



Joint Lab-EPA program ASPECT team responds to recent incidents

by Todd Hanson

It's nine o'clock Tuesday morning, January 16, in Brooks, Kentucky, a small town roughly thirty miles south of Louisville. A CSX Transportation train derails on the tracks that run through town. Some of the train cars explode and as fire fills the sky with thick black smoke, nearby residents, some of them exposed to the chemical plume, report skin irritation, a strange taste in their mouths, and an unpleasant feeling in their lungs.

Authorities evacuate residents within a one-mile radius of the accident. Based on shipping manifests, authorities determine that cyclohexane, a flammable, inhalation hazard, was one of the primary chemicals feeding the blaze. When the Environmental Protection Agency is called to the scene, it requests the ASPECT (Airborne Spectral Photometric Environmental Collection Technology) aircraft, a small, twin-engine plane carrying Los Alamos-built sensors stationed in Texas. Meanwhile in Los Alamos, 1



Pictured above is the Brooks, Kentucky, train derailment as seen by ASPECT on January 16. ASPECT (Airborne Spectral Photometric Environmental Collection Technology) is a small, twin-engine plane carrying Los Alamos built sensors that can detect and locate chemical vapors. Photo courtesy of ASPECT/Environmental Protection Agency

Kroutil and Dolin are an integral part of a multi-agency team that responds to special chemical incidents, like the Brooks derailment, as well as to real or potential homeland security threats in support of the Department of Homeland Security's Rapidly Deployable Chemical Defense System. The RDCDS system combines aircraft and ground-based chemical sensors into a system that can provide advanced warnings to the public in the event of a chemical release. RDCDS uses the Environmental Protection Agency's ASPECT for its rapidly deployable airborne chemical detection capability. Los Alamos developed the plane's onboard sensor technologies and is currently helping with the analysis of data. Data collected by ASPECT from its analysis at an emergency response is transmitted to the EPA for a rapid overall assessment of

a situation and is then provided to local incident commanders. Kroutil and Dolin's work with the EPA and DHS is an example of just one of the many ways in which the Laboratory is working with government agencies.

The ASPECT plane, a twin-engine Aero Commander 680 aircraft based in the Dallas, Texas, vicinity, is equipped with a multi-spectral infrared mapping system and a Fourier Transform Infrared spectrometer package called ASPECT. This spectrometer detects and locates chemical vapors and can see through smoke and dust to get a measurement of the location and concentration of the vapor plume. A second sensor, a high-resolution Infrared Line Scanner, records an image of the ground below, as well as plume information. This sensor package is the only "stand-off infrared" detection tool in the nation devoted to emergency domestic response applications. The technology provides first responders with critical information regarding the size, shape, composition, and concentration of gas clouds. The system uses Global Positioning System mapping data and digital images of the site to create exact maps and digital data overlays of chemical plumes, as well as low-area locations where toxin-laden air may accumulate.

Since its initial deployment in 2001, ASPECT has responded more than 65 times to emergencies across the country. Earlier this month, ASPECT was deployed through the DHS RDCDS program with the EPA to a mysterious bird kill in downtown Austin, Texas, as well as to the recent Tournament of Roses Parade and the Rose Bowl football game in Pasadena, California, on New Year's Day.

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For Your Safety



Vehicle survival kit

Each year, numerous motorists find themselves stranded on the roadside due to inclement weather. It is recommended that the following items be kept in vehicles during the winter:

- Battery-powered radio with extra batteries
- Flashlight with extra batteries
- Blankets or sleeping bags
- Extra clothing to keep dry
- Booster cables
- First aid kit
- Bottled water and nonperishable high-energy foods, such as granola bars, raisins, and peanut butter.
- A can, water-proof matches, and candles to melt snow for drinking water
- Brightly colored cloth to use as a distress signal
- Compass and road maps
- Shovel, windshield scraper, and brush
- Windshield washer fluid
- Fire extinguisher (5 lb., A-B-C type)
- Tire repair kit and pump
- Tool kit
- Flares
- Sack of sand or cat litter (for tire traction)
- Tow rope
- Knife
- Cell phone
- Whistle
- Pencil and paper

It also is recommended that the car's gas tank be kept full, or at least half full, to avoid a gas line freeze during the winter.



Acting NNSA head talks to employees

Old acquaintances met anew last week at Los Alamos. Thomas D'Agostino, right, acting administrator of the National Nuclear Security Administration, chatted with Chuck Obst, center, Ned Harris, and Carol Slaughter, all of Information Systems and Technology Division before speaking to Laboratory employees. D'Agostino and Obst served together in the U.S. Naval Reserve where D'Agostino is a captain. D'Agostino met with senior managers on several matters after his all-employee talk. Photos by LeRoy N. Sanchez, Records Management/Media Services and Operations

Reverse auctions saves money

by Steve Sandoval

Buying goods and services takes time to issue requests for proposals, review bids and then award a contract. But, a new "reverse auction" process used in two recent purchases is proving that there is a better way to do business and save the Laboratory money and time.

"It's another procurement tool we use to get the best deal for the Laboratory and the government," said Nick Perry of Purchasing (ASM-PUR).

The reverse auction, also known as eAuction, has been used by one of the parent companies now managing the Laboratory, said Perry, and has saved the company almost 20 percent on procurement costs.

It is called reverse auction because unlike a traditional auction in which the highest bidder gets the item, the company that submits the lowest bid is awarded a contract, explained Perry. Lowest cost isn't always the deciding factor though. Quality and the ability of the winning bidder to service their product and be responsive to the Lab's needs also are factors, he added.

At a recent reverse auction, the Laboratory bought 5,000 pagers. Two companies submitted bids. The initial bids from the companies were \$43 and \$51 per pager. When the bidding closed, the successful bidder lowered its price to \$38 per pager, while the second company's closing bid was \$39 per pager.

Perry said the Lab saved about \$45,000, explaining that the last time the Laboratory

purchased pagers it paid \$47 per pager. He added that the reverse auction process also narrows the price difference between companies bidding on a product or service.

On another occasion, the Lab purchased software maintenance services and saved about 6 percent, said Perry.

At a reverse auction, Lab buyers view a computer monitor or screen that displays the bids from competing companies. The companies also see a computer screen displaying their rank in the bid process, but not competitors' actual bid prices. "We do not sacrifice the integrity of the bidders' prices," said Perry. Reverse auctions, he said, give companies the incentive to adjust their bid. "From the bidders' perspective, it gives them multiple chances to lower their prices to remain competitive," he said.

When the reverse auction ends, the successful company is notified and asked to send written confirmation on their bid, and all companies who bid are notified by letter on the winning company. The Lab has formally awarded the contract for the pagers to ATI Wireless.

Henry Flemming of Telecommunications (CTN-4) said of the recent reverse auction on the pagers: "In an era of reduced budgets, I am pleased the Laboratory has adopted a process that allows us to receive products at the best price."

Reverse auctions aren't feasible for all procurements, but Perry said the Lab intends to use this new tool in future procurements whenever possible.

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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The flu is easily spread by sneezing. Photo by Andrew Davidhazy, School of Photo Arts and Sciences/RIIT.

Foiling the flu bug *Home-use kit would give quick answers*

by Jay Schecker, Science and Technology
Base Program Office (STBPO-PO)

It's a device straight out of Star Trek — a hand-held cartridge that can tell you in about an hour if you've come down with the flu. For an individual, that simple piece of information could be the key to a fast recovery. For a community, it could help contain a deadly influenza outbreak.

To Hong Cai, Xiaoyun Lu, David Fox, and their collaborators in the Bioscience (B) Division, early detection is the key to both fast recovery and the prevention of an epidemic. The team is developing the cartridge — a self-contained biochemistry lab about the size of a deck of cards — to be an inexpensive, portable device that can be used by nearly anyone, whether they are first responders, point-of-care health providers, or homemakers, to detect harmful viruses.

"We call it the dipstick," says Cai, "because it's as easy to use as a dipstick-style home pregnancy test. But it's a really sophisticated little detector."

Most people simply recover from influenza on their own, albeit after a few miserable days of fever, chills, and muscle aches. But influenza can be exceptionally deadly.

For example, the Laboratory developed methods to detect *Bacillus anthracis* — the bacterium that produces anthrax — and has designed and run computer simulations that predict the course of an epidemic. Los Alamos is also responsible for databases that gather and organize vast amounts of genomic information about AIDS, hepatitis C, and influenza, information that is used by researchers around the world to identify pathogens and design strategies to thwart them.

"All of this information is being compiled about pathogens," says Bioscience Division Leader Gary Resnick. "We needed a way for first responders and health-care providers to apply that information on a daily basis. The dipstick will do that."

Sensitivity and simplicity

To be effective for home or field use, the dipstick needs to be both sensitive and specific when targeting a small number of virus particles. In Cai's mind, that requirement limited her choices to DNA-based detection methods.

Early detection is the key to both fast recovery and the prevention of an epidemic.

The World Health Organization considers influenza to be one of the foremost biothreats facing the planet. The organization's Web site includes references to the influenza outbreak of 1918-1919 — the "Spanish" flu. A common influenza virus (there are many influenza viruses) had mutated into a variant to which the human immune system had never been exposed. Once the virus entered the human population, the result was a pandemic, a viral blitzkrieg that killed more than 40 million people worldwide.

A similar situation exists today. The H5N1 avian influenza virus, or bird flu, is infecting and killing birds around the world. As with the Spanish flu virus, our immune system has no experience with H5N1. If the bird flu virus mutates and becomes easily transmissible between humans, the world would likely face another devastating pandemic.

The prototype dipstick will detect not only the H5N1 influenza virus but also others that produce flu-like symptoms, such as respiratory syncytial virus (RSV), the SARS (severe acute respiratory syndrome) virus, and the common cold virus. However, its greatest advantage over current detectors is speed. Pandemics are fueled, in part, by a lack of timely information; the virus spreads before infected persons can be identified and properly quarantined. In today's highly mobile society, early detection is an imperative.

"Eventually, we hope to be able to go from sample collection to results in less than an hour, even in patients who are not fully symptomatic," says David Fox, an Agnew National Security Postdoctoral Fellow on the dipstick team. "That would give people an incredible head start for initiating response strategies."

The Laboratory is funding the project through an Exploratory Research Grant. And though the bulk of Los Alamos research is not geared towards family health care, the dipstick is aligned with the Lab's long-standing efforts to combat biothreats.

Broadly speaking, there are two ways to detect harmful organisms: protein-based tests or DNA-based tests. Protein-based tests are immunoassays that detect the proteins (antigens or antibodies) that signal the presence of an invading organism. The invader may be friendly (a developing baby — the home pregnancy test is an immunoassay) or unfriendly (a pathogen such as a virus or bacterium). These tests are simple and inexpensive, because the proteins are floating freely in samples of urine or blood serum and can be accessed with no special preparation. However, immunoassays lack sensitivity and often fail when there is not enough protein in the sample.

DNA-based tests are very sensitive as well as very specific to targeted organisms. But unlike immunoassays, they require significant sample preparation and processing to obtain the required amount of genetic material. Still, the entire testing process, or protocol, boils down to just four steps. First, researchers isolate the organism from the rest of the sample (mucous obtained from a nasal swipe, for example), then they extract the organism's genetic material (DNA, or for most viruses, RNA). Next, they amplify, or copy repeatedly, a small region of that genetic material (a gene segment) in order to produce enough material to allow the final step, detection.

Executing those steps has often required both sophisticated (and expensive) equipment and highly trained personnel. Those two factors relegated DNA identification to either research facilities or well-equipped clinical laboratories.

Determined to change all that, the Los Alamos dipstick team established collaborations with other scientists from B Division to develop and/or adopt novel approaches to each of the protocol's four steps. From Laboratory scientist John Dunbar's work, the team developed a way to extract genetic material from complex samples. Jian Song and Murray Wolinsky, two bioinformatics experts, helped

continued on Page 4

Program matches employees with volunteer opportunities

by Krista D. Wilde

Finding a place to volunteer in 2007 just got easier. As part of the Laboratory's commitment to increase its outreach to nearby communities, the Lab has joined VolunteerMatch, a network of nonprofit organizations that helps match people who want to volunteer with organizations that need them.

VolunteerMatch offers a variety of free online services to pair nonprofits with volunteers. The site has a searchable database that allows nonprofits to list volunteer opportunities; potential volunteers also can find activities that interest them. Organizations in the database need to be nonprofit or tax exempt to list opportunities and can include civic, social, governmental, and educational institutions.

Along with VolunteerMatch, the Laboratory is partnering with local nonprofits to promote their organizations' mission, recruit volunteers, and highlight their accomplishments. Employees who volunteer, or would like to, are encouraged to explore the Web site or to encourage their nonprofits to register their organizations and post opportunities.

The VolunteerMatch tools also allow employees to track when, where, and how often they volunteer, explained Lillian Montoya-Rael, director of the Lab's Community Programs Office (CPO).

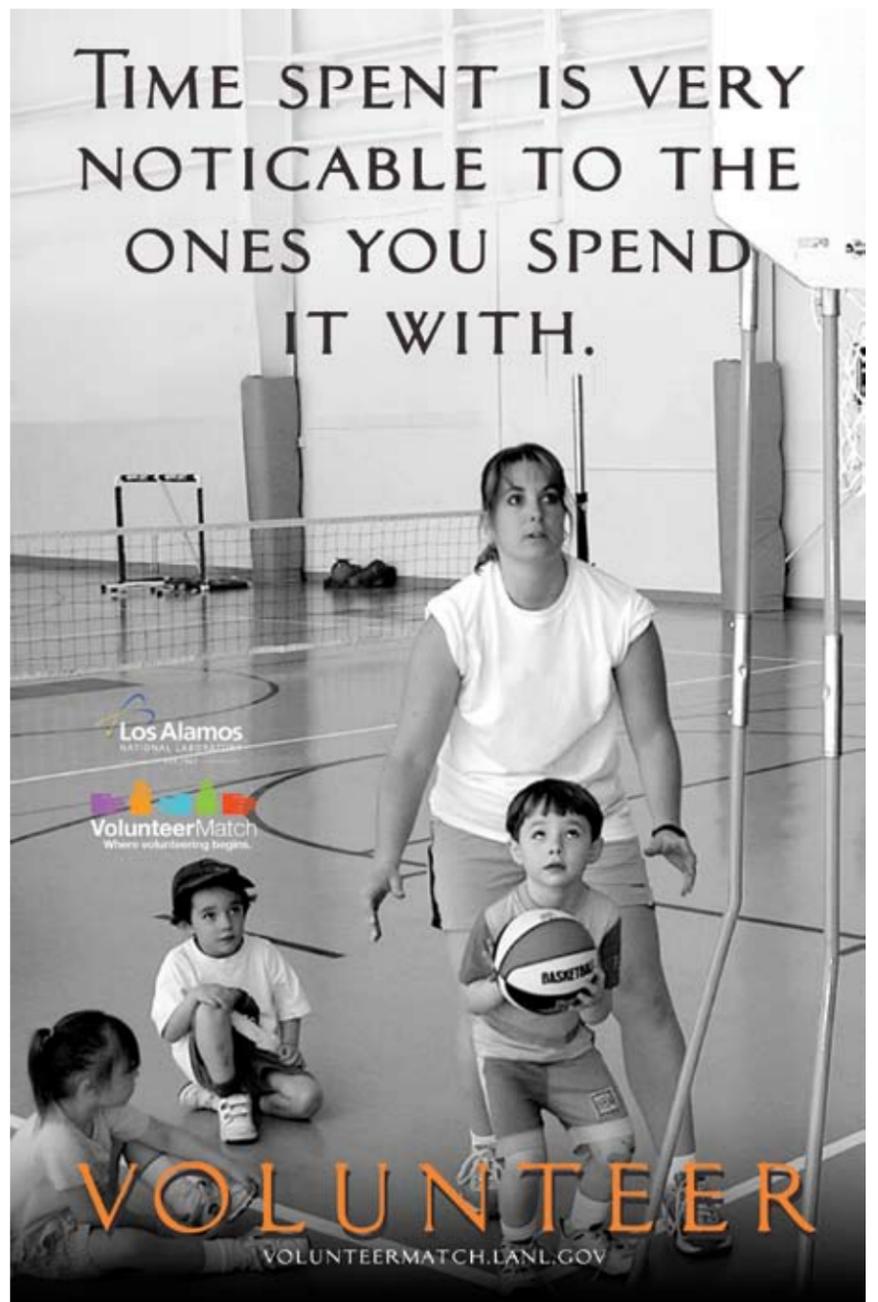
"Employees across the Laboratory already volunteer countless hours in communities around New Mexico. This program is exciting because it allows employees to manage their volunteer efforts as well as discover opportunities they may not have realized were out there," said Montoya-Rael.

"VolunteerMatch is thrilled to include the nearly 10,000-strong work force of Los Alamos Laboratory in our network of skilled volunteers," said Greg Baldwin of VolunteerMatch. "We're pleased to work with such a strong partner to energize volunteerism in New Mexico."

Employees interested in participating in the VolunteerMatch program can go to <http://volunteermatch.lanl.gov> online and enter a zip code to search for volunteer opportunities. The "Advanced Search" allows an employee to narrow their search. If interested in an opportunity, click on "I want to help" to express interest to the organization. Employees must create an account and log-in with VolunteerMatch before they can refer themselves to nonprofits.

Once employees have volunteered, they can log their hours on the site to track what organization they are helping and how often. This also allows the Lab to understand more about employee volunteerism in the surrounding communities.

The first 200 employees who register at the Lab VolunteerMatch portal will receive a Vecinos volunteer recognition T-shirt. There will be small recognition for each 100 hours employees log at the site, as well as an annual recognition event for volunteer efforts, said Montoya-Rael.



The Laboratory is the first site in the Department of Energy complex to become a member of VolunteerMatch. The Lab's membership allows nonprofits to register with VolunteerMatch at no cost to their organizations.

The Laboratory sent letters to nonprofit organizations in the area to make them aware that the Lab is joining this VolunteerMatch and that they can list their volunteer opportunities. While an organization does not need to be listed for employees to log volunteer hours with them, nonprofits can list themselves through volunteermatch.org or directly through volunteermatch.org/nonprofits/gettingstarted/.

For more information about the VolunteerMatch program or to arrange for a presentation about VolunteerMatch, call Linda Anderman of CPO at 5-4400 or write to anderman@lanl.gov by e-mail.

Home-use kit ...

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identify genetic similarities between viruses, which enabled the dipstick team to find gene segments that were unique to the viruses of interest. Amplifying only those segments, instead of those from other organisms, allowed them to separate the wheat from the chaff, so to speak.

Interestingly, the dipstick eliminates the polymerase chain reaction (PCR) — the biologist's standard method of amplifying gene segments — from the protocol. PCR typically relies on a "thermal cycler," a costly piece of equipment that takes the DNA through many time-consuming temperature cycles. Instead, the dipstick uses a cellular enzyme called a helicase to obtain a billion-fold amplification of gene segments. This strategy obviates the need for a thermal cycler since the helicase operates at a single temperature.

"Researchers had developed numerous isothermal amplification methods to amplify gene segments," notes Lu. "The one we chose and refined just matched up nicely with our detection scheme."

That scheme is perhaps the most innovative part of the protocol. Once amplified, the gene-segment copies are mixed with blue-colored, microscopic beads that are coated with "label probes," which are short, virus-specific pieces of DNA. If one end of the gene segment matches the label probe, the two will bind and the segment will become labeled with a bead. The labeled gene segments then migrate over a detection site that is uniquely coated with millions of short "capture probes." If the free end of the gene segment matches the capture probe, then millions of labeled gene segments become anchored to the site, and a blue spot becomes visible to the eye. If the virus is not in the sample to begin with, no gene segments are amplified and no blue spot appears.

Laboratory tests confirmed that the protocol effectively detects targeted viruses and gives a positive result when as few as 100 virus particles are present.

Next, the dipstick needed to be brought out of the laboratory and transformed into an affordable device. Los Alamos is adept at that kind of technology transfer because it has an interdisciplinary approach to problem solving. The dipstick team called

on Torsten Staab of the Applied Engineering Technologies Division, and he was able to engineer the world's first hand-held, disposable, DNA-based influenza detector.

Even so, team members were not satisfied to identify viruses alone. They designed the dipstick to test for bacteria as well. The only change to the protocol is in the first step, the one that isolates the organism.

Unfortunately, finding an isolation procedure for bacteria is difficult. "The problem is one of specificity," explains Lu. "Although we can isolate most viruses from the rest of the sample, we can't do the same for all types of bacteria." So the group is focusing on *Bacillus anthracis*, largely to address bioterrorism concerns.

The dipstick has caught the attention of an industrial manufacturer, who hopes to mass-produce the device at a projected retail cost of about \$10 per dipstick.

Editor's note: This article is a reprint of an article that appeared in the inaugural edition of the Laboratory's new *Science publication*, 1663. For more information about 1663, see Page 8.

Laboratory earns seven Pollution Prevention Awards

by Krista D. Wilde

Los Alamos led the field in Pollution Prevention awards this year, winning seven, including two Best-in-Class awards and five Environmental Stewardship awards from the Department of Energy/National Nuclear Security Administration.

The two Best-in-Class awards will be submitted to the White House Closing the Circle competition, said Dennis Hjeresen of the Risk Reduction Office (ENV-RRO).

The seven projects saved the Laboratory more than \$1.6 million in waste-disposal costs and labor, and reduced the generation of liquid transuranic waste by 2,700 liters. Together, the projects avoided the generation of 291 55-gallon drums of solid transuranic waste, which equals seven WIPP shipments. The projects reduced the generation of low-level waste by 80 cubic meters, sanitary waste by 120 cubic meters, and recycled 1,400 pounds of copper, said Hjeresen.

Best-in-Class Winners

Slip Top Can Reduction Project

The Slip Top Can Reduction Project prevented 11,000 containers at the Lab from becoming useless and thereby reduced transuranic waste, saved time, reduced worker exposure, and avoided about \$1.4 million in costs. Slip top cans the Lab uses to store transuranic waste did not meet new standards for pressure relief and were going to be replaced until this team was able to solve the problem by replacing only the lids. The people who implemented this project are from Waste Services (WS) and Plutonium Manufacturing and Technology (PMT) divisions.

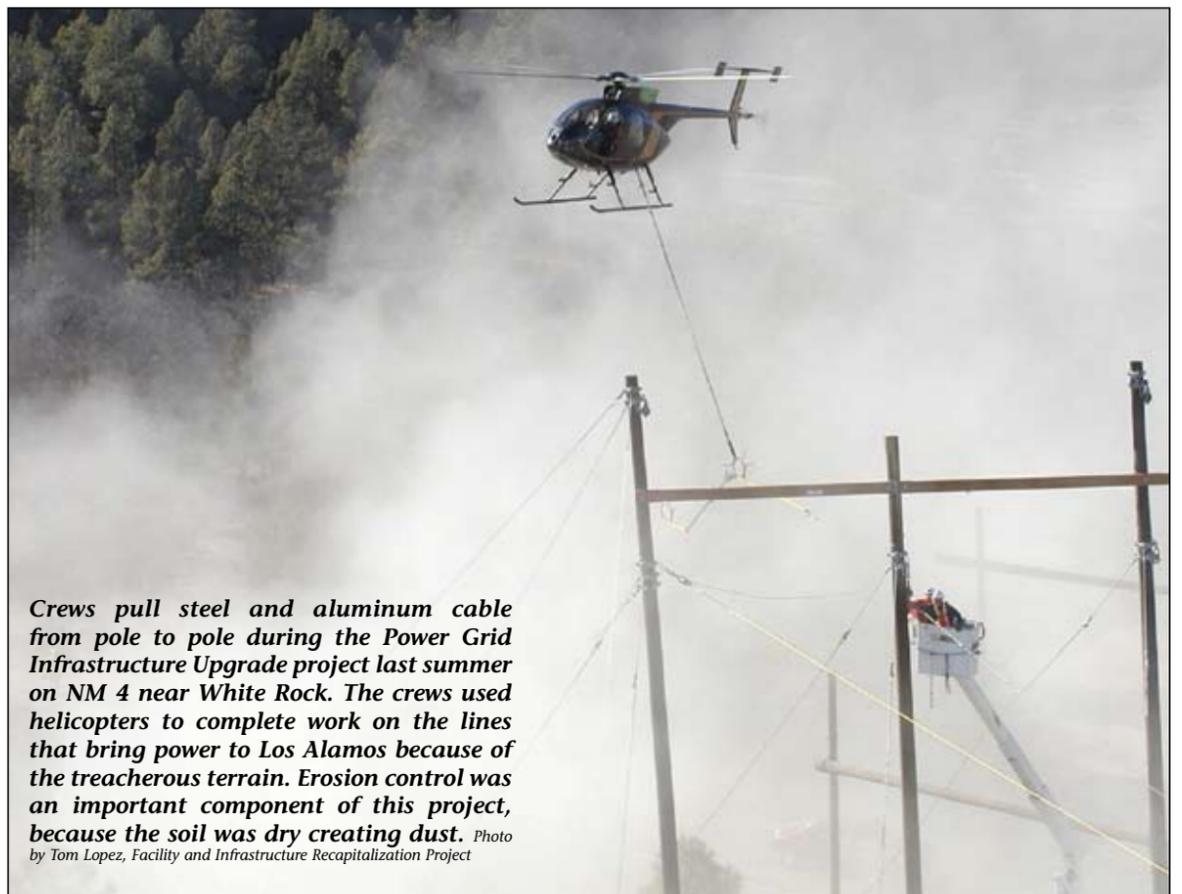
Green Primaries — Environmentally Friendly Primary Explosives

The Green Primaries group invented a new set of primary explosives that do not contain toxic components and do not create hazardous waste during manufacturing or use. Once the new primaries are in widespread use, the project has the potential to eliminate thousands of pounds of lead use and environmental dispersion and increase the safety of those who routinely handle primaries. Employees who worked on this project are from the Dynamic and Energetic Materials (DE), Weapons Technology (WT), Waste Services (WS), and Technology Transfer (TT) divisions.

Environmental Stewardship Award winners

Institutional Improvement Projects Developed from the Environmental Management System

The materials disposition and the chemical life cycle projects, were recognized because they help the Lab minimize the accumulation and storage of unneeded materials. The materials disposition project helped ensure materials were salvaged and recycled during



Crews pull steel and aluminum cable from pole to pole during the Power Grid Infrastructure Upgrade project last summer on NM 4 near White Rock. The crews used helicopters to complete work on the lines that bring power to Los Alamos because of the treacherous terrain. Erosion control was an important component of this project, because the soil was dry creating dust. Photo by Tom Lopez, Facility and Infrastructure Recapitalization Project

the cleanout of Technical Area 59, while the chemical life cycle team streamlined chemical procurement and created a database of alternatives to twenty-four high hazard chemicals. The many people who helped with these projects represent the Environmental Protection (ENV), Environment and Remediation Support Services (ERSS), Chemistry (C), Acquisition Services Management (ASM), Waste Services (WS), Los Alamos Neutron Science Center (LANSCE), Security (SEC), Infrastructure Planning (IP), and Radiation Protection (RP) divisions.

Power Grid Infrastructure Upgrades Transmission Line

The innovative use of materials during a power transmission line construction project, which required new utility poles and the disturbance of twenty-five acres of ground, saved \$72,000. In order to comply with regulatory requirements, log and rock displaced during the project were used for sediment control. In addition, ninety cubic yards of wood mulch from the Los Alamos County landfill was used to stabilize three acres of the project from March until May. Lab employees who worked on this project represent the Environmental Protection (EP), Facility and Infrastructure Recapitalization Project (FIRP), and Construction Management (CM) divisions.

Removal and Asset Recovery of Copper-lined Faraday Cage

A pilot program for the removal of a copper Faraday Cage from TA-39 saved \$21,611 and recycled 1,400 pounds of copper. The project was managed as a deactivation and decommissioning project rather than a remodeling project. The value of the copper offset the majority of the cost of the

deactivation and decommissioning work; re-categorizing the project also allowed it to be finished earlier. Employees who helped with this project are from the Waste Services (WS), Facility and Infrastructure Recapitalization Project (FIRP), Dynamic and Energetic Materials (DE), and Industrial Hygiene and Safety (IHS) divisions.

Improvements to the Plutonium Electrorefining Process

The cathode used in the plutonium electrorefining process was redesigned to eliminate cathode failure. This reduced the need to reprocess material, which decreased the waste generated by a factor of three. The new cathode saves fifteen days of labor, \$18,450, and prevents the generation of excess liquid and solid transuranic waste. Employees who implemented this project are from the Plutonium Manufacturing and Technology (PMT) Division.

Low-Level Waste Minimization at DARHT

The DARHT facility at TA-15 implemented several new practices to reduce the amount of beryllium-contaminated low-level waste generated during explosive diagnostic experiments. In addition to reducing low-level waste generation, the Lab has saved more than \$60,000 in waste disposal costs each year, and reduced the turnaround time between shots. The staff minimized the amount of material entering the test area, reused equipment, and began to use water bladders to minimize the amount of waste generated. Employees who implemented this project are from the Waste Services (WS), Hydrodynamic Experiments (HX), and Radiation Protection (RP) divisions.

The Pollution Prevention awards competition is open to all NNSA sites and recognizes employees and teams who have minimized or reduced the Laboratory's waste stream through practices they have adopted.

More information about the five Environmental Stewardship award winners can be found at http://p2.lanl.gov/P2Awards/pdf/07_DOEP2Awards.pdf.

For information about the Pollution Prevention Awards, contact Hjeresen at 5-7251 or write to dlh@lanl.gov by e-mail.





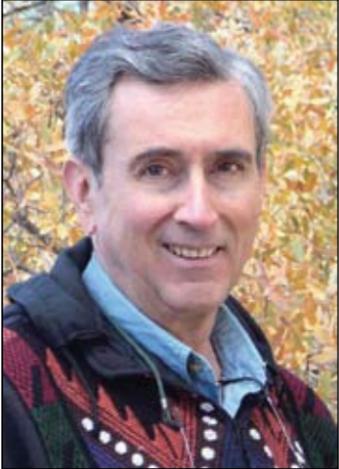
Vecinos program recognizes outstanding volunteers

Laboratory retirees **Larry Campbell** and **Bill Todd** are the latest recipients of the Vecinos Award for outstanding volunteer work. Coordinated by the Community Programs Office (CPO) and the Los Alamos National Laboratory Foundation, the Vecinos program recognizes outstanding volunteers.

Vecinos, which is Spanish for neighbor, aims to recognize Lab employees, retirees, and sub-contract personnel who are outstanding volunteers while also raising awareness about the importance of volunteer service.

The nonprofit organization that is the recipient of the employees' volunteer service will receive a \$1,000 grant in honor of the employees' volunteer service, while the employee will receive a certificate, explained Debbi Wersonick of CPO.

For more information about the Vecinos program, see the March 27, 2006, Daily Newsbulletin at http://www.lanl.gov/news/index.php?fuseaction=nb.story&story_id=8124 online.



'Larry has served professionally, creatively, and with enormous energy as a member of the board of directors of the Los Alamos Historical Society.'

Larry Campbell

Campbell retired from the Lab in 2001 as an associate after nearly 35 years of service. He was nominated for the award by Hedy Dunn, director of the Los Alamos Historical Society, a nonprofit organization dedicated to preserving, protecting, and interpreting the history of Los Alamos. The museum is located in downtown Los Alamos near Fuller Lodge.

According to Dunn, Campbell is a six-year member of the board of the Los Alamos Historical Society. "Larry spends dozens of hours each week on Historical Society projects of many kinds, including acquiring thousands of Laboratory non-classified negatives for scanning and accessibility for scholars and researchers on-site and through the [Historical Society] Web site," said Dunn.

Dunn added, "Larry has been scouting out new donations of papers, materials, and collections for the Historical Museum archives, including a huge collection of petroglyph books and photographs, plus the personal collections of several important, retired Laboratory photographers." She said Campbell has been instrumental in getting the archival collection at the museum to grow not just physically, but in importance as well.

Campbell's dedication to Los Alamos' history is evident in his work. "Larry is overseeing the Romero Cabin restoration through a possible collaboration in matching grant funding with the National Park Service," says Dunn. The Romero Cabin is the last remaining Hispanic Homesteader's Cabin not lost in the Cerro Grande Fire of 2000.

"Larry has served professionally, creatively, and with enormous energy as a member of the board of directors of the Los Alamos Historical Society. He has contributed not only monetarily but more importantly his time and creative talents. Campbell represents the ideal in what it means to be a contributing member of a non-profit board of directors and a member of society who is making a difference," concluded Dunn.

Bill Todd

Todd retired in 1994 from the former Engineering Sciences and Applications (ESA) Division. He was nominated for the award by Pauline Powell Schneider, executive director of the Los Alamos Retired and Senior Organization of Los Alamos County.

According to Powell Schneider, Todd has been instrumental in running the White Rock Senior Center. Todd serves on the center's steering committee and for three years was chairman of the organization's board of directors. Todd, "is at the center almost daily to ensure that rooms are set up for various activities, that coffee is made, and that events run smoothly," said Powell Schneider. "He is a true pillar of that center."

Todd makes sure that chores are completed at the center, oftentimes doing those chores himself, and looks for ways to improve the center and its services.

"He warmly welcomes everyone who comes to the White Rock Senior Center ... Bill has a way of finding out when seniors need special help, and whenever he can be, he is that help," Powell Schneider wrote.

Todd also volunteers for the Laboratory Retiree Group and the Wildlife Center.

"To know Bill Todd is to know a truly outstanding citizen, community member and friend," said Powell Schneider.



'To know Bill Todd is to know a truly outstanding citizen, community member, and friend.'



Q: The Laboratory presents many excellent speakers and colloquia each month. Do you take advantage of this perk and attend talks? If so, what was the last talk you attended during the past six months? If you don't attend talks, why?



Daniel Oliver of the Weapons Program (PADWP)

I am a contractor, so I don't usually attend colloquia. I did attend one that was applicable to my work at the Lab, and there are many I would like to go to.

They just aren't applicable.



Sunil Donald, Risk Analysis and Decision Support Systems (D-6)

I haven't attended any talks in the last six months, partially because I work at Technical Area 52, and because many talks are behind the fence. I can't attend those talks because of my clearance.



Lisa Lindberg, Reliable Replacement Warhead Systems Engineering (W-5)

Yes, I have been in the last six months. It was one of Joe Martz's RRW presentations, open to Q-cleared personnel.

I think it is a great perk, and the Lab should continue to have them.



Melanie Zamora, Service Center (HR-SVCTR)

I always take in the "all-hands meetings" because I think they are very important. But I haven't gone to any other talks. There are some that I would find interesting. I just don't have the time.

In Memoriam

Keith Despain

Keith Despain died December 16, 2006, at the age of 59.

Despain began working at the Laboratory in 1982 in Thermonuclear Applications (X-2). He worked in the Applied Physics (X-DO) Division throughout his career and was in Navy-2 (X-2-N2) at the time of his death.

Despain recently was named Laboratory Fellow and was a visiting staff member for Haverford College for three years. He earned his bachelor's degree in physics and math in 1971 from Brigham Young University and his doctoral degree in physics in 1976 from the California Institute of Technology.

Despain is survived by his wife, Ann; his children, Clareann, Kate, Spencer, Pratt McHale, and Abram; brothers Robert and James; and sister Julie Nelson.

Lab Fellow elected to National Academy of Engineering

Laboratory Fellow **Ricardo Schwarz** of Structure and Property Relations (MST-8), is a new member of the National Academy of Engineering.

"Ricardo is an outstanding scholar and a renaissance man. He enjoys a well-deserved national and international reputation as a leading figure in materials science. His innovative research and remarkable contribution to the science of alloys have significantly affected our understanding of complex structures in technologically important materials," said Anna Zurek, acting deputy principal associate director of science, technology, and engineering.

The National Academy of Engineering is a part of the National Academies, which also includes the National Research Council, the National Academy of Sciences, and the Institute of Medicine. The National Academies are private non-profit organizations that provide science, technology, and health policy advice to the government. However, because they are non-profit, group members are able to give unbiased opinions



Ricardo Schwarz

without the need to respond to external pressures, explained Schwarz.

Individuals do not apply for membership in the NAE. Instead, existing members of the NAE search for outstanding engineers who have made contributions to engineering research, practice, or education or who have pioneered new fields of engineering, made major advancements in traditional fields of engineering, or developed innovative approaches to engineering education. A nomination is made by a member of NAE and is supported by at least three other members.



This month in history ...

January

1431 — Trial of Joan of Arc begins in Rouen, the seat of the English occupation government.

1785 — Frenchman Jean-Pierre Blanchard and American John Jeffries travel from Dover, England, to Calais, France, in a gas balloon, becoming the first to cross the English Channel by air.

1847 — Yerba Buena, California, is renamed San Francisco.

1892 — Ellis Island opens to begin accepting immigrants to the United States.

1896 — The X-ray machine is exhibited in New York City for the first time.

1901 — The first great Texas gusher — oil is discovered at Spindletop in Beaumont, Texas.

1924 — The first Winter Olympics is held at Chamonix in the French Alps.

1927 — First international telephone call is made from New York City to London.

1936 — Porky Pig makes his world debut in a Warner Brothers cartoon, "Gold Diggers of '49."

1940 — FM radio is demonstrated to the FCC for the first time.

1948 — Trucks deliver 100 two-bedroom homes to Los Alamos to be set up for civilian workers and their families.

1952 — The Los Alamos Medical Center is dedicated.

1953 — President Harry Truman announces that the United States has developed a hydrogen bomb.

1954 — The first nuclear-powered submarine, the USS Nautilus, is launched in Groton, Connecticut.

1959 — Luna 1 became the first spacecraft to reach the vicinity of the Moon.

1966 — A B-52 bomber collides with a KC-135 jet tanker over Spain's Mediterranean coast, dropping three 70-kiloton hydrogen bombs near the town of Palomares and one in the sea.

1976 — The first commercial service Concorde flight takes off. The supersonic passenger airliner ended service in 2003.

1981 — Minutes after Ronald Reagan's inauguration as the 40th president of the United States, the 52 U.S. captives held at the U.S. embassy in Tehran, Iran, are released, ending the 444-day Iran Hostage Crisis.

1984 — The Apple Macintosh, the first consumer computer to use a computer mouse and GUI interface, goes on sale.

1990 — The Leaning Tower of Pisa is closed to the public due to safety concerns.

1995 — Ten Russian nuclear materials experts are the first from their country to visit the plutonium facility at TA-55.

1998 — The Lunar Prospector spacecraft is launched into orbit around the moon and later found evidence for frozen water on the moon's surface.

2003 — The United States Department of Homeland Security officially begins operation.

2004 — Spirit, a NASA Mars Rover, lands successfully on Mars.

2005 — The Huygens probe lands on the surface of Saturn's moon Titan.

And this from the January 1964 ATOM: Next year, possibly sometime in June, the State Highway department will begin the \$635,000 job of straightening and flattening the nine roller-coaster miles of State Highway 30 between Española and Los Alamos road.

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_timeline_1.htm.



January service anniversaries

35 years

Juanita Armijo, MPA-10
Elizabeth Byrd, CFO-2
Michael Garcia, IAT-2
Darryl Holm, CCS-2
J.F. Rodriguez Jr., RP-2

30 years

Joseph Banar, AET-3
John Booth, IST-IS12
David Broxton, EES-9
E. Corine Cornely, DIR
Sandra Hull, CTN-1
Marie Kaye, PF-DO
David Melton, HX-3
John Ortiz, AET-1
Josephine Rael, CFO-SYS
Paul Roybal, P-22
Alexine Salazar, PADWP
Tom Sedillo, P-24
Jack Simpson, PMT-2
Judy Velarde, CFO-GA
Victor Vigil, AOT-MDE

25 years

Daniel Comstock, IRM-RMMSO
Daniel Everett, ISR-1
Yolanda Galvez, FME-WFO
Cynthia Hills, IAT-1
Douglas Hof, DE-1
Lori Padilla, EFO-OS
Irina Velarde, CT-DTS
Anton Vidlak II, W-DO
Cornett Wood, CTN-5

20 years

Richard Fortson, CCS-3
Joel Katz, MST-6
Sharad Kelkar, EES-6
Robert Kraus Jr., P-21
Francis Lamb, IST-IS11
Lorraine Lucero, ASM-SUB
Kelly Parker, IRM-CAS
Philbert Romero, IHS-OS
Boris Rosev, CM-CE
Patrick Ruminer, MPA-NHMFL

15 years

Christina Archuleta, ADSS
Michael Caffrey, ISR-3
John Davey, MPA-11
Denise Derkacs, PADWP
Patricia Fierro, CGA-CO
Christopher Fontes, X-1-NAD
Marion Hutton, HR-SVSCTR
Bryan Lally, CCS-2
Catherine Macken, T-10
Gerard Montoya, PF-TDI
Roman Movshovich, MPA-10
David Powell, FME-DES
Mohini Rawool-Sullivan, IAT-1
Pratap Sadasivan, D-5
Bradley Schake, PMT-4
Joan Williams, HX-6
Blake Wood, X-2-AFS

10 years

Peter Dickson, DE-6
Lawrence Drake, SAFE-S7
Andrew Espinoza, WT-4
Anna Flores, WCM-1
Christopher Fryer, CCS-4
George Kaschner, MST-8
Carla Kuiken, T-10
Thomas Locke, OM-MS
James Lounsbury, ER-RS
Patrick Martinez, C-AAC
Stepan Mashnik, X-3-MCC
John Quintana, W-6
Robert Roback, EES-6
Brandon Roller, AOT-MDE
Peter Stark, C-ADI
Denise Thronas, PMT-5
Raymond Trujillo, ASM-MM
Robert Valdiviez, WT-7
Barry Warthen, P-22
Jonathan Workman, P-24

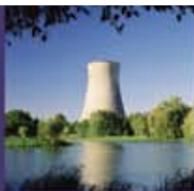
5 years

Epifanio Abeyta, HX-6
Faris Badwan, D-5
Matthew Balkey, ISR-1

Juan Barraza, HX-6
Kathryn Berchtold, MST-7
Catherine Borrego, MC-PC
Debbie Braden, SEC-PSS6
John Breiner, IHS-IP
Carla Breiner, PADWP
Amanda Broach, MST-16
William Cantrell, AET-1
Anita Carrasco, WT-3
Jimmy Chavez, MSS-CMRFO
Gary Chesnut, DE-9
Leonardo Civale, MPA-STC
Lisa Day, ISR-3
Emmanuel Dominguez, N-2
Nathan Dozhier, MST-6
Mary Elliott, PP-WEP
James Gross, HPC-1
Martin Herrera, WT-3
Richard Hoagland, MST-8
Kenneth Huff, HX-3
Rebecca James, CFO-3
Jutta Kayser, EA-DO
Eron Kerstiens, AOT-OPS
Susan Kurien, T-07
James Kuropatwinski, SB-AS
Reina Ledoux, MQ-2
Jung-Kun Lee, MPA-CINT
Valorie Livesay, SEC-PPS1
David Lohmeier, W-7
Valerie Lovato, IRM-DC
Abelino Lovato, ASM-PM
Marlayne Mahar, W-9
Deeann Martinez, MQ-2
Mary Metcalf, SEC-SA5
Miles Olinger, IAT-3
Donatella Pasqualini, EES-9
Mario Perez, ISR-1
Mark Potocki, X-2-PC
Joseph Szalczinger Jr., PF-MS
Justin Tozer, IST-APPS3
Scott Traeger, PADWP
Michelle Valdez, IRM-DO
Kenneth Valdez, N-2
Glenn VanDerpoel, MSS-CMRFO



LOS ALAMOS SCIENCE AND TECHNOLOGY MAGAZINE



JANUARY 2007



1663

Foiling the Flu Bug

Global Partnerships for Nuclear Energy

Dark Universe Mysteries

The Stockpile Transformed

'Our unique role is to think ahead, not five or ten years, but twenty and fifty years, and to build a scientific base that can respond to immediate crises as well as prepare for the needs of a rapidly changing world.'

—Michael Anastasio, Laboratory Director

Lab launches new science magazine

by Todd Hanson

A new science magazine recently arrived at desks from Washington, D.C., to Oakland, California, carrying with it the message that science at Los Alamos National Laboratory is better than ever. Dubbed *1663*, the new publication is named after the Laboratory's famous Post Office box address from the Manhattan Project era.

The inaugural issue of *1663* includes feature articles about a hand-held detector that could revolutionize health care, dark energy, and the effort to help track its influence in the universe, and the Reliable Replacement Warhead and how it is catalyzing a change in the nuclear enterprise. The issue also includes an interview with Vic Reis and former Laboratory Director Sig Hecker on aspects of the Global Nuclear Energy Partnership.

1663 is the brainchild of Terry Wallace, Los Alamos' principal associate director for science technology and engineering. Wallace said, "From the onset, *1663* was envisioned as a showcase for Laboratory science and engineering. It's a celebration of not only what we've accomplished, but where we are going in the future."

The magazine is the product of Nikki Cooper and Jay Schecker, two technical staff members who formerly were the driving editorial force behind *Los Alamos Science*, along with the collaborative efforts of Information Resource Management (IRM) Division writers, designers, photographers, and editors. Schecker, working as editor and principal writer, and Cooper, as the science editor, collaborated with Patrick McFarlin, a graphic designer from Santa Fe, who developed the magazine's design.

"We think Patrick created a very elegant look. On our end, we tried to make the magazine easy to read and easy to browse, but the science content was always a priority," said Cooper. "We worked closely with the principal investigators and spent a lot of time getting the stories right."

According to Schecker, "This is a new magazine for a new Laboratory. In the coming months, *1663* will present all sides of Laboratory science and technology, from basic research to more mission-oriented research."

The first run of *1663* included 8,000 copies, with 2,500 distributed externally to members of Congress, DOE, NNSA, local community leaders, university libraries, researchers in other institutions, local and national news media, and Laboratory consultants. A limited number of copies will be available to the general public through the Bradbury Science Museum.

The magazine is available to employees at <http://www.lanl.gov/science/1663/> online.

