailing how the FSA accounts work.

If employees want to make their Open Enrollment elections from home, a CryptoCard for remote system access is required. Contact CCHD at 505-845-2243 to find out how to obtain a card.

Benefits Choices 2009 Open Enrollment communication materials will be sent out in early October. Stay tuned.

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Hispanic Heritage Month



Sandia and Team Kirtland
Sept. 15-Oct. 15

Write Like the Aztecs — Sept. 17, 12:30-2:30 p.m.
Kirtland Elementary School

Bilingual Story Time — Sept. 25, 9 a.m.
Gibson Child

Youth Art Contest deadline — Sept. 25, 5 p.m.
National Hispanic Cultural Center

Entertainment Day — Oct. 2, 11 a.m.-1 p.m.
Steve Schiff Auditorium

Latin Night — Oct. 3, 7-11 p.m.
Rio Grande Community Center

Piñata-Making Contest Deadline — Oct. 6, 5 p.m.
Consolidated Support Building

Bilingual Mass & Dinner — Oct. 11, 6 p.m.
Base Chapel

Youth Fiesta — Oct. 15, 2-4 p.m.
Kirtland Youth Center

For more information, contact Julie Cordero, 845-0333, or MSgt Sobolewski, 846-6636 or visit <http://ln.sandia.gov/hispanic-heritage>.

Sandia research drives cleaner diesel engine design

By Patti Koning

While more than half of all cars sold in Europe run on diesel engines, the technology has yet to take hold in the American consumer car market. That could change as the twin pressures of skyrocketing gas prices and increased levels of carbon dioxide emissions are driving major shifts away from the status quo in the automotive industry. Mercedes-Benz, Volkswagen, BMW, and Honda are among car companies that plan to release diesel engine models in the US in the near future.

Diesel engines have several advantages over gas-powered engines: They burn less fuel, have better drivability, and last longer. Even with higher diesel fuel costs, drivers will still get more bang for the buck from a diesel engine. Diesels, unfortunately, have a reputation for being loud, smelly, and smoky, but a new generation of clean diesel engines aims to allay those concerns.

These engines often employ low-temperature combustion techniques to reduce nitrogen oxides (NO_x) and soot emissions. These techniques, however, can lead to high carbon monoxide (CO) emissions — with concomitant efficiency loss — particularly at light loads. Understanding the detailed sources of CO emissions is critical to minimizing them, but, until now, in-cylinder visualization of these emissions had never been achieved.

Recently Paul Miles, Will Colban, and Isaac Ekoto (all 8362), along with Duksang Kim, a visiting researcher from Kookmin University, Korea, succeeded in visualizing the CO distribution in an operating diesel engine for the first time using a two-photon laser-induced fluorescence (LIF) technique. The work is funded by DOE's Energy Efficiency and Renewable Energy (EERE) Office of Vehicle Technologies and General Motors.

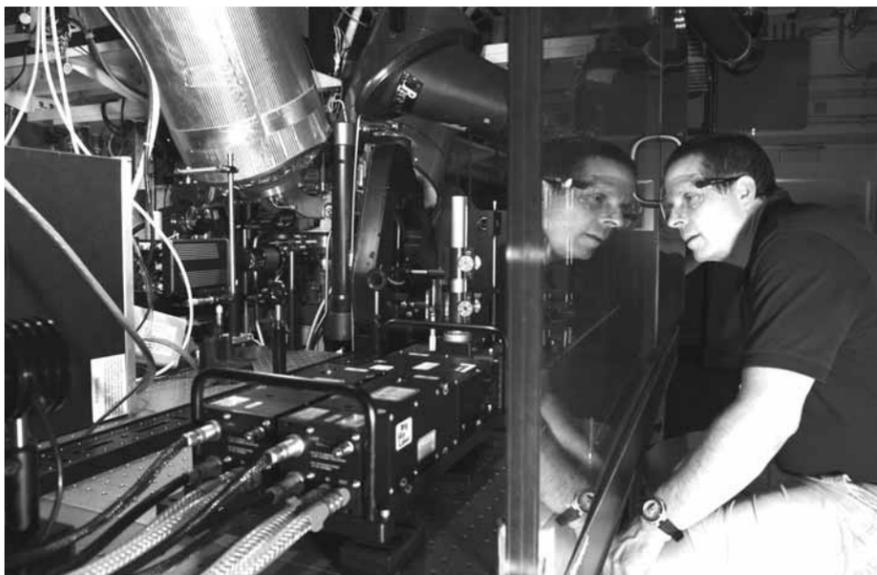
Knowing the source of inefficiencies

"Knowing the sources of combustion inefficiency embodied in carbon monoxide can drive design decisions that will make engines more efficient," says Paul.

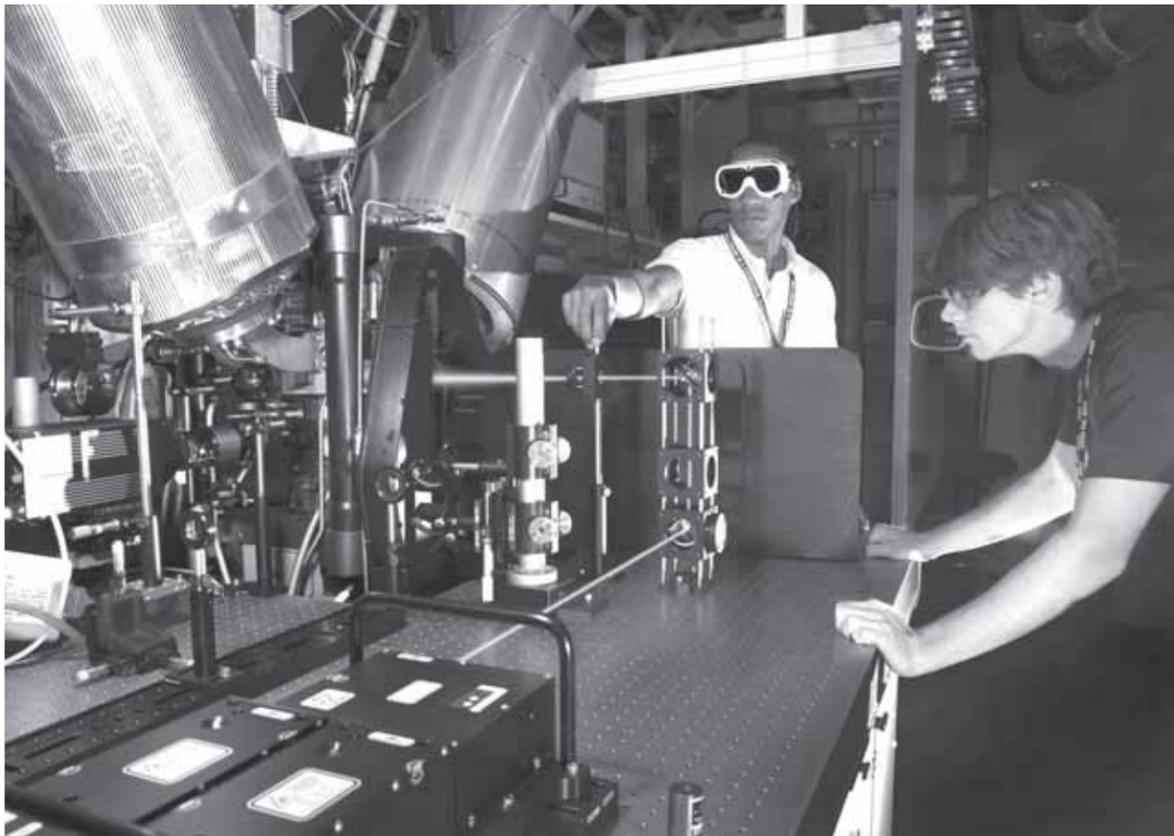
Using LIF to visualize carbon monoxide emissions proved technically challenging. Single photon excitation doesn't work with CO, since the molecular transitions aren't accessible with visible wavelengths or near-UV. With single photon LIF, a wide laser beam that comes to a focus within the engine is typically used to avoid damage to the engine windows. The strong signal variation with beam intensity of two-photon LIF means the beam must be nearly the same width as it traverses the engine, which results in a more intense beam going through the windows.

"We used the highest grade of UV fused silica windows and we still only got about 2,000 shots before we damaged the window," explains Paul. The researchers learned to shoot through only the top of the circular windows, and then rotate them to extend their life.

The testing is done on engines in the Combustion Research Facility that have the same geometry as production engines, down to the details of the piston bowl shape and valve cutouts. Paul says the team carefully characterized the spectral nature of the emissions to be sure they were not getting interference from unburned



PAUL MILES watches as a UV laser fires into a diesel engine to measure CO emissions. Sandia's work visualizing CO emissions could lead to significant changes in diesel engine design that would yield better efficiency. (Photo by Randy Wong)



GOING WITH THE FLOW — Postdocs Isaac Ekoto, left, and Will Colban (both 8362) conduct complementary flow measurements to help understand CO distribution. (Photo by Randy Wong)

Sandia California News

hydrocarbons.

A major finding was that the squish volume of the engine is a source of emissions. "The squish volume is a feature of the combustion system that is needed for good conventional diesel performance. Our results point to the possibility that different combustion chamber designs could be more appropriate for low temperature combustion systems," explains Paul.

The results of the project have also enabled validation of numerical simulations on which engines are designed. Paul says that simulations successfully predict trends in emissions, but the details of what is happening in-cylinder, which could lead to optimized geometries, just aren't well known or accurately predicted.

A godsend to have fundamental data

The Basic Energy Sciences work done on CO fluorescence proved invaluable to the success of this project. "Previous researchers had measured photo-ionization cross-sections, absorption cross-sections, and CO quenching cross-sections with all the major partners as a function of temperature," says Paul. "It was a godsend to have the fundamental data. It enabled us to come up with semi-quantitative measurements."

The measurements are expected to help improve the accuracy of the models used for engine design and optimization.

While Paul notes that quantifying what these results could mean, in terms of improved fuel efficiency, is difficult, he does think it could lead to a 4-5 percent increase. "These results will have a direct impact on engine design," he says. "This research is more closely aligned to the needs of industry than anything else I've done at Sandia."

Feedback

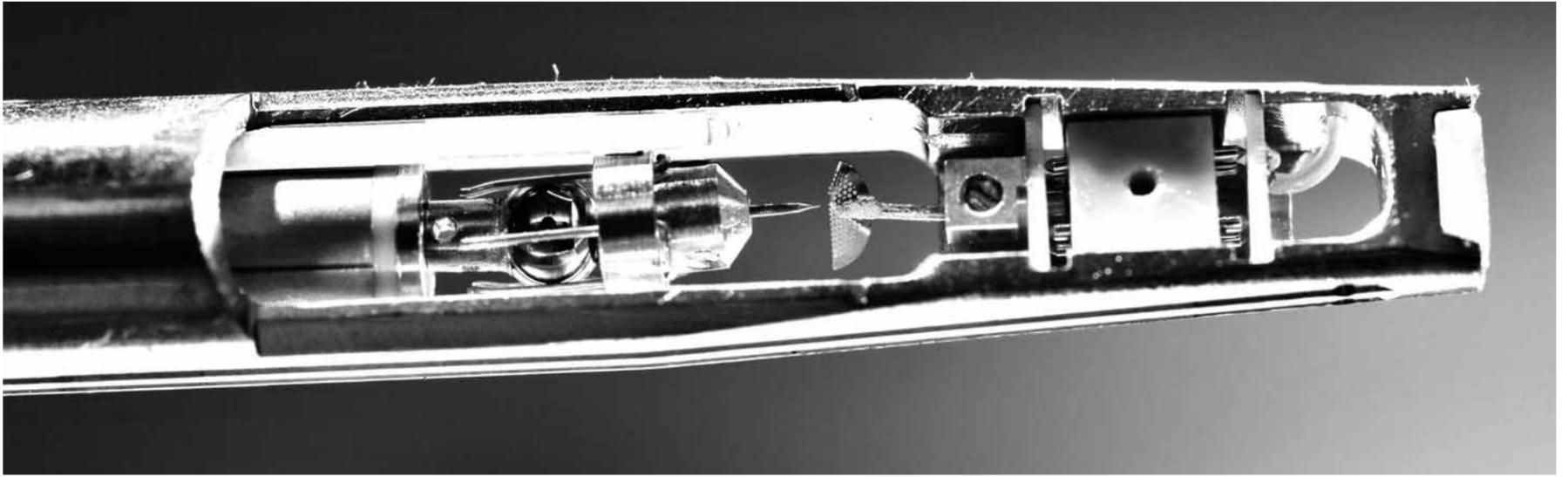
Does Travelocity save the Laboratories money?

Q: I recently arranged business travel through Sandia's new travel system, Travelocity. I found the airline ticket price to be excessive and much higher than other online sites I looked up on my own, in addition to the \$40 fee added. Using this as just one example of the thousand of Sandia bookings each year through Travelocity, does the corporation actually save money? If so, how much money is saved per year?

A: Travelocity Business (TBIZ) offers the best fares available on the Global Distribution System at the time of booking. Additionally, Lockheed Martin discounts are applied to those fares marked with the "Preferred Status Star." The airlines do hold back some special fares for their sites alone and the dynamics of these prices depends on the volume, timing, and issuance by the airlines. Many times, you will be able to purchase a cheaper flight on Travelocity Business, but sometimes a less expensive airfare is available on other sites. TBIZ adds a \$39 agency fee when a call-in booking is made, but only a \$10 fee is applied when reservations are made via the TBIZ online booking tool. Overall, Sandia does receive substantial benefit from utilizing TBIZ. In FY07, Sandia saved approximately \$8 million via these discounts.

Other benefits of using the designated travel agencies (DTAs), TBIZ and SWABIZ include: significant savings result from Sandians not having to invest time to surf the Internet for the lowest fare; unused ticket tracking and other auditable reporting capabilities are provided by the DTAs; and, since all travel data is automatically downloaded from the DTAs into Sandia's Travel Information System, the Travel Department and Emergency Management can assist travelers in case of an emergency, which is priceless.

— Connie Wenk (10520)



THAT'S THE POINT — A transmission electron microscopy-scanning tunneling microscopy (TEM-STM) platform at the CINT TEM lab, enabling simultaneous atomic-scale microstructure and electrical and mechanical property studies of individual nanostructures such as nanotubes, nanowires, nanocrystals, and graphene. (Photo by Randy Montoya)

Results were first published last summer in *Nano Letters*, a publication of the American Chemical Society, and a related article appeared in the July 26, 2007, issue of *Nature*.

Diamond

(Continued from page 1)

Synthetic diamonds are made when huge presses provide the necessary heat and pressure to force carbon into a new form. Jianyu made his — momentarily — with a nanoscale heater. The big news is that, thanks to transmission electron microscopy (TEM), Jianyu was able to make a stop-motion record of “quasimolten” diamond as it took form and solidified again. Under normal atmospheric pressure and very high temperatures, diamond does not melt but instead turns into graphite.

Jianyu is quick to point out that he did not melt graphite with his experiments; nor did he produce liquid diamond. Nothing actually flowed — the process happened too quickly for this, before changing its state again. The material “flickers” between the two forms of carbon, melting then refreezing to its original state within a few seconds. This is called quasimelting, because no liquid flow occurs.

Jianyu's discovery — made originally at Boston College, then analyzed and replicated at Sandia — offers a new method of studying the structures of carbon at extreme conditions in situ and at an atomic scale. On the geologic scale, such studies may increase understanding of the conditions that exist in Earth's mantle, where natural diamonds form. The behavior of materials under extreme conditions of high pressure and tem-

perature has long been of interest to researchers in physics, astronomy, and geology. Since diamond possesses the highest hardness, thermal conductivity, and melting temperature of all materials, it has been the focus of numerous studies at extreme conditions.

The Sandia experiments focused on heating tiny graphite spheres which, because they consist of many concentric layers of carbon, were dubbed “onions” by researchers Florian Banhart of the Institute for Physical Chemistry in Mainz, Germany, and Pulickel Ajayan of Rensselaer Polytechnic Institute, New York. In a research paper published in *Nature* in 1996, Banhart and Ajayan reported that they had changed diamond into graphite under conditions of high pressure and temperature. But they were unable to observe and record the process of transformation.

“They were able to convert ‘onion’ to diamond at about 700 degrees C under electron beam irradiation, using a TEM heating stage,” explains Jianyu. “We are heating only very locally, to a much higher temperature, using a carbon nanotube. That is why we observed the quasimelting behavior, whereas the 1996 experiment was unable to detect this process.”

Jianyu says this 1996 paper inspired him to apply nanotechnology to learn more about the quasimelting process. “While pursuing research in carbon nanotubes, I found that I could generate a temperature higher than 2,000 degrees C by passing a high current through the nanotube, similar to passing a current through a light bulb,” he says. “Then I thought, what will happen if I

heat the carbon onion with my carbon nanotube? I thought it an interesting experiment because nobody had been able to generate such a high pressure and high temperature in situ before.”

In the Sandia experiments, the graphite-like onion, about 20 nanometers in diameter, is first bound to the nanotubes. By heating the carbon onions with the nanotube and simultaneously applying electron beam irradiation, temperatures inside the onion are raised to greater than 2,000 degrees C. The onion then self-compresses, generating very high internal pressure. “The pressure in the center of the onion is estimated to be over 400,000 atmospheres,” says Jianyu. “Isn't that amazing!”

Sequential transmission electron microscope images made at the rate of two to three frames per second show in real time how diamond forms, then repeatedly melts and refreezes in crystal configurations that differ in terms of size, shape, internal structure, and crystal orientation. The structural changes in structure are determined by analyzing the changing image of the crystal lattice.

Jianyu now has Laboratory Directed Research and Development funding to investigate the thermal property of nanotubes, a remarkable material in its own right, with a host of special properties. But molten diamond will not be forgotten. “We're still continuing the study,” he says. “We would like to know how the giant onion structure shrinks, how the shrink generates such high pressure, and how the graphite is initially converted to diamond. There is still a lot to explore.”

Job structure

(Continued from page 1)

understanding different occupation structures at organizations like Lockheed Martin and Los Alamos National Laboratory.

From this exploration the team will develop a structure members believe is relevant to Sandia, as well as an outline of how to put it into action.

Job families, occupation descriptions

The first practical step in the creation of a new compensation system is defining the job families (groupings of like occupations) and the occupation descriptions within them. An occupation description is a four- or five-sentence summary describing the scope of a job a person performs.

The team began with Sandia's existing list of occupation descriptions, making sure it was comprehensive and adding, deleting, and modifying as necessary.

Once the initial set of occupational descriptions was down on paper, says Dennis, the division reps sought feedback from their divisions' center directors and other management to ensure that all current jobs are represented in the occupational data that will be analyzed by the team.

“We've been working with the senior managers to see if we have a good list,” says Len, adding that the descriptions must be “rich, with no ambiguity.” This division and center reviews continued through August.

The involvement of Level I managers has followed. This is an important part of the review process. Says Dennis, “Since speaking to every individual is impractical, we're relying on the managers. They give the job assignments, so they know best.”

Connie adds: “The key to success is not the team so

“It's probably wise to keep in mind that the final results of the job restructure will probably not have the overwhelming or immediate impact some people may fear.”

— Dennis Miller

much as every single manager mapping their staff members.”

Feedback is being compiled for each division and compared and contrasted across divisions. Refinement of the occupation descriptions will continue until they are deemed by the team to be specific and accurate, says Len.

The road from here

Once the job families and occupation descriptions are finalized by the team, the consultant will compare these to the outside world in terms of description, title, and compensation. Findings will be brought back to the job structure implementation team for discussion.

In some instances, says Connie, the Sandia occupation title might need to change to something more comparable to those outside the Labs, so that prospective employees have a point of reference. But the team seems to realize that not all jobs at Sandia will have a market equivalent. Len adds, “We have some pretty esoteric jobs here. While most will align well, the team is taking Sandia's distinctive nature into account.”

The team has next steps sketched out but there is much more to do. For example, the team has not yet clearly defined what the process will be for assigning occupation descriptions to individual employees. How-

ever, as Mike puts it, “We are acutely aware of some of the issues that will need to be addressed regarding this process. We are gathering as much input as possible to ensure that what we do is accurate and fairly applied.”

The team needs to make adjustments, establish the best action plan, and ensure it is the right fit for Sandia before implementing the new structure, he says.

Letting Sandians know what's going on

The fact that this is a process still under development means that the team does not yet have a fully formed, concrete plan it can share with Sandians. However, Human Resources & Communications Div. 3000 VP John Slipke and the team feel strongly about sharing the developments.

This may require a little patience on Sandians' part and an understanding that, for the near future, things can and will change, says John.

He says Sandians can stay informed through the *Lab News*, the Change at Sandia website (<http://changeatsandia.sandia.gov>), and other official venues. He cautions, however, that in situations like this, where many decisions have not yet been made, rumors and speculation often outpace real information.

Adds Dennis: “It's probably wise to keep in mind that the final results of the job restructure will probably not have the overwhelming or immediate impact some people may fear.”

Mike encourages those who do have concerns to contact their team representative. “All team members are interested in input from everyone.”

More information, including job structure implementation team reps, FAQs, and archived webcasts can be found at <http://changeatsandia.sandia.gov>. The website also provides the opportunity to submit questions or concerns via Sandia's Feedback program, which guarantees Sandia employees a response, as well as confidentiality.

Shingo Prize

(Continued from page 1)

revolutionary manufacturing practices that comprise the renowned Toyota Production System.

This year's award isn't Center 2700's first encounter with the Shingo organization. In 2006, the center won a Shingo bronze medallion for its implementation of lean principles in its production activities. The 2008 award is broader in scope, recognizing the center for its implementation of lean principles across the entire neutron generator life cycle activities.

Great feedback from first visit

That 2006 prize, and the activities leading up to it, offered a real learning opportunity, says Center Director Kathleen McCaughey. "Part of the [prize competition] process," she says, "is to get a feedback report from the Shingo organization. We got some great feedback, which motivated us to put an action plan in place."

That action plan — which Kathleen and her team approached with the fervor of a campaign — included implementing lean principles throughout the entire neutron generator life cycle. The NG life cycle incorporates the science and technology foundations of neutron generators, design, development, production, materials management, component stewardship, and shared services.

The motivations for embarking on a lean journey were several and all were compelling. To begin with, production was unstable, and the center wasn't meeting its internal production schedules. The center didn't have the budget to add employees and it wasn't the right answer anyway. The center's leadership team acknowledged a glaring and undeniable truth: The problems were systemic and demanded a systemic solution. They all read a book called *Lean Thinking*, and decided to "go lean."

Culture has changed

Through leadership commitment, engagement, and direction, the center's culture has changed. Today, more than half of the employees are either green belt or black belt lean practitioners. Those credentials are earned through training and the application of lean principles in everyday work. (There are

about 250 Sandians in the center, counting FTEs and LTEs, and because the center deals with the entire life cycle of the neutron generator products, its staff members come from every job ladder in the Labs.)

Keeping the team focused

To keep everyone focused, there are full-time assigned black belts (like Maria Galaviz and Anne Lacy), who help keep the center on the right track and moving forward.

Going lean, says Kathleen, was initially about being able to deliver products, but later turned into more globally meeting the customer — NNSA's — requirements: becoming more responsive to changing demands in the complex and more cost-effective in meeting its needs.

And there was, of course, that Shingo Prize — an industry benchmark for operational excellence, which compares your systems and results against others. Having tasted bronze in 2006, five years into its lean journey, the leadership team makes no bones about the fact that the center was actively committed to achieving a higher award level than before, and for a larger scope.

They didn't expect to win the Shingo Prize in 2008, Kathleen says. "It was gratifying to see lean principles begin to make a difference in the Center's operations from the very beginning. With culture change, you can see improvements right away. You see growth, you see maturity. You see your team beginning to think lean. You can see it in the results."

By 2008, the Shingo examiners certainly saw the change in Center 2700, and liked what they found. The center had evolved from tools-centric, to principle-based systems. One example was the center's value creation process with a one-page policy deployment.

Shingo Lingo Jeopardy

To prepare for the examiners' visit, the black belts invented "Shingo Lingo Jeopardy." This activity helped communicate to all employees the center's lean model (principles, enablers, systems), and achievements across all departments. When the visiting examiners started talking to Center 2700 employees, it became apparent that they were engaged in improving work processes.

Kathleen says the road her team has traveled is one that other organizations around Sandia can follow. Her simple message: "Lean works. Any organization that realizes products will benefit from lean, just as we have.

You have to integrate lean into your everyday work."

Center 2700 representatives will attend the 2008 Shingo conference and awards ceremony Oct. 9 in Washington, D.C., where they will be recognized for their achievement.

Some Center 2700 lean accomplishments

- Integrated entire neutron generator life-cycle value stream (from concept to retirement) in one organization.
- Implemented Portfolio Management System.
 - Increased focus in center from 184 projects in FY06 to 92 in FY07 to 70 in FY08.
 - Reduced people fractionation from an average of approximately four projects per person in FY06 to 1.9 in FY08.
- Achieved goal of 12 percent cost reduction in FY07 and FY08.
- Achieved 100 percent neutron generator on-time delivery since 2002.
- Reduced neutron generator major subassemblies span time:
 - Neutron generator subassembly (NGSA) from 379 days in FY05 to 84 days in FY07.
 - Neutron tube subassembly from 61 days in FY05 to 43 days in FY07.
- Reduced incoming part inspection cost by 65 percent from 2002 to 2007.
- Eliminated more than 66 wasteful assurance activities utilizing Product Assurance Model.
- Defined and implemented a process to introduce lean within science and technology maturation.
- Achieved a 72 percent reduction of nonrecordable safety incidents from 2004 to 2007.
- Reduced kilograms of hazardous waste generated by 36 percent from 2004 to 2007.
- Implemented Behavior Based Safety (BBS) in 2006 and achieved 44 percent reduction in injuries on average for the first year of BBS.
- Achieved and sustained ISO registration since November 2006.

Congratulations to Center 2700 team

"This is a great accomplishment and well deserved. The leadership of Kathleen McCaughey and her team's ongoing commitment to quality are evident in the operations of the Neutron Generator Facility and serves the NNSA mission well."

— NNSA Sandia Site Office Manager Patty Wagner

"Our neutron generator operations at Sandia are a model for the best in quality and efficiency for the whole nuclear weapons complex. Kathleen and the Center 2700 team are responsible for the whole enterprise for product realization — from design and the science that underpins it through final product production. With this award, they have achieved a level of integration that is unprecedented in the

complex. It is true science-based product realization."

— Sandia Executive VP and Deputy Labs Director for Nuclear Weapons Joan Woodard

"I am extremely proud of what our colleagues in Center 2700 have accomplished in earning this important recognition. It is even more meaningful because they are the first public sector company to win the Shingo Prize. This award recognizes the visionary leadership provided by this organization in planning and executing its work. They are a role model for other organizations and set a standard that we should all be striving to meet."

— Weapons Engineering & Product Realization Div. 2000 VP Steve Rottler



Sandia Science and Technology Park marks 10 years

Sen. Pete Domenici, R-N.M., right, and Technology Ventures Corp. president and community leader Sherman McCorkle join Sandia Science and Technology Park Executive Director Jackie Kerby Moore to mark the park's 10th anniversary.

Since its inception, SS&TP has had a \$1.4 billion cumulative impact on New Mexico wage and salary disbursements attributable to park activities, according to an economic impact assessment conducted by the Mid-Region Council of Governments (MRCOG). MRCOG used the Regional Economic Models Inc.'s Policy Insight™ software model to do the assessment of the park's impact from May 1998 through December 2007. The figures (in 2007 dollars), reflect the estimated impacts to the region including Bernalillo, Sandoval, Torrance, and Valencia counties. More than 2,000 individuals are employed at the 27 organizations located at the park.

(Photo by Randy Montoya)



Footprint reduction

Photos by Bill Doty



NNSA has stated its intent to substantially reduce its footprint — the amount of square feet it maintains at its facilities — over the next several years. Sandia's Facilities team has stepped to the plate to do Sandia's part to meet the NNSA objective. The latest project, started a year ago and continuing through the rest of this year, is the demolition of Bldg. 807. Nick Durand (4824), project manager for the demolition, provides this account of the effort:

Coronado Wrecking & Salvage conducted the initial building drop of Bldg. 807 in mid-July. The decontamination and demolition team began work in the building last September to remove all regulated materials, which include asbestos insulation and floor tiles, radiological and chemical contamination, fluorescent bulbs and lighting ballasts, mercury thermostats, and refrigerants. The building was basically stripped back to the concrete structure, with some piping and ductwork remaining. The electrical power, gas, and water utilities were disconnected in late June and the demolition contractor mobilized on site July 1.

The preparation efforts totaled more than 20,000 worker-hours and involved Sandia craftsmen, construction contractors, inspection teams, and personnel from property management, reapplication, waste management, emergency management, physical & technical security, Pro Force, and many others.

The demolition of Bldg. 807 is progressing ahead of schedule. The upper building demolition, recycling, and debris removal was completed by the end of August. Sandia has banked approximately 92,000 gross square feet to our space bank this month, supporting DOE/NNSA's Footprint Reduction goals. The demolition of the basement and footings will proceed through the rest of 2008. The demolition contractor is recycling scrap metal, aluminum, and copper from the building as demolition progresses. The concrete from basement walls and footings will be recycled as well. The site will be backfilled and returned to the Tech Area. At this time the site is designated for a future larger-size line item building.

Bringing down 807





CUMULONIMBUS MUSICIANS Ron Hoskie, left, and David Fein have decided to end their professional performance careers, though they say they'll continue to perform volunteer shows from time to time. Cumulonimbus, which started 12 years ago in the stairwell of Bldg. 897, has entertained Sandians at scores of team celebrations and other Labs functions. (Photos by Randy Montoya)

Change is coming

Popular Sandia music group Cumulonimbus to scale back performances

By Iris Aboytes

Their music is intended to usher in the wind and rain, to bring inner peace to a troubled soul, and maybe, just maybe, bring healing to a wounded spirit. That, says Cumulonimbus cofounder Ron Hoskie (4842), is what he and cofounder Dave Fein had in mind when they first formed Cumulonimbus. "But as such a uniquely gifted adventure begins, so it will recede," says Ron.

Cumulonimbus, is a flute, drums, and other handmade instruments group that has been a mainstay at many Sandia and external events. "We have decided it is time to spend more time with our families," says Ron, "so as of December, Cumulonimbus will cease to exist as a business. We will occasionally do volunteer work."

Cumulonimbus was born 12 years ago in the Bldg. 897 stairwell. Musicians Ron Hoskie, Dave Fein, Ron Manginell, and Greg Hassig got together during lunch hour to play in the stairwell. "The acoustics were great," says Ron. "Soon we had people opening their doors to listen to our music. It was very exciting. Our main intentions were to experiment with poetry, stories, and music."

The name of the group came after much soul-searching. They wanted a name that would signify causing change. "Cumulonim-

bus are thunder rain clouds," says Ron. "They signify change is coming, whether it be rain, wind, or other occurrences. Dave's drum signifies the heartbeat in life. The stronger the sound the more powerful the spirit becomes.

"We like to talk to young children about our music. We have them close their eyes and introduce them to the sounds. Hear it rain? How does the rain feel? Can

you feel the wind? Many times I will play music from the animated Walt Disney feature *Pocahontas*. They become mesmerized and totally enchanted as we encourage them to experience the music. Once the music is over, we have them check out our instruments. Soon they discover it is plastic bags near the flute that make the sound of leaves falling from the trees."

Ron has made flutes out of cedar. It takes about a day to make a flute. Each one is specially made. The inner red part of the cedar is what Ron calls the heart of a tree.

Cumulonimbus has performed up to 32 gigs a year. They have performed at the old church in Jemez, the Petroglyph, Bandelier, and Fort Sumner monuments, the Gathering of Nations, art galleries, the City of Albuquerque events, and many, many more. Ron says the group is proud of the fact that they performed more volunteer performances than paid ones.

Fans have included many Sandians, US representatives and senators. "One of my special fans was a man who was in hospice; he could no longer talk," says Ron. "When he heard the music, tears pooled in his eyes. I think we brought him peace."

Cumulonimbus' CD *Rain Brings Changes* has a collection of their own special music and lyrics. For more information on possible upcoming performances, contact Ron Hoskie at rhoskie@hotmail.com.



Solving the Tech Library challenge

Cautionary voices within Labs agree change is inevitable but urge 'not so much, not so fast'

By Neal Singer

All around the technologically literate world, people are debating the ultimate balance between old-style print and new electronic media.

So it's not surprising that as Sandia management moves to transform the Laboratories' own Technical Library from mostly print to mostly electronically based media, cautionary voices within Sandia are raised. They say, in effect, "Not so much, not so fast."

A difference of opinion

David Williams (9500) is in the unenviable position of riding herd on a project passing through a downpour of input. He recognizes the disparity in Sandia viewpoints even as he moves ahead with corporate plans. So, with guidance from the Science, Technology, & Engineering Strategic Management Unit, he helped create a library board to provide opinions from, and studies across, a broad swath of Sandians. Meanwhile, he led downsizing of the library's physical plant and paper-journal holdings as part of the several-years process of upgrading its e-journal, e-book, and computer-search capabilities.

The new, not-yet-implemented search capability is expected not only to look online in-depth for books and articles but to indicate in which direction fingers of Sandia research are moving so that subscriptions to journals can be added or canceled expeditiously.

Knowledge of demand, says David, should provide the lowest-cost research information to the Labs.

No additional charges would be incurred in copying articles from journals to which Sandia holds paid electronic subscriptions. These would be to journals that data shows are most accessed by Sandians. Access to lesser-used journals would also be available, though at a cost for downloading articles and sometimes with a delay in getting the material. The library would reduce costs by cutting back on materials rarely accessed by Sandians and ending paid subscriptions to journals containing materials never accessed.

"I think we're headed toward the right place," David says. "But to make sure we haven't overlooked something significant, the Library Board was created for input."

Enter, the Library Board

Not exactly a tame kitten, the Library Board was born amid a welter of emails months ago on a blog protesting the extent of proposed library changes. In late July, it released a study summarizing the downward

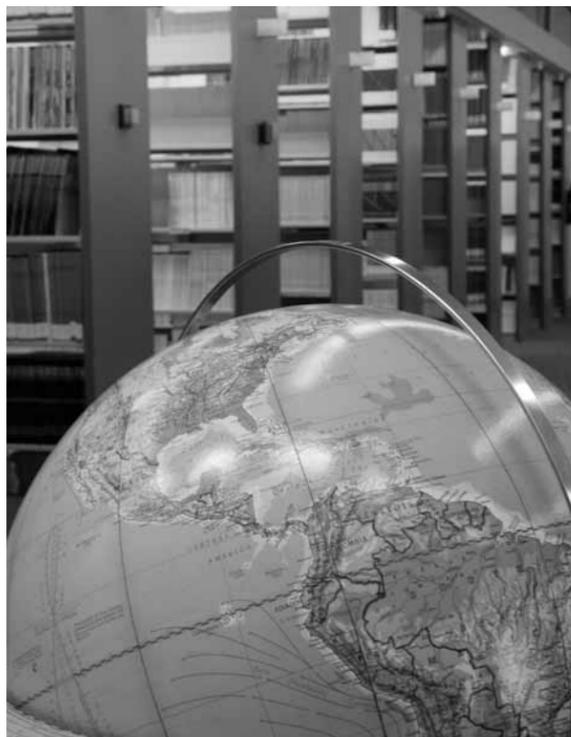


Photo by Randy Montoya

trend of the library budget for the last five years, and the negative impact of that trend on both library services and library content. Declining purchasing power was magnified by increased costs of journal subscriptions over the same time period. These difficulties could combine in an unpleasant way — according to a board-conducted poll that involved more than 800 Sandia respondents — for a laboratory staff that expects fast desktop access to needed materials.

Given circumstances of declining funding and rising costs, the board felt the quantity of research materials available was decreasing significantly every year.

An unacceptable budget?

Other possibilities examined by the board were found wanting. University libraries are not legally able to serve as full cohost sites for large numbers of Sandians seeking books or services remotely. As mentioned earlier, commercial sites charge by the article — a process that could get costly if numerous Sandians requested the same material. In addition, delivery from external sites frequently takes a day or more.

Recognizing the increased costs and time delays inherent in external searches, the board concluded that "the library budget has become unacceptable."

So the board has requested the Integrated Enabling Services SMU to restore the "content" budget — the money used to purchase books and journals — back to the FY05 level of \$2.4 million, instead of the currently proposed level of \$1.3 million.

If the increased budget proposal is approved, the board's opinion is that the Technical Library could reinstate most of the highest-impact journal, database, and standards subscriptions canceled over the last two years and possibly add new subscriptions and books.

"They've made their proposal and we'll review it," says Art Hale, Sandia's chief information officer (9600). "The proposal will have a hearing on its merits. Decisions on which journals will have paid-up subscriptions and which will be available on a pay-by-the-drink [per article] basis will be made by looking at data on usage and cost."

But as to whether to restore funding to the library budget for books and journals, he says, "Is there a way to tie the output of the library to the output of the Laboratories? That's the holy grail of librarians," but he doesn't think librarians can deliver a definitive answer.

Don Guy, manager of Technical Library Operations (9536), agrees, but from another perspective. "Our figures on 'return on investment' are too soft," he says. "We don't always have a clear alignment between success and what we did to help it happen."

Sandians not directly involved in the fate of the library have a few outside-the-box suggestions about dealing with the library question.

"A million dollars is two fully loaded senior manager salaries," says one researcher. "We never used to have senior managers. Why not flatten the curve?"

Says another, speaking to the "return on investment" issue, "There can be an intangible return in having a library. Intangible does not mean unreal."

In any disagreement, there's a human tendency to suspect the character or motives of the other side. That tendency is not absent at Sandia.

Finding comfort in stacks of books?

One supporter of going electronic felt that "a vocal minority who find comfort in stacks of books are trying to hold on to the old model."

On the other hand, a believer in old-fashioned libraries that maintain physical spaces for books and magazines says, "There are those who intrinsically value libraries, and those who do not. Whether it's because of childhood experiences, I don't know. But if you don't have that feeling, it's hard to understand or get it."

But it's not clear that the divide between the two sides is that vivid or that unconsidered. Art, a proponent of transformation and one of its architects, recalls his passion for the library at the University of Illinois at Urbana-Champaign.

"When I was a scientist," he says, "I took a lot of pleasure in going to the [UIUC] library and photocopying journal articles. I left UIUC with boxes and boxes of articles and journals."

But that was more than 25 years ago, he says. In his work in spacecraft control prior to joining Sandia, he found "the new stuff was at conferences. It took years to get it into a journal. The active work was not printed until two to three years later."

The key to the research of the future, he says, is in obtaining timely, new information online, calling or emailing researchers known to be at the forefront, and going to meetings where work of interest is being discussed in the present tense.

To Art, modern science and technology, along with the rapidity and pervasiveness of modern communications, have superseded the old-time need for paper journals and a large physical library facility.

"The data that people have shown me," he says, "imply that most use of the library is made by people accessing content electronically, and that the number of Sandians using the physical library for access to journals was extremely low. This was the case when we made the decision to downsize print and the physical library."

The book collection, Art says, is still available in the library building, as are the preexisting journals that are not available electronically.

Sandians donate more than 21,000 items to annual school supply drive



SCHOOL SUPPLIES — Members of the Office Professionals Quality Council's Community Outreach Team join Community Involvement and Sandia Laboratory Federal Credit Union staff to sort school supplies donated during the groups' annual school supplies drive. More than 21,000 items were collected and distributed. Mail carriers and transportation services picked up, transported, and helped with the delivery of the donations.

(Continued on next page)

Library

(Continued from preceding page)

Library Board Chair Julia Phillips, director of Sandia's Physical, Chemical, and Nanosciences Center 1100, sees some good in the transformation, but has been critical of other aspects.

"Art is basically right," she says, "in that science is moving faster than the publishing industry. If you're in the forefront of a field, you can do your research on unpublished material.

"But if you're presented with a problem no one has seen, you need to go back to books and journals that have a wider frame of reference. For a field in which you have no experience, you need archival material. You might be able to do the research electronically, but in terms of ideas generated unexpectedly and serendipitously, you definitely lose something, not being able to browse."

Access still needed

Basic advances in nuclear physics were made in the mid-20th century, Julia says, and access to those groundbreaking books and journals is still needed, because the old books have tables and information that the new ones do not. These would have been lost, she

VP Joe Polito weighs in on library issue

Note: Div. 9000 VP Joe Polito adds this perspective to the library issue.

There are really three issues associated with the Technical Library, and it is important to understand them separately. The first is the physical library. The book collection has not been lost and is still available in the library. Hard-copy holdings of journals that have been removed remain available electronically like other journal materials. The small amount of journal material that is not available electronically has been retained in hard copy and is available in the library as before. Older journals and books for which Sandia never had hard copies must still be accessed through interlibrary loans or other means; nothing has changed regarding this type of material. Finally, it must be said that the library building is not a place where Sandians congregate in the way you see at a university. Actual usage of the physical library is limited to Sandians who have a need to browse the hard-copy holdings. We've reserved enough space to accommodate that usage.



JOE POLITO

The second issue is content. The library seeks to provide the largest amount of content at the best cost to the Labs. So we purchase paid subscriptions to most frequently accessed journals, and provide buy-by-the-drink access to the lesser used journals. While it is not possible to measure this with accuracy, the idea is to minimize the cost of material that is actually accessed by Sandians and balance that with the relative inconvenience of buy-by-the-drink. Old materials, such as reports not available electronically, have not been lost. Low-usage and classified materials have been moved to remote storage and may require about a day to retrieve, but the historical record of the Labs is intact and available.

The third issue is library services. Electronic format and search provide access to more scientific material than ever before. Data shows that researchers overwhelmingly utilize this mode. Sandia provides access to modern search capabilities, and will enhance these capabilities over the next two years. Sandians are not limited to generic search engines, and they are not without the services of professional librarians. In fact, the library is in the process of hiring additional research librarians. The balance between self-service search and library-assisted search is another case where there is no perfect solution, but the library seeks to provide high-quality librarian services where complex circumstances require them.

New Habitat for Humanity house underway



HABITAT FOR HUMANITY — Retiree Bob Reiden, left, Labs Director Tom Hunter, retiree Larry Lane, home owners Lupe and Herman Medina, their daughter Evonne, and Herman's little sister Blanca break ground for the new Habitat for Humanity home being built by Sandia volunteers. Sandia and Lockheed Martin have support Albuquerque Habitat projects for many years.

Lend a hand: Volunteer dates and contacts, by division

DATES	ACTIVITY	DIV.	CONTACT(S)
Sept. 12-13	Shingle roof	2000	Tyler Burch
Sept. 19-20	Hang drywall	6000	Loretta Humble
Sept. 26-27	Complete drywall	4000	Jeannie Bekaye
Oct. 3-4	Install trim/doors	10000	Ellen Wilsey
Oct. 10-1	Prep for painting	5000	Darick Lewis and Ruby Pai
Oct. 17-18	Paint	3000	Debra Menke
Oct. 24-25	Punch List/Landscaping	1000	Mary Lopez-Carter

NOTE: The activities/work scheduled for a particular weekend is only tentative due to the weather, city inspections, scheduling the plumbers and electricians, etc. Division representatives will be updated on the status of the house and the work their division will be performing on the Monday or Tuesday before they are scheduled to work.

feels, had the library been closed.

"Buying articles one at a time," she says, "even if they are available instantaneously, is not the same as being able to browse through a journal either electronically or physically. The browsing enables one to look at material that one might be only peripherally interested in. Sometimes this gives a researcher a new idea or leads in an entirely new direction. It may never be possible to quantify the impact of losing this ability to browse and the serendipitous insights that come from it, but this is definitely a loss that library users feel as more and more content is available only 'by the drink.'"

Says Anna Nussbaum, manager, Technical Library Services 9536, on cutbacks in expenditures, "Researchers tell us that when they get a new assignment, it's not a Wikipedia project. They need information. The free online stuff can say where to go, but it must be backed up with articles, journals, and books."

Information will still cost money

Adds Don Guy, "If you shift costs from buying books, magazines, and space to electronic platforms, magazines, and books, there will still be costs for the information. In fact, a particular piece of journal information may eventually cost more money if Sandia does not subscribe to the journal and it is accessed multiple times. For example, when you look at things online and come back months later to footnote an article, there may be another, higher fee; or the information may be gone." A printed version is paid for once.

Probably the harshest criticism of the ongoing changes comes from Gloria Zamora (12124), a former librarian and current president of the 11,000-member international Special Libraries Association (SLA).

"A lot of journals are not on the web," she says. "And people usually don't want to read books online. I'm all for technology and for using technology, but when you think that an information center doesn't have to be managed by a person with credentials to manage it, you have a problem."

People used to come in and do a literature search, she says. "Now they google and think they've done a search. That people think you can find everything online on their own is erroneous. If you don't have the

library and the librarians, you're not going to know about access to LexisNexis and other searches. Google is great but not everything."

After the announcement of the closing of much of the Technical Library facility, SLA contacted Sandia, Gloria says. Since then, David Williams has been in touch with SLA for consultation and advice.

What other institutions are doing

Thus far, some comparable institutions have resisted giving up their physical library space, journals, and books. Lawrence Livermore National Laboratory reinstated funding for its library when scientists protested an administrative attempt to reduce its budget. Los Alamos maintains a place for researchers to come to, though it's considered "a library without walls." And though the University of Texas at Austin removed books from its undergraduate library and turned it into a media center, the physical space remains for students to study and the books were merely moved to other UT Austin libraries.

When David was asked by *Lab News* why a \$2 billion lab can't put 0.5 percent of its resources into maintaining the current level of journal subscriptions, he responds, "I suppose the answer is that we can. Unfortunately, that answer is too simple. I humbly suggest that the better question for us is how we should value low-usage information and facilities versus providing content and services for highly used library modes.

"There's no easy answer. But we are definitely tilting toward using our resources to provide high quality, responsive, and efficient services for the most used information and access modes, while maintaining an acceptable level of access to material in lesser-used areas.

"Of course," David says, "'acceptable' is in the eye of the beholder, so the library dialogue — especially the contribution of the Library Board — is valuable."

According to Enterprise Transformation Div. 9000 VP Joe Polito, the dialogue about library operations is a healthy way to achieve balance on usability vs. cost issues.

"In the end, though," says Joe, "the objective is to ensure that Sandia researchers have access to the information they need to perform our important work."

Whether any library budget will be restored is still an open question.

Mileposts

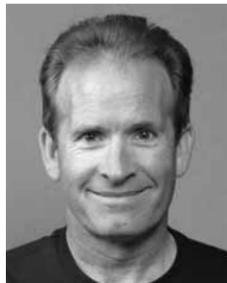
New Mexico photos by Michelle Fleming
California photos by Randy Wong



Er-Ping Chen
30 8770



Steve Goods
30 8758



Marcel Hesch
30 5578



Dean Manning
30 5403



Therese Porter
30 8944



Theresa Price
30 8511



Lonnie Trujillo
30 4843



Antoinette Brazil
25 8945



Steve Carpenter
25 8945



Anthony Chavez
25 4870



Sharon Downs
25 4857



Timothy Gardner
25 5761



Mark Jacobus
25 5919



Deborah Sode
25 8940



Robert Cahoon
15 9311



Linda Carrillo
15 6039



Seung Choi
15 8229



Robert Crocker
15 8125



Darla Giersch
15 2958



Susanna Gordon
15 8114



Harry Gullett
15 512



Annette Hoff
15 8947



Gretchen Jordan
15 1012



Stephen Kleban
15 6326



Lawrence Larsen
15 5920



Carol Michaels
15 1234



Noel Nachtigal
15 8962



Jennie Padilla
15 9537



Michael Sides
15 10010



Thomas Vieth
15 5936



Bob Waters
15 12347

Speak up, speak out

Diversity Survey is designed to reflect your opinion, help Sandia grow

By Iris Aboytes

Sandia is not at the top. Sandia has one of the lowest response rates across Lockheed Martin and that rate continues to decline when it comes to employees completing the corporation's annual diversity survey. Last year just 35 percent of employees randomly selected responded to the survey invitation sent via email.

Is your workplace environment perfect? Do you feel you are heard? If your answers are maybe or sometimes, you have the opportunity to address your concerns by completing the Sandia diversity survey. About 50 percent of Sandians will be randomly selected to receive the survey electronically Sept. 19 via Lockheed Martin. The survey will close on Oct. 10.

The survey has 34 questions designed to capture employee opinion in four areas of diversity characteristics: leadership commitment, organizational climate and culture, workforce strategy and development, and customer experience management. It takes about 20 minutes to complete.

"Take charge and let your voice be heard," says Diversity Program Manager BJ Jones. "Help Sandia understand what it is doing well and what opportunities you see for improvement. Sandia is a world-class organization because Sandians have always made their voices heard in continuing to enhance Sandia's national security mission."

Last year's responses and comments indicated more leadership engagement was needed. After analyzing the available data, Sandia reestablished a corporate diversity council chaired by VPs Les Shephard (6000) and Becky Krauss (11000).

"Your perspectives and responses are taken seriously," says Rochelle Lari, Diversity Program lead (3552). Last year's positive findings were customer focus, respect for individual value, potential and ideas, and support for career development. Areas identified as needing the most improvement were employee input to decision making, and resources and rewards for involvement in diversity efforts.

"Survey results are analyzed and are shared with each division VP individually," says

Rochelle. "General overall satisfaction of working at Sandia has slightly declined over the past four years."

"Each voice strengthens the heartbeat of Sandia, so it is important that it be heard," she says. "If you receive the survey, don't delete, add your own beat."

"It is really very simple," says Rochelle. "All we are trying to do with the survey is to make sure each Sandian comes to work each morning feeling confident that he or she will make a difference. In the evening that same employee goes home secure in the knowledge that his goal was achieved. He made a difference."

"The survey empowers each Sandian to make a difference," she says. "Twenty minutes — that is all it takes."

For more on the survey or Sandia's Diversity Program, contact Rochelle at 844-2111 or go to www-irn.sandia.gov/hr/diversity.

Lydia Koch honored for commuting efforts



SANDIAN LYDIA KOCH receives a plaque from Albuquerque Mayor Martin Chavez in recognition of her efforts to foster commuting options among Sandia, DOE, and Kirtland Air Force Base employees. She was nominated for the award by her colleagues for her success in working with the New Mexico Department of Transportation to secure bus service from the East Mountains to KAFB.

FORCE PROTECTION: Afghanistan

The suffering in war-torn countries changes you, says Sandia's Col. Talentino Angelosante

Story by Iris Aboytes

Each day of the week is a long 18 hours," says Col. Talentino "Tal" Angelosante (4136). "Combat is very disturbing, but you can't let down. Mentally you have to leave everything behind and stay focused in the moment. It's when you don't stay focused that you're in the greatest danger."

Tal recently returned to his job in Sandia's Emergency Operations Center from a tour of duty in Afghanistan. "Time seems to stand still when you are away," he adds.

Tal was the Force Protection Division Chief for the Combined Security Transition Command - Afghanistan (CSTC-A). CSTC-A was tasked with training the Afghan army and police. His duties also included the security of more than 100 US and NATO forward operating bases. He led a small team of five to eight soldiers in the safer areas and as many as 20 in the more dangerous locations, conducting vulnerability and airfield assessments.

Tal and his team planned and executed more than 100 convoys traveling throughout Afghanistan, often going to the most dangerous areas. CSTC-A encountered suicide bombers, improvised explosive devices, rocket attacks, and small arms fire. His team was fortunate, or as he says, "well prepared," and returned home intact.



AFTERMATH of a suicide vehicle attack in Kabul.

"In Kandahar province, the Taliban were able to figure out when the daily hot meal was served," says Tal. "Soldiers would gather at the chow tent and the Taliban would initiate rocket attacks. Their hope was to kill dozens of troops with one lucky shot. The first night I was there an attack damaged a vehicle. The second night the rocket hit the spot where the tent had been the previous day. The tents get moved daily. Routines will get you killed."

Tal also conducted assessments for Afghans in the ministries of Defense and Interior. "The threat to the Afghan leadership is very real and attacks occur at the weakest spots," says Tal. "Nothing is off limits. Afghans like to do things their way, which forces them to take chances Americans never would. This was very challenging.

"These challenges will take time to overcome," he says. "It takes years to develop effective leaders and generations to transform a population. We build schools, but they lack teachers. It's a lot easier to put an AK-47 in a young kid's hands than it is to create basic services."

"Afghanistan is a very poor country with a very high illiteracy rate," he says. "The culture is vastly different from the Western world. There is a basic lack of



AFGHAN VILLAGE STORE on the highway from Kabul to Jalalabad.



US AND CANADIAN FORCES travel through a guarded pass in Kandahar Province at the edge of Taliban-controlled areas. Col. Angelosante is second from left. (Photos provided by Col. Talentino Angelosante)

infrastructure. There is very little electricity. Opium and marijuana fields are plentiful. Poverty is very evident. The tribal infrastructure is still a great source of power and influence within the country. Tribal leaders have the trust and confidence of the people, more so than the government.

"Afghanistan is about the size of Texas, with majestic mountain ranges," he says. "The countryside is beautiful. One day while I was near Jalalabad, I had a conversation with an engineer. As we looked out toward the distant mountains, we agreed that it would be a great area for a resort. We would build a five-star hotel with skiing in the winter. In the summer, guests could enjoy an 18-hole golf course, swimming pools, tennis, and great hiking adventures. Instead, we were designing an Afghan army base."

Tal grew up in western New York. He belongs to a large Italian family. More than 20 of his cousins are in the military, most of them in the Marines. He had always wanted to be a Marine, too, but his Italian immigrant parents didn't want him to join the military. They grew up during World War II and had friends and relatives who never came home from war. They were afraid for him.

He attended Texas A&M University, receiving an undergraduate degree in chemical engineering and an MBA. His father was an engineer and wanted Tal to follow in his footsteps. His parents didn't approve of him joining the Air Force, but despite their disapproval Tal believed it was his calling. He signed up, but to ease their anger, he initially entered as an engineer. Over the years, they have grudgingly accepted his military career, but his dad would still like for him to be an engineer.

Tal retired after 20 years, but returned as a reservist. His service has included 11 deployments. Some of his deployments included: Panama as the US was getting ready to invade; Peru as part of Joint Task Force Bravo on counter drug operations; Bosnia after the signing of the Dayton Accords; Italy as part of a joint task force after the massacre of Hutus by the Tutsis in Rwanda; Kuwait, first as the security squadron commander in charge of security at Al Jabba Air Base and the US area of Kuwait City International Airport, and later as the Mission Support Group Command at Ali al Salem; Iraq as the Deputy Mission Support Group Commander at Balad Air Base.

"On one of my first deployments when I was troop commander," says Tal, "we were flying from Panama back to the US when a lady approached us. She told us her kids were afraid to go to sleep at night due to the shooting and the hostile atmosphere. She said her kids would stay up and watch by the door. They felt safe

only after seeing my troops on patrol. Hearing those types of stories, and having strangers express thanks to the military, make it all worthwhile.

"Being in combat situations and living in war-torn countries changes you," says Tal. "There are things I would like to forget. There are many things I will not share. We fear what we can't understand. There is so much suffering in the world. I don't understand how some people survive day to day. I would not be doing this if I knew I was not making a difference."

Tal was notified recently he will be going in mid-September to Saudi Arabia, where he will command an air expeditionary group.

"It is stressful and disruptive to both my family and my job when I am deployed," he says.

"Sometimes I'm asked if I can turn down a deployment. I would never say no. It's an honor and a privilege to serve our great nation."



COL. TALENTINO ANGELOSANTE looks out over Sperwan Ghar in Kandahar Province.



A CONVOY travels through mountain passes on the highway from Kabul to Sarobi. View is from the rear turret gunner position.