

Purer water?

RESEARCHERS May Nyman and Tom Stewart (both 6316) on the banks of the Rio Grande. The two have developed a patent-applied-for, material-based approach to purifying water that has generated commercial interest. (Photo by Randy Montoya)

Purer water made possible by Sandia advance

A single atom makes a big difference

By Neal Singer

Health care benefit changes coming to Sandia



Sandians can expect to see a number of health care benefit changes in 2010 and 2011. A summary of the changes can be found on pages 4-6 of this issue of the *Lab News*. More details of the changes and how they will affect health care coverage for you and your family will be available later this summer and in the fall during the annual benefits open enrollment.

Sandia is implementing the changes to help ensure the future viability of the laboratory, says Executive VP and Chief Operating Officer Al Romig. In addition, DOE has mandated that Sandia establish benefit costs more in line with those of other labs and other large organizations.

Health care benefits currently cost Sandia about \$100 million a year and continue to rise.

While the changes are designed to control health care costs for employees and Sandia, they also will require employees to be better and more knowledgeable users of health care services. From the consumer-driven health plan, called Sandia Total Health, Sandians will get a greater sense of what health care actually costs since the plan will have a higher deductible to meet before most expenses are covered, except for preventive care.

The changes will affect retiree health care benefits for Sandians retiring beginning in 2011, when a new cost-sharing structure will be put in place that will cap the amount Sandia will pay toward continued health care coverage until age 65, when Medicare kicks in.

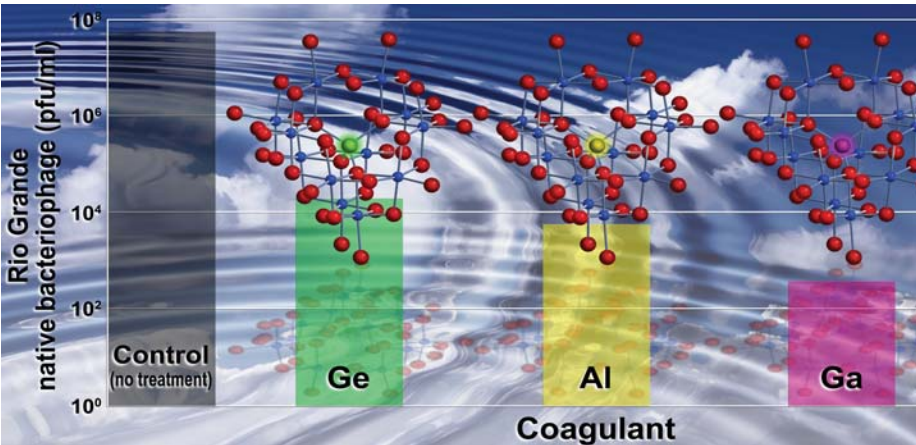
Sandia will provide education and tools to help employees learn about the cost of certain health care treatments and how to research the best options available.

A single atom substituted in a molecule widely used to purify water has created a far more effective decontaminant with a shelf life superior to products currently on the market.

Sandia has applied for a patent on the material, which can remove bacterial, viral, and other organic and inorganic contaminants from river water destined for human consumption, and from wastewater treatment plants prior to returning water to the environment.

The Labs is working with the international Kemira corporation, a major producer of water treatment chemicals, to explore the commercial potential of the compound.

"Human consumption of 'challenged' water is increasing worldwide as preferred supplies become more scarce," says principal investigator May Nyman (6316). "Better technologies like this may help solve problems faced by water treatment facilities in both developed and developing countries."



THIS BAR GRAPH shows the efficacy of removing wild-type bacteriophage from Rio Grande water using the all-aluminum coagulant (yellow), the gallium-aluminum coagulant (pink) and a germanium-aluminum coagulant (green). While the gallium-aluminum coagulant is most effective, the germanium-aluminum coagulant is less effective than the all-aluminum coagulant. The gallium makes the active ingredient for binding contaminants more stable and effective, while the germanium makes the active ingredient less stable and less effective.

The water treatment reagent, known as a coagulant, is made by substituting an atom of gallium in the center of an aluminum oxide cluster — itself a commonly used coagulant in water purification, says May.

The atomic substitution doesn't require tweezers but rather a simple chemical process of dissolving aluminum salts in water, gallium salts into a sodium hydroxide solution, and then slowly adding the sodium hydroxide solution to the aluminum solution while heating.

"The substitution of a single gallium atom in that compound makes a big differ-

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That's that

Note: Lab News writer Iris Aboytes fills in with a That's That column this week for vacationing editor Bill Murphy.

* * *

The headline on CNN.com was "Jackson dies, almost takes Internet with him." More than 20 million people read the story in the first hour his death was reported. Twitter crashed. The *Los Angeles Times*, the first news organization to confirm Jackson's death, suffered outages.

How did Michael Jackson wield that kind of power? He was called a genius by many and more unflattering words by others. His features changed about as many times as his various outfits.

How did this mysterious man manage to intrude into the computers of so many? Who was Michael Jackson anyway? Some Americans might not know what President Obama is doing in Russia but they know the latest on Jackson.

Why buy a magazine when you can get it faster on the Internet? Want to see what reporters are talking about, just click and you can see for yourself, Jackson in his glory singing and dancing. You can't do that in a magazine.

In an instant you can form your own opinion, see what the reporter is talking about, and then read the opinions of others. Agree or disagree, it is there instantly for all to see.

Have you formed your own opinion on Jackson? Can you understand why at the mere mention of "Billie Jean" or "Thriller" screams erupt? Why the sequined white glove? Why the short pants? Why did his signature dance moves make such an impact? Did his dance moves come from his music or his music from his dance moves? They always seemed to be in unison.

Perhaps we are drawn to these questions because we all have different answers or opinions. There are no wrong answers, just lots of opinions. The questions in our daily lives are harder to answer. Questions like why haven't we found a cure for cancer? Why do bad things happen to good people?

Maybe one day the Internet will crash because there are answers to these questions.

For now, we are left with the "what ifs" and "what fors" of Michael Jackson.

* * *

The NBA basketball draft was held recently. Twenty-year-old Blake Griffin who just completed his sophomore year at Oklahoma was the first pick. He is 6 feet 9 inches tall and weighs about 250 pounds. More important, he can make lots of baskets, execute great defense, and get lots of rebounds – the key word being "lots."

Working in an institution where education, not making baskets, is valued, I wondered why the hurry. He could have had both the degree and played in the NBA. I guess the reasoning is that circumstances beyond his control could keep him from earning all that money.

Maybe I am just jealous because I am built a little closer to the ground and have not had the opportunity to make lots of baskets.

* * *

My little 8-year-old granddaughter Maddie got an invitation to her friend's birthday party. Her friend will be turning eight. The invitation invites Maddie to a unique birthday party. Instead of going to a place of fun and games, the girls are going to the Roadrunner Food Bank.

The girls will help "pack food for the hungry," the invitation says. They will be at Roadrunner for an hour and a half and then back home for cake and ice cream. Instead of bringing presents, the girls are asked to bring food for the needy.

Maddie is very excited. She asked what and how much she should take. I told her it did not matter. "When you go to a birthday party some kids take little presents, others take bigger presents. The size doesn't matter; it's the thought behind the gift that counts."

I told her about the backpack program where Roadrunner packages food for children who don't have enough to eat. Maddie decided she is taking a big present.

Maddie is planning on having her own birthday party at Roadrunner.

— Iris Aboytes (505-844-2282, MS0165, ioaboyt@sandia.gov)

Employee death

Paul Klarer had an expressive personality with a hearty laugh and wicked chuckle

Paul Klarer, manager of Flight Structures and Mechanisms Dept. 5343, died July 2. He was 52 years old and had been at Sandia 30 years.

"Paul led by example and tried to make everyone feel like a member of the team," says Robert Bugos (5343). Paul worked in robotics for more than 25 years.

"I was Paul's manager in the Mobile Robotics Department," says Keith Miller (1523). "Paul was the strong and multitiered leader of the group. He could do the mechanical

and communications design, electronics, and programming of the on-board computers equally well. He was 'Mr. RATLER,' having been one of the principals who conceived the very capable Robotic All-Terrain Lunar Exploration Rover (RATLER) machine.



PAUL KLARER mentoring students.

"We had discussed his desire to teach at the university level in the future. Paul was a natural teacher," says Keith.

Paul earned his BSME while working full time at Sandia. He took one class at a time after work. "He went from technologist to member of technical staff and later earned his professional engineer license," says Mark Allen. "I think Paul's journey from technologist to manager helped him respect all people."

"The reality of whatever the situation or problem was and trying to get it into terms all could understand was what Paul was always after," says Mark Vaughn (6331). "He'd say 'Gee, I don't understand, why is it such and such?' He never wanted anyone to look bad. He was secure in himself with nothing to prove. I know everyone would agree with me when I say he was a joy to work with."

"Paul was very gregarious and used humor to get the job done, but when things were serious, he'd get serious," adds Mark. "He had a good home/work balance. He took up martial arts with his son Kris. He played bass in a professional band, the Rhythm Fish. That is why he wore a mustache and longer than Sandia-normal hair."

"Educational outreach was very important to Paul," says Wendy Amai (6472). "He led the team of adult engineers assisting Cibola High School in the US First Robotics Competition. He was a great mentor for the kids and taught them how to be good engineers."

"The kids were fascinated and excited," says Dan Puetz (6472). "They did not want to go home! They wanted to work on the robot. He was totally committed to stimulating kids. As Paul got more involved, he helped teach a robotics class at the Albuquerque Public Schools Career Enrichment Center (CEC). He worked with Sandia to make surplus equipment available to the students. He had a special place in his heart for the CEC."

Paul's mentoring included coworkers at the Robotic Vehicle Range. "Paul was everybody's mentor," says Dan. "He afforded all of us the opportunity to learn the different machining tools. He made sure we were exposed to them all. He was very expressive with a hearty laugh and wicked chuckle."

"Paul used to tell us that we designed and built real things for real people in the real world," says Blake Jakaboski (5343). "He was a great manager."

"He was very proud of the department and was eager to make it even better," says Tina Lutheran (10653), his business administrator. "He was always happy and in a good mood. People were important to him. When I became pregnant, he had the option to replace me with somebody else but opted to hold my position."

"Paul loved to laugh," says Jennifer Coleman. "He was proactive in helping you reach your goals, appreciated your hard work, and was quick to acknowledge a good deed. Paul loved to laugh. He drove a bumblebee yellow truck — a perfect fit."

"People are saying how terrible this was and wondered why this had to happen to such a decent guy," says Mark. "Nobody deserves to die from cancer when they are 52 years old. Some people seem to deserve it less than others. Paul was one of those people."

— Iris Aboytes

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Retiree deaths

Louis F. Narvaiz (age 82) June 5

Robert T. Finnell (87) June 6

Charles W. Demoss (85) June 7

Leo A. Baca (86) June 8

Paul Clement Kind (85) June 9

William E. Thompson (81) June 9

Hermenes Chavez (93) June 10

Charles Lewis (102) June 15

Gerald A. Benedetti (72) June 16

John M. Wiesen (87) June 25

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Division 8000 celebrates innovation

By Emmeline Chen and Patti Koning

Sandia/California's annual Intellectual Property and Innovation Celebration took place on Friday, June 19. The event, which honored Sandians who received patents, copyrights, or special awards in 2008, was an opportunity for family and friends to learn more about Sandia and the accomplishments of their loved ones.

There was much to celebrate, because in FY08 25 domestic patents were issued with a Div. 8000 inventor and license royalties generated \$1 million. From FY01 through FY08, Div. 8000 issued 245 domestic patents and generated \$9.2 million in license royalties. The celebration went far beyond patents and licensing, however, recognizing copyrights, classified innovations, and other contributors to inventions.

Glenn Kubiak, director of Biological and Materials Sciences Center 8600, opened the evening's festivities with reflections on the value of innovation and intellectual property. He urged attendees to remember that "each of us has the ability — through innovation — to do important things that touch people's lives."

Following Glenn's remarks, senior managers Chuck Oien (8940) and Andy McIlroy (8350), as well as Sandia/California's newest director, Jim Handrock (8200), provided brief overviews of Sandia's missions in national security, energy, and nuclear weapons and highlighted the significant contributions made by Sandians to each of these missions.

"We're not really celebrating science and engineering tonight," said Jim. "We're celebrating the scientists and the engineers." After describing how inquisitive children grow up to become inquisitive scientists and engineers, Jim said, "Their inquisitiveness is important for the safety of our nation and other nations."

Andy noted the significance of the energy programs at Sandia as a whole and within Div. 8000. "Although our energy programs are 'only' 20 percent of the lab, we are the largest national lab with a \$2.3 billion budget — four times larger than Lawrence Berkeley Laboratory and 10 times the size of the National Renewable Energy Lab," he said. "Our energy programs just at the California site are larger than all of those at Lawrence Livermore National Lab."

Another notable statistic was that Science Watch ranked Sandia No. 1 in the world for cited publications in Energy and Fuel Research in the last 10 years. "Cummins engine credited work at Sandia's Combustion

Research Facility as critical to the revolutionary computer design of their recent light truck diesel engine — producing higher efficiency at lower cost with faster development time," Andy added.



PATENT RECIPIENT Anup Singh (8621) discusses Sandia's innovations in microfluidic technology with Sarah Powers, wife of Devon Powers (8529).

Glenn presented three special awards. Bert Debusschere (8351) was honored for receiving the Presidential Early Career Award for Scientists and Engineers. Glenn cited Bert's research in network inference and stochastic methods, as well as his extraordinary service and dedication to Sandia/California's foreign national networking group.

Next Glenn recognized Jim Miller (8353) for his election to the National Academy of Engineering. Glenn joked that Jim is known as "Dr. Combustion" for his work in combustion modeling and beyond.

Finally, Glenn announced a surprise award. After calling Nick Koker, son of Senior Manager Denise Koker (8520), to the front of the room, Glenn asked Nick to present Denise with a distinguished service award for leading Sandia/California's efforts in intellectual property and licensing. Denise then closed the celebration with a Top 10 list of things she learned during her 10-year stint as the manager of the Business Development and Technology Transfer Department, a position now held by Devon Powers (8529) (see "Denise Koker's Top 10," at right).

The celebration was a fun occasion for Sandians and their guests. Randy Christman (8529), Melissa Betz (8529), and Rhonda Fields (8529) coordinated the event, which included a display of Sandia's technological innovations.

"Ultimately, it would be impossible to do our work without the support of our families," said Bert. "This event is very nice — it shows that Sandia values our contributions and lets everyone share in the celebration."

Steve Eisenbies (8237), a patent holder for an adaptive ophthalmologic system, was accompanied by his wife Jenny and their 2-year-old daughter Sophia.

"It's nice that they can come and see all the cool stuff and meet the people I work for," said Steve.

Jenny agreed, saying "The nature of working at Sandia means that Steve doesn't talk much about his job. This is an unusual event that allows me to come and meet the people he works with."

Sandia California News

Denise Koker's Top 10

At the Div. 8000 Intellectual Property and Innovation Celebration, Denise Koker shared insights she's gained in the past nine years as manager of the Business Development Support group (BuDS), a position now held by Devon Powers.

"Even though I am no longer the manager, Randy [Christman] let me stand up at this celebration one more time," she said. "I am delighted that Devon is taking over — it's an opportunity for new energy and thinking. So, I am taking the opportunity to share with you all — whether you want it or not — my top 10 list of . . ."



DENISE KOKER

Things I learned about intellectual property commercialization

10. This one is for my successor, Devon. . . **Before giving out any patent awards, practice your rapid-fire delivery of tongue-twisting technical terms.** "Mass spectroscopy" and "dielectrophoresis" come to mind.

9. **Inventions are like children.** Now, now, I didn't say "inventors are like children." Patience, persistence, and insight are called for, but are no assurance of success. The debate of nature over nurture works for both kids and inventions. Sometimes you have to let go; and years later they may return successful.

8. **Inventors sometimes mistake their inventions for their children** and they can be overbearing parents. There's a delicate balance between empowerment of an enthusiastic inventor who wants to assist in the commercialization of her invention, and blind conviction that her invention is the best thing since the toaster.

7. **We can't predict.** It is virtually impossible to predict which inventions will be successfully commercialized. This is well-documented in the literature on patent licensing. However . . .

6. **Organizations that are embedded in their markets** do better than organizations trying to commercialize technologies outside of their markets. Our separation from the markets is a serious impediment to our success. However, being an eternal optimist, I still think there must be a way to engage earlier with industry.

5. **We are dependent on the economy.** Ironically, federal programs may thrive in times of economic downturn but not the commercialization function. We have experienced two significant downturns in revenue from industry partnerships in the last nine years. The first was associated with the dot-com bust. Guess when the second one occurred.

4. **Know our limitations.** We know even less about the markets than we think we know. How many of you had the market savvy to avoid a reduction in your 401(k) investments or have a mortgage greater than the value of your house? Don't answer that question . . .

3. **Be realistic.** The vast majority of licensing income earned by companies and individuals across the country is for software and pharmaceuticals. Where does that put us? Over time, about two-thirds of our royalties have been from software.

2. **Don't pay too much attention to the hype in the business news.** I'm sure Leroy Whinnery didn't miss the article on the new surfboard invention in the *San Francisco Chronicle* this week. A couple of years ago it was all about the materials that were going to revolutionize surfboards. This was our latest big licensing opportunity. This week, it's all about a revolutionary new shape. Is it real, or is it more media speculation? Just remember, those kids come back to roost unexpectedly. I'm rooting for the foam.

1. Back at the turn of the century — that would be the 20th to the 21st century — everyone was talking about "killer apps." **After a decade in your lab, you are more likely to acquire washboard abs than killer apps.**

All joking aside, our collective effort makes a difference. When we are optimistic, enthusiastic, and yes, a little naive, we are more successful at this. It's hard, it's unpredictable, but it's also exciting. Thank you for the experience."

NIST chief visits Labs



PATRICK GALLAGHER, acting director of the National Institute of Standards and Technology, is briefed by Sandia researcher Brian Swartzentruber at the Sandia/Los Alamos Center for Integrated Nanotechnology (CINT) facility on the workings of a nanomanipulator device. Gallagher, hosted by Div. 1000 VP Steve Rottler, visited the Labs on Tuesday and received technical briefings on a number of Sandia capabilities and resources. (Photo by Randy Montoya)

Sandia Total Health



Your Health. Take Charge.



Taking charge of your own health care

Health care at Sandia is changing. As many of you know, health care costs have been increasing at a rate five times faster than inflation. These costs will continue to increase in the future. In an effort to control these rising health care costs, Sandia is implementing changes to the way health care is provided to active employees and retirees. While cost is important, these changes also represent Sandia's strategy to engage in a partnership with employees to improve health and wellness and allow employees more control over their health care spending. These changes, called Sandia Total Health, will be introduced in 2010 with full implementation in 2011.

It is no secret that Sandia is operating in a rapidly changing world and a challenging economic environment. The economic and global landscapes are changing, as well as the national security environment. Sandia itself is changing: its leadership, budget, workforce, infrastructure and investments. In this changing environment, Sandia faces unprecedented financial challenges associated with future pension and health care costs.

Based on current assumptions, Sandia is estimating that approximately \$2 billion in pension contributions will be required between 2011 and 2020. Annual health care costs are projected to increase to approximately \$250 million by 2020. Liabilities associated with post-retirement health care alone now exceed \$1.2 billion. These projected pension and health care costs are unsustainable given Sandia's future budget forecasts.

Sandia has adopted a deliberate approach to managing for the future and addressing its future cost challenges. Sandia's health care strategy is part of other Labs transformation efforts aimed at positioning Sandia for the future.

Sandia health care strategy is based on the following goals:

- Offer quality benefits competitive with similar research organizations and a select group of large industrial companies.
- Manage future costs and liabilities
- Encourage health care consumerism and improve overall health through an integrated health and wellness program
- Minimize health care network disruption
- Effectively respond to our contractual commitments to DOE
- Reduce administrative costs

Unprecedented challenges drive changes

• Sandia is facing unprecedented financial challenges associated with future pension and health care costs. These projected pension and health care costs are unsustainable given Sandia's future budget forecasts.

• Sandia has a contractual requirement to continue to make progress in bringing the value of overall benefits more in line with the value of benefits offered by an industry comparator group of similar research organizations and a select group of large industrial companies.

• Sandia must make these changes to manage future costs and liabilities.

• Sandia Total Health represents a strategy to manage health care costs by encouraging health care consumerism and improving overall health through an integrated approach to health and wellness.

• Sandia Total Health includes a focus on prevention and encouragement of healthy lifestyles, the management of chronic conditions, and behavior modification aimed at changing risk factors.

• If this strategy is successful, Sandia will be able to more effectively manage increasing health care costs and improve the overall health of employees.

Post-retirement health care changes

Sandia will also be limiting the amount it will provide to subsidize the cost of post-retirement health care in the future. For eligible employees, with retirements effective on or after Jan. 1, 2011, Sandia will implement fixed limits on the amount it will provide to subsidize PreMedicare retiree medical and dental coverage. Also, for eligible employees, with retirements effective on or after Jan. 1, 2011, Sandia will limit the total amount it will provide to subsidize Medicare retiree medical and dental coverage.

About the health care changes

For active employees in 2010 . . .

• Sandia is replacing the UnitedHealthcare Standard Plan (a high-deductible health plan) with a new Consumer-Driven Health Plan (CDHP) — called Sandia Total Health — that has a \$750 deductible for employee-only coverage and a higher deductible for spouse and family coverage. The deductible for this new plan is lower than the deductible in our current standard plan. Sandia Total Health will be offered along with the other three medical plan options we offer today.

• Sandia Total Health also has a Health Reimbursement Account (HRA) feature. If you (the employee,

retiree, or participant) take a confidential health assessment and complete your biometric screenings each year, Sandia will contribute money to your HRA which you can use to pay for a portion of your out-of-pocket costs (such as your deductible and coinsurance).

• You must make an election during Open Enrollment in November; your current plan choices will not carry over.

For active employees in 2011 . . .

Sandia Total Health will be the only medical plan option available — all other medical plans will be eliminated. Our goal is to have Sandia Total Health offered through the networks we use today, such as Presbyterian, Lovelace, and Kaiser, in 2011.

How a Consumer-Driven Health Plan with a health reimbursement account works

• The Consumer-Driven Health Plan (CDHP) — which we are calling Sandia Total Health — combines comprehensive health care coverage, like that of a traditional Preferred Provider Organization (PPO) plan, with a Health Reimbursement Account (HRA). The new plan will have an annual deductible of \$750 per employee and \$2,250 per family. This is a lower deductible than for the current Standard Plan. Other key features of the new plan include a cap to the amount Sandia will contribute toward some members' health care coverage, and a stipend Sandia will pay to eligible employees for use in the purchase of medical coverage. More details available at <http://hbe.sandia.gov>.

• With Sandia Total Health, covered employees will have an annual out-of-pocket maximum. In general, this is the maximum amount you'll pay for medical expenses each year, excluding the deductible and certain copays and coinsurance amounts. After you reach your annual out-of-pocket maximum, the plan pays 100 percent of remaining eligible expenses. Prescription drug coinsurance amounts are not included in the overall out-of-pocket maximum, as there is a separate in-network, annual out-of-pocket maximum for prescription drugs.

• It is important to note that Sandia will continue to pay for the large majority of the health insurance cost for employees. Sandia Total Health is projected to have lower overall premium costs. Since these costs will be less than the other health care plans, in most cases, your premiums for this plan will be lower. More information about the specific costs will be provided before Open Enrollment this fall.

• Also, if you take a health assessment and complete your biometric screenings each year, Sandia will contribute money to your HRA, which you can use to pay for a portion of your out-of-pocket costs (such as your deductible and coinsurance).

• A health assessment is a confidential online questionnaire that asks you about your health history, your lifestyle behaviors (such as smoking and exercise habits), and your willingness to make changes. Then, it provides a personalized report of your health status and any health risks you may have now or possibly down the road, and how you can take steps to prevent or manage those risks. If the assessment identifies a health risk, the assessment can be used by your doctor to assist in reducing that risk. If you have no health risks, the

report will make suggestions for improving or better managing your health and well-being. The assessment is not used to determine health care eligibility.

• A portion of this deductible will be reimbursed through the HRA, as long as you have taken the health assessment and completed your biometric screenings. If your total medical claims don't exceed the annual contribution Sandia makes to the HRA, you will have no out-of-pocket expenses.

• Sandia will provide education and tools to help you learn about the cost of certain health care treatments and how to research the best options available, to help you manage your HRA dollars and live a healthier lifestyle.

• The wellness programs that Sandia offers, from group exercise classes to guest chef events, will also help you learn how to live a healthy lifestyle. This has benefits for both your health and for your wallet.

• Preventive care is covered at 100 percent when you use a network provider, with no deductible required.

• Sandia currently provides employees key preventive health programs, such as:

– **Assessments and personal consultations:** Sandians can meet one-on-one with a Preventive Health staff member to learn about and design personalized programs for topics including nutrition, fitness, sleep, smoking cessation, self-care, blood pressure, and stress.

– **Disease management programs:** These programs offer a variety of interventions, including case management, one-on-one assessments, and consultations with certified allied health professionals. The Disease Management Clinic also regularly offers a variety of educational classes such as lipid and blood pressure improvement and weight management.

– **Organizational programs:** These programs are tailored to meet the specific needs within each department/organization at the laboratory. Services commonly delivered to work groups include stress management, health education, and back care.

• With Sandia Total Health, you'll have the opportunity to be a more informed and engaged health care consumer because you will be able to ask about and learn more about what health care really costs.

• This type of plan gives you more control over your health care spending because you control how you spend the funds in your HRA.

Q&As about health care benefit changes

1. Why is Sandia making all these health care changes?

Sandia is facing unprecedented financial challenges associated with future pension and health care costs. These projected pension and health care costs are unsustainable given Sandia's future budget forecasts. Sandia also has a contractual requirement to continue to make progress in bringing the value of our overall benefits more in line with the value of benefits being offered by an industry comparator group comprised of similar research organizations and a select group of large industrial companies. Sandia must make these changes to manage future costs and liabilities.

2. How are these health care changes going to help Sandia?

Sandia Total Health represents a strategy to manage health care costs by encouraging health care con-

sumerism and improving overall health through an integrated approach to health and wellness. This includes a focus on prevention and healthy lifestyles, the management of chronic conditions, and behavior modification aimed at changing risk factors. If this strategy is successful, Sandia will be able to more effectively manage increasing health care costs and improve the overall health of employees.

3. How is Sandia Total Health different from the UnitedHealthcare Premier Plan?

See the chart at the top of the next page for a comparison of the benefits available under Sandia Total Health vs. the UnitedHealthcare Premier Plan:

(Continued on next page)

Q&As about health care benefit changes

(Continued from preceding page)

Plan Feature	What's different between Sandia Total Health and the Premier Plan?
Employee Premium Share	The plans have the same percentage, but your premium will be lower with Sandia Total Health, which means less out of your paycheck; however, please note that funding levels may change in the future.
Annual Deductible	Sandia Total Health works a little differently than the Premier Plan because you have a deductible to pay.
Health Reimbursement Account Contribution from Sandia	A key difference is that Sandia Total Health offers a Sandia-funded Health Reimbursement Account, which you can use to help pay for the deductible and other out-of-pocket costs. Sandia funds the account, and no employee contribution is required. And if you don't use the entire amount, you can roll it over to the next plan year subject to a maximum limit. Sandia Total Health will be the only plan with a Health Reimbursement Account in 2010.
Preventive Care	There is no difference.
Coinsurance (% of expenses you pay)	There is a 5 percent increase in coinsurance with Sandia Total Health
Office Visits	You pay a coinsurance for office visits with Sandia Total Health, unlike the Premier Plan, which charges a copay.
Prescription Drugs	There will be a limit to your annual spending on prescription drugs with Sandia Total Health, unlike the Premier Plan.
Annual Out-of-Pocket Maximum (excludes deductible and prescription drugs)	Sandia Total Health out-of-pocket maximum is higher.
Your Flexible Spending Account (FSA) Contribution	There is no difference.

4. What is a deductible?

A deductible is the amount you must pay each year out of your pocket before your plan benefits begin. Your deductible amount will be based on the level of coverage you have (employee only, employee + spouse or employee + child(ren), employee + family).

However, with Sandia Total Health, preventive care is covered at 100 percent (in-network) with no deductible required.

5. What is an out-of-pocket maximum?

In general, this is the maximum amount you'll pay for medical expenses each year, excluding the deductible and certain copays and coinsurance amounts. After you reach your annual out-of-pocket maximum, the plan pays 100 percent of remaining eligible expenses. Prescription drug coinsurance amounts are not included in the overall out-of-pocket maximum, as there is a separate in-network, annual out-of-pocket maximum for prescription drugs.

6. What are the benefits of Sandia Total Health with a Health Reimbursement Account?

One key benefit of Sandia Total Health is that Sandia funds the Health Reimbursement Account. No

employee contribution is required. And if you don't use the entire amount, you can roll it over to the next plan year, subject to a maximum limit.

With Sandia Total Health, you'll have the opportunity to be a more informed and engaged health care consumer and a better manager of your health care expenses. Sandia will provide education and tools to help you learn about the cost of certain health care treatments and how to research the best options available to help you manage your HRA dollars. Sandia will also provide wellness education to help you learn how to live a healthy lifestyle, which will have benefits for your health and for your wallet.

It will be important for all Sandia employees to become smarter "consumers" of health care services by better understanding how to effectively purchase services, seek treatment, and live a healthier lifestyle. Not all of the plan design decisions have been finalized yet. More information on Sandia Total Health will be available over the next few months — before Open Enrollment in the fall.

What to expect over the next few months

- Sandia is committed to providing employees with tools and resources to help them understand the health care benefit changes and how they'll impact them.
- A live webcast featuring Sandia benefits experts discussing the changes will be scheduled soon.
- Multiple live web sessions will be conducted over the next two weeks to answer your questions.
- Managers have all been briefed and provided additional information to help understand the changes.
- Multiple town hall-type meeting sessions in late July and early August will serve as a forum to provide more information about the new plan and to answer questions.
- From August through September there will be educational newsletters and an online interactive presentation about the changes.
- In October, Open Enrollment information will be mailed to employees' homes. Open Enrollment will be held this year from Oct. 19-Nov. 4.
- Employee benefit presentations/fairs will be scheduled during the Open Enrollment campaign.
- More information about the benefit changes is available at the new "Take Charge" health benefits page on the HBE site at <http://hbe.sandia.gov>.
- You can also visit the Change@Sandia website at http://info.sandia.gov/Change_Sandia.

Again, if you have questions about these benefit changes, contact your HR business partner or your benefits representative. We'll also be providing you with advance notice of employee communications and conduct meetings with you as necessary.

7. What is the difference between the HRA and an FSA?

Sandia will continue to offer a Flexible Spending Account (FSA) in addition to the HRA. Just like with the HRA, you can use the FSA to reimburse yourself for health care expenses you pay, such as the deductible and coinsurance; however, with the FSA, you can also reimburse yourself for health care expenses not covered by your medical plan. In addition, the FSA can help you save on taxes because the money you put in your FSA is deducted from your paycheck before taxes. The chart below lists other key differences:

FSA	HRA
All eligible employees can enroll.	You're only eligible if you complete the Health Assessment and your biometric screenings.
You fund your account each paycheck.	Sandia funds your account once a year.
You elect how much to contribute during the year (up to a maximum amount).	Sandia makes a contribution based on your level of coverage.
You lose any money left in your account at the end of the plan year.	Any money left in your account at the end of the plan year will roll over to the next year.

8. Is Sandia Total Health going to cost me more out of my paycheck?

In most cases, your monthly premiums will be lower than for any of the other medical plan options for 2010 because the cost of Sandia Total Health is lower than that of our current plans.

9. Is Sandia Total Health going to cost me more out of my pocket when I use health care services?

The plan works a little differently than traditional coverage, because you have a deductible to pay and you pay a percentage of the cost of services (coinsurance) — except for preventive care, which is covered at 100 percent (in-network) with no deductible required. However, you also have a Sandia-funded HRA, which you can use to help pay for the deductible and other out-of-pocket costs. This means that each individual experience will be a little different. If your total claims are less than the amount Sandia contributes to the HRA, your out-of-pocket costs will actually be less under this plan than under any of the plans Sandia currently offers. One key benefit of Sandia Total Health is that Sandia will provide education and tools to help you learn about the cost of certain health care treatments and how to research the best options available, to help you manage your HRA dollars and live a healthier lifestyle.

10. Am I going to be able to go to the same doctor?

Most likely, yes. Sandia Total Health will be offered through the networks we use today: Presbyterian, Lovelace, and Kaiser. However, all the plan details haven't yet been finalized. More information will be available over the next few months — before Open Enrollment in the fall.

11. Will my physician be familiar with Sandia Total Health?

Most providers are beginning to learn about CDHP/HRA plans, as this type of plan has been gaining momentum nationwide. This type of plan is very similar to a Preferred Provider Organization (PPO), a type of health care plan with which they have been comfortable for years. Just like today, you'll present your ID

Glossary of terms

Coinsurance: Coinsurance is the percentage of a covered service that the plan pays after you've met the deductible. With Sandia Total Health, the plan will pay 80 percent of the cost of most covered services, and you'll pay 20 percent. However, preventive care is covered at 100 percent (in-network) with no deductible or coinsurance required.

Consumer-Driven Health Plan (CDHP): A CDHP is a high-deductible health care plan that combines comprehensive health care coverage with in- and out-of-network care, like that of a traditional PPO plan, with a Health Reimbursement Account (HRA). Sandia will offer a CDHP/HRA called Sandia Total Health with a Health Reimbursement Account. With Sandia Total Health, you'll have the opportunity to be a more informed and engaged health care consumer because you will start to ask about and learn what health care really costs, since you have a high deductible to meet before most expenses — except preventive care — are covered. This type of plan gives you more control over your health care spending because you control how you spend the funds in your HRA. One key benefit of Sandia Total Health is that Sandia will provide education and tools to help you learn about the cost of certain health care treatments and how to research the best options available, to help you manage your HRA dollars and live a healthier lifestyle.

Deductible: A deductible is the amount you must pay each year out of your pocket before your plan benefits begin. Your deductible amount will be based on the level of coverage you have (employee only, employee + spouse or employee + child(ren), employee + family). However, with Sandia Total Health, preventive care is covered at 100 percent (in-network) with no deductible required.

Flexible Spending Account (FSA): An FSA lets you set aside a portion of your pretax earnings to pay for eligible health care expenses. Since the amount you contribute to your FSA isn't subject to payroll taxes, you end up with substantial payroll tax savings. Any unused money in your FSA at the end of the year is forfeited, so it's important to set aside only as much money in your FSA as you intend to use each year.

Health assessment: A health assessment is a confidential online questionnaire that asks you about your health history, your lifestyle behaviors (such as smoking and exercise habits), and your willingness to make changes. Then, it provides a personalized report of your health status and any health risks you may have now or possibly down the road, and how you can take steps to prevent or manage those risks. If the assessment identifies a health risk, the assessment can be used by your doctor to assist in reducing that risk. If you have no health risks, the report will make suggestions for improving or better managing your health and well-being. The assessment is not used to determine health care eligibility.

Health Reimbursement Account (HRA): An HRA is an account that is part of a CDHP plan. Sandia Total Health will include an HRA. Sandia makes a contribution to your HRA, and you can use that money to reimburse yourself for health care expenses you pay. Your Sandia contribution amount will be based on the level of coverage you have. You must complete a confidential health assessment and your biometric screenings to receive Sandia's contribution to your HRA.

You can use the money in your HRA to pay for a portion of your out-of-pocket costs (such as your deductible and coinsurance). If you don't use the entire amount, you can roll it over to the next plan year.

One key benefit of Sandia Total Health is that Sandia will provide education and tools to help you learn about the cost of certain health care treatments and how to research the best options available to help you maximize your HRA dollars.

Annual out-of-pocket maximum: In general, this is the maximum amount you'll pay for medical expenses each year, excluding the deductible and certain copays and coinsurance amounts. After you reach your annual out-of-pocket maximum, the plan pays 100 percent of remaining eligible expenses. Prescription drug coinsurance amounts are not included in the overall out-of-pocket maximum, as there is a separate in-network, annual out-of-pocket maximum for prescription drugs.

(Continued on next page)

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong



Les Brown
35 8945



Don Cowgill
35 8222



John Hachman
35 8223



Robert Allen
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Philip Zablocki
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Danny Thomas
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Dave Brekke
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Allen Stroupbauer
15 501

Sandia research points to purer water

(Continued from page 1)

ence," says May. "It greatly improves the stability and effectiveness of the reagent. We've done side-by-side tests with a variety of commercially available products. For almost every case, ours performs best under a wide range of conditions."

Wide-ranging conditions are inevitable, she says, when dealing with a natural water source such as a river. "You get seasonal and even daily fluctuations in pH, temperature, turbidity, and water chemistry. And a river in central New Mexico has very different conditions from, say, a river in Ohio."

The Sandia coagulant attracts and binds contaminants so well

"... Nobody has ever put this knowledge to use in an application such as removing water contaminants like microorganisms." — Sandia researcher May Nyman

because it maintains its inherent electrostatic charge more reliably than conventional coagulants made without gallium, itself a harmless addition. The material also resists converting to larger, less-reactive aggregates before it is used. This means the material maintains a longer shelf life, avoiding the problem faced by related commercially available products that aggregate over time.

"The chemical substitution [of a gallium atom for an aluminum atom] has been studied by Sandia's collaborators at the University of California at Davis, but nobody has ever put this knowledge to use in an application such as removing water contaminants like microorganisms," says May.

The idea for the project and all the water treatment studies were conceived and performed at Sandia, says May, who worked with microbiologist Tom Stewart (6316). Transmission electron microscope images of bacteriophages binding to the altered material were achieved at the University of New Mexico. Mass spectroscopy of the alumina clusters in solution was performed at UC Davis.

The study was published in June 2009 in the journal *Environmental Science & Technology* (a publication of the American Chemical Society) and highlighted in the June 22 edition of *Chemical & Engineering News*. The work was sponsored by Sandia's Laboratory Directed Research Development office.

Health care Q&As

(Continued from preceding page)

card when you receive health care services so your physician's office knows what type of plan you use.

12. Are there any other changes to the health care benefits for 2010?

There are no other health care plan design changes being considered for 2010. However, we're still making decisions on how your medical plans will be administered. More details about the plan vendors will be available over the next few months — before Open Enrollment in the fall.

13. What is the breakdown of total health care costs for employees, PreMedicare retirees, and Medicare retirees?

The most recent, complete numbers that are available are from calendar year 2008. During that year the total health care costs were:

- Employees: \$69.3 million
- PreMedicare retirees: \$9.8 million
- Medicare retirees: \$19.2 million

14. Since Sandia will be moving to a single CDHP in 2011, will the Kaiser HMO Plan still be offered to California employees in 2011?

Currently, the Kaiser fully insured funding arrangement is very limited when it comes to plan design changes and does not allow for Sandia to move to the CDHP design in 2011. HBE/Benefits has every intention to keep Kaiser as a viable California physician/facility network option and will be working with Kaiser

with the goal of establishing a contract that will allow the flexibility required to meet Sandia's new health plan strategy.

15. Are there any changes to survivor health care benefits?

Survivors will have the same options as retirees for health care plans and will be subject to the retiree cost-sharing arrangements and stipends but at lower levels. As of Jan. 1, 2010, survivors will not be eligible for the first six months at the employee or retiree premium-share.

16. If I retire as a PreMedicare retiree before Jan. 1, 2011, will I go in the current or new Medicare benefits when I turn age 65?

You will have the same post-retiree health plan choices that current retirees will have at the time you reach age 65.

17. Are there going to be any changes for Sandians who have "dual choice" when it comes to health care coverage? For example, if both spouses worked at Sandia and one is a current retiree, can the employee who is not yet retired still get covered under their spouse when they retire?

At this time, there are no plans to change this. If one spouse retires, the employee can elect to be a dependent of their retired spouse upon retirement.

18. How will President Obama's health care legislation affect Sandia's plans?

Sandia and our health care consultant have reviewed the various reform proposals being developed by Congress and the administration. It is difficult to predict what final health care reform proposal will be acted upon. However, nearly all of the reform proposals put an emphasis on health care consumerism and



Your Health. Take Charge.

wellness. This is the focus of Sandia Total Health.

It is also important to point out that there have been no final decisions made on any health care reform legislation. However, Sandia is monitoring the legislation proposals and if and when passed, we will evaluate it for potential impacts on our health care plans.

Sandia Corporation's benefit plans are maintained at the discretion of Sandia. They do not create a contract of employment. The plans may be suspended, modified, or discontinued at any time and without prior notice, subject to applicable collective bargaining agreements and except as otherwise provided by applicable law.

Sandia News Briefs

Note: The following is a new feature Lab News will occasionally run citing recent accomplishments at Sandia.

A gallium nitride (GaN) nanowire templated epitaxial growth developed by Sandia researchers has been featured on the inside cover of the June issue of *Advanced Materials*. The nanowires, developed by staff in Center 1100, were grown by metal organic chemical vapor deposition (MOCVD) in MESA. The nanowire growing technique, which produces a higher quality GaN film, could be used to help produce light-emitting diode (LED) bulbs for solid-state lighting.

Dept. 1540 conducted its first-ever Sierra

Mechanics User Forum June 2-3. The forum, which was well-attended by staff from over six centers, aimed to present directions and new release features, highlight unique Sierra capabilities, and collect user feedback. According to Center 1500, the forum served as a prototype for other events, which will be expanded to include the broader user community and external agencies like DoD.

Sandia hosted the 111th semiannual meeting of the Supersonic Tunnel Association International (STAI) May 2-5. The sessions, run by Sandians from Center 1500, included overviews of Sandia's engineering sciences and aerospace departments, a presentation on the history of Sandia's wind tunnel facilities, and a summary of recent tests performed in Sandia's wind tunnels. Attendees also toured the Area 3 test facilities and the wind tunnels in Area 1.

Hosted by Center 6400, the National Academy of Sciences (NAS) committee on Risk-Based Approaches for Securing the DOE Nuclear Weapons Complex met at Sandia June 18-19. Sandia technical staff presented briefings on some of Sandia's latest nuclear risk assessment approaches and security technology. The NAS committee includes representatives from the military, academia, government, the intelligence community, and other national labs.

About 81 percent of usable offices at Sandia are physically occupied, according to recent data gathered by Center 4800. This is an improvement from 76 percent at the beginning of the fiscal year. Sandia has achieved this figure by eliminating leases, removing substandard space, preparing monthly profiles tracking space utilization, and conducting activities to increase awareness about the use of space.

Miracles sometimes happen . . . Mariah Martinez is one of those miracles

By Iris Aboytes

(We told you about Mariah in a March 2002 Lab News story. Today we are telling you about the miracle.)

"I was very grumpy," says 12-year-old Mariah Martinez. Mariah is the daughter of Joy Giron (6414). "I did not want to eat. The nurses and my mom used to have to hold me down to give me my medicine. That was the worst part. Sometimes my mom couldn't handle watching so she would walk out and wait by the door with tears in her eyes."

Mariah was referring to the time back in 2001 when she was diagnosed with neuroblastoma, a cancerous tumor the size of a grapefruit. It came from her adrenal gland. The cancer spread to her bone marrow and into her lungs. Six months of chemotherapy and radiation shrank the tumor 80 percent. The 20 percent could not be removed because it was attached to her aorta.

Mariah had total body radiation, which got rid of the rest of the tumor. A stem cell transplant followed at UCLA Medical Center.

Today Mariah is in remission and has yearly checkups at University of New Mexico Hospital and when possible at UCLA.

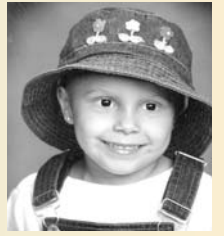
"She endured so much," says Joy. "She had many procedures and blood transfusions," says Joy. "Her body rejected blood transfusions a couple of times."

One of the side effects of the medication was hearing loss. Mariah wears hearing aids in both ears. She also got cataracts in both eyes and has had intraocular lens transplants and now doesn't wear glasses.

"Mariah is a typical preteen," says Joy. "She loves texting, talking on the phone, being on the computer and helping me cook. She took home economics the last two years and fell in love with cooking. Her teach-



ENERGIZER BUNNY — Mariah holds her sister Destiny's hand as they jump on the trampoline. After chemo, Mariah became the Energizer Bunny. (Photo by Randy Montoya)



Mariah Martinez in 2002

ers tell me that she is a leader. They say that when she talks people listen. They said she comes across bossy, but the message comes through."

Because of her various procedures Mariah has had to attend summer school. Currently she has a 4.0 grade point average and for the first time in her young life, she does not have to go to summer school. Mariah gets to have a regular-kid summer.

"It has been about two years that we have had no stumbling blocks," says Joy. "She used to get so mad at me she would tell me that she did not like me. She wanted a new mom. Now she tells me she thinks that I am the best mom in the world."

"I was just a spoiled little brat. I was so sick, I didn't know what I was saying," says Mariah. "Now that I'm older, I appreciate her so much. I couldn't have asked for a better mom."

"I love shopping, cheerleading, dancing, and taking care of my little sister I adore her. She is fun to be with, even when we fight. She means the world to me. I am very happy."

Due to the total body radiation, Mariah is a little small for her age. She has been going through growth hormone therapy the last four months. She grew one centimeter after six weeks. "People underestimate me because of my size," says Mariah, "but I let them know I ain't no little girl they can mess with. I stand up for myself."

Joy received 10 months of vacation donated through Sandia's vacation donation plan. "It was unbelievable," says Joy. "Because of friends and strangers, I was able to be with Mariah as long as she needed me."

"When I grow up," says Mariah, "I want to be a nurse so that I can help little kids with cancer the way the nurses helped me. They were the coolest, sweetest, kindest people you could ever meet — until it was medicine time."

Sandia to sponsor system dynamics conference July 26-31

Conference expected to attract 450 participants

By Chris Burroughs

High-impact applications and research on the difficult issues at the cutting edge of the field of system dynamics will be the focus of the 27th annual conference of the System Dynamics Society to be held July 26-31 in Albuquerque.

Hosted by Sandia, the conference is expected to

draw about 450 scientists, educators, professionals, and students.

"This will be a very stimulating six days of discussions that will reach across such disparate fields as business applications, economic dynamics, energy and resources, health, methodology, military applications, organizational dynamics, psychology/social dynamics, public policy, climate change, emergency preparedness/response, challenges of terrorism, and security," says Sandia system dynamics researcher Len Malczynski (6313), conference chair. "We at Sandia are honored to host a symposium of this importance."

System dynamics is a powerful methodology and computer simulation modeling technique for framing, understanding, and discussing complex issues and problems. The System Dynamics Society is an international, nonprofit organization devoted to encouraging the development and use of system dynamics and systems thinking around the world.

Primary conference speakers include:

- Dennis Meadows, professor of systems management and director of the Institute for Policy and Social Science Research at the University of New Hampshire
- John Sterman, the Jay W. Forrester Professor of Management and the current director of the System Dynamics Group at the MIT Sloan School of Management
- Peter Senge, noted author of *The Fifth Discipline* and promoter of systems thinking and organizational learning

Les Shephard, VP of Sandia's Energy, Security, and Defense Technologies Div. 6000, will open the conference. Nearly 200 scientists will present papers at the six-day event that includes a PhD colloquium, and more than 20 workshops.

Meadows is coauthor of *The Limits to Growth*, a report first published in 1972 that sparked a great debate worldwide about the value of the zero growth theory that it proposed. The report was significant because it sounded an alarm about global society's urgent need for sustainable development. Since its publication, Meadows has continued to study the causes and consequences of physical growth on a finite planet. Meadows will also give a presentation on climate change July 21 at Sandia's Earth, Wind and Sun symposium.

Sterman, author of *Business Dynamics: Systems Thinking and Modeling for a Complex World*, is considered the current leader of the system dynamics school of thought. His research focuses on improving managerial decision-making in complex systems. In addition to giving a plenary presentation, Sterman will run a simulation-based negotiation exercise dealing with the challenge of curbing greenhouse gases in the Earth's atmosphere. This tool and approach is being exercised worldwide and is also considered as an aid to the United Nations Climate Change Conference to be held in Copenhagen later this year.

Senge emerged in the 1990s as a major figure in organizational development. In 1997, *Harvard Business Review* identified *The Fifth Discipline* as one of the seminal management books of the previous 75 years. For this work, he was named by *Journal of Business Strategy* as the "Strategist of the Century." They further said that he was one of a very few people who "had the greatest impact on the way we conduct business today." At the conference, Senge will reflect on his experience fostering genuine systems awareness and wiser actions within education, civil society, and business.

The work of the Labs will be featured in several presentations, including two plenary sessions. George Backus (1433) will present "A History of Making Energy Policy," a 30-year overview of the contribution of system dynamics in the making of energy policy in the US and abroad. Bob Glass (6326) will present the story of the Labs' involvement in the formulation of US policy for mitigating pandemic influenza.

New to this year's conference will be a "bonus day," July 31 — an extra free day of workshops focusing on models of energy and climate, economic crisis, corporate environments, and system dynamics in K-12 education. In addition, on July 29, as part of the K-12 education segment, children will present posters dealing with system dynamics.

The conference will be held at the Hotel Albuquerque in Old Town and is open to the public. Registrations are accepted at the conference website, www.systemdynamics.org/conferences/current/index.htm.

Conference cohosts are Argonne National Laboratory, Idaho National Laboratory, and Paul Scherrer Institut of Switzerland. The Boeing Company is the conference partner, and major sponsors include Lockheed Martin, and the US Department of Homeland Security.

For more information about the System Dynamics Society, see the society website at www.systemdynamics.org or contact Len, conference chair, at 505-844-7219, lamalcz@sandia.com, or Aldo Zagonel (6322), organization chair, at 505-284-6773, aazagon@sandia.gov.



ATTENDEES participate in one of the workshops offered during the 2008 System Dynamics Society conference.