

Renewed interest in nuclear energy in US could mean new opportunities for Sandia

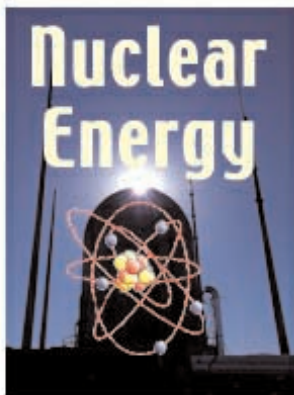
Rolling blackouts, energy security, global warming, pollution all factors in possible nuclear renaissance

By Bill Murphy

For a while there, the nuclear power industry in the US called to mind Yogi Berra's assessment of the ballplayer who never quite lived up to his early promise: "His future's all behind him."

Now, though it will certainly be a close-run thing, it appears possible — just possible — that nuclear power may be poised for a renaissance in the US. After decades in the PC wilderness, nuclear power is suddenly being mentioned in polite company.

Vice President Dick Cheney, in the just-released National Energy Policy report, advocates



several measures intended to help make nuclear energy a viable economic option. Newspapers are editorializing — in favor! — of nuclear energy. Lawmakers, like New Mexico's senators Pete Domenici and Jeff Bingaman, are championing legislation that boosts things nuclear. Even some environmentalists are getting on board the nuclear train. Joady Guthrie, son of legendary folk singer Woody Guthrie and brother of Arlo, distributes an e-mail-based newsletter touting solar and nuclear energy as the most environmentally sound energy options.

The shoals of Three Mile Island

While the US nuclear power industry floundered on the shoals of Three Mile Island (no new plants have come on line since then, i.e., the 1980s), nuclear power still provides about 20 percent of the nation's electricity. There are more than 100 commercial reactors operating, and thanks to new and improved technologies, they're churning out megawatts at greater-than-ever efficiencies. (Significantly, as Sandia Div. 6000 VP Bob Eagan notes, the effects of the Three Mile Island incident have been misper-

"The nation really does face some very acute problems with energy, and Sandia has some very important contributions to make to address them."

ceived by the public. "Three Mile Island is cited as a big issue, but the fact is not one individual outside of the plant was harmed— even statistically — and I'm not sure anybody inside the plant was hurt, either. And since then, there have been no occurrences of any magnitude." Chernobyl doesn't count because it was built and operated according to standards far, far less stringent than those that apply to Western reactors.)

If nuclear energy is again turning heads, it is not just its new efficiencies that are generating those admiring glances. As Sandia Executive VP Joan Woodard puts it, "Folks have to perceive a

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'Building Bridges' one year later: Standdown raised awareness, sparked changes

Caste-class remains the primary diversity issue at Labs

Dr. Leonard McCoy, good ol' Bones, "got" it. The Starship *Enterprise* "country doctor" once soliloquized that in all the universe, in all of its vastness and with all of its wonders, mysteries, and marvels, there is only one "you." Each individual, he noted in a poetic turn, is absolutely unique in the cosmos.

Rochelle Lari knows just what Bones was talking about. "Yes!" she might say. "Exactly!"

What Rochelle, diversity consultant and program leader for Sandia's Diversity Leadership Program, does say is that one year after the DOE-mandated diversity standdown (which Sandia called "Building Bridges") more and more Sandians

are "getting" the message of inclusion. As Rochelle, who helped design the Building Bridges program puts it: "Diversity isn't about pitting groups off against each other. Diversity is about all of us."

Rochelle and Heidi Welberry, a diversity trainer and consultant, say that in the follow-up to the standdown, Sandia received thousands of suggestions for positive actions. The call for suggestions had invited consideration of those actions that would contribute to improving the local working environment. Suggestions were submitted largely through division lines, and they are mostly being handled at the division level by the Division Diversity/Employee Coun-

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Labs President C. Paul Robinson, speaking at the National Atomic Museum, praised Sandia's Asian Americans, saying they can make tremendous contributions to the needs of the 'global village.' See story on page 5.

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Sen. Pete Domenici addresses arsenic issue



ARSENIC REMOVAL DEMONSTRATION — Robert Moore (6849), left, gives a demonstration of an economical method developed by Sandia to remove arsenic from water during a Memorial Day news conference at the Labs' Cooperative Monitoring Center. Observing the demonstration are, from the left, Albuquerque Mayor Jim Baca, Sen. Pete Domenici, New Mexico Environment Department Secretary Pete Maggiore, and Peter Davies (6100). During the news conference, Domenici said Sandia's research could have national implications for hundreds of communities facing the cost of reducing arsenic concentrations in water supplies, including Albuquerque. (Photo by Randy Montoya)

Sandia researchers win IEEE's prestigious pulsed power awards

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Folk musician/chemical physicist Peter Esherick plans music fest

This & That

Nuclear energy on comeback trail? – No pun intended, but nuclear energy is now one of the hottest issues in the national news. Public and political support for nuclear power plants seems to be building as electricity prices rise and shortages appear in some locales. In light of all this (again, no pun...), the *Lab News* is looking at nuclear energy's future in our nation's energy supply mix and how Sandia may contribute. The articles begin on page one of this issue with a general overview and some related Sandia areas of expertise. We'll get more detailed in upcoming issues and feature what some of our very own political leaders are thinking and proposing in this area.

We want to make one thing clear up front, before we begin the series. We know many folks, including some Sandians, have concerns about nuclear power plants and the need for them. So ... we're not necessarily endorsing nuclear energy or taking sides in any "nuclear energy debate" by publishing these articles. We are simply trying to reflect the renewed interest in this subject, how it might affect our nation's energy future, and how it might affect Sandia. We hope you find the series interesting and thought-provoking. That's the whole idea.

* * *

Sandia a "seedy" laboratory? – Most employees know that the word "Sandia" translates to "watermelon" in Spanish and that the Sandia mountains are so named because at sunset they often take on the reddish color of the inside of a watermelon. Unfortunately, the Mexican wire service Notimex took the translation too literally when it reported recently on an idea Sandia is exploring with the Mexican government – a "binational" lab that would be located on the US/Mexico border to address common border problems and other issues in environmental, economic, and health areas.

The story was good and interesting, but amusingly – instead of retaining the formal Sandia name in the English version of its story – Notimex referred to us throughout the story as "National Laboratory Watermelon." Not only that, when quoting Sandia's Gary J. Jones (1313), Notimex used a literal translation of the short version of our name: "Watermelon will put as much emphasis in abolishing conflicts now and in looking for solutions...."

* * *

We need limit on "only" – Do big-time advertisers think we're a bunch of rubes and boobs? From a recent display advertisement in a daily Albuquerque newspaper for a trip to Europe on the Concorde and return trip aboard the Queen Elizabeth II: "Isn't it time to take the trip of your lifetime at a once in a lifetime price?" The ad ends, "From Only \$7,195." Only? Only seven thousand, one hundred, and ninety-five dollars? Now this may be a fine – even fairly priced – travel opportunity, but, "From Only \$7,195?" I propose a legal limit on the dollar amount that could be preceded by "only." The limit ought to be WAY below \$7,195 – maybe \$9.99 – as in "Gasoline, Only \$9.99/gal."

– Larry Perrine (845-8511, MS 0165, lgperri@sandia.gov)

McDaniel, Buttram win IEEE pulsed power awards

Sandia researchers Malcolm Buttram (15330) and Dillon McDaniel (1640) have been selected to receive the Erwin Marx and Peter Haas Awards, respectively, at the 2001 Institute of Electrical and Electronics Engineers (IEEE) Pulsed Power Conference on June 20 in Las Vegas, Nev.

The awards consist of a monetary award, plaque, and the opportunity to present a plenary session address on the topic of the winner's choice.

Selection is by awards committee and is presented by the Pulsed Power Science and Technology Committee of the Nuclear and Plasma Sciences Society of the IEEE.

Malcolm has worked in the field of high-average-power pulsed power systems and directed energy for 25 years. "Most of the previous recipients were among the people who created the field of pulsed power," he says. "These awards are the best possible evidence of the high regard that the international community has for the several pulsed power programs at Sandia."

"I'm very flattered. I didn't even know I was being nominated for an award," says Dillon. "It was a great surprise. I'm looking forward to receiving it."

Says Jeff Quintenz, Director of Sandia's pulsed power program, "These are the two most prestigious awards offered by the international community for excellence in pulsed power. I am very happy for both Malcolm and Dillon. They certainly deserve this recognition."

Dillon suspects the fine hand of Mark Savage (1643) helped put forward his nomination for consideration. Mark, when confronted by the *Lab News* with the allegation, at first neither confirmed nor denied it, but eventually conceded under questioning he had acted as charged.

Previous winners of the Marx Award include Ken Prestwich and Tom Martin (both ret., now consulting in 1640), "who created the pulsed power program at Sandia and made it a world leader," Buttram says.

Among past recipients of the parallel Haas award is Gerry Yonas, VP and Principal Scientist of Sandia's Advanced Concepts Group.

– Neal Singer

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Three Sandia teams nominated for NOVA awards

Three of Sandia's Employee Recognition Award team winners have been nominated for the Lockheed Martin NOVA awards program. Winners will be announced next fall. The annual NOVA awards honor 50 Lockheed/Martin individuals/teams "who have made outstanding contributions to Mission Success."

Here are Sandia's three nominated teams and their ERA citations:

- Div. 1000: 1.3-Micron VCSEL (Vertical Cavity Surface Emitting Laser) team. Nominator: Peter Esherick (1744); Team Rep.: John Klem (1742). A Sandia/industry team has developed the first 1.3-micron electrically pumped vertical cavity surface emitting laser (VCSEL) for ultra-high bandwidth datacomm and integration with silicon microsystems.

Children of Sandians win 10 out of 67 Lockheed Martin Foundation Scholarships

Ten students who have a Sandia parent are among the 67 recipients of this year's Lockheed Martin Foundation Scholarships. The Scholarship program awards \$3,000 per year for up to four years of undergraduate study to National Merit Finalists who are the children of Lockheed Martin employees. Selections are made for Lockheed Martin by the National Merit Scholarship Corp. All are members of the Class of 2001 graduating high school seniors.

The 10 scholarship winners and their Sandia parent(s):

- Div. 5000: MTI (Multispectral Thermal Imager) Launch & Operations Team. Nominators: Tim Taylor (5711) and Gracie Rubio (5743); Team Rep.: Brian Brock (5743). For sustained outstanding team performance resulting in the successful launch and operations of the Multispectral Thermal Imager satellite.

- Div. 15000: National Missile Defense Integrated Flight Test Targets Team. Nominator: Eric Reece, 15401; Team Rep.: Bob Sheldahl, 15415. For providing exceptional service and uncommon dedication to the National Missile Defense Integrated Flight Test program by providing high-quality target objects.

All 62 Sandia teams (and their citations and members) that won Employee Recognition Awards this year were listed in the May 4 *Lab News*.

Sarah Cutler	Robert Cutler (5832)
Ryan Davies	Peter Davies (6100)
Matthew Jones	Tracy Jones (10305)
Seth Kerstein	Alan Kerstein (8351)
Kendra Lipinski	Ronald Lipinski (6424)
Pamela Luk	Vincent Luk (6420)
Cheryl Miller	Dori Ellis (5300)
Jeremy Siegel	Malcolm Siegel (6233)
Melissa Spencer	Floyd (12323) and Debra (5914) Spencer
Grace Spulak	Robert Spulak (9811)

Air handler uses evaporation to keep buildings cool

System preserves comfort, conserves energy in the California site's oldest structure, Bldg. 911

By Nancy Garcia

Mechanical engineer Todd Felver (8512) first heard the phrase "sustainable design" a couple of years ago, and has been practicing it even longer. Sustainably designed buildings minimize energy consumption, incorporate good indoor air quality and working conditions for occupants, and are friendly to the environment.

When the California site's oldest structure, Bldg. 911, was being renovated a few years ago, the design incorporated a new energy-efficient air handling system that Todd had read about.

The system requires scant energy on the hottest days, supplies ample fresh air, and is the only approach that can continue to provide cold air if mechanical refrigeration fails.

"It requires about half the energy of conventional cooling systems," Todd said, "and shifts the peak demand off hot days. On a 92-, 95-, 100-degree day this thing is idling along and everyone is screaming for energy. The peak energy load for this system occurs on a 75-degree day when our dewpoint is its highest. Nobody's clamoring for power and we're not in Stage II or III alerts on a 75-degree day. That's why it's a perfect solution for California, and for warm, dry climates west of the Rockies."

Uses passive cooling of evaporation

The system uses the passive cooling of evaporation, which is ideal for an arid environment. In the unit, fans bring in hot, dry air. The air passes through a heat exchanger, which helps it approach room temperature, then travels through an evaporative cooler, which Todd compared to a waterfall that rinses the air stream, leaving it clean, cool, and humidified. Unlike air conditioning in cars or homes, the system does not rely on recirculating interior air for efficiency. Even though occupants of Bldg. 911 cannot open their windows, they are breathing plenty of fresh, filtered air. "It's like sitting outdoors," Todd says — without the pollen. Other comfort features in the building, such as glare-free indirect lighting and window blinds that filter sunlight, turned out to be sustainable design elements that also reduce the cooling demand.

"I've been here on a 102-degree day last summer," he says, "and watched this air handler work with no mechanical refrigeration — just evaporative cooling and pre-cooling, with no extra energy required. We were supplying 56-degree air into the building by just operating a fan and a little water pump. By putting moisture in the air, we cool it down. Nature gives us this for free — it's really neat."

Pre-cooling the incoming air is important in office buildings most hours of the year because

Tilting at windmills in Livermore



WIND FARM — Windmills dotting the scenic Altamont Pass behind Livermore are electric turbines that were designed to produce alternative energy. (Photo by Lynda Hadley)

occupants and equipment will drive temperatures up past the comfort level. The heat exchanger can also pre-warm the outside air when needed. Also, for the few winter hours when the outside air is

and allow interior temperatures to rise slightly.

The system has proved so efficient, Todd says, "we're going to step it up and use it all over the place." Bldg. 916 is scheduled to get this air handling approach when it

is renovated. The new Distributed Information Systems Laboratory (DISL) will also incorporate it — even for its cluster computer center, initially expected to house 35

racks of computers putting out an equivalent heat load of 200 kilowatts around the clock.

Computing centers have historically carried stringent cooling requirements calling for redundant units in case an air conditioner fails. Since the evaporative cooling method can reliably supply cool air even if a refrigeration unit goes down, Todd investigated its use for DISL. He was pleasantly surprised that calculations showed how well it would work, as well as by the equipment cost savings of \$800,000 — not including future energy costs savings, too.

This application could be valuable to anyone using distributed computing, he says. Internet hotels or web hubs housing multiple servers "use a tremendous amount of energy, 24 hours a day."

Todd co-authored a paper, "Cooling California's Computer Centers," in the March issue of *HPAC Engineering*. It was presented at a March meeting of ASHRAE's Golden Gate chapter. Last month, the material was also presented in a seminar at Pacific Gas & Electric's Energy Center.

Colleagues were receptive, with some reservations, Todd says. In some ways, the system is a little out-of-the-ordinary for engineers used to ordering standard cooling equipment. On the other hand, he says, the usefulness of evaporative cooling (which is also the operating principle behind swamp coolers) "has been around a long, long time."

"A real problem right now is the cost of energy," he says. "It not only saves energy, it's good for the environment."

Sandia California News

too cold and dry, a fraction of inside air can be recirculated to maintain warmth and humidity.

Likewise, during warm or humid days, some mechanical refrigeration is needed to maintain constant cooling. Users may also forgo refrigeration

Regarding the economic challenge you bring up, it is a fact that the site has not historically been more expensive to operate on a per capita basis than New Mexico. In competing for top technical talent, we have been successful in attracting new staff, compared to both Bay Area technical firms and R&D institutions elsewhere, by offering compensation and benefits consistent with New Mexico. However, our acceptances among professional staff are not as high as in the past because of the Bay Area's high cost of living, particularly with regard to housing costs. We are in the process of understanding what we can do under the terms of our corporate policies and our present contract with DOE for immediate relief, as well as assessing what we might want to rally for in the longer term.

The site's vision is a strong one, and we're excited about the future ahead.

— Mim John (8000)

Feedback

California site in no danger of closing

Q: Is Sandia considering closing the California site because it is becoming an economic challenge to compete in the Bay Area?

A: No, not at all. We are more optimistic than ever about the future of the site and its potential contributions to the laboratory in the coming decade. The recent move of the W80 program to the Livermore Valley, the continued health and growth of the Combustion Research Program, the planned follow-on to EUVL, laboratory investment in both staff and facilities to underpin the site's growing capabilities in micro-, info-, and bio-technologies — the list could go on, but these examples reinforce the importance of the site in the laboratory's future. In fact, lab leadership has adopted an even more "bullish" strategy for the site that emphasizes greater outreach and partnerships in the rich Bay Area academic and commercial/industrial environment, for the benefit of the laboratory as a whole.

Nuclear energy

(Continued from page 1)

driving need for change.” That driver, she says, is the current energy crisis, especially the looming possibility of hundreds of hours of rolling blackouts in California. To paraphrase a familiar dictum: nothing so focuses the mind as the prospect that your “Ben and Jerry’s”-stocked freezer will be off-line for the next 10 hours.

“The nation really does face some very acute problems with energy,” Joan says, “and Sandia has some very important contributions to make to address them.”

While the energy crisis may be the proximate cause of the latest attention being paid, Joan herself deserves no small credit for keeping the issue viable in recent years. In a letter to Sen. Pete Domenici in 1997, she spelled out many of the arguments why the nation should re-visit the nuclear debate. Subsequently, the New Mexico senator has become a highly visible and vocal advocate for reviving serious national debate about nuclear power. His speech at Harvard’s Belfer Center for Science and International Affairs in October 1997 is seen by many as the being pivotal in jump-starting the national dialogue on nuclear power.

Sandia has stayed involved

Through all the years that nuclear power has been on the wane, Sandia has continued to maintain substantial capabilities in nuclear power-related issues. Indeed, as a multiprogram, systems-savvy lab with fundamental responsibilities in assuring the safety and security of the nation’s most sensitive nuclear assets, Sandia is uniquely poised to consider nuclear power as an integrated system. That’s exactly what Sandia Senior VPs Roger Hagengruber (5000) and Tom Hunter (9000), and VP Bob Eagan (6000) are advocating.

These three, with heavy-lifting support from Joan and Labs President C. Paul Robinson, talk about what they call the “Global Nuclear Future,” which is a way of thinking about how nuclear energy, bolstered by appropriate public policy decisions, can serve the nation’s requirements for domestic energy security, global national security, nonproliferation, and lock-box-solid nuclear materials management. The key, as Sandia nuclear power guru Tom Sanders (6411) explains, is a transparent, that is, totally-open-for-all-to-see, nuclear fuel cycle. (A June 15 *Lab News* article, “The Global Nuclear Future: A vision for the new nuclear culture,” will look at the Global Nuclear Future vision in detail.)

Key research for NRC

The Labs is a key research arm for the Nuclear Regulatory Commission (NRC), providing vital expertise to that body as it pursues its regulatory mission. Sandia’s expertise in risk technology will aid the NRC as it develops a new risk-informed regulatory framework. The Labs’ long experience in studying and understanding severe accident phenomena has helped NRC develop appropriate regulations.

Also, with its involvement with the Waste Isolation Pilot Plant near Carlsbad and the proposed Yucca Mountain waste facility in Nevada, Sandia is arguably the world’s leader in repository science.

Other Labs areas of expertise (mostly developed as part of the Labs’ weapons-related mission) that are brought to bear on nuclear power issues include, but aren’t limited to:

- **Global nuclear materials management:** The safe and secure management of nuclear materials through all phases, from processing to transportation to storage.

- **Sensors:** If the Global Nuclear Future vision is to be viable, transparency is essential. And that means sensors that keep the windows open and let the fresh air in at all times. Sandia’s sensor technologies, from the satellite-based Multispectral Thermal Imager to the latest MEMS technologies, developed for national security applications from weapons to nonproliferation, will be key in the new transparent

also are among world leaders in space reactor design. Their knowledge has been sought after by NASA, which is beginning to plan extended manned planetary missions (widely thought to be impossible without a reliable nuclear power component).

- **Nuclear criticality:** Sandia’s nuclear criticality safety program, designed to help Sandia researchers conduct their experiments safely, has important relevance to the safe production, storage, transportation, and disposition of nuclear fuels.

- **Z:** Finally, there is the philosopher’s stone of energy sources: fusion. Sandia’s work with its renowned Z machine, reaching record temperature and X-ray outputs, may be blazing the trail toward a new energy source that is clean, and virtually limitless.

Removing barriers to nuke power

While Sandia has had an ongoing role in nuclear power-related research for many years, the renewed interest in nuclear energy could open doors to new R&D opportunities. Just how extensive those opportunities may be is still a bit unclear, Joan says. Clearly, the Labs will continue to perform key research for the NRC and will seek research opportunities in programs funded under DOE’s Nuclear Energy Research Initiative (NERI), where “we’ve [already] been a pretty prominent player.”

NERI was launched by DOE in response to a 1997 presidential science panel recommendation that it fund research to help remove barriers to the re-ignition of nuclear power. The barriers posited by NERI included waste, proliferation, safety, and economics. Sandia has direct expertise in addressing the waste, proliferation, and safety issues, Joan notes, and is contributing to a solution to the economic concern through its work on nuclear plant design optimization. In short, the opportunities are there, and they seem particularly suited to Sandia’s capabilities.

Sandia’s unique perspective

As the nation comes to grips with the energy challenges of the 21st century, Joan says, political and public support for nuclear power will be vital. She lauds New Mexico’s senators, Domenici and Bingaman, for their leadership. (Bingaman last month introduced the University Nuclear Science and Engineering Act, which encourages students to pursue advanced nuclear studies. Domenici in March introduced the Nuclear Energy Electricity Assurance Act of 2001, which fosters greater use of nuclear energy while supporting advanced research into technologies to

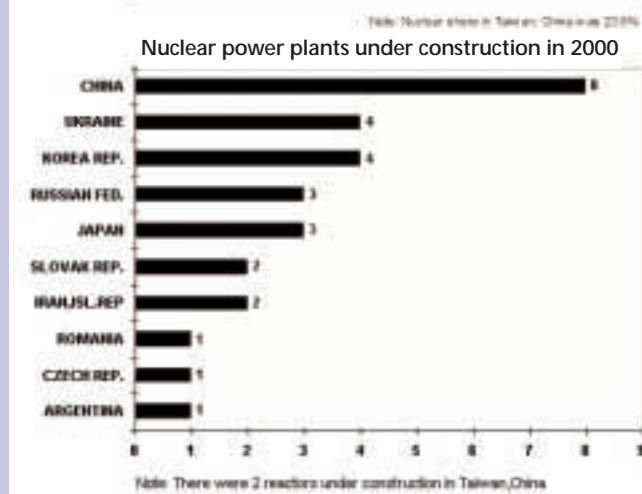
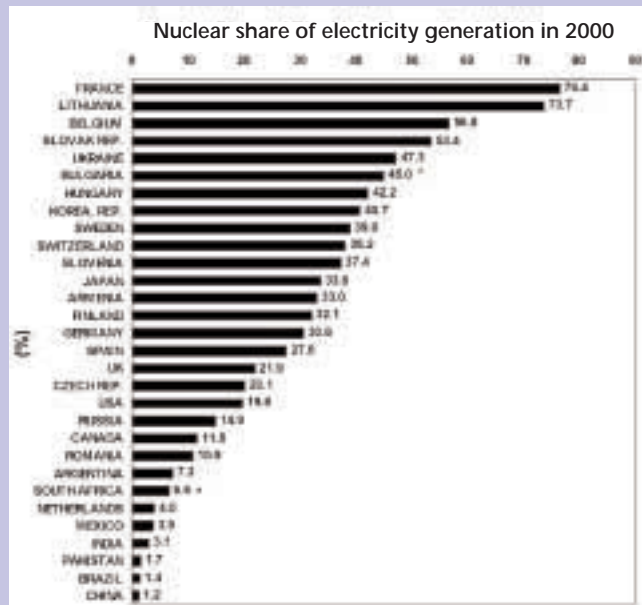
minimize wastes.)

Joan notes that Sandia, perhaps uniquely among all the national laboratories, has been involved in the entire spectrum of energy-related work. Sandia researchers over the years have been immersed not just in nuclear energy issues, but also in fossil fuel research, wind power, photovoltaics, solar-thermal, alternative fuels, electric cars, and even geothermal research. Its critical infrastructure work has led it into areas of power grid reliability, pipeline integrity, and hydropower dam safety.

“This unique perspective is really fascinating to me,” Joan says. “We see all of the promises; we see all of the challenges, all of the pitfalls. No one of these technologies is the answer to all of our energy problems, but nuclear certainly has an important part to play.”

Over the course of the summer, the Lab News will take a look at Sandia’s current work in nuclear power initiatives, what’s been done, and what might be in the pipeline in the near and not-so-near future. Next up: “The Global Nuclear Future.”

The nuclear world



At the end of 2000, there were 438 reactors in operation around the globe, with the largest single number, 104, on line in the US. The latest US commercial reactor was licensed almost a quarter-century ago; meanwhile according to the International Atomic Energy Agency, from which the above charts were obtained, there were 31 commercial reactors under construction around the world at the close of last year. Since the US withdrew from leadership in the commercial nuclear power industry, the new reactors being built around the world are using mostly non-US technology. The top chart, in particular, indicates the huge potential market for nuclear power in up-and-coming economies like China, India, Brazil, and Mexico.

global nuclear culture.

- **Human factors:** Why and how people make mistakes — and how to design systems that minimize the potential for human error. It’s a long-standing concern in many industries. Sandia is a leader here, and its work has applicability to nuclear reactor design and operation.

- **Computer modeling:** Leveraging Sandia’s world-leading computer modeling capabilities, Labs researchers have modeled the entire nuclear energy infrastructure in sophisticated computer code. An invaluable planning and policy-making tool, it is based on the same technology being used in science-based stockpile stewardship.

- **Rocket pull-down tests and container drop tests:** A capability originally developed for testing weapon components in extreme conditions, the pull-down tests and drop tests are being used to develop robust containers for transporting plutonium and other sensitive materials.

- **Reactor design:** Sandians are working with industry and universities to develop less-expensive, more reliable, easier-to-license reactor designs that can compete dollar-for-dollar with natural gas power systems. Sandia researchers

Diversity

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cils. The councils, say Rochelle, have been busy translating the suggestions into meaningful actions and measures. In almost every division, proactive steps are being taken to address legitimate concerns raised by their employees.

An excellent example is the Crossing Bridges job shadow program launched in Division 10000. Crossing Bridges lets an employee really see what it's like to spend a day in another Sandian's shoes. Another example: Division 3000 conducted a retreat on "How to Create the Best Manager You Ever Had," which is an approach to creating an awareness of the differences between management and leadership, and the characteristics and the value of each. This is a perspective from the grass roots up rather than from the top down.

In the wake of the standdown, Rochelle notes, several divisions either created or reformed their diversity and employee councils and launched formal training programs to help spread the idea that "diversity is all of us."

Caste-class issue still a concern

Rochelle says a review of the comments from the standdown indicate that the primary diversity issue at the Labs remains the so-called "caste-class" issue. Caste-class describes the sense of exclusion experienced by employees when confronted with behaviors that reflect attitudes such as: "I rank higher than you," or "My work is more important than yours," or "I have more education than you," or "You're just a support person," or "You're only administrative," or whatever, and "therefore your concerns and input don't count." (In recent years caste-class has emerged as a recurring concern at Sandia in employee attitude surveys, division polls, and diversity training exercises.)

Knowing that caste-class is a concern, Rochelle says, enables the Labs and the division-based councils to tailor programs to address that issue.

"I think we all understand that there have to be titles and job descriptions and that there has to be an organizational structure that enables us to do our mission," Rochelle says. "Regardless of where we are in the hierarchy, we need to treat everyone else with the respect that we'd expect for ourselves, and we need to tune into those actions that cause others to feel respected."

One aspect of the Building Bridges program that really made an impression, Rochelle says, was the personal video testimonials from a

Paul Robinson lauds Sandia's Asian Americans

Sandia President Paul Robinson celebrated the presence and contributions of Asian Americans at the Labs and called upon them to give back to the world to help improve the lives of everyone in the "global village."

Paul's remarks opened a program, "Asian Americans in New Mexico: Past and Present," at the National Atomic Museum Saturday, May 19. The event was sponsored by the museum and Sandia's Asian Leadership and Outreach Committee.

Paul noted that in the 2000 US census 3.7 percent of the nation's population identified themselves as Asian Pacific Islander (API) and an additional 0.5 percent self-identified as API in combination with another race, for a total of 4.2 percent. In New Mexico, he said, the similar API numbers in the same categories are 1.2 percent API and 0.3 mixed with another race, for a total of 1.5 percent.

"At Sandia I am pleased to say that our API representation is nearly twice that: 3.2 percent of the Laboratory population identify as Asian Pacific Islander. It is interesting to note that this splits very disproportionately between our New Mexico and California sites: 2.5 percent in New Mexico and 8.6 percent in California."

"Along with the pride you take in this celebration, take along this thought. . . of which you should be justly proud. Of the API population here at Sandia, fully 80 percent are in either the Professional or the Officials and Managers categories, by far the highest of any group so represented. You are very important to the success this Laboratory has produced in the past and will produce in the future.

"We all celebrate your presence in the

Laboratory today."

Paul spoke of the diverse global village. Drawing upon an article about the "World Village" by Dr. Phillip Harter of the Stanford University School of Medicine, he said if Earth's population were shrunk into a village of just 100 people, with all the human ratios as are now living in the world today, 57 would be Asian, 27 would be European, 8 would be African. Only 14 would be from the Western Hemisphere. Six people would possess 60 percent of the entire world's worth, and all six of these would have come from the United States.

The bad news is that 80 of the 100 people in this global village would live in substandard housing, 70 would be unable to read, 50 would suffer from malnutrition, only one would have graduated from college, and only one (likely the same one) would own a computer.

"We are truly in the most elite of circumstances in the global village," Paul said, and that brings obligations.

"As a laboratory, our accomplishments have the potential to change not only our local area but our nation, and even achieve profound changes in the world. The core purpose Sandia adopted this year — helping our nation secure a peaceful and free world through technology — has profound implication for the fate of our brothers and sisters who share the global village with us. We have the power to help change — indeed to drastically improve — the grim statistics of Dr. Harter's global village as it exists today.

"So as we celebrate our own heritages, let us also rededicate ourselves to the proposition that because we have been given so much, it is our obligation to give back to the world to improve the lives of everyone in the village."

diverse group of Sandians and contractors. In follow-up comments, Rochelle says, many Sandians said the video sparked in them a "kind of awakening; it helped people see how diverse 'diversity' really is and the impact their assumptions can have on other people."

Diversity Cinema!

While many of the actions stemming from the standdown are being initiated at the division council level, some are being implemented Labs-wide. Heidi notes that a number of employees suggested they would like to see more diversity-related videos for discussion in group settings. As a result, interested employees are invited to Diver-

sity Cinema! every third Monday of the month, from 11:30 a.m.-12:30 p.m. With their brown bag lunch, Sandians view a diversity video on the big-screen television in Research Park, 10510/165 (right outside the Eubank gate), and engage in discussion. Since its launch in October, the program has expanded to the California site. Also, with requests for easier access, as of July, Diversity Cinema! will move into Tech Area 1, Bldg. 802, Room 2000.

"It's a great way to learn more about diversity issues and discuss them with each other," Heidi says. It's also a good way, she notes, to preview videos that are available for departmental staff meetings.

Managing Diversity Competence

An example of a learning resource available for Labs-wide use is the web-based course: Managing Diversity Competence (MDC): Achieving Results Through People (DVR502). Designed as a resource for Sandia managers dealing with diversity-related issues, MDC uses scenarios based on Sandia experiences to focus on the behaviors that demonstrate competence in managing diversity. All Sandians are welcome to access the course. (Find the materials by clicking on the diversity leadership program internal web page at <http://www-irm.sandia.gov/HR/HomePages/3512/3512.html>, then follow the "Diversity Training" link at the left side of the screen.) During the Building Bridges program, this web-based tool was used within some departments to guide discussions about workplace issues of caste-class and ethnicity as well as the importance of recognizing the effects of differences and similarities on group dynamics and intervening appropriately, and challenging behaviors that are inappropriate to a high-performing work environment.

In an upcoming *Lab News*, the folks who appeared in the Building Bridges diversity video will talk about their experiences at the Labs over the past year, and Corporate Diversity Team members will talk about division-specific diversity initiatives.

"Sandians told us loud and clear," Rochelle says, "not to make diversity awareness a one-time, check-off-the-box kind of thing. We won't. We're committed and our management is committed to making sure that doesn't happen."

Hundreds gather at C-Club for retiree picnic



SANDIA RETIREES Greg Abeyta, left, a veteran of Sandia's field test unit, and Diego Gonzalez, who worked in transportation, offer up a rendition of "Rio Grande" during the perennially popular annual retiree picnic at the Coronado Club on May 24. (Photo by Randy Montoya)

Mileposts

New Mexico photos by Iris Aboytes
California photos by Lynda Hadley



David Larson
35 9750



Robert Eagan
30 6000



Douglas Brown
25 9332



Phyllis Padilla Owens
25 3022



Anthony Sill
25 2994



Pat Trelue
25 2900



Ron Trelue
25 6501



James Grossman
20 6211



Neil Lapetina
20 14405



Frederick Mendenhall
20 5902



Paula McAllister
20 9338



Patricia Miller
20 7853



Rubin Muniz
20 14408



Robert Stiers
20 2561



Paul Taylor
20 9232



Gerald Wymer
20 15425



Thomas Dickman
15 14407



Deborah Kill
15 2618



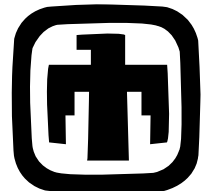
John Macha
15 15413



Louis Weichman
15 2612



Sheila Wilson
16 1101



Recent Retirees



Donald Gould
39 7826



Dal Jensen
39 9334

Employee death

Greg Cone of Patent and Licensing Center 11500 died May 19 after a long battle with cancer.

He was 53 years old.

Greg was a senior patent attorney and had been at Sandia since 1992.

He is survived by his wife, Melinda, and daughter, Hannah.

Sympathy

To L. Mason Blaich (6523) on the death of his mother, Roberta C. Blaich, in New Jersey, on May 6.

To Tom Brumleve (ret.) on the death of his wife, Joan, in Walnut Creek, Calif., on April 6.

Sandia, Lockheed Martin honor 11 local teachers for excellence in science education

Science teachers from 11 Albuquerque-region high schools received Excellence in Science Teaching awards from Sandia and Lockheed Martin at a recognition dinner at the Sheraton Uptown May 22.

The teachers were selected for their abilities to inspire student interest and enthusiasm about science and for serving as role models and mentors to other science teachers in their schools.

One of the 11, Lisa Durkin, who teaches science at Los Lunas High School, was selected as the Science Educator of the Year. She received a \$500 cash award to be used in her classroom or lab. Each of the other 10 received \$100 for classroom or lab use.

The other award winners were: Heather Scott, Eldorado; Judy Whitwell, Sandia; Peggy Dowdy, West Mesa; Kevin Gant, Del Norte; Gale Borkenhagen, Highland; Jason DeWitte, La Cueva; Jim Pirozzi, Rio Grande; Mark Walker, Career Enrichment Center; Jennifer Coughlin, Bernalillo; and Jennifer Miyashiro, Rio Rancho.

All regional public schools, from Bernalillo to Belen to Moriarty, were invited to participate in the program, which Lockheed Martin funded as the start of an ongoing program.

Sandia's Corporate Outreach Department (12650) manages the new program. Bruce McClure, the Sandia project manager, says the program was developed because of increasing scrutiny and criticism of public education.

"While it's true that education — like any complex and diverse undertaking — needs improvement in some areas, there are many other areas of excellence," Bruce says. "Sandia and Lockheed Martin developed the Excellence in Science Teaching program as a way of reminding our community that there are many dedicated, hard-working teachers in our public schools who are doing an excellent job of educating our children."

"Excellent teachers create excellent results," says Senior Manager Mike DeWitte (12650). "These great teachers are what our efforts are all about."



ALL WINNERS — These 11 science teachers received Excellence in Science Teaching awards from Sandia and Lockheed Martin. From left: Judy Whitwell, Kevin Gant, Jennifer Coughlin, Lisa Durkin (Teacher of the Year), Jim Pirozzi, Heather Scott, Jason DeWitte, Jennifer Miyashiro, Gale Borkenhagen, Peggy Dowdy, and Mark Walker.

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified

MISCELLANEOUS

ANTIQUES: 1880's, wooden curio cabinet, w/2 shelves & beveled glass doors, \$225; oak secretary, \$500. Filuk, 281-0078.

GERMAN SHEPHERD, to good home, large neutered male, 1-1/2 yrs. old, good watchdog, affectionate. Mozley, 884-6288.

HEDGE TRIMMER, Homelite, 22-in. blade, 16cc., 2-cycle, gas-powered, double-sided blade, excellent condition, only used twice. \$60. Dwyer, 271-1328.

LOVESEAT, Victorian style, w/floral tapestry material, 70" long, 2-yrs.-old, excellent condition, \$125. Buteau, 856-7705.

BIKE TRAILER/JOGGING STROLLER, ex.cond., \$80 OBO. Gomez, 899-0190.

PAGER, Motorola LS350 numeric, w/2 mos. service, \$30. Ganter, 265-5007.

REFRIGERATOR FREEZER, GE, 25.2 cu. ft., ice & water dispenser, like new, bargain price. Hanson, 298-2120.

COMPUTER, Compaq, 486DX, 66 MHZ, 20MB, 2.0GB HD, CD16X, 33.6KB modem, MS Windows '95, 14-in. monitor, \$240; Dot matrix printer, \$25. Gonzales, 823-9511.

BIKE, girl's, 20-in. Huffy, 2 yrs. old, excellent condition, \$20; gas grill, Sunbeam, 16 yrs. old, \$10. Meeks, 828-9825.

POOL TABLE LIGHT, cut stained glass, diamond pattern, 40" x 18", \$500+ new, asking \$200 firm; piano, Samick white lacquer, baby grand electric, excellent show room condition, \$5,000+ new, asking \$2,000. Buteau, 891-2925.

CAMPER SHELL, white, w/windows, fits '88 F150 bed, but not perfect, may fit Chevy, \$25. Estes, 856-1893.

PORTABLE DISHWASHER, Kenmore; clothes washer; very good condition, \$100 each. Stuart, 265-7315.

MAGELLAN 2000 GPS RECEIVER, works fine, no interface to computer, 6 yrs. old, w/carrying case, \$40. Davis, 323-9079.

MOVING SALE: computer center, sofa, filing cabinets, picture frames, & much more, reasonable prices. Hsia, 271-1105, ask for Celi.

SW AIRLINES TICKET VOUCHER, anywhere SW flies, expires 10/5/01, \$300. Keener, 298-0892.

FULL-SIZE MATTRESS, box spring, & frame, 4 mos. old, just like new, \$200. Maez, 266-9126.

GARMIN GPS III, w/power & data cables, & manual, excellent condition, \$140. Nation, 298-5605.

CELL PHONE, NOKIA 5190, works great, 2 chargers, 2 faceplates, all manuals, paid approximately \$100, asking \$25 OBO. McNeil, 242-7509.

DOGS, beagle mix, lovable; Labrador mix, loves water, both neutered, 4 yrs. old, need good home. Urioste, 459-5166, ask for Paul.

ROUTER, Craftsman, 1-1/2-hp, w/case, very little use, \$40. Pohl, 271-1328.

WALKER, w/removable wheels, Guardian, model 7731, easy grip, hardly used, \$60 OBO; electric drill, Sears, 1/4-in. blade, excellent condition, \$22 OBO. Wagner, 823-9323.

IRON PRESS FRAME, used w/hydraulic jacks, free. Hayes, 299-1200.

SOFA SLEEPER, queen-size, innersprings mattress, medium blue, excellent condition, \$350. Benson, 299-3315.

SLEEPER SOFA, queen-size, clean, good condition, free, you move it. Holle, 281-7460.

SW AIRLINE TICKET, anywhere Southwest flies, expires 4/02, \$300. Mayberry, 293-4025.

STEREO COMPONENTS, receiver, CD, tuner, tape, turntable, DBX subsystem, speakers, more, \$800 OBO. Laros, 890-0657.

HONDA LAWN TRACTOR, w/mower deck & plow attachment, needs tune-up & PTO rebuild, \$250. Clark, 281-1243.

BUILT-IN OVEN, 24-in. Kenmore, white, almost new, \$300. Perich, 293-8261.

BOX, w/2 12-in. subwoofers, & Sony AMP MSRP, great condition, lots of power, new \$600, asking \$350 OBO. Barela, 440-0186.

IRON GATE, 2 window grates, railing, free if you take all; small lava boulders, compost tumbler. Brethauer, 332-0824.

END TABLES, w/matching sofa table, glass tops, \$275; oak veneer entertainment center, great condition, \$225 OBO. Kovarik, 897-2188.

REFRIGERATOR, small, approximately 2 cu. ft., great condition, \$50 OBO; 2' x 4' baby bed & playpen, \$20 ea. Vititoe, 299-9298.

ANTIQUA SOFA, burgundy cotton-velvet, carved wood, \$550; antique china cabinet, w/upper glass doors & carved murals on lower wooden doors, \$350, must sell, OBO. Salazar, 899-0483.

GARAGE SALE, June 1-2, 1700 White Cloud NE; 8-drawer wood desk, 22 x 48, \$75; stereo cassette deck, \$30; much more. Bisbee, 293-0356.

FREEZER, 15-cu. ft. upright, new, \$300 OBO. Hughes, 296-8940.

TREADMILL, works great, \$45; furnace ductwork, round, several sizes, free. Hibray, 821 3455.

SPEAKERS, Magnaplanar's, 2' x 4' x 1" thick, electrostatic quality sound, \$600. Petersen, 275-7467.

MATTRESS SET, 3-piece, king-size, good condition, \$100. Paul, 296-6500.

GE PROFILE REFRIGERATOR, 22-cu. ft., all stainless steel, perfect, \$1,200 firm. Petersen, 275-7467.

FOUR WHEELS, 17-in. Maslitaly VR5, 5-120 bolt pattern, w/245/45 ZR Pirelli Super Sport tires, 5K miles, \$1,200. Carson, 294-2230.

SHOP VAC, wet/dry, Sears, 16-gal., \$50; telescope, Meade 4400, w/equatorial mount, \$75. Tucker, 866-9411.

ANTIQUA CREAM SEPARATOR, w/ electric motor, very good condition, make offer. Simons, 296-0974.

CONFERR DOUBLE-TUBE BUMPER, w/2-in. receiver hitch, fits Jeep CJ, YJ, or TJ, \$125; new BFG all-terrain 31x10.5, \$100; new '95 Grand Cherokee FS 15-in. spare. Martinez, 294-6365.

RECLINER, tan, \$35; Motorola 3682 cell phone, \$35; 15-in. lamps, w/shades, \$10/each; VCR, \$15. Kiro, 255-0890.

GENERATOR, Homelite, 5.5kW, brand new, still in box, paid \$1,200, asking \$600. Dwyer, 271-0741.

SOUTHWEST AIRLINES TICKET VOUCHER, anywhere Southwest flies, expires Sept. '01, \$290; 8-ft. electric baseboard heater, \$10. Cocain, 281-2282.

4-PERSON COLEMAN TENT, good condition, \$80; 1.5kW portable baseboard heater, \$70; 80-watt Pioneer speakers, \$80. DiBello, 821-4269.

SOFA & LOVESEAT, oversized, low back, earthtones, loose pillows, must sell, \$485; drafting table, 46" x 30", w/pencil tray, adjustable, includes chair, \$125. Mares, 268-0285 or 980-5438.

NEIGHBORHOOD GARAGE SALE, everything under the sun, June 9, 7 a.m.-?? (rain date June 16), east of Tramway between Lomas & Copper. Hendrickson, 275-3119.

HEDSTROM SWING SET: glider, 2 swings, slide, trapeze bar, & teeter-totter swing, \$75 OBO. Beavis, 822-5559.

TRUCK PARTS: '87 Suburban running-boards, \$50; Class III hitch, \$50; front bumper, \$50; 350 long-block engine, \$250; '83 Toyota pickup; rear step-bumper, \$50. Beer, 350-3455.

TWIN BED, 3-drawer, laminated opal oak, w/mattress, \$125; Schwinn man's mt. bike, \$80. Klavetter, 299-4299.

GAS DRYER, medium-size, almond, \$90; wood coffeetable, w/beveled glass top, \$40. Emms, 892-9258.

STORM WINDOWS, free, three 36" x 48" & one 36" x 55"; free moving boxes. Luna, 872-0193.

WASHER & DRYER, Whirlpool Imperial 70, clean, good working order, \$260 for both. Tate, 293-0654, ask for Alan/Karen.

SCROLL SAW, Sears, 18-in., \$75; metal FSBO sign, w/flyer tube, \$20; 30-in. wooden bar stool, \$30. Williams, 344-9276.

CONSOLE STEREO, AM/FM, turntable, dark wood, \$75; antique telephone/gossip table, dark wood, \$100. Langwell, 293-2728.

COMPUTER, Compaq Deskpro 233 MMX, 64K RAM, Z.S gig HD, CD ROM, speakers, 15-in. color monitor, 56K modem, Win '98, MS Office '00. Mounho, 299-0883.

FOUR GOODYEAR TIRES, P235 75R15, less than 10K miles, \$225. McCormick, 869-2879.

CARPET, beige, 9' x 12'(+), practically new, \$50. Diprima, 275-3479.

SKIERS EDGE lateral movement trainer, great for skiing, tennis, & golf, 1-yr. old, \$800 new, best offer. Thalhammer, 298-8521.

BEDLINER, 6.5-ft., w/rail, fits '74 to '96 Ford pickup, \$60. Daniel, 260-0461.

GRAVEL, free, you load & haul, small/medium gray river rock. Lunsford, 299-5187.

TRANSPORTATION

'77 INTERNATIONAL SCOUT, rebuilt, 347, trans. & hubs, new windshield, \$2,000. Flores, 291-0512.

96 TOYOTA 4RUNNER SR-5, V6, 4x4, excellent condition, AM/FM/CD/ cassette, 49K miles, dash/cargo covers, allow wheels, new tires, \$18,250 OBO. Basil, 822-9544.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:

- E-MAIL: Sandy Smallwood (sksmall@sandia.gov)
- FAX: 844-0645
- MAIL: MS 0165 (Dept. 12640)
- DELIVER: Bldg. 811 Lobby
- INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Sandy at 284-3704. Because of space constraints, ads will be printed on a first-come basis.

Ad rules

1. Limit 18 words, including last name and home phone (We will edit longer ads).
2. Include organization and full name with the ad submission.
3. Submit the ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. **One ad per issue.**
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active and retired Sandians and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. **We reserve the right not to publish an ad.**

'72 FORD 1/2-TON, LWB, AT, 360-V8, AM/FM/8-track, rough body, runs good, excellent work truck, \$1,200. Souther, 254-9361.

'98 CHEVY 4X4, 1/2-ton, extended cab, short bed, 5.7-liter, AT, Z-71, CD/cassette, locking rear differential, 60/40 split-bench gray cloth interior, 3rd dr., bedliner, white/pewter, 17,900 miles, \$21,000. Vigil, 271-1328.

'99 HONDA PASSPORT, 4WD, 5-spd. manual, loaded, 30K miles, factory warranty, below NADA, \$16,900. Sleafte, 281-4103.

'87 FORD RANGER, super cab, V6, AT, w/camper shell, \$2,200. Sickles, 299-9650.

'97 CADILLAC DEVILLE, estate sale, low miles, extended warranty, immaculate, maroon, leather, cell phone, \$17,000 OBO. Williams, 296-8094.

'89 JEEP CHEROKEE LAREDO, 4x4, new paint job, 131K miles, good condition, almost new tires, \$4,800. Cover, 823-1248.

'78 ALFA ROMEO SPIDER CONVERTIBLE, runs great, fun to drive, black, w/tan leather interior, 5-spd., 50K miles, www.swcp.com/duncan, \$3,800. Duncan, 271-2718.

'91 TOYOTA 4-RUNNER, AT, AC AM/FM/cassette/CD, 104K miles, white, extremely well maintained, excellent condition, no accidents, \$12,200. Newman, 266-6928.

'94 CHEVROLET S10 PICKUP, ext. cab, w/jump seats, AC, AT, bedliner, looks & runs great, \$5,750. Bray, 292-2410, call June 2, p.m.

'01 DODGE RAM 1500, extra cab, approximately 3,190 miles, AC, AT, intense blue, w/gray interior, AM/FM, 8-cyl., bids accepted through 6/5/01, right to refuse bids, sold as is. Sandia Labs FCU, 237-7384, 7254, or 7386.

'86 BUICK CENTURY, 2.8-liter V-6, PS, PB, AT, tilt wheel, PW, PL, 69K miles, \$1,800 OBO. Greenway, 299-1104.

'95 CORVETTE CONVERTIBLE, white/red, 20K miles, loaded, ultra-clean, \$1,000 less than Kelly's Blue Book. Thalhammer, 298-8521.

'96 CHEVROLET CAMARO RS, 60K miles, AT, 3.8 V6, all power, CD changer, garage kept, great grad gift, \$11,900. Rogers, 856-7504.

'99 EXPEDITION XLT, 5.4-liter, 4x4, 27K miles, 6-CD changer, premium sound, extended warranty 5 yr./ 75K miles, 3rd seat, all power, towing package, alpine green, \$24,900. Myers (480) 835-6091.

'99 GMC YUKON SLT, 4WD, excellent condition, 26K miles, always garaged, leather, ext. warranty (6 yr./60K miles), too many extras to list, \$27,000 OBO. Cummings, 884-3602.

'93 CHEVROLET S-10 BLAZER, 4WD/4-dr., Tahoe LT, 4.3 vortec V6, AT, leather, loaded, \$6,000. Jaramillo, 864-9202.

'84 CADILLAC DEVILLE, 4-dr., power accessories, AC, cruise, AM/FM, tinted windows, good condition, 102K miles, \$2,400. Sampson, 897-8358.

'89 MAXIMA, 106K miles, fully loaded, \$2,950 OBO ;'92 Isuzu pickup, 65K miles, bedliner, alarm, \$2,950 OBO. Rogers, 292-4396.

'97 FORD F150 XLT SUPER CAB, 4x4, emerald green, power everything, tow package, alum. wheels, ARE. bed cover, looks/runs great, 55K miles, NADA is \$18,900, asking \$18,500. Robbins, 292-7355.

'91 FORD EXPLORER, Eddie Bauer edition, 4-dr., 4WD, AT, AC, stereo, moonroof, cruise, new brakes, \$7,500. Kazmierczak, 822-8554.

'91 FORD AEROSTAR, 4WD, 7-pass., all power, original owner, runs great, all maintenance records, excellent cond. inside & out, 98K mi., \$4,200. Terhune, 823-6606.

'93 FORD EXPLORER XLT, 4WD, 133K miles, original owner, great cond., \$5,000 OBO. Barnes, 281-0500.

'96 INFINITI I30, leather, sunroof, V6, AT, CD, climate control, 35K miles, beige/tan, NADA wholesale \$13,600. Mertens, 821-5511.

'91 CHEVY HIGH-TOP CONVERSION VAN, only 68K miles, runs great, many extras, must sell, \$4,200 OBO. Graham, 896-2231.

'84 NISSAN SENTRA WAGON, AT, 65K miles, \$1,200. Schroepel, 844-9079 or (801) 423-7998.

'99 HONDA CIVIC EX, 4-dr., 18K miles, 5-spd., manual transmission, excellent condition, \$14,500. Nunez, 823-9203.

RECREATIONAL

MOUNTAIN BIKE, Diamondback Racing, Vertex model, 17- in. alum. frame, Ti spikes, XT components, grip shift shifters, White Bros hubs, \$350. Padilla, 271-1328.

ALUMINUM BOAT, 10-ft., w/electric motor, 40AT, Brannon, 296-6674.

EDDIE MERCKX RACING BIKE, full Dura-Ace components, 60cm frame, dark blue, orange, white frame, approximately only 1,500 miles, very nice condition, \$750. Lunt, 271-1328.

'98 SUZUKI MARAUDER 800, custom sport, C/A red, w/fairing, extra chrome, 4,700 miles, \$6,500. Lippert, 299-6594.

'97 SPORTSMEN'S CAB-OVER CAMPER, 9.5-ft, 2-way fridge, AC, heater, 4-burner stove, w/oven, full-bath, w/shower, AM/FM/cassette, self-contained, excellent condition, \$6,000 OBO. Rohl, 833-3697.

'95/'96 MOUNTAIN BIKE, Marin ultimate titanium, 20-in., XTR/XT, Manitou shock, SPD, King hub, Mavic 231 rims, \$1,250 OBO. Evans, 897-4782.

'84 SHASTA MOTORHOME, 23-ft., good condition, 26K original miles, shower, bath, sleeps 4 adults, \$6,500. Anderson, 897-2772.

'96 DUTCHMEN CLASSIC 5TH-WHEEL, 26-ft, fully self-contained, w/bunk beds, excellent condition, \$8,800 OBO. Held-Sandoval, 845-5485.

LEER CAMPER SHELL, long bed, fits '97 Ford 250 pickup, like new, deluxe, carpeted, charcoal gray. Glenn, 345-7313.

'94 REXHALL AERBUS MOTORHOME, 34-ft., 460 Ford, w/banks, 45K miles, 2 TVs, w/VCRs, king bed, automatic levelers, excellent condition, \$41,500 OBO. Sanchez, 836-2782.

'01 H/D RDKING CLASSIC, blu/sil, fuel-injection, tach, remv. backrest, Stage-1 Perf. kit w/Bubs pipes, \$23,000 OBO. Young, 980-6862.

'99 KAWASAKI KX60, excellent condition, less than 10 hours use, \$1,600; like new youth riding gear, \$200. Brown, 869-0704.

TOUR BIKE, Gitane French handcrafted, 10-spd., \$75; woman's 10-spd. Schwinn bike, \$50; safety helmet, w/rearview mirror, \$15. Stang, 256-7793.

REAL ESTATE

2-BDR. TOWNHOUSE, SW style adobe, North Valley, secluded community, w/security gate, approx. 1,400 sq. ft., 2-1/2 baths, brick floors, wood beam ceiling, kiva fireplace, garage, FSBO, \$128,000 OBO. Evans, 897-4782.

2-BDR. MOBILE HOME, appliances, see at site W62 in Terrace Park, Zuni & Wyoming. Moss, 298-2643.

TWO ACRES, Cedar Crest, Mountain Home Estates, great view, steep lot, \$25,000. Stiles, 275-2941.

2-BDR. CONDO, 1,100 sq. ft., 1-3/4 baths, wood floors/carpeting, fireplace, ceiling fans, pool/hot tub, \$81,000. Chavez, 823-1551.

3-BDR. LUXURY TOWNHOME, 2-1/2 baths, 1,628 sq. ft., clean, bright, spacious, low maintenance & utilities. Elder, 828-2608.

NEW CEDAR LOG HOME, Brazos/Chama, 3.3 acres, overlooking Brazos River & Brazos Cliffs, many amenities, \$299,000. Rea, (505) 588-7305.

3-BDR HOME, foothills, 2 baths, 2 living areas, oversized 2-car garage, large corner lot, 2,210-sq. ft., Tramway & Copper, \$185,000. Fischer, 292-3427.

DOUBLE-WIDE MOBILE HOME, 1,560 sq. ft., Albuquerque Meadows adult community, includes hobby building, storage, building, covered parking. Clay, 822-0175.

3-BDR. MOUNTAIN DREAM HOME, 1,500 sq. ft., 2 baths, private 0.5 acre, views, decks, garage, carport, shed, Cedar Crest, \$159,000. Mitchell, 281-4348.

2-BDR. TOWNHOUSE, 1 bath, 1,093 sq. ft., newly updated, Rio Rancho, close to Intel, \$80,000. Lambert, 892-0541.

3-BDR. HOME, 2 baths, 1.75 acres, laser-leveled, in-ground irrigation pipe, mature trees. Los Lunas Village, \$137,000. Rivers, 720-4701.

2-BDR. CONDO, Far NE Heights, gas fireplace, private patio, mountain views, excellent neighborhood & schools, \$92,000. Sanchez, 291-9625.

4-BDR. + OFFICE HOME, w/mountain & city views, borders open space, Glenwood Hills, lap pool, \$270,000. Smith, 275-7345.

3-BDR. HOME, 1-3/4 baths, brick, 1,800 sq. ft., den, fireplace, private yard, pool, many upgrades, great location, \$165,000. Carlyon, 299-2318.

3-BDR. PATIO HOME, Centex, 2 baths, Jacuzzi tub, 1,478 sq. ft., vaulted ceilings, w/fans, fireplace, new appliances, carpet, paint, 2-car garage, w/new opener, near Ladera Golf course, small yard, w/auto sprinklers, motivated seller, \$112,900. Ortiz, 765-1111.

WANTED

HOUSE TO RENT, until 08/02, 3 or 4 responsible adults need spacious home in nice neighborhood, need to move by 6/25. DeBassige, 242-2775.

SMALL UTILITY TRAILER, approximately 4' x 5', for station wagon, w/1-1/2" hitch. Douglas, 281-9843.

USED CERAMICS EQUIPMENT, good cond., tools, throw wheel, glazes, clay, grib, etc.; responsible, reliable, experienced housesitter, available through July 4, references on request. Rockwell, 884-4206.

HOUSEMATE, private bed & bath, furnished or unfurnished, close to work, \$300/mo., includes utilities. Chavez, 298-7465.

MALE BOX TURTLE, mature. Lee, 296-3317.

CONSCIENTIOUS STUDENT, interested in summer work (e.g. landscaping, painting, floor sealing, etc.). Heffelfinger, 281-1733 or 379-9487.

ROOMMATE, needed ASAP, UNM area, \$300/mo., 1/2 utilities, \$250 DD, must see. Atchison, 262-9598.

3-BDR. HOUSE, for rent or housesitting assignment, for sabbatical visitor starting Aug. '01, for one year. Doyle, 844-7568.

GENTLY USED CLOTHES, all sizes, for needy families in ABO area, will pick up. Mcintyre-Pacheco, 873-0999.

DOG SITTER, for gentle Airedale, to play w/your large dog, food & \$10/day provided. Goodnow, 821-3113.

BABYSITTING, for 2 young girls, 2 weekday mornings per week, Ridgecrest area, flexible hours, \$5-6/hr. Hanselmann, 254-1782.

BAGPIPERS, for pipe & drum group. Bender, 281-1989.

FLAT BOTTOM BOAT, 12-ft. or 14-ft. preferred; old tools & fishing equipment. Shaffer, 256-7601.

REFRIGERATOR, for RV, 2-way or 3-way. Lenberg, 238-0362.

LOST & FOUND

TIMEX WATCH, lost, brown leather & green band. Tallant, 845-9832.

SHARE-A-RIDE

RIDE SHARING/ALTERNATE DRIVING, from Santa Fe to Kirtland AFB, Mon.-Thurs., work hours 7:30 to 4:30 or 5 p.m. Bettencourt, 561-0554 pager.

Music adds special dimension to Peter Esherick's world

Chemical physicist/folk musician helps plan third Albuquerque Folk Festival

By Chris Burroughs

Many people at the Labs know Peter Esherick (1744) as the Harvard PhD chemical physicist. His team developed the 1.3-micron VCSEL (vertical cavity surface emitting laser), recently nominated for a Lockheed Martin NOVA award (see page 2).

But many may not know he is also a folk musician who plays the guitar, banjo, and hammered dulcimer.

His interest in folk music has led him over the past three years to assume a key role in organizing the Albuquerque Folk Festival, which features song, dance, acoustic music, and storytelling.

This year alone he has spent more than 100 hours volunteering for the 2001 festival scheduled for June 16 at the New Mexico State Fairgrounds.

"Music winds in and out of my life," the physicist/musician says. "It sticks with me and adds a special dimension to my world."

He wants to add that same dimension to other people's life with the folk festival.

Most of his volunteer efforts with the festival have been creating a web page and lining up music workshops that fill the day. There will be more than 35 workshops, including penny whistle, harmonica, voice development, Gypsy Fire Dance, Old Time Fiddle, mandolin, hammered dulcimer, bones, old time and bluegrass five-string banjo, harp, recorder, clog dancing, and more.

Peter began volunteering for the first festival three years ago. His good friend and fellow "jammer" Bill Howden founded the festival and encouraged Peter to join him in making the event a success.

The first two festivals were held as part of Albuquerque's Arts in the Parks, drawing hun-

dreds of people. This year's event will be the first to be held at the New Mexico State Fairgrounds and is expected to be even more successful. A small fee of \$3 for adults and \$1 for youngsters 6 to 12 will be charged.

Peter says his interest in music emerged when he was in high school and started playing guitar with a friend.

"We would play bluegrass and folk songs at a coffee shop in Sausalito, Calif. — all for tips," Peter recalls. "I never knew if my friend let me play with him because I was a good backup or because I had a car and could drive him to the coffee shop."

After high school graduation, Peter went on to Berkeley for his undergraduate degree and to Harvard for his PhD in chemical physics while his friend joined the Navy and headed off to Vietnam.

While in college and throughout his professional career, Peter continued to play music. He played in his dorm while in school, at coffee houses and music festivals, and even at Sandia — joining fellow researcher Ron Manginell (1764) to play Christmas music at the department potluck.

In 1991 Peter made a discovery that revitalized his world of music. He encountered the hammered dulcimer, an early predecessor to the piano that consists of 62 strings. The musician uses wooden sticks to play the instrument.

"I was at Harvard in the 1980s on a recruiting trip for Sandia and heard a magical sound," he says. "A street musician was playing a hammered dulcimer and I became mesmerized. I must have spent hours leaning against a bank building wall in the cold wind just listening."

Several years later in 1991 at the Santa Fe Banjo and Fiddle Festival, he attended a hammered dulcimer workshop, and his interest was renewed. The instructor helped him locate an instrument for himself. By Christmas of that year he had his hammered dulcimer and was playing it the first day.

Today he spends a couple of nights a week playing "old time" bluegrass and Celtic music with other amateur folk music enthusiasts at local coffee shops and regular jam sessions.

And about Peter's friend. Peter lost track of him after high school. He saw him once after his friend returned from Vietnam, but he seemed devastated by the experience.

Then in 1997, he encountered another high school friend at a Borders in San Francisco and Peter asked her if she knew where his "jamming" buddy was. She said the Seattle area. Peter went to the Internet and found him.

That November the two got together for the first time in 35 years. The first night they stayed up and talked until 2 a.m. and the next day they pulled guitars and hammered dulcimer out of the cases and jammed together for 18 hours.

"It was amazing, every chord and bass run he played was just the way I would have played it," Peter recalls. "I soon realized that, well of



PETER ESHERICK plays the hammered dulcimer.

course it would be that way. Since we grew up together in music, we pretty much taught each other everything we knew, and so I was just hearing a wonderful echo of those 35-year-old memories."



LONG-TIME FRIENDS — PETER ESHERICK, right, and his long-time jamming buddy from high school fool around at a quilters convention in Oregon where they performed together.

Recent Patents

David Borns (6116), Thomas Hinkebein (6113), Richard Lynch (ret.), and David Northrop (ret.): Marine Clathrate Mining and Sediment Separation.

Ernest Garcia (2614): Compound Floating Pivot Micromechanisms.

Eric Lindgren (6131) and Earl Mattson: Electrokinetic Removal of Charged Contaminant Species from Soil and Other Media using Moderately Conductive Adsorptive Materials.

Christopher Cherry (5932): Apparatus and Method for Producing Fragment-Free Openings.

Carol Ashby (1744): Stable Surface Passivation Process for Compound Semiconductors.

G. Allen Vawter (1742) and Robert Smith: Tapered Rib Fiber Coupler for Semiconductor Optical Devices.



OUR YOUNGEST READER? We like to start 'em young! Mathew Ghormley, 2 1/2, son of Doug Ghormley (Computer Science Dept. 5931), peruses an issue of the *Lab News* in the Ghormley home reading room. Doug took the photo.

Folk Festival set for June 16

Peter Esherick encourages everyone to come to the Albuquerque Folk Festival set for June 16 at the New Mexico State Fairgrounds and put "a little music into their lives."

"We want anyone with a fiddle, a guitar, any kind of acoustic instrument to come and join in the fun," he says. "We'll even have some loaner instruments as well as harmonicas and penny whistles for sale. If you don't play an instrument, bring your voice and sing or your feet and dance. But most importantly, come and enjoy!"

Besides music workshops, the festival will feature main stage performances, storytelling, sing-alongs, jam sessions, songwriting, music, and stage demonstrations and workshops. Performers on the main stage include eight regional groups displaying a range of musical talent.

More information about the festival can be obtained at the event's web site — set up by Peter — at <http://www.abqfolkfest.org>.

"We want everyone to come and have a good time," Peter says. "It would be a shame if someone had a guitar in their closet and were afraid to come and bring it to the festival."

Coronado Club

June 1 — Friday night prime rib dinner. Dining, 6-8 p.m.; dancing, 6:30-10:30 p.m.

June 15 — Father's Day. Cigars and steaks on the patio for dad. Dinner starting at 6:30 p.m.

Dive into summer. Lap swim only, Monday-Friday, 6-7 a.m. & 10 a.m.-12:30 p.m.; Monday and Tuesday, 6-7 p.m. Recreation Swim — Monday & Tuesday, 12:30-6 p.m.; Wednesday, 12:30-5 p.m.; Thursday & Friday, 12:30-9 p.m., Saturday & Sunday, 11 a.m.-5 p.m.