Policy changes coinciding with PeopleSoft upgrade

By Karyn Scott

There will be a number of policy changes coinciding with the pending upgrade to PeopleSoft 9.0, Sandia's human resources information system. The changes become effective with the PeopleSoft 9.0 rollout June 21. Here is a summary of the changes:

Acquire Talent (HR 100.1)

In conjunction with the Labs' evolving workforce management processes and the implementation of PeopleSoft 9.0, Sandia's procedures and processes for hiring employees are changing effective June 21. These changes will be reflected in the updated procedure, HR100.1.1, Unified Hire Process, which combines and will replace the current Source and Select an External Employee and Source and Select an Internal Employee procedures.

The new unified hiring process is designed to be simpler and easier to understand and implement, with fewer requirements. The changes reflected in the new process are a result of customer feedback and recent Lean Six Sigma reviews.

Some of the key changes include:

• The new unified hiring process brings external, internal, represented, and student hiring into a common, minimal workflow. This workflow is enabled by PeopleSoft 9.0 and will reduce the inconsistencies between hiring processes that exist today.

• Nonrepresented jobs will no longer be

(Continued on page 4)

Tom Hunter joins Energy Secretary Chu's technical team to address oil spill crisis

As the scope of the *Deepwater Horizon* oil spill crisis became more apparent, President Barack Obama tapped Energy Secretary Steven Chu to lead a team of top administration officials and government scientists in an extensive dialogue regarding potential solutions with BP officials in Houston. Secretary Chu's team has worked with leaders across government and the greater scientific community to address the oil spill by developing an approach for securing the damaged wellhead, stopping the leak, and minimizing impact from the spill. At the time Chu took on the crisis response role, he said, "Putting our best scientific minds together with BP's deepwater drilling engineers will enable these dedicated professionals to examine every feasible means and practical solution to this environmental crisis in the Gulf of Mexico." To accomplish the DOE mission, Chu summoned a number of technical experts to work closely with him. Among them was Tom Hunter, who has spent substantial periods of time in Houston since the crisis began. In this May 25 photo from DOE's Houston base, Tom, right, works closely with Chu on the oil spill response. (DOE photo)

Sandia LabNews

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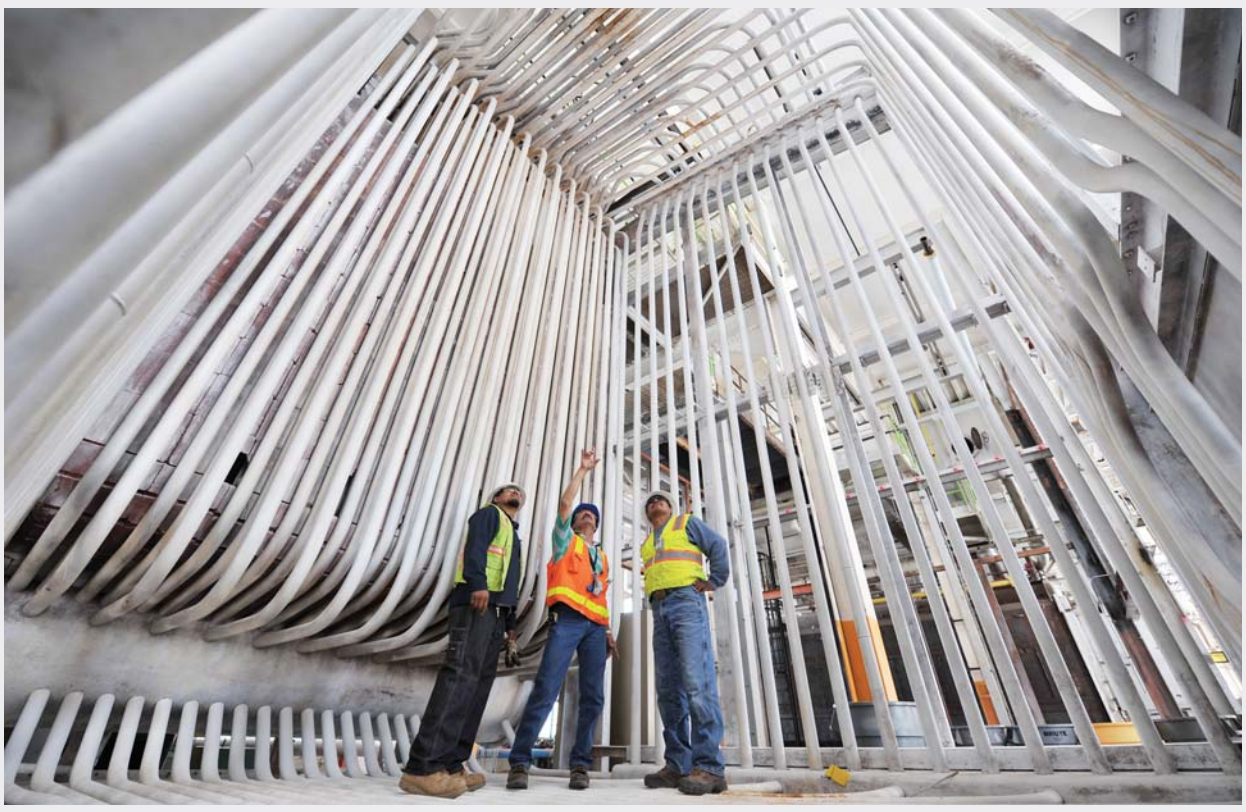
Sandia National Laboratories

Sandia steam plant demolition marks new era of better heating efficiency, fewer emissions



By Heather Clark

If operators didn't hear the deafening sounds of heavy fans, motors, pumps, alarms, steam valves popping during testing, water running, and the hiss of steam moving through pipes, that meant something was wrong at Sandia's steam plant, says Jerry Wright (4842-1), an electrician who worked there for 21 years.

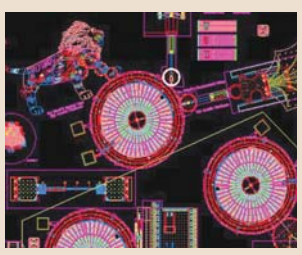
Now, Bldg. 605 has fallen silent and by autumn it will no longer exist.

FINAL INSPECTION — Bldg. 605 demolition team members Vincent Toya, left, Michael Pacheco, and Loren Sanchez inside the pipe framework of one of four boilers at Sandia's 60-year-old steam plant. The water flowing through the pipes here was heated by the boiler and converted to steam, which was then piped to facilities all across the Labs. The central steam plant has been replaced over the past several years with a system based on distributed boilers. (Photo by Randy Montoya)

Officials from the Labs and NNSA celebrated on May 27 the completion of a modern distributed heating system and the start of demolition of the now-obsolete 18,000-square-foot steam plant that has been part of the Labs' skyline for 60 years.

"It was a big part of my life for a long time," says Jerry, who was the last Sandian to move out of the building in 2008. "It's going to be strange to see it gone, but things change and you go on."

(Continued on page 6)



MEMS innovations

New student-developed concepts for microelectromechanical systems (MEMS) demonstrate the virtually limitless possibilities for innovation in the world of the very small — especially when inspired by tireless imagination. Read about this year's MEMS design contest for students on **page 7.**

Special appointments

Placement in the distinguished level signifies a promotion to the highest level of the technical staff, laboratory staff, technologist, or administrative staff associate ladders. This year, 72 Sandians were promoted to the "D" and "senior" level. Photos on **pages 8-9.**

Sandia Total Health deductible and coinsurance. See **page 5.**

That's that

Have you heard that Giant Voice in the sky? No, seriously. Kirtland Air Force Base has deployed a public address system technology called Giant Voice, which is capable of broadcasting PA announcements around the entire base. KAFB is using its Giant Voice system at 5 p.m. to broadcast daily Retreat, a bugle call followed by the playing of the national anthem (see item at right). Retreat is a ceremony that has been observed at American military bases in one form or another since the Revolutionary War and today is widely used to mark the end of the duty day and to show respect for the flag. There are specific protocols associated with Retreat. Whether you're a civilian or military, when the anthem begins, you stop, remove your hat, and place your right hand over your heart. If you're driving, you should stop your vehicle in place until the last note plays. At KAFB, the gates are closed during Retreat.

Daily Retreat is a tangible reminder for Sandians that we work on a military base and that we will inevitably be caught up in some of the military's longstanding traditions and ceremonies. I have to admit that the stopped traffic seemed a bit excessive to me at first, maybe even a safety issue, but on reflection, I think it's a good thing that we're reminded every day of who and what we're working for.

* * *

My wife grew up in a Navy family. Her father was a naval aviator and she spent her childhood on Navy bases around the country. She vividly remembers the nightly Taps ceremony; it was a central part of every day's activities. She recalls how the protocol would sometimes get in the way of a sandlot ball game. Imagine the scene: You've hit the ball to right field. You round first and are digging for second when Taps begins. A well-trained military kid, you jerk to a halt and stand at attention. Of course, some kid on the other team ignores the bugle call and tags you out. Oh, the arguments that would ensue! The semantics of this situation would challenge Solomon.

* * *

Still on the subject of the Giant Voice: I'm really impressed with the audio quality. I mean, the *Star-Spangled Banner* wafts over the base with bell-like clarity. But can sound quality be *too* good? Would Lou Gehrig's famous farewell speech at Yankee Stadium be the same on Giant Voice? "Today today. . .I consider myself consider myself . . . the luckiest man luckiest man . . . on the face of the Earth face of the earth." The speech hangs in the air and in the memory, the echoes bouncing off the bleachers, the words lodging themselves in the national consciousness forever (at least among baseball fans).

* * *

Colleague Neal Singer passed along to me the other day an email from *ASDReports*, a business that bills itself as providing "the most up to date, high-quality, collection of market research reports" in the areas of aviation, defense, security, energy and other high-tech related industries. The email is one of those marketing pitches, this one promoting its latest report "The Missiles Market 2010-2020."

ASDReports predicts that the missiles market is expected to boom, to really take off, over the coming decade and lists what it predicts will be the 20 biggest markets. Some — maybe even most — of the countries expected to stock up on missiles over the next 10 years are friends and allies of the US; other most decidedly are not. What did I think of as I read through the *ASDReports* email? About 20 years ago, right after the Berlin Wall came down, a well-known social philosopher said the fall of wall and the collapse of the Soviet Union represented "the end of history." After looking through the *ASDReports* email, I'm not so sure.

See you next time.

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

Basil Hassan elected to AIAA board of directors

Basil Hassan, manager of Strategic Implementation Dept. 12151, has been elected to the board of directors of the American Institute of Aeronautics and Astronautics (AIAA) by the Institute's membership. AIAA is the professional society that represents the aeronautics and space community, with more than 30,000 professional members.

BASIL HASSAN

Basil has been elected to the position of VP-elect of Technical Activities; his one-year service in that role began last month. In May 2011, he will become VP and serve a three-year term of office.

The AIAA VP of Technical Activities is responsible for overseeing all the technical activities of the organization, including sponsoring timely technical conferences, publishing important technical papers and standards, and recognizing technical and programmatic excellence in the fields of aeronautics and astronautics. Basil will lead the Technical Activities Committee, which has oversight of seven technical directorates in the broad areas of aerospace sciences; aerospace design and structures; aircraft and atmospheric systems; engineering and technology management; information systems; propulsion and energy; and space and missiles. These directorates are responsible for the operation of AIAA's 70 technical committees and 12 program committees and their associated activities.

Basil joined Sandia in 1993 as a postdoctoral researcher in Engineering Sciences Center 1500. He previously served as a staff member and manager of the Aerosciences Department before joining 1541 in his current position.

Recent Patents

Note: Patents listed here include the names of active and retired Sandians only; former Sandians and non-Sandia inventors are not included. Following the listing for each patent is a patent number, which is searchable at the US Patent and Trademark Office website (www.uspto.gov).

* * *

Christopher Nordquist (1742): Nanoelectromechanical Switch and Logic Circuits Formed Therefrom. Patent No. 7,719,318

Alex Robinson (1749), Ronald Manginell (1717), and Matthew Moorman (1717): Microfabricated Fuel Heating Valve Monitoring Device. Patent No. 7,708,943

Conrad James (1714), Paul Galambos (1749), and Mark Derzon (1749): Dielectrophoretic Columnar Focusing Device. Patent No. 7,713,395

John Shelnutt (1815), Craig Medforth (1815), and Yujiang Song (1815): Method of Photocatalytic Nanotagging. Patent No. 7,704,489

Michael Sinclair (18160, Kent Pfeifer (1717), Jeb Flemming (5527), Gary Jones (2953), and Chris Tigges (1725): Correlation Spectrometer. Patent No. 7,697,134

Vincent Hietala (1717): Microelectromechanical Tunable Inductor. Patent No. 7,710,232

Alexander Roesler (1832), and Joshua Schare (2626): Microfabricated Triggered Vacuum Switch. Patent No. 7,714,240

KAFB institutes Retreat ceremony

Retreat is now being observed on Kirtland Air Force Base every day at 5 p.m. All base gates — inbound and outbound — will be closed during Retreat. When the national anthem begins, civilians outside should stop, remove hats, and place their right hands over their hearts and remain in that position until the anthem ends. Drivers should stop their vehicles in place until after the final note of the national anthem. Also, if you happen to be on base at 10 p.m., you will hear *Taps*. No formal protocol is required for Taps unless it is played during a military ceremony.

For the record

The article regarding the construction contract agreements in the May 21 issue of the *Lab News* stated that contractors may have opportunities at the Labs for a variety of projects, including certain types of maintenance contracts. The potential projects referred to do not include services currently performed by the Metal Trades Council at Sandia.

Retiree deaths

Sandra Barnes (age 62) . . . . . July 24, 2009
Wallace Newman (76) . . . . . March 9

Sandia LabNews

Sandia National Laboratories

http://www.sandia.gov/LabNews

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Sandia honors young women for outstanding achievement in math and science

By Patti Koning

On May 19, Sandia's Women's Connection (SWC) honored 20 young women from high schools in the Livermore area for their achievements in math and science. Now in its 19th year, the Math & Science Awards event is intended to both encourage the recipients to continue studying math and science and to create mentoring opportunities.

Pat Smith (8500), director of Site Operations and director champion of the SWC, gave the welcome address.

"The women and men of Sandia believe strongly that you, this year's awardees, are our future," she said. "We congratulate you on your achievements and hope you will continue to pursue your interests in math and science through college and beyond. I also hope your interactions with the Sandians here tonight will give you a glimpse of some exciting career paths."

MARGARET QUINN (8522) speaks with one of the recipients of the award for Outstanding Achievement in Math. (Photo by Randy Wong)

Brooke Harmon (8621), a virologist, spoke about being the first person in her family to attend college. Valerie Peters (8621), who specializes in systems analysis for homeland security and energy systems, shared her experience struggling with, but eventually excelling in, a difficult math course as an undergraduate at University of California, Berkeley.

Each spring, the SWC sends out nomination forms to 10 area high schools. Math and science teachers, as well as principals and counselors from each school, nominate two young women who have done exemplary work in the areas of math and science. The award is given to high school juniors so they can list it on college and scholarship applications.

Cathy Branda (8621), chair of the Math & Science Awards, shared some of what was written in the nominating statements from the schools. "It is clear that you all are extremely bright, motivated, hardworking, and high-achieving students, most if not all in the top 5 percent of your class," she said. "But there was another very common theme in this year's nominating statements that I want to mention — you are leaders in your class who reach out to support your peers."

Each awardee was paired with a Sandia host working in the field of math or science, with the hope that the Sandia women can mentor the high school students as they continue in their academic and professional careers. This year's hosts were Donna Djordjevich (8116), Julie Fruetel (8125), Patricia Gharagozloo (8365), Brooke Harmon, Linda Houston (8530), Tammy Kolda (8966), Paula Krauter (6375), Jane Ann Lamph (8243), Valerie Peters (8114), and Jeanne Stachowiak (8125).

In the last two years, the event has also focused on internship opportunities at Sandia. Last summer, Prihatha Narasimmaraj (Foothill High) and Mary Shi (Tracy High), both recipients of the 2009 Outstanding Achievement in Science award, interned at Sandia with Darryl Sasaki (8621) and Cathy, respectively, and are returning this year. Chelsea Finn of Amador High School, recipient of the 2009 Outstanding Achievement in Math award, will also be at Sandia this summer, interning with Diana Roe (8621).

Mary is again interning with Cathy and the two are already developing a mentor/mentee relationship. Cathy wrote one of Mary's recommendations to Yale, her alma mater.

"For me, having mentors was key," says Cathy. In college she didn't really know what she wanted to do until one of her professors suggested she apply for a Pew Fellowship for intercollegiate summer research.

"It wasn't that I didn't think I could be a scientist, I simply hadn't thought of myself in that way before. It really planted the seed in my mind about what I could become and reach for," she says.

Kathleen Siwicki, the Swarthmore professor she worked with as a Pew fellow, encouraged her to attend graduate school. Cathy earned her PhD in genetics from the Yale University School of Medicine and is now researching detection methodologies relevant to biodefense.

"Mentors showed me the path that led me here," she says. "I want to make sure others have that opportunity too."

The SWC's Math & Science Awards program is organized by the Math & Science Awards Committee, composed of Donna Blevins (8953), Marilyn Hawley (8116), Seanna Crouch (8942), Deneille Wiese-Smith (8129), as well as Cathy and Pat.

The recipients of the 19th annual Math & Science Awards are:

Amador High School, Pleasanton
Elizabeth Fromson – math
Omsri Bharat – science

Dublin High School, Dublin
Tess Schoenthal – math
Michelle Lee – science

East Union High School, Manteca
Hermila Mendoza – math
Kayla Tirnetta – science

Foothill High School, Pleasanton
Annie Wei – math
Jessica Xu – science

Granada High School, Livermore
Amanda McNary – math
Erika Carlson – science

Livermore High School, Livermore
Cynthia Jing – math
Rachelle Hamblin – science

Manteca High School, Manteca
Michelle Sinclair – math
Dallas Mould – science

Merrill F. West High School, Tracy
Gabriella Herrera – math
Ashley Vergel de Dios – science

Sierra High School, Tracy
Lisa Thomas – math
Jasmine Currimao – science

Tracy High School, Tracy
Qiran Xie – math
Effie Zhou – science

John Dec honored with ASME career achievement award

John Dec (8300), a senior scientist in the Transportation Energy Center, has been selected to receive the 2010 American Society of Mechanical Engineers (ASME) Internal Combustion Engine (ICE) Award "for developing optical/laser diagnostics and using them to provide a comprehensive picture of diesel combustion that played a key role as the basis for models used by industry to develop the first computationally designed diesel combustion system."

JOHN DEC

The ICE Award recognizes eminent achievement or distinguished contribution over a substantial period of time, which may result from research, innovation, or education in advancing the art of engineering in the field of internal combustion engines; or in directing the efforts and accomplishments of those engaged in engineering practice in the design, development, application, and operation of internal combustion engines.

This award consists of a $1,000 honorarium and a plaque. John will be present for the formal presentation of the award at the Internal Combustion Engine Fall 2010 Technical Conference in San Antonio, Texas, this September.

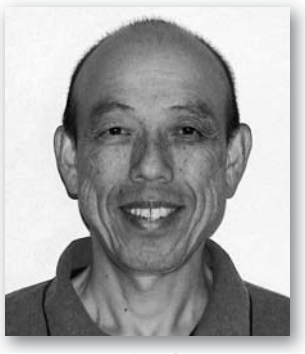
John holds a BS degree from Virginia Polytechnic Institute and received his PhD in mechanical engineering from the University of Michigan. John then joined the staff at Sandia, and has worked at Sandia's Combustion Research Facility on engine-combustion research since 1989. As principal investigator in the Heavy-Duty Diesel Engine Laboratory, he conducted numerous investigations of diesel-engine combustion and emissions. Most of these studies involved the use of laser-based imaging diagnostics and were directed at improving the efficiency and reducing the emissions of diesel engines.

More recently, John worked to establish a homogeneous charge compression ignition (HCCI) engine research program at Sandia, and has conducted several investigations on various aspects of HCCI combustion. He has authored or coauthored more than 100 technical papers mainly in the areas of diesel- and HCCI-engine combustion and emissions, and has received several awards for these papers, including the Society of Automotive Engineers (SAE) Horning Memorial Award and two Colwell Merit Awards. John also has been elected as a Fellow of the SAE in recognition of his contributions.

Sandia CaliforniaNews

Wei-Yang Lu selected as an ASME Fellow

Wei-Yang Lu (8246) has been named a Fellow of the American Society of Mechanical Engineers (ASME). The Fellow grade, ASME's highest elected grade of membership, recognizes significant engineering achievements and contributions to the engineering profession.



WEI-YANG LU

According to the ASME citation, Wei-Yang was honored for "substantial contributions to rigorous experimentation in the characterization of the mechanical responses of a variety of engineering materials and structures under wide ranges of size scales and loading conditions." He has designed and performed many original experiments and led many teams attacking large-scale and multidisciplinary engineering problems.

Wei-Yang earned his BS in mechanical engineering from National Taiwan University. He received his MS in mechanical engineering from the University of New Mexico and PhD in engineering and applied sciences from Yale University.

Wei-Yang joined Sandia in 1992. He currently works in the mechanics of materials group, conducting experimental research in micromechanics, nonmetallic and inhomogeneous materials with an emphasis on advanced diagnostic methods. His work also includes several weapon-related programs and WFO projects. Prior to Sandia he was a tenured associate professor of engineering mechanics at the University of Kentucky.

Aspects of his work have appeared in 120 publications, including journal articles, book chapters, reports, and conference proceedings. He is a member of both ASME and the Society for Experimental Mechanics (SEM). From 2002 to 2007 he was on the editorial board of the *Journal of Strain Analysis*.

New tech transfer center for Livermore?

During a May 10 news conference, Rep. John Garamendi, D-Calif., discusses a new bill that would authorize establishment of a technology transfer center at Sandia/California and neighboring Lawrence Livermore National Laboratory. Rep. Garamendi spoke of efforts to increase collaboration among the two national labs, the private sector, and universities. (Photo by Dino Vournas)

upgrade

Correcting Timesheets

June 2010 → In the new Time and Labor application planned for release Monday, June 21, employees will only be able to correct timesheets for a maximum of four weeks prior to the current work week.

http://upgrade.sandia.gov

Policy changes

(Continued from page 1)

required to be posted internally. With appropriate management approval, and under certain business conditions, jobs may be posted directly to the external web.

• The new PeopleSoft 9.0 applicant dispositioning system will be used to ensure that all prospective employees receive communication on the job's status.

• Three letters of recommendation for external candidates will no longer be required. Instead, reference checks will be used to confirm an applicant's work and performance history.

• Promotion criteria have been modified to eliminate the direct requirement of specific Value of Contribution (VOC) ratings for specific time periods. Rather, sustained performance and VOC ratings are a consideration, with other factors, in the selection of an individual for promotion.

• A PeopleSoft interview evaluation will now be required for all external candidates who are interviewed at the Labs.

• Use of "Laboratories Success Factors" that focus hiring considerations on technical skills, leadership abilities, essential skills, and ability to contribute are being introduced. The use of success factors introduces consistency across the Labs and supports hiring the employee of choice.

• Nonregular employees, such as limited-term employees, postdoc employees, and students, will now bid on internal postings rather than on external postings. Note that staff augmentation contractors will still bid externally.

Refer to the Change@Sandia website for more information.

Request Donated Vacation and Donate Vacation (HR 100.4.1)

Donating or requesting vacation donation time will now be managed through a new Time Reporting Code (233).

Schedule and Use Vacation (HR 100.4.2)

An important change in vacation accrual will take place in June. Accrued vacation will be credited to your vacation balance twice monthly instead of once a month. The accruals will be based on pay period end dates. All employees on-roll at the end of the pay period will accrue biweekly vacation (over 24 pay periods per year). The accrual will post to employees' balances the day after the end of the pay period. For months with three pay periods, there will not be a vacation accrual for the third pay period. This accrual change does not result in a change to your projected vacation for the year — it results in more frequent and timely postings to your vacation balance.

Because accrued vacation currently posts a full month after it is earned, a two-month "catch up" accrual is necessary before the transition. That two-month accrual will take place on Thursday, June 17. Executive management has approved measures to minimize the loss of vacation.

Refer to the Change@Sandia website for more information.

Compensate Employees for Time Outside Regular Work Schedule (HR 100.5.10)

The Extended Work Week (EWW), which is when straight time hourly pay is more than 40 hours in a week for exempt employees, will require a vice president's approval (to be obtained by the employee's manager). Copies of the approval memos will then be sent to the Compensation Department. Note that the approval should not be sent to the Payroll department. After an employee is approved for EWW, he or she will charge any time in excess of 40 hours to the EWW time code on his or her timesheet. Time charged to the EWW time code then requires weekly approval by the employee's manager, and will not be compensated unless this approval is received.

Beginning with the timecard for the week of Friday, June 18, to Thursday, June 24 employees who are currently approved for EWW will begin charging time in excess of 40 hours to the EWW time code. Managers must approve any time charged to the EWW time code by 7 p.m. on Thursday of each week in order for their employee to receive EWW pay.

As part of Sandia's transition to PeopleSoft 9.0 and the ongoing job structure and compensation policy review, effective June 21, part-time exempt employees (regular, limited term and postdoctoral appointees) will be treated and paid as exempt employees. Exempt employees are salaried employees and typically receive no extra pay for hours worked beyond their defined work schedule. Therefore, part-time exempt employees will now be paid a predefined salary based on their defined work schedule

upgrade

Vacation Buy

June 2010 → Employees who participate in the Vacation Buy program will no longer have to exhaust all available balances in their vacation and flex accruals before using their bought vacation.

http://upgrade.sandia.gov

that is not affected by hours worked. For example, a part-time exempt employee whose defined work schedule is 25 hours per week will be paid his or her salary based on 25 hours per week even if the employee works in excess of 25 hours in a workweek. However, any hours worked beyond their defined work schedule may be granted as flextime with prior approval at the discretion of their manager, in accordance with applicable corporate policies and procedures.

Refer to the Change@Sandia website for more information.

Record Employee Absences, Corporate Training, and Disciplinary Actions on a Timecard (HR 100.5.11)

Time-charging increments will also change with the release of PeopleSoft 9.0. For all paid time that is not worked, exempt employees will charge Time Reporting Codes (formerly known as A-Orders), in one-hour increments. Non represented, nonexempt employees will charge in 15-minute increments. Represented employees should charge their time per their collective bargaining agreements.

The following training TRCs may be charged in 30-minute increments:

• A290
• A291
• A292
• A294
• A295
• A299

Flex time will be available to be taken in one-hour increments.

There are two time codes that will require manager approval in order for the employee to be paid — pager pay and EWW. If the manager does not approve these, the employee will be paid for other time entered, but not for the unapproved pager pay or EWW.

Vacation Buy (policy number to be determined)

Employees who participate in the Vacation Buy program will no longer have to exhaust all available balances in their vacation and flex accruals before using their bought vacation.

Time Allocation

Time allocation previously existed as an optional time-charging process that was available to department managers, team supervisors, and authorized office assistants and staff members. This feature enabled these individuals to have the timecard application automatically allocate projects and tasks based on the time charges submitted for a workweek.

Time allocation will be discontinued with the implementation of PeopleSoft 9.0. Every employee is expected to charge his or her time to the appropriate project and task. Simply stated, everyone should charge work directly to the benefiting project. The following guidance should be observed for managers, assistants, and business personnel:

Business personnel

• As approved by the director, business personnel supporting multiple projects, and where it would be burdensome to account for time spent on specific projects, can charge time to either Management of Center Capacity (MOCC) or to Division Support (DS), if no MOCC exists.

• In certain situations, as accounted for in the project plan and agreed to by the customer, administrative, or support time can be charged directly to the benefiting project.

Assistants

• Assistant's time should be charged in a manner consistent with the management that they support. If the manager is charging either MOCC or DS, if no MOCC exists, the assistant should charge in the same manner.

• Assistants assigned to a specific project, who can account for their time according to the actual time worked on that project, should charge directly to that benefiting project.

• In certain situations, as accounted for in the project plan and agreed to by the customer, administrative or support time can be charged directly to the benefiting project.

Managers

• General management and supervision time should be charged to either MOCC or to DS, if no MOCC exists.

• Time a manager spends directly working, not performing general management or supervision, should be charged directly to the benefiting project.

• In certain situations, as accounted for in the project plan and agreed to by the customer, management and supervision time can be charged directly to the benefiting project.

Refer to the Change@Sandia website for more information.

Note: Provisions in policies, processes, and procedures that conflict with those in a collective bargaining agreement do not apply to employees covered by such agreement.

upgrade

Timecard Submissions

June 2010 → Timecards for the week ending June 17 must be submitted no later than Wednesday, June 16, at 6:30 p.m. MDT

http://upgrade.sandia.gov

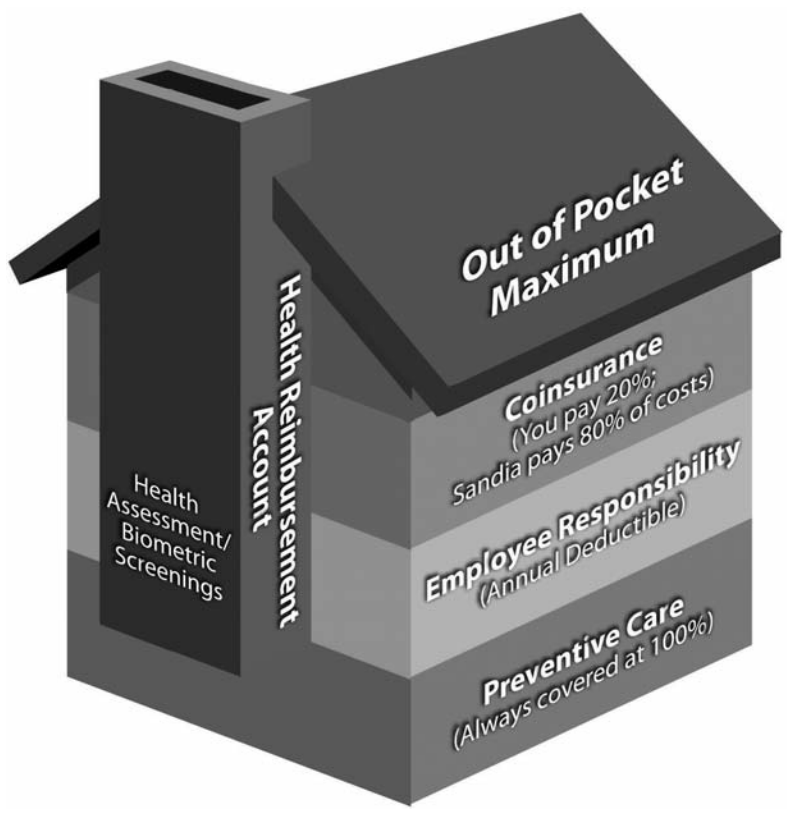
Take Charge Corner

Sandia Total Health deductible and coinsurance

Note: This information provided by Sandia's Benefits organization. Previous Take Charge Corner articles have addressed other "floors" and features of the Total Health house.

As we journey through our Sandia Total Health house, the blueprint of the plan should be getting clearer. We have already examined the Health Reimbursement Account and Preventive Care, two features of the plan intended to provide assurances as to the protections the plan offers. And as we move to the upper levels of the house, you are hopefully seeing how the Sandia Total Health framework is safe and secure, sheltering the members from excessive health care costs.

This article provides an example of information contained on www.Sandia TakeCharge.com — your source for all Sandia Total Health news and information. Visit www.SandiaTake Charge.com often as the site contains more articles like this, and is updated monthly with new information and useful tools.



What is a deductible; What is coinsurance?

Just like your car insurance deductible, your Sandia Total Health deductible is the amount you pay each year out of your pocket for medical expenses before your plan benefits begin. Your annual deductible amount is based on the coverage tier you elect, and whether you use in- or out-of-network providers. If you use in-network providers, you have the following deductibles:

- Employee-only coverage: you pay $750 out of your own pocket before your plan benefits begin
- Employee + spouse or child(ren) coverage: you pay $1,500 (maximum of $750 per person) out of your own pocket before your plan benefits begin
- Employee + spouse and child(ren) coverage: you pay $2,250 (maximum of $750 per person) out of your own pocket before your plan benefits begin

How the deductible works together with coinsurance

Once you have paid the deductible amount, you and Sandia start sharing the remaining cost of covered medical services.

Important deductible facts:

- **There is no deductible for outpatient prescription drugs purchased through Catalyst Rx or for certain in-network preventive care, which is covered at 100 percent.**
- **After one person under your coverage meets the $750 deductible for his or her own expenses, coinsurance for that person begins immediately, even if your family has not met the total Employee + Spouse and/or Child(ren) deductible.**

Sandia pays a fixed percentage of the cost of covered medical services, and you pay the remaining percentage. The percentage of the cost that you pay is called the coinsurance amount. For example, when visiting a doctor's office, once you have paid your deductible, Sandia will pay 80 percent of the cost of in-network office visits, and you will pay the remaining 20 percent. The 20 percent amount you pay is your coinsurance amount.

Your coinsurance amount will be based on whether you use in- or out-of-network providers. And unlike co-pays, which are a fixed amount, coinsurance will vary depending on the cost of the service.

Use your Health Reimbursement Account (HRA) to help pay your annual deductible and coinsurance. When employees and PreMedicare retirees simply complete a biometric screening and health assessment, they receive their portion of the HRA allocation. Eligible dependants do not need to complete a biometric screening and health assessment in order to receive their HRA allocation. See www.SandiaTakeCharge.com for more information on the Sandia Total Health HRA.

An example

This Sandia Total Health example shows you how the deductible and coinsurance applies for a family of five with $4,750 in combined in-network medical expenses. The deductible (as described above) for Employee + spouse and child(ren) is $2,250.

	Employee	Spouse	1st Child	2nd Child	3rd Child	Total
Expenses Incurred	$1,000	$2,000	$500	$250	$1,000	$4,750
Minus Applicable Deductible[1]	**$750**	**$750**	**$500**	**$250**	**$0[2]**	**$2,250**
Remaining Balance	$250	$1,250	$0	$0	$1,000	$2,500
x % Coinsurance	20%	20%	20%	20%	20%	20%
Applicable Coinsurance	**$50**	**$250**	**$0**	**$0**	**$200**	**$500**
Employee Paid[3] (applicable deductible + applicable coinsurance)	**$800 ($750 + $50)**	**$1,000 ($750 + $250)**	**$500 ($500 + $0)**	**$250 ($250 + $0)**	**$200 ($0 + $200)**	**$2,750 ($2,250 + $500)**
Plan Paid	$200	$1,000	$0	$0	$800	$2,000

[1] This shows how much of the $750 per-person deductible amount was used to cover the expenses incurred by each family member.
[2] The $2,250 deductible has already been met.
[3] These costs may be offset by Health Reimbursement Account (HRA) funds ($750 per family max)

For more information about the Sandia Total Health plan design features, please visit www.SandiaTakeCharge.com.

Steam Plant

Photos by Randy Montoya

GRAND SLAM — Paul Hommert, who will become Labs director on July 9, delivers a symbolic first blow to Sandia's aging steam plant facility. Paul was joined by several Sandians and officials from NNSA to celebrate completion of a modern distributed heating system and the start of demolition of the now-obsolete 18,000-square-foot steam plant.

GOING . . . GOING . . .GONE — The 60-year-old steam plant facility warmed generations of Sandians in their labs and offices, but its infrastructure is obsolete and its boilers dated and inefficient. After extensive preliminary prep work by demolition crews, the walls of the building began to come down last week. The building will be demolished over the next six to eight weeks and all the debris, most of which will be recycled, should be removed from the site by the end of September.

(Continued from page 1)

The demolition of the obsolete facility marks the completion of the NNSA's $60 million Heating System Modernization program at Sandia, which is part of NNSA's Facilities and Infrastructure Recapitalization Program (FIRP). FIRP is aimed at eliminating or modernizing substandard facilities across the nation's nuclear weapons enterprise and reducing a large maintenance backlog that developed during the 1990s.

The red brick building, which rises to four stories on its northern side, was designed by Black & Veatch of Kansas City, Mo., and the US Army Corps of Engineers in Albuquerque, according to records provided by corporate historian Rebecca Ullrich (9532). The plant also once heated the surrounding military base.

When the plant was first built, the operators lit the fires with a torch and monitored the flames by looking at them, Jerry says. Upgrades to that system came along in 1960 and 1994, he says.

In its day, the plant was known for its efficiency. In 1960, during a cold snap its production reached a peak rate of water converted to steam per hour of more than 180,000 pounds, according to a *Lab News* article written that year.

At times, oil consumption reached nearly 35,000 gallons per day to heat the Laboratories and other facilities on the base, according to the *Lab News* article.

Because the plant had to run around the clock, the operators were on call after regular work hours to respond to emergencies at the Labs, including intrusion alarms, fire alarms, vehicles stuck in winter snow storms, stuck elevators, and many others, Jerry says.

Heroes worked here, often unsung

"If anything, they were heroes. They kept this place warm and comfortable. They went out on calls at night, and sometimes they had no idea what was out there," Jerry says.

Those who worked in the plant were proud that it could switch between fuel oil and natural gas, Jerry says. Sometimes during cold weather the local utility asked the Labs to switch so there would be enough fuel for Albuquerque hospitals and homes. At other times, the plant switched when fuel shortages arose to save money.

Deferred maintenance costs and equipment corrosion issues that made the steam plant inefficient led to a 2004 decision to replace the aging centralized heating system with local boilers placed in buildings or groups of buildings in Tech Area 1, which has now been completed, says Jim Smith, project manager of the Heating Systems Modernization effort.

"I love steam boilers. Any time you take something down, there's always going to be that nostalgia, but by the same token it's the right thing to do," Jim says.

The new heating system will save nearly 12 million gallons of water a year. It is about 85 percent efficient, compared to the 65 percent efficiency rating for the old boilers. It will reduce heating system energy usage and pollutants by at least 60 percent, Jim says.

With the new heating system, emissions of nitrous oxides will be reduced from about 44 tons a year to nine tons a year. Carbon monoxide will decline from nearly 33 tons a year on the old system to 15.6 tons a year with the modern system. And, sulfur dioxide will fall from 14.5 tons a year to 0.4, Jim says.

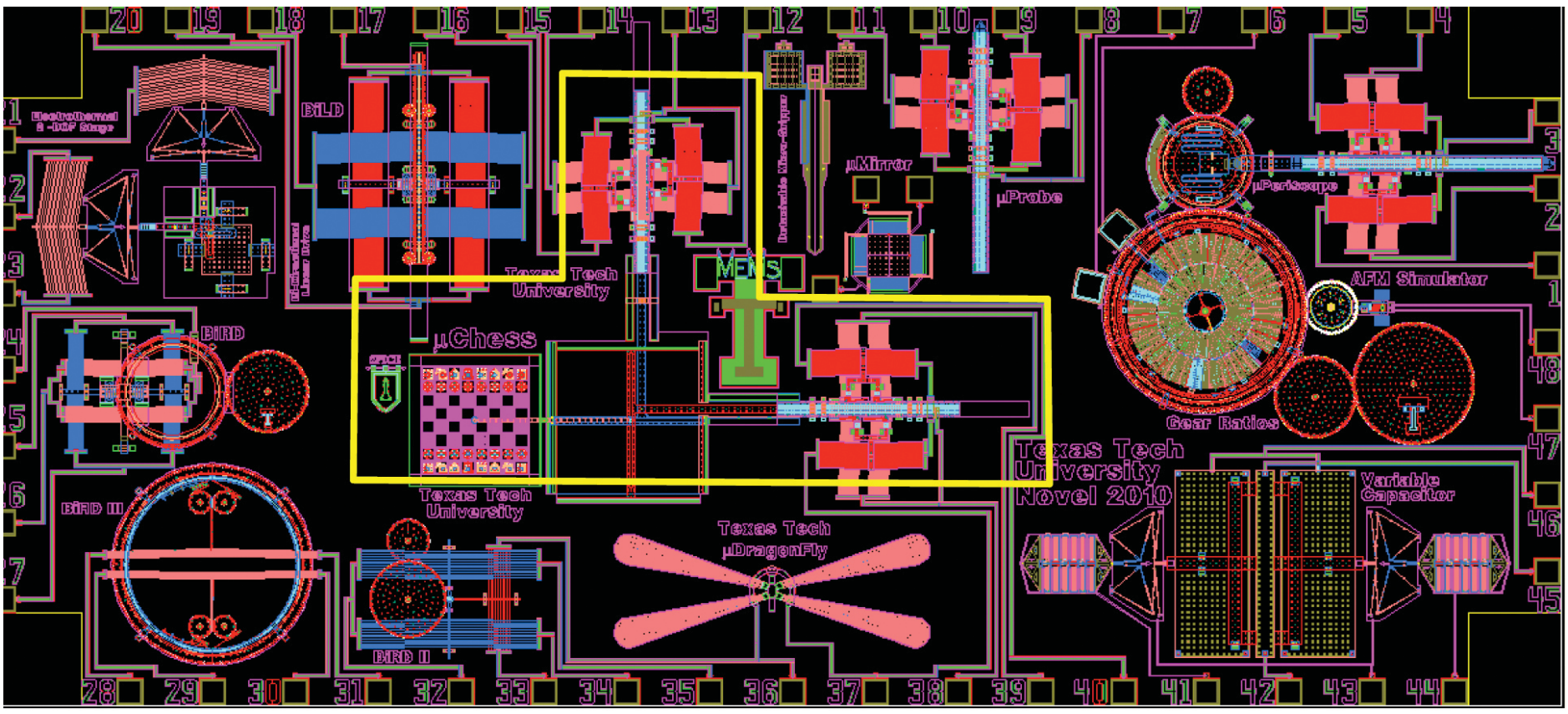
"From a pollution standpoint, what we're doing with the local boilers is way, way better," he says.

About 80 percent of the work to modernize the heating system was completed by small businesses, one of which grew to become a large business while it was working on the project, Jim says.

Over three years during the summers, these companies converted 47 buildings from the centralized system to local boilers. They installed 106 hot water boilers, five steam boilers, new natural gas connections, and meters, Jim says.

Sixty percent of the materials removed from buildings to prepare for the installation of the local boilers were recycled, he says. Significant additional recycling by the contractor is anticipated during the final demolition work.

The building will come down over the next six to eight weeks and all the debris, most of which will be recycled, should be removed from the site by the end of September, Jim says.



A PLAYABLE CHESSBOARD (just left of center in the image above) is one of numerous components on the Texas Tech winning entry in this year's MEMS challenge.

Texas Tech, U of Utah win Sandia MEMS competition

World's smallest chess set and a microbarbershop win big in microelectromechanical systems challenge

By Neal Singer

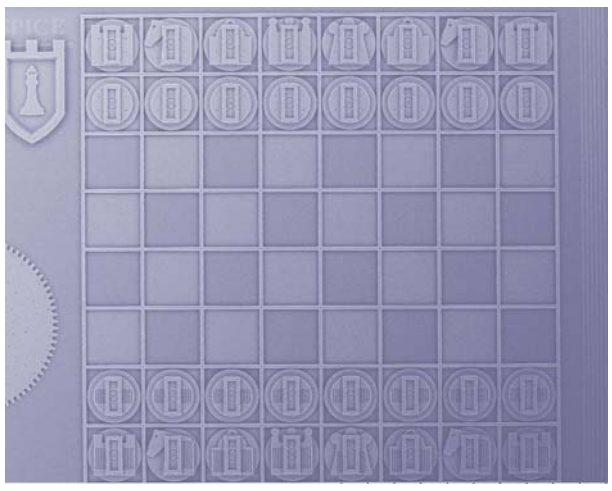
Anyone thinking of traveling light might be interested in packing the world's smallest chess board — about the diameter of four human hairs — designed by students at Texas Tech. The board comes with micropieces scored with the design of traditional chess figures. Each piece is outfitted with even tinier stubs that allow a microrobotic arm to move them from square to square. Space along the side of the board is available to hold captured pieces.

Those interested as well in personal grooming might want to also pack a pea-sized microbarbershop. Intended to service a single hair, the micro gripper, cutter, moveable mirror, and blow dryer were designed by students at the University of Utah. "Our device is so small that a single misty drop of an Irish drizzle would swamp the scissors and drown the device," says team advisor Ian Harvey, a professor in mechanical engineering at the university.

A high-spirited contest

Both ideas won this year's contest for microelectromechanical systems (MEMS) for novel and educational categories, respectively, held at Sandia in mid May. The winning teams will get to see their designs enter the real world by being birthed in Sandia's microfabrication facility, one of the most advanced in the world.

The high-spirited contest, open to institutional members of the Sandia-led MEMS University Alliance program, provides an arena for the nation's student engineers to hone their skills in designing and using microdevices. Such devices are used to probe biological cells, arrange and operate components of telecommunications and high-tech machinery, and operate many home devices.



GRAND MASTER — A teeny tiny chessboard designed by Texas Tech team for Sandia's annual MEMS student design contest.

The contest helps develop a sense of the maximum and minimum displacement of a micro-object, the amount of force needed to move it, and the degrees of freedom needed for a part to accomplish its preset task.

Texas Tech's chess board is 435 by 435 micrometers. (A human hair is about 100 micrometers in diameter.) Each chess pieces is approximately 50, or half the width of a human hair. The design integrates bidirectional linear drives that enable the movement of pieces longitudinally, a positioning stage with two degrees of freedom, and apparently, the world's smallest chess board.

The University of Utah's microbarbershop consists of a microgripper that reaches off the chip to grasp a human hair and holds it in front of an off-chip deployed microbuzzsaw to be cut. Both microtools, driven by a ratcheting actuator, will be observed at a video-enabled station and portrayed on a large video monitor as they move and cut a human hair. Also included are a moveable micromirror, an off-chip micro hair dryer, and an off-chip single-hair "teaser" to complete the playful notion of a barbershop and convey an intuitive sense of relative scale for these tiny machines.

Contributing to Texas Tech's success were Sahil Oak, Sandesh Rawool, Ganapathy Sivakumar, and Ashwin Vijayasai, says team advisor and electrical engineering professor Tim Dallas.

Leading the Utah effort were Austin Welborn, Brian Baker, Kurtis Ford, Alex Hogan, Ted Kempe, Keng-Min Lin, Charles Fisher, and advisor Ian Harvey.

This year's contest participants included the Air Force Institute of Technology, the universities of Oklahoma and New Mexico, and Central New Mexico Community College.

Outreach to universities

The MEMS University Alliance is part of Sandia's outreach to universities to improve engineering education. It is open to any US institution of higher learning. The alliance provides classroom teaching materials and licenses for Sandia's special SUMMiT V™ design tools at a very reasonable cost. This makes it possible for a university without its own fabrication facilities to develop a curriculum in MEMS. The design competition is an increasing activity within the University Alliance, which now has more than 20 members.

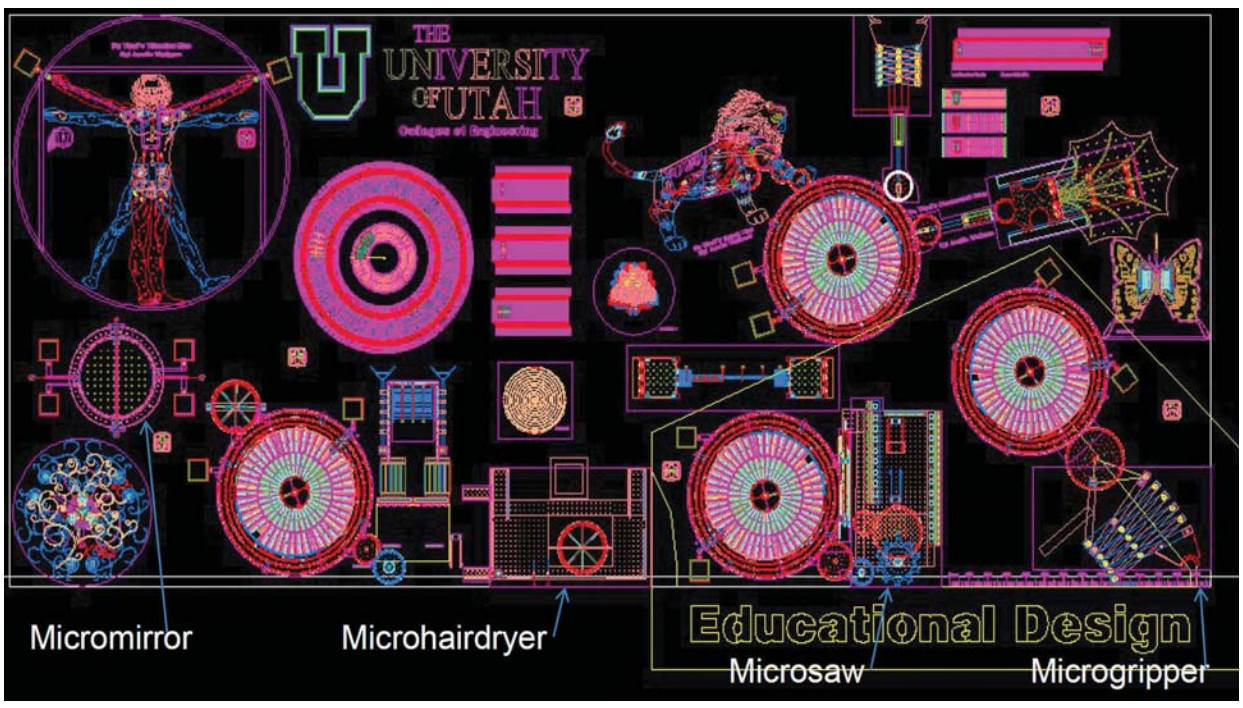
The entire process takes almost nine months. It starts with students developing ideas for a device, followed by creation of an accurate computer model of a design that might work, analysis of the design, and finally, design submission. Sandia's MEMS experts and university professors review the design and determine the winners.

Sandia's state-of-the-art MESA fabrication facility then creates parts for each of the entrants. The SUMMiT V™ fabrication process makes MEMS devices with five levels of polysilicon, the most of any standard process, and is especially well-suited for making complex mechanisms such as gear drive trains. The design competition capitalizes on Sandia's confidence in achieving first-pass fabrication success, which restricts the entire process to a reasonable student timeframe.

Fabricated parts are shipped back to the university students for lengthy tests to determine whether the final product matches the purpose of the original computer simulation.

The University Alliance coordinates with the Sandia-led National Institute for Nano Engineering (NINE), providing additional opportunities for students to self-direct their engineering education, and the Sandia/Los Alamos Center for Integrated Nanotechnologies (CINT), a DOE Office of Science center with the most up-to-date nanotechnology tools.

For more information regarding the University Alliance and the design competition, contact Stephanie Johnson (1749-1) at srjohns@sandia.gov.



A LITTLE OFF THE TOP — The University of Utah's microbarbershop has all the components necessary to cut hair — a single hair, that is.

72 Sandians move into Distinguished, Senior ranks

Divisions announce DMTS, DMLS, DTNG, DASA, Sr. Scientist/Engineer, Senior Administrator appointments

Sandia's special appointments represent employees from all areas of the Labs' operations: Senior Scientist/Engineers, Distinguished Members of Technical Staff, Distinguished Members of Laboratory Staff, Distinguished Technologists, and Distinguished Administrative Staff Associates. Seventy-two Sandians were honored with special appointments this year.

According to Corporate Policy System documentation, "Placement in the Distinguished Level signifies a promotion to the highest level of the Technical Staff, Laboratory Staff, Technologist, or Administrative Staff Associate ladder. This level is different from the other levels in that it is subject to a 10 percent population limitation to preserve the distinction of the level."

Traditionally, one of the Labs' key incentives for staff retention has been the quality of the folks who work here. Being able to offer prospective employees the opportunity to work with the most highly regarded people in their fields is a powerful recruiting tool. The individuals pictured here represent the world-class quality of the Labs workforce at its best.

Employees selected for the new levels have been recognized with a special plaque and a nonbase salary award, in addition to this special mention in the *Lab News*.

As has been its tradition for many years, the *Lab News* presents photographs of Sandians who have received special appointments this year. Not pictured here are: Susan Brozik (1714) DMTS; Bernard Browne (2915) DTNG; and Richard Crowder (2915) DTNG.

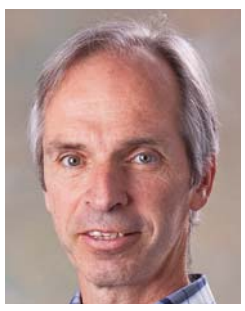
DMTS — Distinguished Member of Technical Staff
DMLS — Distinguished Member of Laboratory Staff
DASA — Distinguished Administrative Staff Associate

DTNG — Distinguished Technologist
Sr. Sci/Eng — Senior Scientist/Engineer
Sr. Admin — Senior Administrator


Rob Allen
Sr. Sci/Eng 8110


Bob Ballance
DMTS 9328


David Barber
DMTS 6751


Patrick Barney
DMTS 5338


Steven Bauck
DMLS 10011


James Beals
DMTS 4826


Brent Blankenship
DMTS 2132


John Brockmann
DMTS 1532


Doug Brown
Sr. Sci/Eng 9312


Joseph Burnside
DTNG 2667


John Joseph Clement
DMTS 5644


Tim Cohen
DMTS 9001


Wilma Convissor
DASA 10507


Karen Current
DMTS 2737


Bob Cutler
DMTS 6475


John Dec
Sr. Sci/Eng 8300


Jay Dike
DMTS 8249


Paul Dodd
DMTS 1731


Victor Echeverria
DMTS 5622


Michael Eldred
DMTS 1411


Stephanie Eras
DMTS 5741


Juanita Evans
DASA 9003


Stephen Foiles
DMTS 1814


Daniel Gallegos
DMTS 2623


Marie Garcia
Sr. Admin. 1912


David Geene
DTNG 2126


Brian Geery
DMTS 2113


Bob Glass
Sr. Sci/Eng 6382

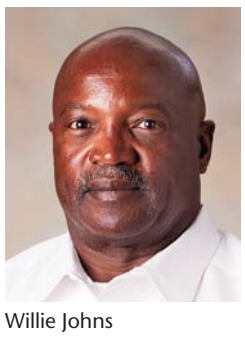

William Greenwood
Sr. Sci/Eng 2610


Michelle Griffith
DMTS 5578


David Hanson
DMTS 1643


Heidi Herrera
DMTS 4132


Judith Jojola
DASA 10248


Willie Johns
DTNG 4122


Michael Johnson
Sr. Sci/Eng 8900

72 Sandians move into Distinguished, Senior ranks

Divisions announce DMTS, DMLS, DTNG, DASA, Sr. Scientist/Engineer, Senior Administrator appointments

DMTS — Distinguished Member of Technical Staff
DMLS — Distinguished Member of Laboratory Staff
DASA — Distinguished Administrative Staff Associate
DTNG — Distinguished Technologist
Sr. Sci/Eng — Senior Scientist/Engineer
Sr. Admin — Senior Administrator

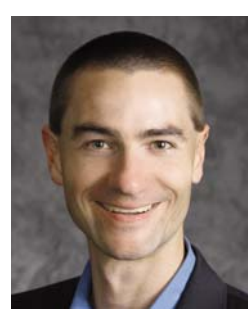

Philip Kegelmeyer
Sr. Sci/Eng 8962


Alice Kligo
DTNG 1822


Marcus Knudson
DMTS 1646


Tamara Kolda
DMTS 8966


Craig Lawton
DMTS 6384


Francois Leonard
DMTS 8656


Michelle Lesher
DMTS 9538


Patrick Lynch
DTNG 2998


Joseph Michael
Sr. Sci/Eng 1822


Paul Miles
DMTS 8362


Ron Minnich
DMTS 8961


Stephen Montague
DMTS 5644


Michael Oliver
DTNG 2554

SPECIAL APPOINTMENTS


Robert Patton
DTNG 2555


Cynthia Phillips
Sr. Sci/Eng 1412


Dennis Roach
Sr. Sci/Eng 6416


Kent Robbins
DTNG 2542


Darrell Rogers
DMTS 4824


Amber Romero
DMLS 10221


Ted Salas
DTNG 5577


Joseph Sanders
DMTS 5924


Kenneth Sansone
DTNG 4121


Otis Solomon Jr.
DMTS 2622

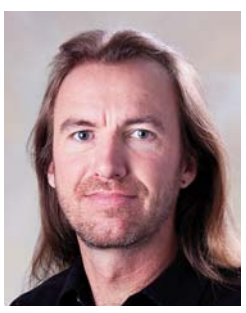

Shane Speas
DTNG 1671

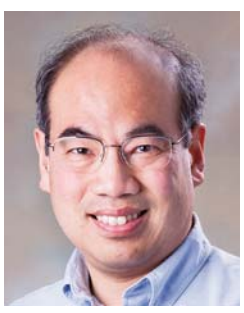

Michael Spoerner
DMTS 4139


Larry Stevenson
DMTS 2951


Craig Taatjes
DMTS 8353


Steven Thornberg
DMTS 1825


Talmage Thornton
DTNG 2614


Hy Tran
DMTS 2541


Peter Van Blarigan
DMTS 8224

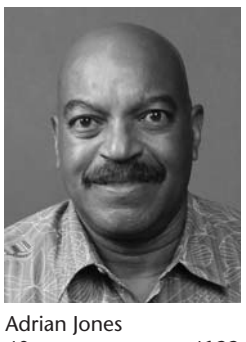

Todd West
DMTS 8114


Gary Whitlow
DTNG 5719


Amy Williamson
DMLS 10655

Mileposts

New Mexico photos by Michelle Fleming


Adrian Jones
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Marilynn Barr
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Tom Blejwas
30 9700


Cathy Ottinger Farnum
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William Kerschen
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David Klassen
30 10656


Larry Miller
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Elizabeth Richards
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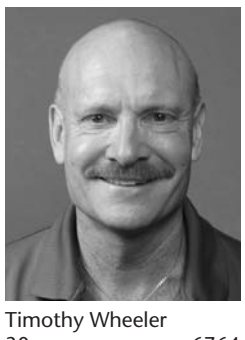
Bobby Turman
30 5440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Michael Beeler
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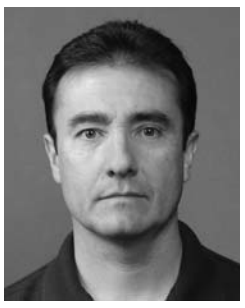
Mark Stavig
25 2712


Paul Helmick
20 1385


John Mounho
20 9548


Paul Raglin
20 1380


Jose Vigil
20 2732


Ben Aragon
15 5733


Shawn Burns
15 6761


Dwight Coles
15 9543


David Schoch
15 9538

50 years ago . . . The Livermore Laboratories of Sandia Corporation and Lawrence Radiation Laboratory have their work in the weapons program cut out for them far into the foreseeable future, Dr. Edward Teller told a meeting of Livermore Laboratory supervisors. Even without resumption of nuclear testing, Dr. Teller said, possible and desirable improvements in atomic weapons on the basis of present-day knowledge should keep the two laboratories busy for at least the next 10 years.

40 years ago . . . "The system is so accurate it could be used to deliver the mail," says Bill Pepper (9324).


FLYING LOW — Stability tests for the chute were conducted aboard this truck on a stretch of unused freeway near Los Lunas. The operator, seated on the trailer bed, opened and closed the flaps to achieve glide-and-roll movement of the chute.

The "system" is a **gliding parachute-retarded drop vehicle**, which can be deployed at high speeds and guided from a remote location. Developed by Rocket & Recovery Systems Division 9324 and Test Vehicle Design & Systems Division 9227, the system utilizes a parachute with a unique roll-and-glide flap arrangement, a manual guidance device not unlike radio control for model airplanes, and television optics. "With this chute and guidance system, we can deliver a vehicle to within 50 feet of the target from a drop altitude of 15,000 feet," Bill says. Initial drop tests began last summer and further tests will be made in coming weeks at Tonopah Test Range. On May 21 a new kind of **Sandia-designed two-stage rocket streaked low over the Tonopah Test Range.** Designed as a high velocity, low altitude test vehicle for materials research and studies of aerothermodynamic heating, the rocket system's maiden flight was — with minor qualification — successful. The system is designed to achieve 9,000 feet per second (Mach 8.6) at an altitude of 10,000 feet above the range. The trajectory rises to 20,000 feet and impact is some 20 miles downrange from the launch. Total flight time is about 200 seconds, of which six seconds is burn time.


LAUNCH ANGLE of 20 degrees is used for new high-velocity, low-altitude rocket test vehicle designed by Sandia.

30 years ago . . . An argon atmosphere glove-box laboratory, designed for weapons and energy-related radioactive experiments, is now in operation at Sandia. The glove-box lab, part of the 10,000-square-foot Hot Cell Laboratory (HCL), consists of two shielded, manipulator and glove-operated boxes and nine unshielded boxes of various sizes. A major advantage of the HCL is its proximity to Sandia research reactors, where analysis of some experiments can begin almost immediately. This enables scientists to observe transitory phenomena. HCL will also be used for analysis of reactor safety experiments, dealing with questions on post-accident heat removal, and fuel/coolant interaction, and with investigations of nuclear waste. DOE was recently awarded a **patent for a sticky goop** invented by Pete Rand of Physical Properties of Polymers Division 5813. It is a very carefully formulated resin base foam and it stays sticky for a very long time. The foam is one part of the integrated approach to designing a total Safeguards system. The material is stored in a pressure vessel intermixed with a low boiling-point solvent. Pressurized gas forces the material out of the vessel when triggered and it instantly foams to fill a volume 30 times its storage size.

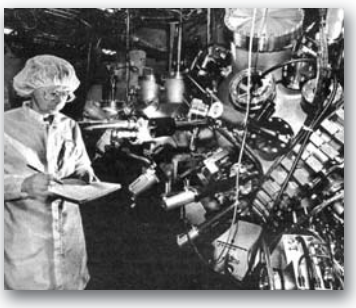

HOT CELL LAB supervisor Frank Gonzales uses manipulator to perform an experiment with radioactive materials.


THE DIFFICULTY of movement while enmeshed in the sticky stuff as demonstrated in this photo.

20 years ago . . . Sandians in the Microelectronics Development Lab are **developing increasingly elaborate "assembly test chips."** These chips can reveal the origins of problems even after packaging and assembly has made the microcircuits inaccessible to direct observation. An assembly test chip can identify what's going on in the chip's environment or inside the packaging to cause failure. With an operational chip, such as a microprocessor, it's difficult to determine what caused the failure. An assembly test chip can be used to monitor circuits in the field for possible failure, or to monitor or evaluate the assembly and packaging process itself.

10 years ago . . . Researchers in Sandia's Compound Semiconductor Research Laboratory (CSRL) have pioneered **a new microchip processing technique** that creates tiny canals on chips, through which liquids or gases can flow from one chip feature to another. Such canals are useful for emerging families of minuscule gadgets called microfluidic devices that make use of chemical properties of liquids or gases and the electrical properties of semiconductors on a single microchip or among nearby chips. Sandia researchers have developed **the first 1.3-micron electrically pumped vertical cavity surface emitting laser (VCSEL)** grown on gallium arsenide. It promises to reduce the cost of high-speed fiber optics connections. The VCSEL will be cheaper and easier to build than standard edge-emitting lasers used in current high-speed communications.


CANALS ON CHIPS — CSRL researchers Carol Ashby (foreground) and Carolyn Matzke prepare to put a wafer sample into a high-density plasma chamber used to deposit thin films on wafers. (Photo by Randy Montoya)


CRYSTAL GROWTH — Sandia researcher John Klem (1742) studies notes next to the molecular beam epitaxy system used to grow the crystal structure of the 1.3-micron communications VCSEL. (Photo by Randy Montoya)

StudzdaClown

Is Randy King, aka StudzdaClown, thinking of retiring or is he just clowning around?

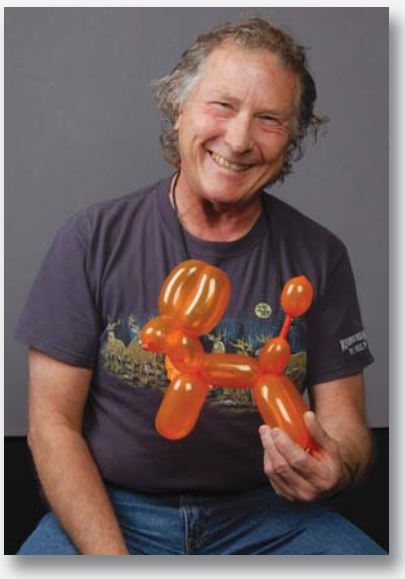
By Iris Aboytes

Be honest. When you were a kid, did you want to run away and join the circus? Randy King (5917) did just that — kind of.

To hear him tell it, while he was in Livermore in the late '70s, he went to Ghirardelli Square, a historic San Francisco visitor attraction. "A clown wearing a terrible outfit and makeup was there all the time," says Randy. "As bad as I thought he was, he was able to make a living."

That piqued Randy's curiosity. He bought balloons and practiced making animals in his spare time. When Randy travelled, his balloons always came along. Soon he was buying instructional books to learn more complicated balloon designs. You could say his talents have evolved or certainly added more dimension. He performs magic tricks and plays the trumpet and harmonica. All in all, pretty good qualifications for a clown.

For 43 years Randy has had a more serious day job.



RANDY KING transforms a simple balloon into a smile-inducing dog.

STUDZDACLOWN performs a bit of magic for a park visitor.

"I was fortunate to lead engineering teams that developed new subsystems for the B61 and B83," says Randy. "My teams developed the new brains for the B61-3, 4, 6, 7, and 8. We put the first microcomputers into that weapon and led the way for future nuclear weapons to have even better brains. Also with the B61, we challenged the archaic aircraft interface specifications and got them upgraded to modern standards and still maintained back-compatibility to those few old aircraft that were still flying and had a nuclear strike capability. The big payoff was that we were able to eliminate all the relays in the B61. This increased the reliability of the weapon. We did many of the same things for the B83, but the total investment was less since it was only one version of one weapon.

"Since the brains for these weapons controlled all the internal weapon functions, we dealt routinely with weapon effects, safe separation, reliability, endangered aircraft, fratricide, mission select, etc. As part of the normal development cycle, my teams and I worked all the environmental issues and testing — from early laboratory tests to full-scale field tests."

Away from his day job, Randy has been entertaining kids since he started creating animals from balloons. "It is amazing how a little dog made from a balloon can alleviate a little child's apprehension when riding on an airplane," he says. "A child is in awe when a balloon magically appears."

Randy has performed at various charities including Christina Kent Day Care, Boy Scouts, and various churches. "I don't wear scary makeup," he says. "I don't scare kids. I am a clown that just enjoys putting smiles on faces."

He likes to do the tricks that don't quite work right, the ones that seem to have a life of their own. "The kids get to screaming and trying to tell you what's going wrong," says Randy. "You pretend to be overwhelmed by it all then boom! — the unexpected happens and you seem to become more amazed than they are. It's a great feeling to spread that much joy with just some plastic, balloons, and cardboard.

"StudzdaClown has to think on the spot. Young children come up with lots of interesting questions. At work I have had projects that were about as easy as teaching a rock to sing, but my teams have actually accomplished some of the miracles. Being a clown is a little trickier, but magic can bring miracles there, too."

Randy plans to get a business license and insurance after he retires. Then StudzdaClown will take the main stage.

"Imagine riding the bus or being in a grocery store, and pulling out a small balloon," says Randy. "With the first puff of air, unhappy kids stop in mid-sob and adults stop in mid-sentence. In a heartbeat, you've gotten everyone's attention, you're in control, and when you're done, you've given everyone a gift. I like to think that for a little while, I've helped heal a wounded spirit."

Skin Cancer Susceptibility Quiz:

Hair Color
Blonde/red - 4
Brown - 3
Black - 1

Eye color
Blue/Green - 4
Hazel - 3
Brown - 2

Do you have freckles?
Many - 5
Some - 3
None - 1

When exposed to one hour of summer sun you ....
Burn and blister - 4
Burn and tan - 3
Tan - 1

Where is your job?
Outdoors - 4
Mixed - 3
Indoors - 2

Has anyone in your family had skin cancer?
Yes - 5
No - 1

Where in the U.S did you live most before 18?
South - 4
Midwest - 3
North - 2

_____Total

Results
10-15 Below average risk
16-22 Average risk
23-25 High risk
26-30 Very high risk

Playing it safe in the sun

from the American Cancer Society website

How to protect yourself

Cover up – Dark colors generally provide more protection than light colors. A tightly woven fabric protects better than loosely woven clothing. Dry fabric is generally more protection than wet fabric.

Sunscreen

Use a "broad-spectrum" sunscreen with a sun protection factor (SPF) of 15 or higher. When using an SPF 15 and applying it correctly, you get the equivalent of one minute of UVB rays for each 15 minutes you spend in the sun.

One hour in the sun wearing SPF 15 sunscreen is the same as spending four minutes totally unprotected. SPF sunscreens filter out about 93 percent of UVB rays, while SPF 30 sunscreens filter out about 97 percent, SPF 50 sunscreens about 98 percent, and SPF 100 about 99 percent. **Regardless of the SPF, sunscreen should be reapplied about every two hours. Most sunscreen products are no longer as effective after two to three years' shelf life.**

Always follow label directions. Most recommend applying sunscreen generously to dry skin 20 to 30 minutes before going outside so your skin has time to absorb the chemicals. When applying it, pay close attention to your face, ears, hands, and arms, and generously coat the skin that is not covered by clothing. About one ounce of screen (a palmful) should be used to cover the arms, legs, neck, and face of the average adult. Keep newborns out of the sun. Sunscreens should be used on babies over the age of six months.

Wear a hat

A hat with at least a two- to three-inch brim all around is ideal. It protects areas often exposed to the sun, such as the neck, eyes, forehead, nose, and scalp.

Sunglasses that block UV rays

Research has shown that long hours in the sun without eye protection increase chances of developing eye disease. Ideal sunglasses should block 99 to 100 percent of UVA and UVB radiation. Check the label. Some labels may say, "UV absorption up to nm." This is same as 100 percent UV absorption. Labels that say "meets ASNI UV requirements" means the glasses block at least 99 percent of UV rays. Those labeled "cosmetic" block about 70 percent of the UV rays. If there is no label, don't assume the sunglasses provide any protection.

Limit direct sun exposure during midday

UV rays are more intense during the middle of the day, between 10 a.m. and 2 p.m. UV rays pass through water and reach the ground even on cloudy days.

Protection stops skin cancers

About 90 percent of nonmelanoma skin cancers are associated with exposure to ultraviolet radiation from the sun.

Skin cancer warning signs:

- A skin growth that increases in size and appears pearly, translucent, tan, brown, black, or multicolored
- A mole, birthmark, beauty mark, or any brown spot that:
  - Changes color
  - Increases in size or thickness
  - Changes in texture
  - Is irregular in outline
  - Is bigger than 6 mm or ¼", the size of a pencil eraser
  - Appears after age 21
- A spot or sore that continues to itch, hurt, crust, scab, erode, or bleed
- An open sore that does not heal within three weeks