

Newsletter

Week of August 28, 2006

Vol. 7, No. 18

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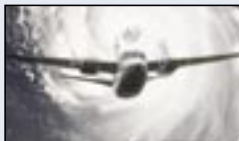


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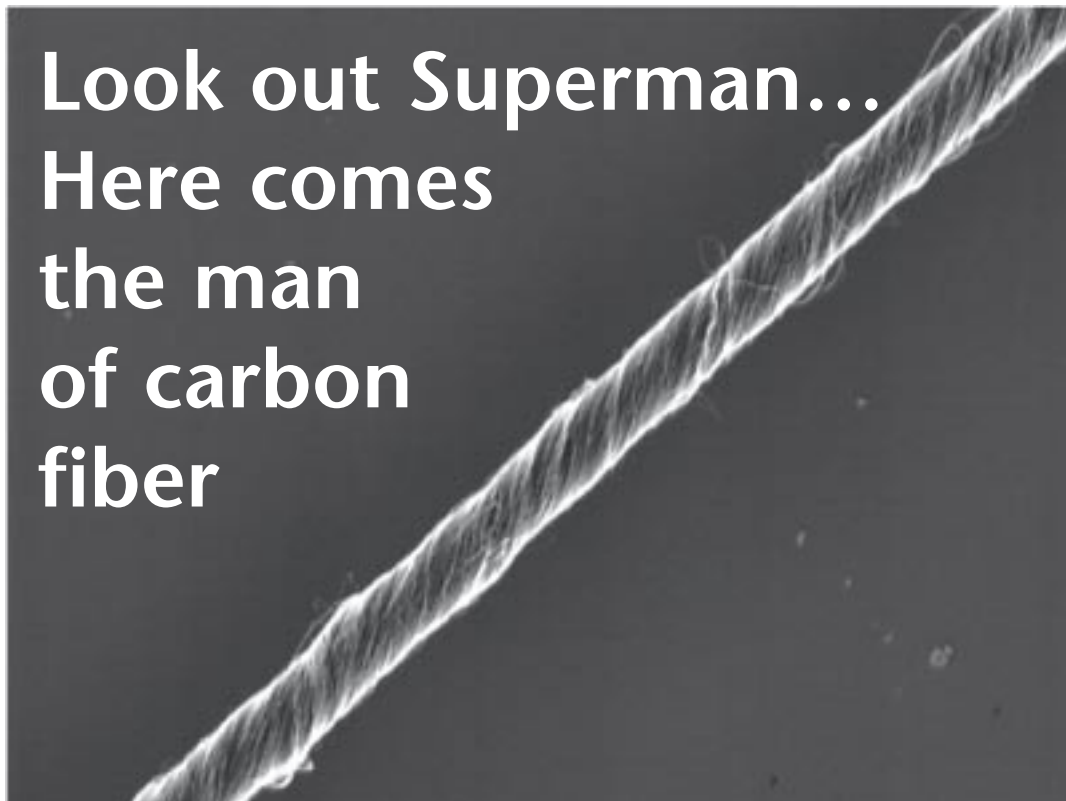


To bee or not to bee?

Employees find many different ways to unwind and release stress. When Brad Lounsbury of Response Services (ER-RS) wants to unwind, he heads for his bees. Page 8



Have you had an ergonomics evaluation at your current work area? How important do you think these evaluations are and why? Learn what your co-workers had to say on Page 6.



Look out Superman... Here comes the man of carbon fiber

Lab partners with CNT Technologies to commercialize SuperThread™ carbon-nanotube fiber

by Hildi T. Kelsey

Ultra-strong CNT fibers made of lightweight carbon nanotubes could prove to be some of the strongest materials on Earth. The fibers, developed by Los Alamos scientist Yuntian Zhu, are 100 times stronger than steel (pound for pound for the same weight), tougher than diamonds, and roughly one-ten-thousandth of a human hair in diameter.

Los Alamos has licensed this carbon nanotube technology to a new commercial partner, Seattle-based CNT Technologies Inc. Initial tests show that the ultrastrong carbon-nanotube fiber, branded SuperThread™ by the company, can have better properties than steel for many applications and could soon be the primary substance from which the best airplanes, automobile parts, and sports equipment are made.

"Our advancement of carbon nanotube technology can lead to a broad range of applications including airplanes, bulletproof vests, electronic devices, and artificial limbs," said Dean Peterson, leader of the Superconductivity Technology Center (MPA-STC).

Carbon nanotubes, first discovered in 1991 by Japanese scientist Sumio Iijima, are cylindrical carbon molecules with structures similar to "buckyballs" (named for the late U.S. architect Buckminster "Bucky" Fuller who designed a geodesic dome with the same fundamental geometry). In 2004, Los Alamos produced a single-walled carbon nanotube (4 centimeters in length). Currently, Laboratory scientists, including Zhu, also of MPA-STC, are developing arrays of ultralong, super-strong, lightweight, double-walled carbon nanotubes. These arrays allow the nanotubes to be spun into fibers. Given the impressive results obtained for early prototype fibers, the Laboratory and CNT Tech entered into an exclusive license agreement.

Within six months, CNT Tech plans to be making 1 kilogram per day of SuperThread yarn. Over the next fifteen months, CNT Tech will scale up production of the nanotubes in its new laboratory at the Los Alamos Research Park. It will begin spinning the ultrastrong carbon-nanotube fiber on a custom-designed, computer-controlled spinning machine developed by the world's foremost experts in the fields of textile manufacturing, and machine construction. New machinery, designed using similar principle to those used in textile manufacturing, will be used to spin the carbon-nanotube fibers together to create SuperThread.

CNT Tech is seeking to develop products using the fibers. Within the next two years CNT Tech intends to replace carbon fibers with SuperThread, which will be designed for commercial use in aircraft materials, sport and recreation products, defense applications, and many other fields where a strong, high-strength material is required.

"Our mission is to produce the highest quality, lightest weight, strongest CNT fiber at the lowest possible cost for our corporate customers. If we accomplish that

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NewsLetter

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Give yourself a break

New Safety Short topic

The Laboratory continues its Safety Short series of timely, concise topics to help everyone at the Laboratory stay safe at work and home.

“This next Safety Short — Give Yourself a Break! — describes the importance of taking a break to help minimize physical stress and prevent injuries,” says Kerith Stender, ergonomics team leader in the Industrial Hygiene and Safety (IHS) Division.

The Web-based Safety Short provides a flier and a video, as well as other tools, available at <http://int.lanl.gov/safety/safetyshort> online.

In addition, a Manager's Toolkit helps managers present the Safety Short during organizational safety meetings, tailgate meetings, and Nested Safety and Security sessions. The Manager's Toolkit is available at <http://int.lanl.gov/safety/safetyshort/#managers> online.

For questions or suggestions regarding the Safety Short content, Manager's Toolkit, or future topics, contact Robin Nicholas of IHS at safetyshort@lanl.gov by e-mail.

Care for each other. Work safely.

Los Alamos National Laboratory NewsLetter

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Los Alamos National Laboratory is a multidisciplinary research institution engaged in strategic science on behalf of national security. The Laboratory is operated by a team composed of Bechtel National, the University of California, BWX Technologies and Washington Group International for the Department of Energy's National Nuclear Security Administration.

Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health and global security concerns.



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Please recycle.

Editor's note: Laboratory Director Mike Anastasio recently issued the following all-employee memo concerning safety.

Focus on safety

In late June, we began a renewed focus on safety centered on the principle that we all must be committed to each other's safety. With your help and improved awareness we have made good progress. Since June 1, our Laboratory team has experienced a significant decrease in total recordable injuries.

However, we still are experiencing a high level of incidents and near misses — any of which could result in injuries. In the past week, we had three electrical safety occurrences at the Laboratory. Although no one was seriously hurt, any of these episodes might have resulted in a fatality.

Subcontractors perform a significant share of our total workscope, including electrical work. Two of the three occurrences involved subcontractors. In fact, a majority of the electrical safety incidents that have occurred over the past eighteen months have involved subcontractors. Accordingly, KSL and its subcontractors [conducted] a safety stand down [last week]. We and our subcontractors share responsibility for the safety of all our employees.

Last week's events demonstrate we must remain vigilant. On August 18, I met with the senior management team and determined actions to improve electrical safety, heighten overall safety awareness and assure safe behavior. We agreed to immediate operational actions that better address electrical safety, a challenge not only at the Laboratory, but complex-wide. Further, we will take advantage of the Los Alamos National Security, LLC, parent organizations' expertise in the area of safety management both in direct and subcontractor work. With a focus on subcontractor performance, a team of experts will come to the Laboratory and review our incidents and self-assessments, make recommendations for improvements, and assist in implementing the accepted recommendations.

It is appropriate for all of us to think about electrical safety and all areas concerning safety. Last week, first line supervisors [held] safety discussions with employees tailored to each organization's needs and [emphasized] electrical safety. This [was] a time to discuss what we, as a laboratory, can do to make safety processes work better and to share best practices and improvements.

I ask for your full support and active participation in safety discussions. This is a small investment considering that the outcome could be the prevention of injuries to fellow employees.



Mike Anastasio



Laboratory dedicates CINT facility

U.S. Senators Pete Domenici, R-N.M., and Jeff Bingaman, D-N.M., flank Laboratory Director Mike Anastasio, center, as the ribbon is cut to open Los Alamos' Center for Integrated Nanotechnologies at Technical Area 3. The 36,500-square-foot facility will house Lab scientists, postdoctoral researchers, technical support staff, and visiting researchers. The Los Alamos facility, along with a CINT building at Sandia National Laboratories, is part of a Department of Energy Office of Science effort to invest in the emerging field of nanoscience. At far left are Toni Taylor, associate director of CINT, and Clay Sell, Department of Energy deputy secretary. Far right is Al Romig, vice president of Sandia labs. Photo by Ed Vigil



Photo at right: Director Mike Anastasio, left, and Michael Mallory, right, associate director for stockpile manufacturing and support (ADSMS), share a laugh with DOE's Clay Sell in the Director's Office at TA-3. Anastasio, Mallory and other Lab leaders briefed Sell on the Chemistry and Metallurgy Research Building replacement project. Photo by LeRoy N. Sanchez

Success through failure

NHMFL's magnet program moves forward

by Todd Hanson

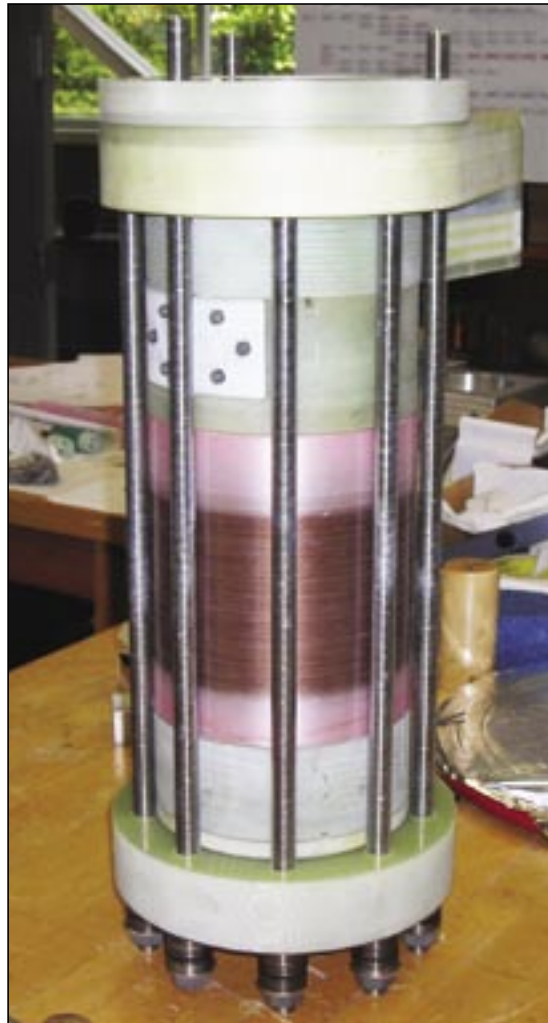
Sometimes, science is about failure. Not necessarily the kind of grand, life-changing failures one might dread, but simple setbacks that provide cause for pause, reflection, and even renewal. There also are failures that end with a success.

One of these successful failures came earlier this summer at the Laboratory. On the evening of June 26, the 80-tesla pulsed-magnet prototype under operational evaluation at the National High Magnetic Field Laboratory's (NHMFL) Los Alamos Pulsed Field Facility failed. In its failure, the facility set a new world mark for high-performance pulsed magnets. Several other laboratories worldwide have attempted to deliver similar magnet systems without success.

The failure was not unexpected. It was, in fact, intentional. Testing intended to push the limits of the current generation of pulsed magnet technology by pulsing the coil to destruction started on June 15 with the magnet reaching the 80-tesla level ten times. The prototype experienced a fault only after multiple shots at 80-tesla. A tesla is a unit of magnetic field strength. The powerful magnets used in Magnetic Resonance Imaging (MRI) machines range from one-half to two tesla.

"The Lab's engineers, scientists, and technicians continue to set the world standard for magnet technology," said Alex Lacerda, Los Alamos' National High Magnetic Field (MPA-NHMFL) center leader, NHMFL Florida State University, University of Florida associate director for user operations. "We look forward to giving our users routine access to pulsed fields that in the past could only be imagined."

The development and construction of the 80-tesla model coil was a team effort that required close coordination between the Los Alamos and Tallahassee, Florida sites of the NHMFL. Los Alamos team members include Mike Gordon and Alan Paris, who worked with capacitor bank operations; James Michel, who provided technical winding support; and Mike Pacheco, providing component fabrication and test setup. Other



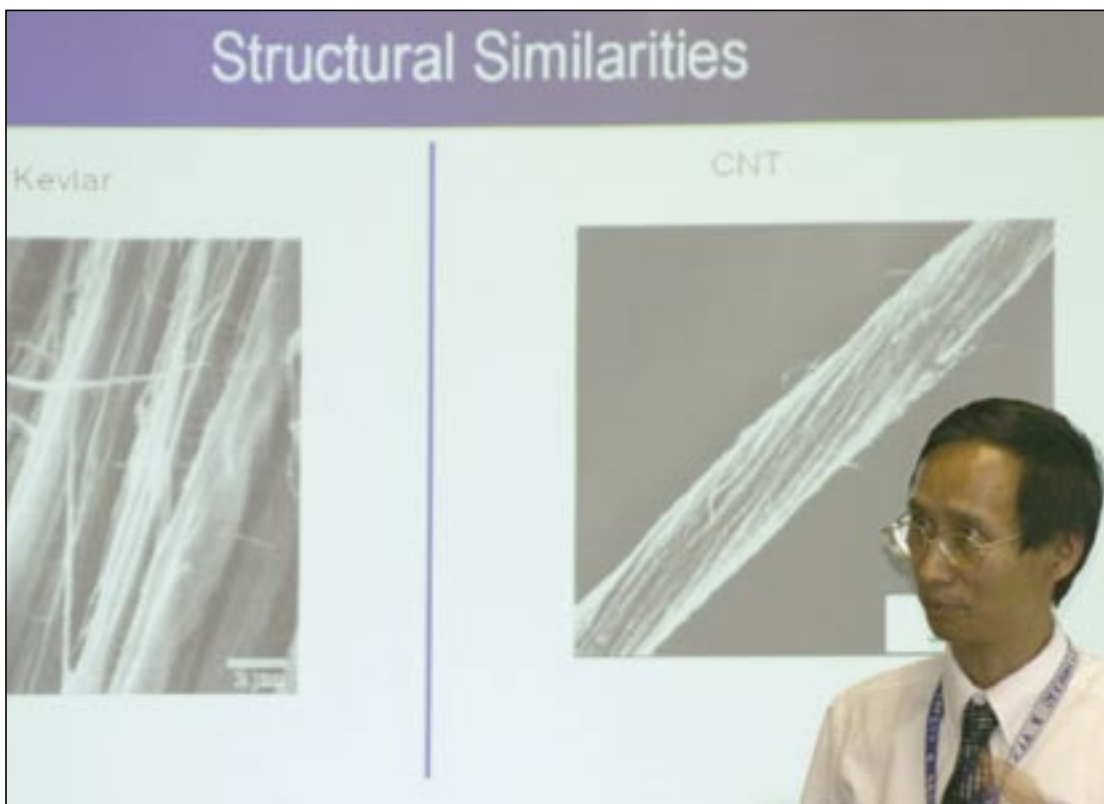
Left: A view of the 80-tesla magnet on the bench during final assembly prior to testing. The magnet windings are in the central region. Two nested solenoid coils comprise the 80-tesla. The inner solenoids construction is nearly identical to the insert magnets used for the 100 Tesla Multi-Shot Magnet program. **Right:** A view of the inner "insert" coil of the 80-tesla magnet. The magnet assembly is intact. Ironically the most highly stressed region was the insert. Photos by Chuck Swenson of the National High Magnetic Field Laboratory (MPA-NHMFL)

members of the team include Dwight Rickel, who worked on magnet testing; Josef Schillig, working in capacitor bank design; and Jeff Martin, who oversaw diagnostics operations.

Florida team members include Bill Sheppard and Ed Miller, working on technical winding; Todd Adkins, provided tooling CAD work; Scott Bole, who served as the engineering manager; Mark Collins, serving as coil machinist; Steve Kenny, providing magnet CAD work; Ken Pickard,

providing coax leads and material coordination; and Robert Stanton doing the welding.

Learning from this experience, the failure of the 80-tesla model will be useful in determining operating parameters for the Department of Energy's Office of Basic Energy Sciences-National Science Foundation's 100 Tesla Multi-Shot magnet program. These 100-tesla magnets are likely advance the field of pulsed magnet technology even farther with help from this recent successful failure.



Look out Superman ...

continued from Page 1

mission — and we plan to — our corporate customers will change the world in which we live. Aircraft, automobiles, satellites, engines, prosthetics, sporting goods, and tens of thousands of other products will be lighter, stronger, safer, and more efficient," said Robert O'Leary, President of CNT Technologies.

CNT Technologies recently hosted a workshop at the Los Alamos Research Park, attended by representatives from 19 major corporations, to introduce SuperThread to potential marketing partners. The dual purpose of the workshop was to introduce the SuperThread product, team, and commercial plans and, more important, invite a request for proposal from major companies seeking to form a business relationship and/or submit terms for an exclusive sublicense for SuperThread in their respective fields of use. The companies have until September 25, 2006, to submit their proposals to CNT Tech.

Yuntian Theodore Zhu of the Lab's Superconductivity Technology Center (MPA-STC) compares the properties of CNT Fiber, image on the right, to Kevlar during a presentation at Los Alamos Research Park. Photo courtesy of the Technology Transfer (TT) Division



Laboratory's hurricane response wins medal

by Kevin Roark

Members of the Laboratory's Integrated Reachback Center received Awards of Excellence from the Environmental Protection Agency for their monitoring and characterization of chemical and radiological hazards during hurricanes Katrina and Rita.

The 2005-2006 Award for Excellence was inscribed with the following quote from EPA Administrator Stephen Johnson: "For more than 35 years, EPA has been instrumental in protecting the health and lives of American families. Last year, as our country responded to the worst natural disaster in our nation's history, thousands of our employees selflessly gave their time and talents to assist in Gulf Coast recovery efforts."

The Los Alamos Integrated Reachback Center was one of only a few non-EPA agencies to be honored with EPA's Award for Excellence Medal. EPA ASPECT Program Manager Mark Thomas said, "The reachback capability, the level of technical capability, and the speed at which the information was provided was critical in conducting EPA's rapid needs assessment. It was an honor to have the [Laboratory] reachback capability to support the EPA ASPECT team."

Los Alamos' Integrated Reachback Center was activated 48 hours before Hurricane Katrina making landfall, providing analysis and simulations of storm surge and impacts to critical infrastructure.

"Our primary mission in New Orleans was supporting ASPECT, a fixed-wing aircraft owned and operated by EPA. Los Alamos provided science, technology, and support for chemical and radiological detection technology," said Ron Dolin, Integrated Reachback Center coordinator. "ASPECT was the one of the first federal assets on scene, and for a month following Katrina the ASPECT aircraft flew virtually nonstop, monitoring chemical and radiological hazards, finding hazardous material containers, mapping damaged infrastructures, and helping provide overall situational awareness."

Bob Kroutil, of the Laboratory's Bioscience (B) Division, the Los Alamos scientist who helped develop the ASPECT technology, led the ASPECT analysis efforts at the Laboratory. "We have responded with EPA to more than fifty incidents ranging from chemical and refinery plant accidents to national security events," said Kroutil. "Katrina was by far the most intense and long-lasting emergency response we ever participated in."

The ASPECT plane still was in New Orleans when it was predeployed to the Texas gulf coast ahead of Hurricane Rita.

"In Rita," said Kroutil, "we were instrumental in supporting the EPA and helping locate broken pipes and leaking storage containers. We were airborne surveying refineries even before the storm had passed."

ASPECT uses infrared technology to visualize sightless, odorless chemicals in the air. ASPECT detectors can determine the chemical composition of a plume and its level of concentration from a distance, alerting emergency crews on the ground of potential hazards. "ASPECT not only saves lives," said Kroutil, "it finds release sources early to minimize harmful impacts."

Within minutes of the plane's arriving on scene, ASPECT data is collected and a field analysis is performed. The data is simultaneously sent to Los Alamos, where it is further analyzed. "The entire process from data collection to a full assessment takes less than 15 minutes," said Kroutil.

The ASPECT aircraft remained in Texas for two weeks after Hurricane Rita helping with recovery efforts. It was then re-deployed to New Orleans where it remained for four more weeks.

Since the initial Katrina response, ASPECT has been called back to New Orleans several times to assist with chemical plume mapping and analysis. "There have been several fires of unknown materials," said Dolin. "When you pile up damaged cars, appliances and other materials during recovery and they catch on fire, you don't really know all the chemicals that may become airborne. This is when first responders on the ground need an asset like ASPECT."

"The Laboratory has developed an outstanding capability," said Dolin. "It is an honor to work with Bob Kroutil and our EPA partners on the nation's most pressing emergency responses. We are proud to have our work recognized by the EPA. The EPA's on-scene coordinators and field response teams are among the most dedicated and highly professional first responders I have ever had the pleasure to work beside. One cannot help but be impressed watching these folks swing into action."

Los Alamos has partnered with the EPA for many years in many different areas.

Reachback is a term used by first responders and incident commanders who reach back from an emergency scene to a national laboratory for expert help. The Los Alamos Integrated Reachback Center was established in 2004 to provide expertise in chemical, biological, radiological, explosive, GIS, and critical infrastructure simulation. The Integrated Reachback Center responds on average to two incidents per month.

Small earthquakes occur in the Jemez

by Erika L. Martinez

Forces of nature happen often throughout the United States and around the world. Florida and New Orleans experience the wrath of hurricanes, Hawaii has its share of volcanoes, Texas has the highest number of tornado occurrences and California experiences a fair amount of earthquakes.

Closer to home, the Jemez Mountain area also experiences earthquakes, including one earlier this month. According to Laboratory seismic program manager Doug Volkman, a magnitude 2.2 earthquake occurred August 7 on the Caja Del Rio Plateau, 5 kilometers (3.1 miles) south of White Rock.

According to Volkman of Design Engineering Services (FME-DES), the Jemez Mountains area is no stranger to these small earthquakes. "The area is located in an active earthquake zone, known as the Pajarito Fault System and the Rio Grande Rift," Volkman said. The August 7 earthquake was the tenth recorded in the same vicinity since 2002, he said.

Volkman said there are no known reports of the earthquake being felt and no known damage associated with this earthquake.

However, to put a perspective on major earthquake activity in Los Alamos, scientists from Environmental Geology and Spatial Analysis (EES-9) have uncovered faulting associated with three magnitude seven events over the last 11,000 years. The problem with earthquakes though is that they are unpredictable. The next major earthquake could happen at any time.

The Lab's Seismic Program, through the efforts of staff in EES-9, conducts paleoseismic field studies of faulting in Los Alamos. Staff members in Geophysics (EES-11) maintain a network of sensitive motion seismograph field stations. Motion data received by these field stations is used to determine the magnitude and location of earthquake activity in the vicinity of Los Alamos. Strong motion seismograph equipment is monitored. These instruments are located in key facilities at the Laboratory, as required by Department of Energy Order 420.1B. The equipment is used to verify the magnitude of larger earthquakes at the site to enable Laboratory management to know if facilities are operating within their safety basis.

The Federal Emergency Management Agency provided these safety tips for people who may experience a destructive earthquake.

To prepare for an earthquake

- Check for hazards in work areas
 - Fasten shelves securely to walls
 - Place large or heavy objects on lower shelves
 - Store breakable items, such as glass containers in closed cabinets
- Identify safe places indoors
 - Under sturdy furniture
 - Against a wall
 - Away from places where glass could shatter

During an earthquake

- If indoors
 - Drop to the ground, and take cover by getting under a sturdy piece of furniture.

continued on Page 5

Los Alamos Joint Genome Institute finishes landmark genome

by Katherine Harrington, B-5

Los Alamos researchers on the Department of Energy's Joint Genome Institute (JGI) team recently finished the 50th microbial genome since they began "finishing" in 2003.

Fifty of the 100 genomes completed by the Joint Genome Institute were finished at Los Alamos.

The 50th genome, finished in July, was the microorganism *Polaramonas naphthalenivorans*. It is known for its ability to degrade naphthalene, a carcinogen commonly found at DOE's energy production sites. Genetic information about *Polaramonas naphthalenivorans* will help researchers who are seeking insight into how naphthalene degrading microbes could be used to manage contaminated ecological and industrial environments as well as understanding how organisms survive in highly contaminated environments.

Some 354 microbial genomes have been sequenced worldwide since scientists finished the first microbial genome in 1996. The "finishing" process involves filling gaps that remain after the draft sequencing phase, which occurs at the Production Genomics Facility in Walnut Creek, California, the main facility of the Joint Genome Institute.

Innovative computational strategies and chemical reactions developed by Laboratory scientists are used in the finishing process. The genomes that JGI selects to finish are selected on the basis of their potential to advance research in DOE's carbon sequestration, bioremediation, bioenergy, radiation resistance, animal pathogen and metal reduction mission areas. JGI research is supported by DOE's Office of Science- Biological and Environmental Research Program as well as by 'work for others' projects.

Laboratory scientists in Genomic Sequencing and Computational Biology (B-5) began finishing sequences in 2003. Since then, the technology and chemistry techniques have evolved significantly. Over the years, more parts of the process have been automated, which has resulted in faster production rates. David Sims of B-5 works on the computational part of the finishing process. He said that when the project was first starting, the team was only able to produce one genome a year. Team members

are able now to finish about one a week. JGI Lab scientists also learned different chemical techniques, which allow them to overcome obstacles and produce more cohesive, higher quality data. The team also developed a database, which has improved the quality of the data the team produces and the efficiency with which it is able to finish genomes.

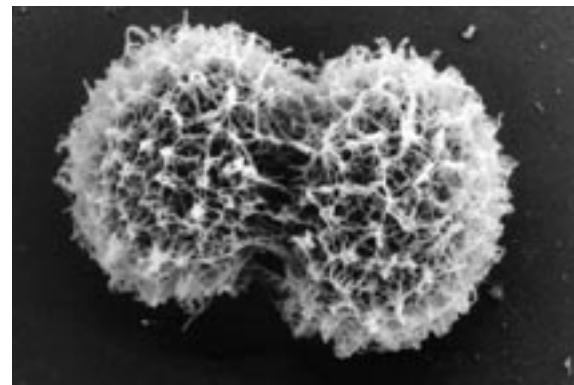
As the Los Alamos JGI team continues to increase efficiency and automation in sequencing simple microbial genomes, such as bacteria, it will be able to tackle more complex genomes, including yeast and other fungi. "That's what is on the horizon for us," said Sims.

Of the 50 genomes finished, some of the organisms Los Alamos has sequenced are used in bioremediation to clean up oil spills or other such pollutants from the environment. For example, *Pseudoalteromonas atlantica* has been studied off the coasts of California, New Jersey and Florida and has been shown to absorb twenty to forty percent of trace metal lead in ocean environments. Having the finished sequence of *P. atlantica*, researchers will be able to better understand the microbe's function in controlling toxic metal concentrations.

Microbes might also help carbon sequestration researchers better understand the fate of greenhouse gases and may help them develop techniques for reducing the buildup of these gases in the atmosphere.

One microbe, *Sphingopyxis alaskensis*, is found in nutrient deficient waters near Alaska, the North Sea and the North Pacific. It is able to survive in these nutrient-deficient waters because of its ability to feed on atmospheric carbon. Researchers are interested in studying these types of microbes in order to predict how various ecosystems might respond to nutrient deficiencies caused by global warming.

Microbes useful in bioenergy work are attractive for their ability to convert organic matter into renewable energy. The microbe *Syntrophomonas wolfei* Gottingen, which was recently finished at Los Alamos, produces hydrogen and methane as by-products of its metabolism. Both of these materials might be burned as clean fuels or used in fuel cells. By studying these microbes, scientists also have begun developing technology to imitate their processes to create renew-



Pictured is the 50th microbial genome, *Polaramonas naphthalenivorans*, that Los Alamos researchers on DOE's Joint Genome Institute (JGI) team recently finished. Photo courtesy of JGI

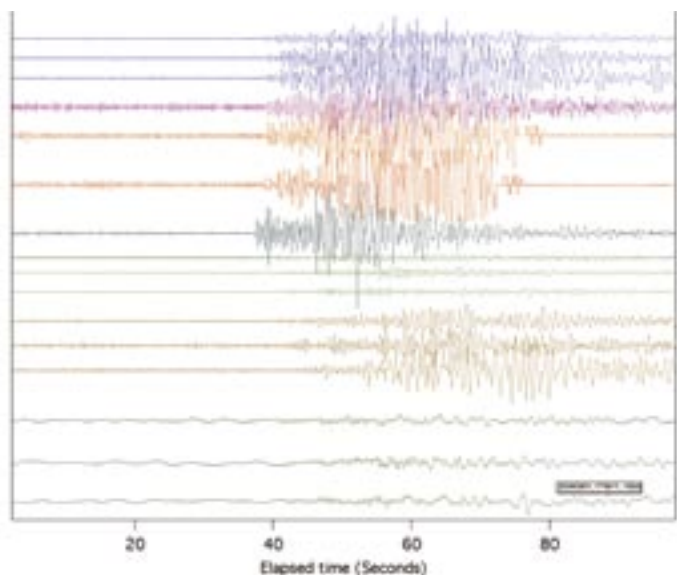
able, less expensive energy sources.

Although many of the microbes finished by the Joint Genome Institute have uses in energy and the environment, some are sequenced because of their relevance to public health and health security as part of Laboratory 'work for others' efforts.

Francisella tularensis Wyoming was selected to provide insight into its pathogenicity and to enable medical professionals to better diagnose and treat human disease, Tuleremia. Tuleremia, which is contracted through insect bites, handling of infected animals, ingestion, and inhalation, has a thirty to sixty percent mortality rate, but is relatively easy to treat if diagnosed early enough.

Furthermore, the sequencing of *Bacillus anthracis* and its relatives has given researchers detailed information that is useful in helping law enforcement scientists distinguish between deliberate anthrax attacks and those that develop from naturally occurring strains.

In a letter congratulating the JGI on its accomplishments in finishing, Daniel Drell, of the Life and Medical Sciences Division of DOE (part of DOE's Office of Science-Biological and Environmental Research Program) wrote: "No one questions the position of the DOE-JGI at the vanguard of genomic sequencing (microbial and otherwise). You do it faster, you do it better, and you do it cheaper than anyone else, and you do it for a more diverse range of scientific projects than any other operation and any other agency. And you do it for the scientific community."



The recordings are displacement (vertical axis) versus time. Most seismographs measure motion along three difference axes. In this image, the three brown lines represent one instrument, while the blue and red lines represent other instruments. Image courtesy of EES-11

Earthquake ...

continued from Page 4

- Hold on until the shaking stops.
- Stay away from windows.
- Stay away from unsecured furniture that can fall.

If outdoors

- Stay there
- Move away from buildings, street lights, and utility wires

If in a moving vehicle

- Stop as quickly as safety permits and stay in the vehicle
- Avoid stopping near buildings, trees and utility wires
- Avoid roads or canyon sites near rock walls

After an earthquake

Emergency Response (ER) Division will initiate Laboratory response activities, including an engineering safety assessment of Lab buildings and structures. However, immediately following an earthquake, employees should be aware of the following:

- Expect aftershocks. These secondary shockwaves can be strong enough to cause additional damage to weakened structures.
- Open cabinets cautiously. Beware of objects that can fall off shelves.
- Stay away from damaged areas.
- Expect lights and electric power to be out.

For more information, contact Volkman at 7-6238.

So... what do you think?

Q: Have you had an ergonomics evaluation at your current work area? How important do you think these evaluations are and why?



Sylvia Williams of Chief Financial Officer-2 (CFO-2)

I haven't had one at my new office, but I do have an ergonomic workstation, and I do think it is very important. Everyone should have an ergonomic evaluation.



Ron Wienke of the Project Management (PM) Division

No I haven't, but you can get online and find the guidelines for computer setup and follow those guidelines. I think it is important because statistics

show ergonomic injuries are the highest reportable injury at the Lab, so I know it is an important thing to do.



Adam Wachtor of Methods and Verification (X-1)

No, but I think it is important if you want to be comfortable in your workspace, avoid carpal tunnel, and not develop bad posture."



Vangie Trujillo of the Community Programs Office (CPO)

Yes, [ergonomic evaluations are] very important, because I do not want to have medical problems later in life.



David Henderson of Operations (LFO-OPS)

Yes, and it resulted in my getting an ergonomic chair and computer console.



Leo Jaramillo of Chief Financial Officer-OAO (CFO-OAO)

I have had an ergo evaluation. They are very important for employees. Many people don't realize how important it is for our

well-being. If you have never had an ergo evaluation, I strongly suggest that you do. Safety and our well-being is a top priority.

PEOPLE



Los Alamos researcher receives 2005 Presidential Early Career Award for Scientists and Engineers

Kevin Sanbonmatsu of Theoretical Biology and Biophysics (T-10) recently



Kevin Sanbonmatsu

was named one of the country's top young researchers. In a ceremony at the White House, Sanbonmatsu was one of fifty-six researchers given 2005 Presidential Early Career Awards for Scientists and Engineers, the nation's highest honor for professionals at the

outset of their independent research careers.

"It was quite humbling to be surrounded by the future leaders of science," said Sanbonmatsu, adding that receiving the award "made me proud to be an American."

During a ceremony presided over by John H. Marburger III, science adviser to the president and director of the White House Office of Science and Technology Policy, Sanbonmatsu received his award and met the president. He then toured the East Wing of the White House, which is otherwise closed to the public.

Sanbonmatsu was one of two recipients from the National Institute of General Medical Sciences, the main extramural National Institutes of Health funding agency for basic research, and one of twelve recipients from the NIH.

Sanbonmatsu was nominated for his work creating the largest simulation of a biological system to study ribosomal function. Using the Los Alamos Q Machine, Sanbonmatsu and his team created a molecular simulation of the cell's protein-making structure, the ribosome. The project, which simulated 2.64 million atoms in motion, was at the time more than six times larger than any biological simulations performed to that date and was the first observation of the entire ribosome in motion at atomic detail.

"I am grateful to my NIH program manager, Janna Wehrle, who nominated me for the award, and my post-docs, collaborators, and managers at Los Alamos. They have played an important role in the ribosome supercomputing project and made our breakthrough possible," said Sanbonmatsu.

Sanbonmatsu was invited to give a private seminar for Jeremy Berg, director of the National Institute of General Medical Sciences, and Cathy Lewis, director of the Cell Biology and Biophysics Division at NIH.

At the ceremony, Sanbonmatsu had a

chance to show his simulation results to Marburger on a video iPod. Marburger had mentioned that he had a special interest in the ribosome story, since he was formerly president of SUNY-Stonybrook, where much of the structural biology of the ribosome began.

Sanbonmatsu said his NIH grant funding would be extended for another year, since all awardees have to be funded for five years from the day they receive award. He currently has four years left on his funding, so he will receive one additional year. Sanbonmatsu plans to continue his ribosomal work.

The Presidential Early Career Awards for Scientists and Engineers, established in 1996, honors the most promising researchers in the nation within their fields. Nine federal departments and agencies annually nominate scientists and engineers at the start of their independent careers whose work shows exceptional promise for leadership at the frontiers of scientific knowledge during the twenty-first century. Participating agencies award scientists and engineers up to five years of funding to further their research in support of critical government missions.

Montoya-Rael on Santa Fe Business Incubator board



Lillian Montoya-Rael

Community Programs Office (CPO)

Director **Lillian Montoya-Rael** recently was re-elected to the Board of Directors of the Santa Fe Business Incubator.

The SFBI is a nonprofit organization that promotes economic devel-

opment through various programs and a 30,000 square-foot facility where entrepreneurs can start up new businesses. It also offers business training, support programs, and flexible leases.

"The SFBI connects entrepreneurs to incubator services," said Montoya-Rael. "Our Technology Transfer (TT) Division, CPO, and the Laboratory have a vested interest in helping those efforts succeed."

Montoya-Rael first became involved in the SFBI about three years ago. She said she sees SFBI as a strategic partner in furthering the Laboratory's goal of creating economic

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In Memoriam

James E. Wilmarth

Laboratory retiree James Wilmarth died June 17. He was 64.

He joined the Laboratory in 1968 in the former GMX Division. In 1971, Wilmarth transferred to the Los Alamos Meson Physics Facility (LAMPF), now known as the Los Alamos Neutron Science Center (LANSCE), and was responsible for the experimental area's instrumentation and controls. He remained at LANSCE until his retirement in June 2001.

During his service in the U.S. Air Force from 1959 through 1963, Wilmarth received his associate's degree in general academics from Allen Hancock College in Santa Maria, California.

Wilmarth is survived by his wife, Claudette Wilmarth of Santa Fe; mother Nedra Wilmarth of Albuquerque; sons Jeffery of Salem, Utah, and Daniel of Grand Junction, Colorado; stepson Michael Lusk of Albuquerque; brother Bill of Green River, Utah; and three granddaughters.



August service anniversaries

35 years

Michael Gallegos, CTN-5
Yolanda Garcia, IAT-3

30 years

Judy Archuleta, IRM-RMMSO
Gary Carr, AOT-IC
Manuel Echave, ISR-4
Will Fox, IAT-2
James Friar, T-16
Frank Gac, IAT-1
James Goforth, DE-9
Gary Lewis, MST-6
Doreen Montoya, IRM-RMMSO
Robert Springer, IAT-2
Ray Trimmer, EFO-HE
Robert Watt, P-22
Martha Zumbro, HX-3

25 years

Juliana Allen, MCFO-OS
Paul Argo, NN
Cris Barnes, ADWP
Harry Dewey, DHS
Christopher Gallegos, RP-1
Mary Gomez, CCS-2
Richard Hale, WT-5
Irma Holtkamp, STBPO-RL
Renee Idar, N-2
James Irwin, MSS-MCFO
Stephen Knox, NN
Ronald Lujan, SAFE-S3
Wayne Lunsford, W-8
Christine Maestas, CCS-4
Bonnie Martinez, HR-S
Esther Martinez, IAT-2
Richard McClellan, WCM-1
Robert Potter, W-10
Arnold Sandoval, PMT-APC
Floyde Smith, RP-1
Gerald Vasilik, IHS-OS

20 years

Robin Bachman, MC-PC
Joseph Baiardo, MST-16
Timothy Burns, EES-12
Edward Joyce, PMT-APC
Janette Lujan, EFO-HE
Robert Ryan, CS-PCS
Antoinette Taylor, MPA-CINT
Craig Taylor, C-CSE
Charles Thorn, OS-RTS
George Valdez, ASM-MM
Charles Wilder Jr., CTN-5

15 years

Thomas Allen, PMT-PDST
Alexander Balatsky, T-11
David Bowman, HX-3
James Koster, NN
Anna Swertfeger, SPO-OEEI
Louise Walker, W-1

10 years

Christine Ahrens, HPC-1
Leo Archuleta, PMT-NMM
R. Thomas Baker, C-IIAC
John Bernardin, ISR-1
Stacie Bird, T-11
David Bracken, N-1
Donald Dry, C-NR
Michelle Espy, P-21
Ellen Fox, HR-SVSCTR
Daniel Grove, W-2
Kevin Honnell, X-1-SMMP
Kiril Ianakiev, N-1
Christopher Jarzynski, T-13
Glen Johns, AOT-OPS
Michael Johnson, WCM-3
Cliff Joslyn, CCS-3
Keith Kihara, AET-1
Chang Kim, B-2
Sergey Kurennoy, AOT-ABS
Claudia Lewis, EES-9
Jane Lloyd, PMT-PDST
Jennifer Macy, FME-DES
Charles Mielke, MPA-NHMFL
Benny Montoya, CTN-3
Joey Moya, MSS-TA55FO
Martin Pieck, AOT-IC
Michael Pigue, ISR-4
Shawn Rivera, IST-AUBAD
Steven Salazar, ISR-4
Patrick Sullivan, ASM-PM
Martin Trujillo, ASM-MM
Nileena Velappan, B-1
Laura Wolfsberg, C-IIAC

5 years

Paulette Angel, B-3
Michael Archuleta, HX-3
Natanael Archuleta, HX-3
Phyllis Archuleta, IRM-RMMSO
Galya Balatsky, IAT-1
William Baldwin, AOT-OPS
David Brasier, CFO-2
Dongming Cai, ISR-3
David Carrington, T-3

Myles Cartelli, PF-MS
Leslie Champ, WS-DO
Gloria Cornely, IST-CYSEC
Theresa Daly, HPC-2
Kimberley Edlund, ISR-2
Alejandro Enriquez, PMT-PU
Gary Ferrero, CTN-5
Esteban Figueroa, AET-4
Nancy Gallegos, PMT-NMM
Lionel Garcia, PF-MS
Beth Gardiner, IST-AUBAD
Thomas George, PF-DS
Raymond Joggerst, C-PCS
Larry Lamsa, WS-DO
Christine Leyba-Rodriguez, CFO-2
Gloria Lopez, IST-AUBAD
Richard Lucero, MST-7
Richard Marquez, DIR
Mark Marr-Lyon, HX-3
Carlos Martinez, WCM-1
Fidel Martinez Jr., HX-3
Star Martinez, EFO-WETF
Harry Martz Jr., CCS-6
Vanessa Montano, SEC-PSS6
Nicholas Montoya, HX-6
Rose Mary Montoya, CFO-2
Steve Moore, WCM-1
Jessica Powell, N-4
Eric Radosevich, WCM-2
Ana Marie Randall, CFO-1
Scott Robbins, CT-TQ
Ronald Robinson, RP-DO
Bobby Romero, WS-WA
Lisa Rothrock, IRM-CAS
Richard Roybal, WCM-1
Dennis Royer, HX-3
Kevin Saeger, D-6
Miguel Salazar, MQ-SC
Robert Sanchez, MSS-IFCS
Juanito Sandoval, P-24
Nabil Schear, IAT-2
Gale Slutzky, IST-CYSEC
Khalil Spencer, C-AAC
Michael Steinzig, W-4
Sarah Sweeney, HX-6
James Szinger, T-10
Mariam Thomas, C-AAC
Sunil Thulasidasan, CCS-5
Johnny Valdez, RP-1
Charles Williams, RP-1
Benjamin Wilson, PF-DS
Monica Witt, ENV-RRO
Glenn Wiuff, C-IIAC

Montoya-Rael ...

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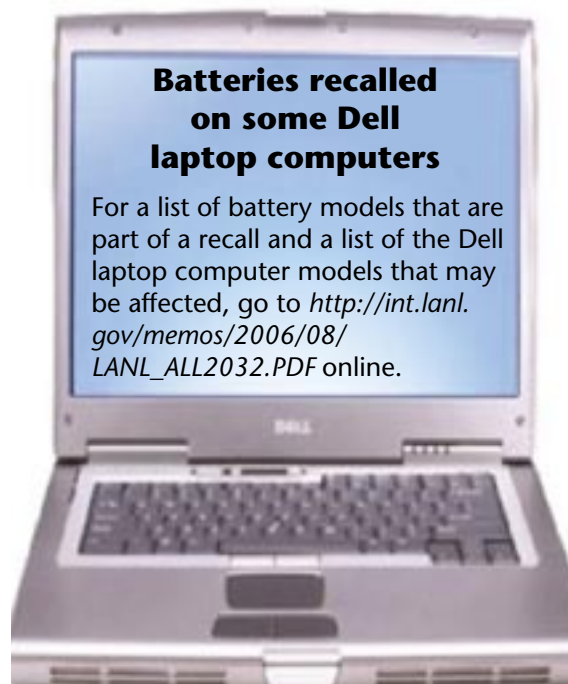
opportunity and more vibrant regional communities throughout Northern New Mexico.

"The SFBI complements the Laboratory's new Community Commitment Plan which focuses on economic development, education, and charitable giving," said Montoya-Rael. "As a member of the Board of Directors, I hope to help increase awareness of SFBI activities, assist in the development of strategic partnerships with other incubators around the country, and strengthen the incubator's partnership with the New Mexico Economic Development Department.

Before joining the Laboratory, Montoya-Rael was executive director for the Santa Fe-based Regional Development Corporation, a private, nonprofit organization that assists New Mexico communities and industry in managing their economic-development projects and initiatives.

Montoya-Rael also has worked for the former New Mexico Commission on

Higher Education, State Treasurer's Office, and the State Department of Finance and Administration.



Batteries recalled on some Dell laptop computers

For a list of battery models that are part of a recall and a list of the Dell laptop computer models that may be affected, go to http://int.lanl.gov/memos/2006/08/LANL_ALL2032.PDF online.



This month in history ...

Month

- 1498** — Christopher Columbus reaches the mainland of North America.
- 1680** — Pueblo Indians revolt against Spanish colonists in Northern New Mexico.
- 1789** — William Herschel discovers Enceladus, a moon of Saturn.
- 1846** — New Mexico is annexed to the United States.
- 1866** — The Civil War is formally declared to be over by President Andrew Johnson.
- 1887** — Thomas Edison makes the first sound recording.
- 1914** — The Panama Canal opens.
- 1920** — The 19th Amendment to the U.S. Constitution was ratified, granting women the right to vote.
- 1932** — Amelia Earhart completes her transcontinental flight.
- 1935** — President Roosevelt signs the Social Security Act establishing the system that guarantees pensions to those who retire at age 65.
- 1943** — Groundbreaking in Oak Ridge, Tenn., for the first plant to produce uranium-235 needed for atomic weapons.
- 1946** — President Truman establishes the Atomic Energy Commission.
- 1951** — The bridge over Los Alamos Canyon is completed as the longest and highest steel arch bridge in New Mexico at the time.
- 1963** — The Laboratory's scientific museum opens in Room 136 of the AP Building across the street from Fuller Lodge.
- 1966** — The first picture of Earth from the moon is taken by Lunar Orbiter 1.
- 1971** — The US launches first satellite into lunar orbit from a manned spacecraft.
- 1978** — The first transatlantic balloon trip was completed by Max Anderson, Ben Abruzzo, and Larry Newman, all from Albuquerque, New Mexico.
- 1980** — The trade union Solidarity, a leader of the opposition to Poland's Communist-controlled government, is formed at Gdansk.
- 1988** — United States and Soviet scientists monitor an underground nuclear test at the Nevada Test Site as part of the Joint Verification Experiment.
- 1989** — The Laboratory Data Communications Center at TA-3 is dedicated.
- 1990** — The Laboratory, Florida State University and the University of Florida are selected to establish and operate the National High Magnetic Field Laboratory.
- 1995** — The Los Alamos Meson Physics Facility auditorium is renamed in honor of Louis Rosen, Lab senior fellow emeritus and founder of the facility.
- 1997** — Norris Bradbury, who succeeded J. Robert Oppenheimer as Lab director and held the job for 25 years, dies.
- 2004** — The pedestal of the Statue of Liberty reopens after being closed since the September 11, 2001, attacks.

And this from the 1946 Los Alamos Times: Los Alamos scientists have developed an instrument that is an early step toward [the] dream of using atomic energy for peacetime power production. The instrument is the "Water Boiler," a unique type of neutron chain reactor.

The information in this column comes from several sources including the online History Channel, the Newsbulletin and its predecessors, the atomic archive.com, Echo Vitural Center, Science & Technology, Real History Archives, and Carey Sublette, "Chronology for the Origin of Atomic Weapons" from www.childreofthemanhattanproject.org/MP_Misc/atomic_time-line_1.htm.

Submissions are welcome. Please be sure to include your source.



To bee or not to bee?

by Erik Eakins

Employees find many different ways to unwind and release stress. Some take to the mountains for leisurely hikes; others hop on a bike for a good workout, head to the kitchen to whip up a gourmet meal, or just put up their feet and do absolutely nothing. Brad Lounsbury of Response Services (ER-RS) can appreciate the need to do absolutely nothing sometimes, but when he wants to unwind, he heads for his bees.

"I find it almost meditative listening to thousands of bees buzzing around and watching them working very hard to support the colony," said Lounsbury, who cares for fourteen bee colonies at his home in Española.

Lounsbury originally obtained bees to improve the production of his fruit trees, since bees help the cross-pollination process. But after working with his first colony, Lounsbury was hooked. "It just clicked. I was caring for living creatures, and working with the bees was fun and really interesting. The slow pace of working with bees is very methodical, and it felt like a form of meditation for me," he said.

When he first decided to keep bees, Lounsbury took a course to learn how to care for them. Ken Hays, at the Honey Farm in Bosque Farms, offers training classes for new beekeepers to give them basic knowledge on how not to kill a colony. Lounsbury attended a training class and met many other local beekeepers. "The beekeeping community is very helpful and friendly. Everyone wants to share what he or she knows and help all the colonies grow," said Lounsbury, who still considers himself a novice beekeeper, having only started the hobby in March.

Next season, Lounsbury hopes to have twenty to twenty-five colonies. He sells the honey his bees make but insists he does not keep bees just for the honey "I love taking care of the colonies," he said. "This is probably the most satisfying hobby I've had in a long time."

Lounsbury said the most enjoyable part of beekeeping for him is watching the bees work. "Bees are very organized about who does what, and they are very motivated and focused to help the colony survive. It's fascinating," he said.

However, beekeeping may not be everyone's road to relaxation. Nervous, scared, or fidgety individuals should not take up beekeeping, said Lounsbury. "It's a hobby better suited to those who are patient and who can work slowly," he noted.

Beekeeping is a safe hobby, according to Lounsbury, if proper precautions are taken, such as wearing a beekeeping suit, but he strongly suggests that anyone considering beekeeping first find out whether he or she is allergic to bee stings.

"Taking care of bees is not dangerous, because the bees do their own thing. They do not attack or harm people unless they are provoked, said Lounsbury.

For a taste of the honey produced by Lounsbury's bees, stop by the Los Alamos Farmer's Market on Thursdays, where his daughter sells the wildflower honey. Lounsbury's honey also is available at The Gift Shoppe in Española.



Brad Lounsbury

Photo by Ed Vigil



From the bee hive ...

Photo courtesy of Brad Lounsbury



To the Farmer's Market

Photo by Erik Eakins