

Setting the standards for hydrogen

Sandia playing a role in developing codes and standards for hydrogen fueling stations of the future

By Will Keener

Filling up the family car with gasoline, we take some things for granted. The official labels that reveal the octane rating of the gas, inspection stickers, the location of the pumps relative to streets, buildings, tanks. Unseen codes and standards envelop the filling station to provide customers with an administrative layer of safety most of us rarely consider.

For the hydrogen station of the future, similar codes and standards are being developed today, and Sandia is playing a key role.

Within DOE, these standards are one of several elements of the hydrogen economy being addressed by the national laboratories system, says Chris Moen, manager of Sandia/California's Thermal/Fluid Science and Engineering Dept. 8757.

"In the safety, codes, and standards program element there is a harmonization element and R&D part. We are responsible for the R&D part, which I think is the fun stuff," says Chris.

Within the complex, the National Renewable Energy Lab is addressing domestic safety standards, and Los Alamos is working on international standards. "These areas require a lot of consensus building," says Chris. "At Sandia, we are trying to provide technical information to support the codes and standards organizations."

Ultimately the goal is to have a set of acceptable domestic standards that are harmonized with international standards as much as possible.

Sandia is addressing the science and technology that goes into understanding unintended releases of hydrogen in the cases of large high-pressure (momentum-driven) or small (buoyancy-dominated) releases. The Labs also have an eye on the development of sensors for leak detection and other mitigation strategies. This year, Sandia will pursue codes and standards research with a budget of about \$1.5 million.

Sandia researchers work to understand hydrogen risks. Story on page 4.

"We are trying to work with the people who are writing the codes and standards so they have good information," says Chris. Some industrial standards already exist for hydrogen. "If you want to build a refinery, there are codes and standards that tell you how far to situate a tank from other buildings and things like that," says Chris. But there are no agreed-upon standards and codes for general public interaction with hydrogen on a daily basis, as will be likely in the envisioned hydrogen economy of the future.

Multiple stakeholders

Stakeholders for Sandia's research are code and standards development organizations, which are working to write technically sound code. Other stakeholders are original equipment manufacturers (OEMs) and the energy companies, which tend to look at the standards as enabling product commercialization. Within DOE's FreedomCAR and Fuels initiative — to develop pollution- and

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New Integrated Stockpile Evaluation program to better ensure weapons stockpile safety, security, reliability

Multiple cross-disciplinary teams critical to the success in developing the new approach

By Chris Burroughs

A new Integrated Stockpile Evaluation (ISE) program rolling out in May involves multiple cross-disciplinary Sandia teams working together to better ensure the safety, security, and reliability of the country's nuclear weapons stockpile. The approach will integrate several different weapons evaluation activities into one lean, more cost-effective evaluation program.

"We have many individuals and teams working very hard to design and develop the future evaluation program," says Dave Corbett, director of Stockpile Resource Center 2900 and chair of the ISE Director Steering Committee. "Teams are

"The transformation of stockpile evaluation is imperative, as is the transformation of the stockpile itself."

Steve Rottler, VP Div. 2000

working on individual elements of the program — all striving to examine every aspect of current ways of evaluating the stockpile and then redesigning the program to meet the needs for future stockpile evaluation."

The teams consist of representatives from across the nuclear weapons program, including systems, components, surveillance, assessment, and engineering science organizations.

Every year the three nuclear weapons laboratories assess the state of the stockpile, and the laboratory directors report their conclusions from this assessment to the Secretary of Energy. ISE will help strengthen confidence in this assessment.

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Take a class and broaden your horizons

Employees can charge up to 32 hours of time for some classes through Strategic Education Initiative

By Julie Hall

Are you a technical staff member with a hankerin' to take a Sandia financial reporting class but not sure how to charge your time?

Or are you on the administrative side and curious about biotechnology because many of your customers work in that field?

Sandia's Strategic Education Initiative may be just the ticket. Launched in late 2004, the SEI embodies Sandia's renewed commitment to continuous learning. Regular full- and part-time employees are encouraged to take up to 32 hours of classes a year and are provided with an A-order number to charge their time. The cost of the

classes themselves is borne by the employee's organization.

Classes can be taken internally or outside Sandia — there are different A-order numbers for each. However, to qualify, they must not relate to an employee's current work; those classes do not qualify for the SEI program and should be charged to an employee's regular projects. But they do need to relate to Sandia's missions.

"What the program is designed to do is help us broaden our horizons," says Donna Robertson (3012). "Being exposed to and exploring fields outside our own specialties may improve creativity, perhaps give us ideas how to do our current

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IES Mercado



Photo by Randy Montoya

CONSUELO SILVA (10863) was one of the many IES experts on hand at the recent IES Mercado to answer questions and talk about their services. (More photos on back page.)

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Truman Fellow Ilke Arslan reports for duty at California site . . . Page 3

Lean/Six Sigma a key tool on path to operational excellence . . . Page 6

Wall of Fame honors 22 outstanding Sandia women Page 8

Sandia-LANL ice capades



Sandia, Los Alamos face off in first-ever invitational hockey match. Find out who won — and see photos by Randy Montoya on page 12.

What's what

With apologies to Andy Rooney, do you ever wonder who dreams up packaging?

I recently downloaded the Internet free international phone service software Skype. Took a couple of minutes. Then I struggled for five minutes trying to open the thick, clear, welded-seam, plastic package holding the headset/microphone you have to have to be able to use the service. I thought I was going to have to find a pair of tin shears, but finally chanced a small pair of scissors and managed to get it open without cutting myself.

Not long before that, I did get a little cut – peeling off the foil seal on a little plastic tub of crumbled bleu cheese. The disclaimer told me all about the ingredients, origin, weight, and nutritional value of the contents – and a lot of other stuff you never look at – but it didn't warn me about the possibility of injury.

And those little stickers with the price of things? They're OK on the part of the package you're going to throw away anyway, but they're sometimes devilishly hard to get off the actual product. My method is to scrape the sticker off with a small knife, then put a spot of charcoal lighter fluid on a paper towel and rub the adhesive residue off with that, then wipe the lighter fluid residue off with a water-dampened paper towel.

This all seems unnecessary. And it certainly adds a lot to the cost of the product. I don't know what you think, but I think earning enough money to buy all this stuff is struggle enough. I don't think we should have to struggle with the packaging after getting it home.

* * *

It was noted in this space in the last issue of *Lab News* that the Corporate Computing Help Desk is a good example of mnemonics in phone numbers – use of a combination of numbers whose corresponding letters spell something meant to make it easy for people to remember the number. CCHD, or 2243, in this case.

But CCHD and IESHD Project manager Steve Sanchez (4342) e-mailed that the mnemonics blurb said CCHD works “if you can remember the prefix,” but pointed out that the prefixes – 844, 845, or 284 – are not required. If you need computer help, just punch in CCHD and you'll get the help desk. The number also works with all three prefixes, so no matter what you punch in, you'll get through.

Meanwhile, retiree Jack Hudson e-mailed that he also dislikes alpha phone numbers, but sent the URL for a website that translates them both ways – numbers to words and vice versa. The URL is <http://www.csgnetwork.com/phonenumcvtrev.html>.

Oh. . . IESHD? That's the Integrated Enabling Services Help Desk. That's not a mnemonic, but the mnemonic for its services is YESS. Get it? . . . Say I-E-S quickly. Get it now?

* * *

Lab News editor Ken Frazier and staffers Bill Murphy and Chris Burroughs sat down with Labs Director Tom Hunter for the annual State of the Labs interview last week. Watch for a story in an April issue.

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

New DOE worker protection rule issued

DOE has issued a new rule, 10 CFR 851, “Worker Safety and Health Program,” to regulate worker safety and health at contractor sites. The rule contains provisions for DOE enforcement of a uniform set of safety and health regulations and national consensus standards from groups such as the American Conference of Governmental Industrial Hygienists, National Fire Protection Association, American National Standards Institute, and American Society for Mechanical Engineers. The rule establishes formal DOE investigative procedures and fines (up to \$70,000 per violation, per day) for failing to meet safety and health requirements.

Implementation plan being developed

The development of a Sandia 10 CFR 851 implementation project plan and schedule is in progress. They will address how to close gaps identified during a requirements mapping and gap analysis between the existing Sandia worker safety and health protection program and the 10 CFR 851 requirements for such a program.

The plan and schedule include development and implementation of a written Sandia Worker Safety and Health Protection Program (WSHPP) that describes how Sandia will implement all 10 CFR 851 requirements. Included are mechanisms Sandia will use to track and document the review, identification, correction, and reporting of non-conformance issues. The WSHPP document is required by the new rule.

The Sandia WSHPP must be submitted for DOE review and approval by Feb. 26, 2007. The rule requires all DOE contractors to be in full compliance with the rule and their DOE approved Worker Safety and Health Protection Program by May 25, 2007.

For more information on the new rule and for future updates go to the Safety Engineering Dept. 10322 website. — Iris Aboytes

Manager promotion

California

Dan Hardin from PMTS, W80 System Engineering Dept. 8241, to Manager, Telemetry Systems Engineering Dept. 8233.

He joined Sandia in 1977 and has since spent most of his career in the telemetry development areas dealing with instrumentation, design and development, field testing, and data reduction. Dan was responsible for the first Enhanced Fidelity Instrumentation system, originally deployed on the W87 program. He was also involved in the Joint Test Assembly activities for a number of active weapon programs (B83, W78, W80, W87, and W88).

In 2000, Dan moved to the W80 System Engineering Department to work on the Life Extension Program (LEP) for the W80 warhead. He was responsible for the Warhead Interface Module, firing set, and warhead Electrical System subassembly.

He accepted responsibility as the project lead for the W80 LEP in 2005 and remained there until his promotion to manager of Telemetry Systems Engineering in February.

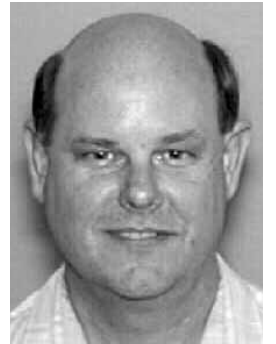
Dan has an Ada Software Engineering Education and Training degree from DeVry Institute of Technology, Phoenix, Ariz.

Sympathy

To Sylvia Cardoza (10561) on the death of her mother who passed away two weekends ago. Sylvia's daughter (the granddaughter), Jessica Cardoza (6146), is also an employee at Sandia.

To Ron Allman (1128) and his wife Peggy on the loss of their son Gavin Thomas Allman who passed away Feb. 25.

To Emanuel Peter Roth (2521), on the death of his son, Emanuel Paul Roth, 32, in an automobile accident near San Ysidro, N.M., March 22.



DAN HARDIN

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Truman Fellow arrives at California site

Physicist Ilke Arslan will work in Micro- and Interfacial Sciences Department

By Nancy Garcia

Ilke Arslan joined Micro- and Interfacial Sciences Dept. 8756 in January as this site's second recipient of the President Harry S. Truman Research Fellowship in National Security Science and Engineering.

After obtaining a PhD in physics from the University of California, Davis, in 2004, she carried out

research from 2004-2005 at the University of Cambridge, funded by a National Science

Foundation International Fellowship and a Royal Society USA Fellowship. She received her bachelor's and master's degrees in physics from the University of Illinois at Chicago.

In between interviewing at Sandia and arriving for work, she published her postdoctoral research on materials structures and properties in the Sept. 30, 2005, *Science*. The article, "Embedded Nanostructures Revealed in Three Dimensions," discusses directly imaging the size, shape, and formation of tin quantum dots embedded in silicon — an approach applicable to any system as a unique and versatile visualization tool with nanometer-scale resolution.

At Sandia she will continue developing this pioneering work in scanning transmission electron microscopy (STEM) with Z-Contrast tomography



President Harry S. Truman Fellowship
in National Security Science and Engineering

for three-dimensional imaging, along with electron-energy loss spectroscopy to research structural and electronic properties of nanostructures.

As a graduate student at UC-Davis, Ilke used STEM to study gallium nitride defects that are critical in developing the semiconductor material for solid-state lighting.

Projects she is working on at Sandia with her mentor Doug Medlin (8756) include characterizing nanowires and nanotubes that have sensing and energy applications.

Initiated two years ago,

Truman fellowships are highly selective awards that give recipients the opportunity to pursue independent research of their own choosing for three years that supports Sandia's national security mission. Fellowship candidates are expected to have solved a major scientific or engineering problem in their thesis work or to have provided a new approach or insight to a major problem, as evidenced by a recognized impact in their field. There are currently five fellows at Sandia, three in New Mexico and two in California.

Announcing Ilke's arrival in remarks at her recent Town Hall meeting, Mim John, VP for Division 8000 and Homeland Security, said the excitement and innovation of Sandia's research is drawing "the very best of the best to come work with us."



ILKE ARSLAN will be using her Truman Fellowship to continue developing three-dimensional imaging and characterization of nanostructures' size, shape, and properties.
(Photo by Nancy Garcia)

Ilke's previous awards and honors include international research fellowships from the National Science Foundation and the Royal Society to conduct her research in Cambridge, the Materials Research Society's Student Gold Award, and the Microbeam Analysis Society's Distinguished Scholar Award.

Sandia California News

Society of Automotive Engineers elects CRF's Paul Miles a fellow; cites leadership, accomplishments

By Nancy Garcia

Paul Miles (8362) is the latest Sandia researcher to receive the rare distinction of election to the fellow grade of membership in the Society of Automotive Engineers (SAE), an international organization of 80,000 members with about 320 active fellows.



PAUL MILES

Paul will be honored at the SAE World Congress April 3-6 in Detroit, where a special dinner for newly elected fellows is held every year.

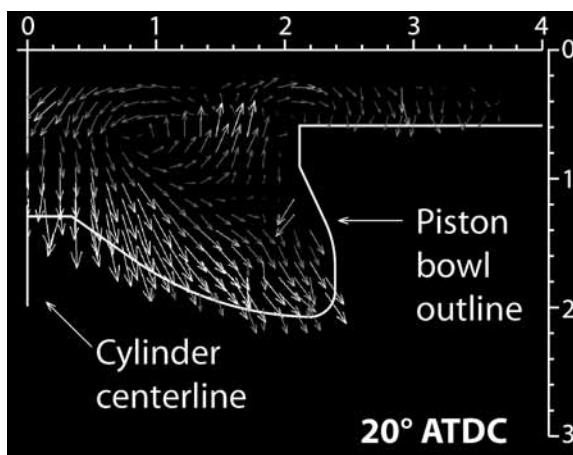
Paul was nominated for leadership in organizing fuels and lubricants activities and for technical accomplishments in developing advanced techniques to study combustion processes within the cylinder of internal combustion engines. Coupled with subsequent studies, these techniques have generated new understanding of processes influencing pollutant formation in both spark- and compression-ignition engines. The common thread unifying these contributions is an emphasis on fluid mechanics and mixing processes and how these can be influenced by the engine designer.

He is the fourth engine researcher at the Combustion Research Facility to gain this honor, after Dennis Siebers, John Dec, and recently retired Pete Witze, all of Engine Combustion Dept. 8362.

SAE Fellow status is the highest grade of membership bestowed by the society. It recognizes outstanding engineering and scientific accomplishments by an individual that have

resulted in meaningful advances in automotive, aerospace, and commercial vehicle technology. Established in 1975, the program recognizes an average of 20 worldwide recipients for this honor each year.

Paul is freshly returned from a three-month sabbatical visit to Lund University in Sweden, where — in conjunction with Lund researchers — the first planar flow measurements in a firing diesel engine were obtained. These measurements clearly reveal the in-cylinder bulk flow structures controlling the late-cycle mixing in these engines. Enhanced mixing rates are a critical requirement for implementation of new, high-efficiency, clean diesel combustion strategies.



FOLLOWING THE FLOW — Shown here are bulk flow structures in the engine cylinder of a firing, direct-injection diesel engine. These measurements, obtained for the first time during Paul Miles' recent sabbatical at Lund University in Sweden, provide insight into how high-efficiency clean diesel combustion can be enhanced through more effective mixing.

'End of oil' is next topic for distinguished lecture series

Prof. David Goodstein of the California Institute of Technology will give a provocative talk on "Out of Gas: The End of the Age of Oil" at the Spring 2006 Truman Distinguished Lecture on Wednesday, April 5, from 10-11:30 a.m. in the Combustion Research Facility auditorium (Bldg. 904).



DAVID GOODSTEIN

Goodstein is vice provost and professor of physics and applied physics at Caltech, where he has won awards for his teaching. He is also a prolific researcher in experimental condensed matter physics, a textbook author, and a co-author of the best-selling book *Feynman's Lost Lecture*, as well as the author of *Out of Gas: The End of the Age of Oil*, published in 2004.

Having turned his attention to the world's energy situation, he will discuss in his lecture how the world will soon start to run out of cheap, easily produced oil. He will then carefully consider how turning to the other fossil fuels might do incalculable damage to our climate and how we are likely to start running out of all fossil fuels, coal included, by the end of this century.

The Distinguished Lecture Series is intended to help stimulate our thinking about the most vital issues confronting our nation and the world by bringing in highly respected speakers to discuss their ideas with us. These special site events are part of Sandia's Truman Distinguished Lectures, dedicated to fostering the exchange of knowledge on the intersection of national security, science, technology, and public policy. — Nancy Garcia

50th anniversary talks available online via video streaming

Videos of presentations made at the 50th anniversary of the California site (*Lab News*, March 17), including "Careers Through the Decades," are available through the following videostreaming link:

http://www.ran.sandia.gov/anniversary50/video_feed/
Also, as promised in the March 17 *Lab News*, the poster featuring highlights from 1996-2006 is reproduced as a full page on page 9.

Sandia researchers work to understand hydrogen risks, improve safety codes and standards

By Will Keener

Sandia doesn't write codes and standards for the coming hydrogen economy, but if Carmen Mendez has anything to say about it, the Labs will help make those codes better. She and her colleagues will do it using a systematic risk assessment process to address the challenges posed by the new fuel.

"We need to develop a scientific basis for hydrogen risk quantification and use a risk-informed strategy to provide recommendations to code writers," says Carmen (6861). "We are trying to demonstrate to the codes and standards community that risk-informed decisions can be made."

"Part of the challenge for us is to get something that the codes and standards writers will treat as realistic," says Mark Allen, manager of Sandia's Risk and Reliability Dept. 6861. "It must be a practical alternative if we want our risk approach to influence designs. The codes and standards community doesn't have to listen, but they will if we have technical answers to their questions."

"We hypothesize what can cause an accident at the scale of a hydrogen refueling station, but we need to identify the risk drivers," says Chris Moen (8775), co-manager of the hydrogen codes and standards project at Sandia. "We can identify, quantify, and prioritize the risk drivers using the risk assessment approach. Then we can also address the mitigation strategies for those most likely events."

"When people go to a gas station, they normally don't think about the risks," says Carmen. "However, others have thought of those risks and have put safety measures in effect to protect product users. We want hydrogen to be at least as safe as fueling products that are available now. We want to get to that level with hydrogen refueling. But, instead of doing it as we go along learning from experience, we are trying to understand how to reduce risks before they occur."

Carmen, who joined Sandia last fall, receives input from an industrial working group, formed by representatives from energy companies and auto manufacturers that provide guidance to DOE

on matters of technical interest. Additional industry experts have been brought together to help think through the assumptions being made in creating a risk approach, provide data, and ultimately put the assessment into practice.

The first steps involve studying failure modes (with information provided by industry), understanding the behaviors of the users, and gathering data on the materials and components involved. Data gathering is done in a variety of ways, including comparisons with other available products, such as compressed natural gas, liquefied natural gas, propane, and butane. Because there is not always enough scientific literature on these products, other means are used. "There is always some uncertainty in risk assessment, so we use expert judgment and other quantification alternatives," says Carmen.

Another source is data from Sandia's experimental element of the codes and standards project (see "Setting the standards for hydrogen" on page one). "It really comes down to looking at everything that's available," says Carmen.

Hydrogen

(Continued from page 1)

petroleum-free vehicles — technical teams have been established with industry advisors. "Everything we do gets scrutinized by the OEMs and energy companies, so that we get good feedback about what's important to them," says Chris.

Sandia researchers started in 2003 with studies of unintended releases of momentum-driven gas, or jet-type releases. Experiments at 2,500 and 6,000 psi at the SRI burn site east of Livermore, Calif., were conducted under contract to measure the jet characteristics. "One of high-priority items for us was what separation distances are needed for siting equipment at refueling stations," says Chris. "There was a lack of information for hydrogen in jets, where there may be a fire hazard."

Small-scale experiments

Sandia worked with the International Code Council as experiments were conducted. Labs researchers also talked to the National Fire Protection Association and presented the data to it.

The next effort involves a transition to small-scale releases, like hairline cracks, O-rings,

fittings, and fixtures. These leaks create gases that are not momentum-dominated but buoyant, says Chris. Sandia will do these experiments at the Combustion Research Facility (CRF), with Bob Schefer (8367) as principal investigator. Bill Houf (8757) will generate engineering models based on the data. The engineering models are used to rapidly quantify the consequences of unintended releases.

Sandia is also contributing to future standards by analyzing how metallic materials interact with hydrogen. Generally, molecular hydrogen dissociates on a metal surface and diffuses into the material, affecting the properties. Often, these effects include making metal more brittle and reducing its strength.

Sandia has created a technical reference on these compatibility issues based on the Labs' 40 years of experience in storing hydrogen in metal containers. The reference also uses other peer-reviewed published literature. Staff metallurgists Brian Somerday and Chris San Marchi (both 8772) are writing the reference guide. They are describing compatibility issues for various grades of steel and other materials in a web document, <http://www.ca.sandia.gov/matlsTechRef>, avail-

able to groups writing the codes involving structural design for hydrogen use. "Everything we learned about hydrogen compatibility in Defense Programs can apply to this project," says Chris.

Sandia has worked with the American Society of Mechanical Engineers to develop codes for pressure vessels for different material classes and effects, as well as with CSA. "We want to understand how hydrogen works with other materials," says Chris.

Unique equipment

Sandia can do even more, given the opportunity. One area where the Labs can contribute is in materials testing where no information currently exists. Pressures of 10,000 to 15,000 psi are expected in hydrogen refueling; this means pressurized atomic hydrogen will be reacting with the container metals. "We have some unique equipment here we are using in Defense Programs that we also use to develop data for the codes and standards project," says Chris. "We can test static crack growth at pressures up to 30,000 psi to understand some of these interactions." Testing at pressure and with cyclic loads is another option Sandia researchers could explore.

'Oh, the humanity' Hydrogen had no significant role in Hindenburg disaster

By Will Keener

We all know that hydrogen gas is dangerous as all get out, right? We've seen the footage of the *Hindenburg* and heard the famous emotional radio broadcast. But sometimes, say scientists who study the properties of hydrogen, we learn the wrong lessons from history.

"I would say that hydrogen is no more dangerous than gasoline, taking everything into account — it is just different," says Jay Keller (8367), co-manager of Sandia's codes and standards effort for hydrogen. "With gasoline, we've gotten used to it. We've learned to live with it." Any substance that stores energy deserves our respect, Keller adds, but the public perception of hydrogen — based largely on newsreel footage of the 1937 *Hindenburg* airship fire — represents an undeservedly difficult obstacle for hydrogen proponents.

Consider the scenario of a leaking automobile gas tank, Jay suggests. A slow drip can lead to gasoline on the garage floor that would, if ignited, engulf the vehicle and the garage in a bright orange flame with very high heat radiating lots of energy resulting in the surroundings getting hot. (The orange color indicates that carbon compounds are involved in the fire, Jay notes.)

Now consider a slow hydrogen leak in the same garage. Hydrogen, because it is 14 times lighter than air, would go up in the garage. Its diffusive

nature suggests it would then dissipate rapidly through the porous walls of the garage. "Preliminary calculations suggest it would be hard to cap or contain hydrogen in a condition where it is flammable," says Jay.

Hydrogen burns with a faint blue color because no carbon compounds are involved, Jay adds. "Everything goes up and away."

Although there was speculation early on that hydrogen was not the key culprit in the *Hindenburg* fire, it was research by retired NASA scientist Addison Bain that showed definitively that hydrogen had no significant role. Among his findings, published in 1997:

- The airship did not explode, but burned in expanding patterns;
- The ship sank slowly to the ground with the aft section burning and sinking faster than the nose, which likely still contained hydrogen;
- The bright flame color seen by witnesses indicates another likely source of the fire, which Bain suggested was the bright paint and fabric used on the aircraft; and
- The powdered aluminum used in a varnish applied to the fabric formed compounds with burning characteristics comparable to those used in modern solid rocket fuels.

"Was the ship burning? Yes," says Jay. "Was it overwhelmed by a hydrogen explosion? No."

For more information on this research, go to this National Hydrogen Association site: <http://www.hydrogenus.com/advocate/ad22zepp.htm>.



Stockpile evaluation

(Continued from page 1)

The new program is an important Nuclear Weapon Strategic Management Unit (NWSMU) transformation initiative, one that Steve Rottler, VP of Weapon Engineering and Product Realization, calls essential.

"The transformation of stockpile evaluation is imperative, as is the transformation of the stockpile itself," Steve says. "The current approach used for stockpile evaluation is no longer sustainable technically or financially."

He adds, "Many studies and assessments have recommended improvements in our stockpile evaluation approach. One example is the 150-Day Study, which was published in January 2001. Through the Integrated Stockpile Evaluation effort, we have reevaluated and updated the drivers for change in this area, and now it is time to act — with the goal of achieving a rapid transformation of the way that we evaluate the stockpile."

The transformation of stockpile evaluation will address the current stockpile and the Life Extension Programs and be extendable to accommodate future stockpile characteristics.

Evaluation to evolve over life cycle

In the past, the core part of stockpile evaluation was pulling 11 random weapons from each of the nine enduring stockpile systems and testing them both at Sandia's Weapons Evaluation Test Laboratory (WETL) at the Pantex Plant near Amarillo and in the flight test program performed jointly with the Department of Defense. The purpose of this testing was often described as "detecting defects."

The transformed approach to stockpile evaluation recognizes the need for evaluation to evolve over the weapon system life cycle. Early on, the

focus is on detecting unanticipated design or production defects. However, once enough data is accumulated to provide reasonable confidence that any remaining defects are very small in number, the focus of the program can be shifted to look for trends, aging, and degradation.

Most weapons in the current stockpile range from between 15 to 40 years old and are ready for a more focused evaluation program to fill knowledge gaps, quantify margins, and monitor for aging.

Sheryl Hingorani, manager of Integrated Stockpile Evaluation Dept. 2901 and head of the ISE implementation program, says that revising Sandia's sampling rationale is the most significant initial change.

High confidence in previous results

"We have high confidence that we have found most of the prominent defects in the existing weapons systems through the previous years of testing," Sheryl says. "The new approach will be driven by a strong technical requirements basis, where the data needs drive the sample requirements. We call this a 'bottoms-up approach.' And, we will be developing science-based tools, such as modern computational models and simulation, and new diagnostics for fundamental characterization of aging to gain a predictive understanding of the state of health of the stockpile."

Sheryl anticipates that ISE will allow Sandia to gain more knowledge from each stockpile sample, allowing a decrease in the overall quantity of field return samples required. It will also improve cost effectiveness. This should be a result of integrated policies and processes, unambiguous roles and responsibilities, strong technical requirements for the evaluation programs, improved data analysis and information systems, efficient communications, and targeted research and development efforts.

There's one other plus of ISE, says Dave. Staff

working in Sandia's nuclear weapons program will be challenged by many aspects of the new ISE program.

"It will create new technically challenging opportunities for our staff, particularly in areas of component evaluation and in developing new tools and capabilities for monitoring performance trends and the effects of aging," Dave says. "We are already creating new and expanded capabilities, including the addition of new test equipment at WETL."

He adds, "The transformation of stockpile evaluation extends beyond Sandia and involves partnerships with our sister labs and the plants. We will continue to be challenged over the next several years to fully transform the program with support needed from across the complex. Expanded efforts to change current processes, requirements, and supporting infrastructure will be needed to achieve transformation."

ISE all-hands meeting set for April 13 in Bldg. 810

Members of all divisions devoted to nuclear weapons are invited to attend an all-hands meeting April 13 from 2:30-3:30 MT to learn more about the new Integrated Stockpile Evaluation (ISE) program. The meeting will be in the Bldg. 810 auditorium in New Mexico and will be video-conferenced to Bldg. 915, Room N237, in California.

The agenda will include remarks by Steve Rottler, VP of Weapons Engineering and Product Realization Division 2000; an overview by Dave Corbett, director of Stockpile Resource Center 2900; and a question and answer panel discussion.

Take a class

(Continued from page 1)

jobs better, or maybe even take us in new directions with our careers."

The first step for anyone considering the program is to have a career development discussion with your manager. Next, visit the SEI "wizard" on the CEDT website (http://www.irm.sandia.gov/learning_wiz/). The wizard's questions are designed to help you determine whether the class qualifies for SEI time charging.

Senior Manager Charline Wells says that people seem to have the most trouble with the wizard's first two questions. The first question has the employee determine whether the proposed learning activity relates to or enables the missions of the Labs. Taking a watercolor class, for example, does not enable the Labs' missions. Employees' managers can assist with answering this question during the career development discussion.

The next question asks whether the class directly

relates to your current work. If it does, it should be paid for through your regular project funds.

If you are getting tuition assistance for your classes, or if your proposed activity is potentially covered by one of Sandia's educational assistance programs, such as the University Part-Time Program or One Year On Campus program, for example, it is also excluded from the SEI program.

Only regular work hours — not flex time, overtime, or extended workweek — can be charged for education and training.

Diane Grant, an OMA at the Sandia Science and Technology Park, took a two-day "fundamentals of benefits" class through the program in January. She's interested in finding out more about human resources, and an HR consultant she knew recommended she try the class.

"I'm glad I did it so I could see what it was like and whether I might be interested in the field," she says.

At Sandia/California, some impacted employees have used the program to gain new skills. Jimmy Ross (8245), a mechanical technol-

ogist whose job went away after the Explosive Destruction System project with the Army ended, took a wet chemistry class with a number of other impacted employees. Sandia brought in the instructor. While he hasn't yet found another job, he thinks SEI is a good way for Sandia to try to stay agile as the needs of the business change.

"You spend 15 years working on a laser and combustion, then they aren't the hot thing anymore," he says. "If you've been working in one area for a number of years, it's difficult to market yourself as new opportunities come up. But if you can take classes outside your field you can be more marketable."

Since the program began a year-and-a-half ago, nearly 2,200 employees have logged more than 48,000 hours of class time. During that same time, participants in the program have charged an average of 22 hours of class time each.

For more information and answers to frequently asked questions, click on the Strategic Education Initiative link on CEDT's home page.

Feedback

Wanted: Some way to disappear inactive DropZone folders

Q: I understand the files uploaded to the "Dropzone" remain available for about a week, and then are deleted to save space. However, the folders seem to live forever. Right now, there are 1,780 folders in the Dropzone, and most of them are empty. This makes it burdensome to scroll through, and causes people to start a new folder's label with punctuation marks in an effort to move it closer to the front of the line. This is a waste; both of computer resources and of the time it takes to scroll through everything.

A: Is there a way to let the folders expire too?

A: First, thank you for using the "DropZone" file transfer resource and making the most efficient use of Sandia's computing and communications infrastructure. As you are aware, the DropZone is used if you need to disperse large files to one or a group of people quickly and efficiently. DropZone is easily accessible to any computer on the Sandia Restricted Network (SRN).

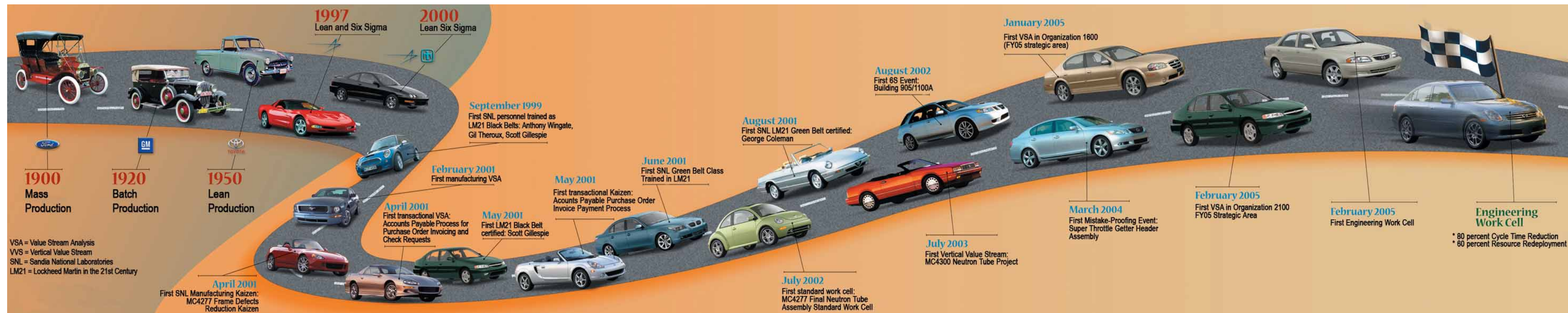
As you have noted, there is an automated process that removes files from DropZone after seven days of inactivity. The Sandia computing infrastructure administrators are continually balancing the need for data availability with the cost of adding and maintaining additional

storage resources. The same automated process removes empty folders after a period of 21 days. Folders are allowed to remain longer for two reasons. First, repetitive or automated processes, which use the DropZone as a file transfer mechanism, need a consistent folder structure for uninterrupted operation. Second, the folder structure on DropZone consumes very little in terms of storage space or infrastructure computing resources; though, as you have noted, it does take time to scroll through the folder list.

Based on your question, we have reviewed the automated process to be sure that it is operating as designed and it appears that it may not be deleting aged folders appropriately. We are currently troubleshooting the code to assure that it will operate as designed. Thank you very much for bringing this to our attention.

A timesaving tip for finding files or folders in a folder with many objects is to "jump" to the folders that you're interested in. If you know the name of the folder that you are looking for, you can type the first one or two letters of the folder name after clicking in the file window to "jump" to the folders beginning with that or those letters.

— William Swartz (4329)



These black belts and green belts aren't a fashion statement

Lean/Six Sigma is the real thing

Note: As Sandia has placed increased emphasis in recent years on "operational excellence," we've heard about a quality process called Lean/Six Sigma (LSS), which reputedly has helped many large organizations improve their operations. We weren't quite sure what LSS is, so we asked Sandia's LSS group to explain it to us. This is their story.

Sandia has more Black Belts and Green Belts than a dojo next door to a day care center for rich kids in downtown Manhattan. The Labs' 30 certified black belts and more than 170 certified green belts constitute a pretty formidable and focused force. But these "belts" aren't practicing martial arts.

They're skilled in the art of Lean/Six Sigma (LSS) — a methodology used by some of the world's most successful companies (Lockheed Martin, Toyota, GE, Dow, Exxon, Citibank, Raytheon, and Honeywell, among many others) to eliminate wasteful practices, improve processes, increase productivity, and enhance employee morale through team-based solutions in order to meet customer demands.

Lean/Six Sigma combines Lean, a methodology used to eliminate non-value-added activities in a process, and Six Sigma, a statistical methodology that reduces variations and defects in a process. LSS is revolutionizing the way companies do business — and not just in manufacturing where it originated. It is being embraced by healthcare, banking, government, and other industries because the results it achieves are quantifiable and unlike any seen in industry — increases in productivity of 50 percent or more and decreases of 75 percent in product delivery lead times and development lifecycle times are not uncommon.

And these aren't idle boasts, say Sandia LSS champions, adding that LSS isn't the corporate world's "flavor of the day." The results are real, they're documented — and they're repeatable. Any organization that's willing to travel down the LSS path can expect similar outcomes.

What makes LSS different than other quality initiatives? LSS lives within a broader framework of meeting Sandia's strategic objectives by asking what the customer values.

According to Joan Woodard, executive VP and deputy laboratories director for nuclear weapons, "LSS can be applied to virtually everything we do at Sandia for the benefit of our customers and for better operation of the laboratory." Wasteful practices (waiting in line, confusing directions, disordered work areas, rework, revisions, excessive approvals, long processes) that have been accepted ways of doing business are removed — often within days or months. LSS creates an infrastructure of change agents who are deployed throughout the organization. It pervades the company culture and empowers both company-wide and individual process improvements, as evidenced at the recent President's Quality

Awards Ceremony where nearly 30 percent of all recipients used LSS methodologies.

Sandia adopted Lockheed Martin's LSS program five years ago. According to Labs Director Tom Hunter, "LSS is an essential part of achieving the excellence in performance to allow us to realize a whole new state in performance."

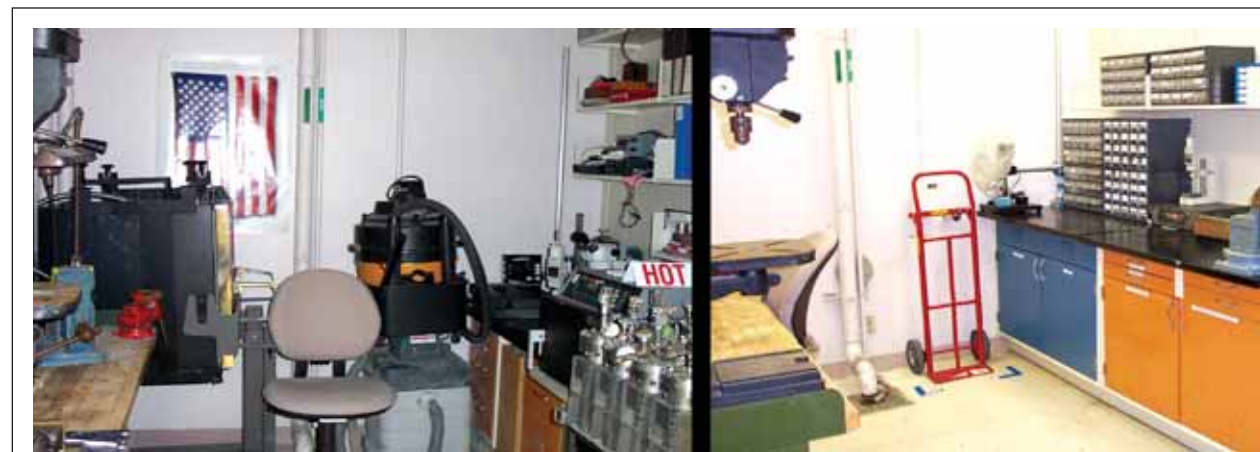
This new state of performance includes:

- On the manufacturing floor — Center 2700 reduced MC4277 neutron tube final assembly cycle time by 74 percent.
- In the technical design space — The Neutron Generator Design and Production Group applies Design for Six Sigma techniques to balance manufacturing capability with performance requirements, resulting in tighter control of unit-to-unit performance

in the MC4300 neutron tube. The customer now has a product whose performance can be more tightly predicted for better reliability and longer lifetime.

- In the technical office environment — Center 2700 worked with Center 2900 to reduce engineering drawing change time by 92 percent by implementing a "lean" office layout and improved workflow design.
- Increased capacity in a research environment — Throughout the Advanced Materials Processing Laboratory, LSS techniques are used to optimize work flow and physical work spaces, increasing bench space by up to 85 percent, drawer space by 25 percent, and floor space by 30 percent.
- Ready, aim, fire! — Six Sigma techniques helped Safeguards and Security to better predict shooting performance. Capability analysis more precisely predicts shooting score performance, resulting in lower probability of false failures, while maintaining the same confidence in the level of performance.
- Making it easy for you to track your assets — Supply Chain Management Center Property Dept. 10267 used LSS tools to improve the property accountability process by implementing online training and creating an individual asset list for each Sandia employee, resulting in 99 percent inventory accountability after the first run. Results continue to improve yearly.

For more information contact Cindy Longenbaugh (0225) at 844-8788 or visit https://www-irm.sandia.gov/lm21_lean_six_sigma/lean_sixsigma.htm.



BEFORE AND AFTER — The photos here, taken during a 6S event (see description in box at right) are of the same room at the same angle. The one on the left is the before photo and the one on the right is the after photo. Notice the increase in both floor space and bench space. All drawers are labeled, and unneeded equipment and books were recycled or appropriately disposed of. Previous to the 6S event, the oven in the photo on the left had to be relocated each time it was used. Out-of-reach shelves were eliminated because they pose a safety hazard. The only way to reach the books was to stand on a chair or on the bench top. Most of the books on these shelves were out of date and were recycled.

Ready, get set, go! — Some LSS definitions

So how does an organization begin its "Lean Six Sigma Journey?" First and foremost, there should be a strategic driver behind the need to get better. Management needs to understand and support the effort and be willing to knock down barriers to implement changes that result in drastic improvement. The next step is to contact the corporate LSS

- office to determine what LSS tools are appropriate:
- Value Stream Mapping — a three-to-four-day improvement event where the process is analyzed, waste is minimized, and action items are put into place to implement an improved process within a six-month period. This approach is usually preferred when looking more strategically at how to improve over time.
- Kaizen — a two-to-four-day rapid improvement event where changes happen during the course of the event and business is conducted differently the following week.
- 6S — a three-to-four-day improvement event where an area is sorted, straightened, shined, standardized, made safe, and sustained. 6S events closely

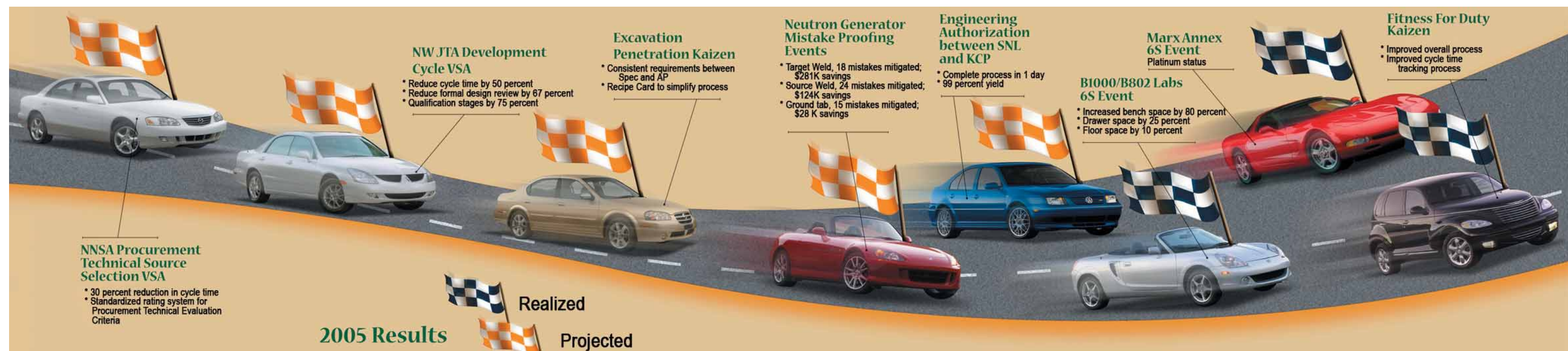
examine and optimize work flow to eliminate rework, waiting, excess movement of materials, and wasted time looking for tools required for the job.

- Design of Experiment (DOE) — DOE uses controlled tests to evaluate the factors that control the value of a parameter or group of parameters.
- Design for Six Sigma (DFSS) — DFSS is a data-driven quality methodology for driving breakthrough performance in new product development.



No matter what LSS tools are used, pre-work and data gathering are essential to any successful event. For example, in a Value Stream Mapping event, members of the LSS team, which includes both people involved in the process and the end customers, gather current data so improvement results (decreased cycle time, decreased number of safety issues, and increased time to do value-added work) can be determined once action items from the event have been implemented. Often, Value Stream Mapping events spawn other events such as Kaizens or 6S events, further cementing the idea that LSS is about continuous improvement at all levels.

Articles by Jennifer Stinebaugh * Illustrations by Michael Vittitow



Women's Wall of Fame honors 22 Sandians

By Chris Burroughs

Twenty-two Sandia women were honored March 13 in the 2006 Women's Wall of Fame.

The wall, a series of six posters highlighting achievements of some of Sandia's outstanding women, was unveiled to the Labs Leadership Team (LLT) with Labs Director Tom Hunter and Becky Krauss, Vice President, General Counsel, Corporate Secretary, providing comments. It now resides on the first floor of Bldg. 802 and later will be moved to different buildings for months at a time.

This is the fourth year the Sandia Women's Action Network (SWAN) is recognizing the accomplishments of Sandia with the wall. The honorees will be recognized at a California celebration April 12.

"There are over 2,800 women at the Labs working in all areas bringing special talents and skills to the workplace," says Judy Moore (5634), who together with Georgianne Smith (3000), co-chairs SWAN. "We are proud to present some of the women who have been brought to our attention by co-workers, bosses, peers, and in some cases themselves."

Because of the overwhelming response to SWAN's request for women who received an award or special recognition in 2005, the original focus was expanded to include many more women at Sandia who give freely of their time and energy to mentor, volunteer, and balance their professional and family lives.

One of the posters is an organizational chart showing Sandia's female directors and vice presidents. The titles of the other posters are Community, Earning Recognition, Expanding Our Influence, In the News, and Making Key Contributions.

The 2005 poster series honorees are:

- Community: Ruth Bitsui (3815), Kathleen Holt (6874), Marie Steele (10761), and Judy Sturtevant (4328)

- Earning Recognition: Kathleen Gee (5932), Jennifer Gilbride (2138), Shekita Robinson (5351), and Megan Slinkard (2661)

- Expanding Our Influence: Lori Parrott (7000), Catherine Pasterczyk (5923), Karen Prinke (10826), Lynn Yang (8114), and Nancy Yang (8758)

- In The News: Iris Aboytes (3651), Chris Burroughs (3651), Veronica Chavez-Soto (5735), Shanalyn Kemme (1713), and Deborah Tewa (6218)

- Making Key Contributions: Mary Crawford (1123), Renee Holland (3331), Adriane Littlefield (6924), and Margaret Scheffer (5419)

"There are over 2,800 women at the Labs working in all areas bringing special talents and skills to the workplace."

Judy Moore, 5634

WOMEN at SANDIA NATIONAL LABORATORIES
Making Key Contributions

Margaret Scheffer
Technical Staff
Telemetry & Data Systems 2661

- Test Director for the Kauai Test Facility
- Led the successful launch of four complicated rocket launches
- Supports the Missile Defense Agency's Ballistic Missile Defense System development
- Formerly the Lead Missile Engineer for the Strategic Target System (STARS)
- Likes to read and do home crafts; has won ribbons in the NM State Fair for her crocheted afghans

Mary Crawford
Technical Staff
Semiconductor Material & Device Science 1123

- Significant contributions to the development of new light-emitting diode and laser diode technologies, including record short wavelength 237 nm LEDs
- One of the leaders of the DARPA SUVOS (Semiconductor Ultraviolet Optical Sources) Program
- Key member of three Sandia teams awarded Employee Recognition Awards
- Selected to participate in the National Academy of Engineering "Frontiers of Engineering" Program limited to a select group of the nation's outstanding engineers
- Enjoys traveling to different places (Virgin Islands, Sea of Cortez, Sanibel and Captiva Islands in Florida) for sailing, kayaking and snorkeling

Renee Holland
Laboratory Staff
Employee Health 3331-2

- Winner of 2005 Employee Recognition Award
- Planned and implemented the Disease Management Clinic at Sandia
- Passion and commitment providing excellent patient care
- Positive influence on the lives of her patients and her colleagues in the Health Services Department
- Spends her time away from Sandia keeping her (soon to be four) children's lives enriched

Adriane Littlefield
Technical Staff
Regional Security & Multilateral Affairs 6024

- Led the Iraqi Science and Technology Engagement program, joining NNSA/Sandia with the Arab Science & Technology Foundation
- Planned and conducted a successful "International Conference to Engage Iraq's Science and Technology Community" in Amman, Jordan
- Developed new processes for assessing proposals resulting in funding for numerous projects that employ former Iraqi weapon engineers
- Raises and trains dogs with her husband that are used by law enforcement for drug and explosives detection

Sandia National Laboratories

WOMEN'S WALL OF FAME — The poster above, one of six posters highlighting achievements of 22 of Sandia's outstanding women for 2006, is on display on the first floor of Bldg. 802. The posters will later will be moved to different buildings for months at a time. This is the fourth year the Sandia Women's Action Network has done a Wall of Fame.

Feedback

Reader: Sandia should participate in PNM's wind energy program

Q: It has been estimated that wind energy could supply nearly 20 percent of our nation's energy needs. New Mexico's geography makes it particularly well-suited to take advantage of wind power. Meanwhile, increases in wind turbine efficiency, combined with the rising cost of natural gas, have made wind energy increasingly viable. Has Sandia considered participating in PNM's Sky Blue Wind Energy program? As a DOE lab, this would set an excellent example of our commitment to the environment and to renewable, pollution-free energy.

A: Sandia purchases electricity from the Western Area Power Administration (WAPA) through a contract negotiated by the U. S. Department of Energy's National Nuclear Security Administration (DOE/NNSA) for KAFB and Sandia National Laboratories. DOE/NNSA cur-

rently purchases 3.5 megawatts of hydroelectric power through the KAFB/SSandia contract, with Sandia receiving approximately 60 percent of the 3.5 megawatt allocation.

Sandia has also purchased 6,700 megawatt hours of renewable energy certificates from WAPA for FY06. This represents 3 percent of Sandia's total annual energy use.

Sandia, per the contract with DOE, cannot negotiate directly for electrical power. As such, we work closely with the DOE Service Center and Sandia Site Office on energy management and utility purchases.

I will ensure that our counterparts are aware of PNM's Sky Blue Wind Energy Program so that it is properly considered during negotiations.

— Lynnwood Dukes (10860)

Women at work at Sandia

- Women compose nearly one-third of the regular work force at Sandia today; 30 years ago, women served in one of seven positions at the Labs.

- Thirty years ago women were represented in one of 33 management positions. Today women serve in one of five management positions.

- Women are in one of four positions within the professional (technical and laboratory staff) ranks.

- In the technical ladders, women serve in one of five positions.

CELEBRATING 50 YEARS

Sandia National Laboratories
Livermore, California



1996 - 2006



A Proteus aircraft flies over southern California in 2004 in flights for the Department of Energy's Atmospheric Radiation Measurement-Unmanned Aerospace Vehicle (ARM-UAV) program, that is developing UAV-compatible sensor payloads and measurement techniques and using those payloads and capabilities in UAV and piloted aircraft science flights to acquire important climate-related data.

As the Cold War ended, Sandia's weapons role shifted from new designs to ensuring the viability of the existing stockpile through the use of advanced computational tools at the newly opened Distributed Information Systems Laboratory. Our capability in designing highly reliable systems was used to create the Explosive Destruction System for the U.S. Army to safely destroy legacy chemical ordnance. The largest laboratory-industry partnership was begun with a consortium led by Intel Corp. The program was to apply expertise developed during the Strategic Defense Initiative to enable patterning of smaller and more powerful microchips. Sandia also contributed to the Partnership for a New Generation of Vehicles announced by the White House. The Combustion Research Facility opened its Phase II in 1999, doubling its number of offices and labs. Modifications to the W87 warhead under the Life Extension Program were first incorporated into Minuteman III missiles in 1999. The site's portfolio diversified into bioscience and counterterrorism work prior to the 2001 terrorist attack on the Pentagon and World Trade Center, and continued under the new cabinet-level Department of Homeland Security.



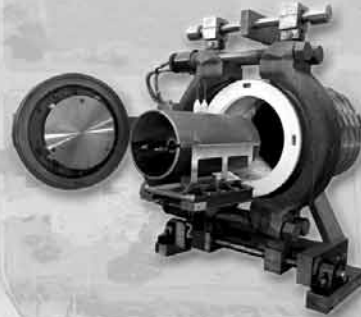
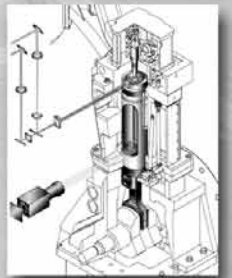
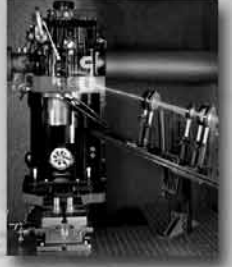
Sandia, Lawrence Livermore, and Lawrence Berkeley national laboratories received an unprecedented \$250 million from an Intel Corp.-led consortium in 1997 to apply expertise in working with extreme ultraviolet light to pattern smaller features on microchips. Shown at left at the EUV Milestone Celebration (from left to right) Craig Barrett, Intel Corp. CEO; Gen. John Gordon, Undersecretary for Nuclear Energy at the Department of Energy; Mim John, Vice President for Sandia California; U.S. Representative Eileen Tauscher; and Sunlin Chou, Intel Senior Vice President for Technology and Manufacturing.



Miriam "Mim" John became VP for Sandia/California in 1999.



The Combustion Research Facility (CRF) is known for its pioneering work in the use of lasers to study the complex combustion processes, chemical reactions, and fluid mixing that enable engine designers to produce more efficient engines. Chuck Mueller is shown here with a diesel research engine at the CRF in the late 1990s.



In 1998, Sandia delivered to the U.S. Army the Explosive Destruction System (EDS), which was designed to safely dispose of recovered chemical warfare materiel in an environmentally sound manner. A second phase EDS was delivered in 2003.



Sandia/California has led process development and fabrication of high-aspect-ratio micromachines for a variety of applications using LIGA technology (X-ray lithography, electroforming, and molding).



Sandia, with partners Tenix Investments and CH2M Hill, in 2004 signed an agreement to develop an unattended water safety system that offers the unique capability of detecting currently unmonitored biological agents.



The Distributed Information Systems Laboratory, opened in 2005, houses the Interactive Design Center. The new building gathers research that supports Sandia's nuclear weapons mission and other programs in the areas of high performance computing, distributed systems and visualization, networking, information security, and development of collaborative technologies.



In 1996, MicroChemLab research began in the Labs' first Grand Challenge Laboratory-Directed Research and Development project.

In 1999, the Sandia National Laboratories turned 50 years old.

In 1998, research began on the Explosive Destruction System that disposes of munitions in a self-contained, transportable manner.

In 2000, Building 913 was torn down in the middle of the site.

In 2004, the new Distributed Information Systems Laboratory was dedicated where Building 913 once stood.

1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 06

Clinton Administration (D)

Bush Administration (R)

The publicity that followed reported leaks of weapons data from Los Alamos National Laboratory computers to China in the mid-to-late 1990s forced a Congressional inquiry in 1999. DOE Secretary Bill Richardson shut down operations at the national laboratories for two days for employees to undergo intensive security training.

On Sept. 11, 2001, terrorists affiliated with al Qaeda attack the World Trade Center in New York City and the Pentagon using hijacked jets.

On February 1, 2003, the space shuttle *Columbia* breaks up on re-entry to earth.

On March 19, 2003, the U.S. begins the war in Iraq with major airstrikes and cruise missile attacks followed by ground combat forces.

WORLD EVENTS

Mileposts

New Mexico photos by Michelle Fleming



David Bullington
30 2666



Craig Furry
30 2621



Nancy Pruett Searls
25 5900

Recent Retiree



Arlene Price
30 3331



Belinda Tafoya-Porras
25 1712



Larry Cox
20 4329



Gary Laughlin
20 5990



Eric Schindwolf
20 5420



Emily Benavidez
15 2002



Teddy Blacker
15 1421



Linda Ehart
15 6036



Norma Lauben
15 4528



Nancy Lee
15 4536



Linda Sparling
15 5402



Feedback

Will 'Sandia Marketplace' be restored anytime soon to anything like its former self? In short: No

A note from Sandia Feedback administrator Mike Clough (3651):

The number one issue for Feedback questions throughout 2005 and for the first months of this year has been "Will the Sandia Marketplace be Restored?" Benefits Director Dr. Larry Clevenger's latest response on this subject is quite detailed and should inform employees of why the site was moved to the internal web.

Q: This question(s) (and venting) is a follow-up to the previous Feedback question on the removal of most discounts on Sandia's Marketplace website (which is now practically useless).

Why does Sandia remove a good deal just because of some complaints by a few people? Instead of providing visible, clear, and precise warnings that clearly state that Sandia only provides this information and does "not endorse, solicit or otherwise contract with any of the vendors on this site," Sandia chooses to remove the majority of the benefits. This was done without any attempt to find out if the majority (or even a minority) of employees valued the benefit (apparently that isn't an input to our HR group).

Additionally, the removal of some of these companies from our website removes the ability of some of us to take advantage of contracts we have already committed to (can't reach Verizon's corporate discount page even though Lockheed is part of their program).

Can we expect Sandia to expand this site in the future (or totally eliminate it)? Or is it another case of we (Sandia management) don't care and it's not worth our effort. I personally was excited when I saw the potential discounts we Sandians could take advantage of, especially when Sandia's trend seems to be making a determined effort to reduce, shift the cost to employees, and/or eliminate as many employee benefits as possible. It seems maintenance of a good employee discount page (including the occasional complaint) would pay a lot more dividends than it costs to maintain.

A: The Health, Benefits, and Employee Services Marketplace discount site was moved to Sandia's internal web to display only the corporate discounts negotiated by Lockheed Martin. There were many reasons for this decision including difficulties with vendors, employee dissatisfaction, and ethical and procurement issues. For some time, the HBE Services Center had been experiencing an increasing rate of employee dissatisfaction with many of the vendors offering discounts on the site.

Discounts that had previously posted to the site had not been negotiated with Sandia. Despite the fact that the site clearly stated that Sandia did not endorse, solicit, or otherwise contract with any of the vendors, employees experiencing difficulties had an expectation that Sandia could somehow intervene. Vendors and their discounts had not been negotiated through Sandia's procurement process, which resulted in an increasing number of questionable vendors aggressively soliciting the Employee Services department to advertise their services and to link up to vendors webs.

Many vendors began to demand free web advertising labor and services of the HBE Services Center. Moreover, many of the vendors already posted to the Sandia site, migrated their webs, discontinued discounts, or went out of business without notification to the Employee Services site.

This became a site maintenance issue and raised concerns about applying Sandia labor and funding to advertise outside vendors. An effort was made to establish a link from Sandia's internal web to a site maintained by Lockheed Martin, but because Lockheed's internal web is available only to its employees and requires a Lockheed employee authentication, this was not possible.

Anyone can, at any time, ask a retailer or vendor if they offer corporate discounts, and most large vendors do offer discounts to corporate and

government employees. However, Sandia employees cannot use government resources to procure personal benefits. The discount site was bordering on this ethical issue. Being a Sandia site, the discount site unintentionally encouraged employees to shop and compare personal consumer goods from their Sandia computers. As a Sandia Open Network site, this also gave a questionable impression of Sandia Corporation to other web users. Most large vendors routinely offer discounts to government employees, government contractors, and corporations. Employees interested in vendor discounts may contact vendors directly.

— Larry Clevenger (3300)

Thunderbirds to hear talk on Mars Rover and Cassini Saturn flyby discoveries April 10

Sandia's retirees group, the Thunderbirds, is hosting a presentation on "Astronomical Discoveries from the Mars Rover and the Cassini Flyby of Saturn"

2 p.m. Monday, April 10, at the Mountain View Club on KAFB.

The speaker is Michael Sepulveda, Observatory Director at the Lodestar Astronomy Center, who also presents many of the programs at the New Mexico Museum of Natural History and Science Planetarium

Call Rod Boenig at 836-6977 for information.



Sandia skaters take on LANL's best in exhibition match



SANDIA GOALIE Blake Jakaboski, left, waits for a shot on goal from a Los Alamos skater. Above, Sandian Gary Rivera reaches for the puck as LANL's skater attempts to block him. At right, Sandia's Gordon Keeler mixes it up with LANL players in front of the LANL net. (Photos by Randy Montoya)



ICE HOCKEY TEAMS from Sandia and Los Alamos faced off on March 19 at Outpost Ice Arena. The newly formed Sandia team struggled against a visiting team with more experience playing together. Matthew Stockham scored six times and Bill Scherzinger scored once for Sandia, but Los Alamos hung on to win 9-7. The Sandia team and the rivalry match against Los Alamos were inspired by the FBI vs. Secret Service ice hockey games held periodically in Washington, D.C.

Sandia's team plans to make the LANL match an annual event, with home games in Albuquerque and away games at Los Alamos. The team is arranging local games against Kirtland Air Force Base, Albuquerque police and fire departments, and other regional organizations. Other plans include ordering Sandia ice hockey jerseys. If interested in playing or purchasing a Sandia hockey jersey, contact Bankim Tejani (5631) at 284-9877 or bjtejan@sandia.gov.

Playing for Sandia:

Jason Cook, Dennis De Smet, James Freymiller, David Hostetler, Blake Jakaboski (goalie), Juan-Carlos Jakaboski, Gordon Keeler, Joseph Martin (assistant), Ron Oldfield (goalie), Jason Podgorski, Michael Rightley, Gary Rivera, Patti Sawyer, Bill Scherzinger, Jerry Smith, Dwight Stockham, Matthew Stockham, Bankim Tejani (captain), KC Wagner, and Jean-Paul Watson

IES Mercado's annual big tent to-do showcases panoply of services



THE ANNUAL IES MERCADO, held in a big tent near the Thunderbird Cafeteria on a snowy March day, attracted a steady stream of Sandians interested in learning more about the host of services provided by the Labs' various Integrated Enabling Services organizations. (They also came for the free ice cream bars, which were a popular take-away, even on a cold day.) Above, Dominique Kilman (4317, left), Deborah Schutt (4312), and Paula McAllister (4311) talk with customers about cyber security issues. At top right, T.J. Allard (4210, left) and Jeff Kallio (10530) welcome a visitor to the Mercado tent. At right, Creative Arts Dept. 3654 Manager Linda Lovato-Montoya explains her team's services to a potential customer. (Photos by Randy Montoya)