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the laboratory connection

your community's link
to information, opportunities, and people
at Los Alamos National Laboratory

February 2004

word from the Associate Director for Threat Reduction

The word “security,” to those of us at the Laboratory, means many things. Security, for us, ranges from the on-site, daily efforts that protect our people, facilities, and nuclear materials, to new technologies for homeland security, and up to the national security role we’ve held proudly since 1943. That’s a lot of ground to cover. But it’s a large part of what makes our people come to work every day. They know that what they do is important on so many levels.



Don Cobb

The Threat Reduction Directorate for which I’m responsible supports a key part of the overall Laboratory mission, “reducing the global threat of weapons of mass destruction.” Thus, the Laboratory is deeply involved in each of these types of security, and it is home to specialists in each area who are world-renowned for their work. In addition, Threat Reduction programs can draw on the tremendous multidisciplinary skills of all the Laboratory groups to accomplish our mission.

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SECURITY TODAY

Global Threats Demand More Lab Defenses

An interesting question: In which of the following times was the United States and its people here at home in greatest danger: World War I? World War II? The Cuban Missile Crisis? Today, post 9/11?

No way could the bad guys get across the big pond called the Atlantic Ocean in force circa 1914-18. The same is true during 1941-45 with an even bigger ocean on our other side. When the Russians parked nuclear-tipped missiles at our front door and the world held its breath, Mr. Khrushchev proved a more reasonable man than the image of one who banged his shoe on a table at United Nations headquarters.

Today, we have no shoe-bangers at the UN, great oceans can be crossed in a few hours, and an open society such as our own is most vulnerable to those who would do it harm. Most ominously, there seems to be no scarcity of senseless people who are happy to give up their lives in order to kill us without warning, adherence to any aspect of civilized behavior, or any semblance of humanity.

They are called terrorists. They qualify as the embodiment of evil and the lowest form of the human species. Some say the only way to deal with a terrorist is to kill him or her first. That’s harsh and unworthy of us. What we must do, and are attempting to do, is to make it as impossible as we can for the terrorist to have the opportunity to kill us. The effort is called Homeland Security, and we at Los Alamos are in the forefront of its technical application, as described elsewhere in this edition.

So, you may have noticed some changes hereabouts of late. LANL is no “campus” anymore, if ever it was. Barriers are up, roads are closed, protecting classified material is on a par with receiving a paycheck, and there are a lot more folks in the vicinity wearing camouflaged clothes. There may even be an underlying realization that the terrorist who penetrates Los Alamos gets immediate enshrinement in the El Qaeda hall of fame, posthumously as it probably would be.

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Don Cobb
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As a result, nuclear emergency response teams are formed, trained, equipped, and deployed anywhere in the nation or the world. First responders, ports, and borders get the nuclear detection equipment they need, thanks to our research.

Satellite sensor specialists have created equipment that orbits the world, alert to the possibility of rogue nations' nuclear detonations. Export-control specialists work internationally to ensure that sensitive technologies don't leave this country to become part of terrorist devices.

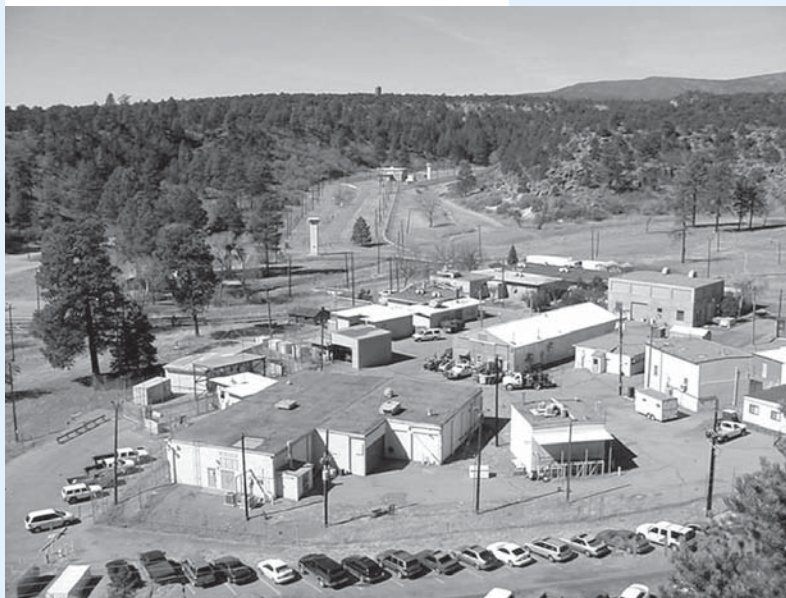
Our biologists decode the DNA fingerprints of biological pathogens, aiding further research for detection, treatment, and the forensics that will aid law enforcement. Cities across America have biological detection systems in place for early warning, none of which would exist without Los Alamos Threat Reduction expertise. And underpinning these products and capabilities is a remarkable level of scientific strength, producing almost daily science triumphs. Fundamental to all of this work is the idea of making our world, our nation, and our communities more secure on every level.

It's a big responsibility, knowing that an idea or a product we've developed could, on any day, save tens, hundreds, or thousands of lives. But it's a fine thing to know that we are home to these national treasures, the people who not only think about security, but who make it possible.



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The original purpose of this piece was to update our readers on the latest security procedures being implemented at the Lab and the effect they are having on the community. But, a full disclosure of what is happening defeats the purpose of such procedures by giving a terrorist a road map of how he must breach them. Therefore, it should be enough to realize that what is taking place needs to be done. Any



Overlooking the high ground at Technical Area 18 that is being secured and controlled.

inconveniences and misconceptions should be viewed in the context of what the alternative results might be and with the perspective of what has already occurred. More simply put: the bad guys have already attacked and are dedicated to attacking again. One of the better ways of assisting them would be to adopt the attitude: It'll never happen here!

What we can tell you in general terms covers upgrades and enhancements that under the circumstances should be expected because they make perfect sense. The list includes procedures already in place, those being implemented, and others being studied.

For example, although areas deep within Lab boundaries such as TA-55 are relatively and inherently more secure because of their location and importance, others on the outskirts of Lab property may be more potentially vulnerable. Therefore, a perimeter defense has been established in order to better protect the Lab as a whole. Since it was built, Pajarito Road has been an open thoroughfare.

Now it is closed and controlled, and will remain so for the foreseeable future. Current construction locates permanent guard stations along the route that will prohibit and control access. A Security Perimeter Project is under study that will

analyze and assess the configuration of all LANL roads.

Mission-critical facilities have been defined and designated in order to provide greater attention to the most sensitive areas. Design standards for blast mitigation and standoff distances are being established to protect these facilities. That means more stable construction materials will be employed, such as shatterproof glass for windows, and distances will be designated as to how close a large truck can come to a critical facility. Of course, access control to such sites has been strengthened to determine exactly who gets in and out.

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In order to provide a greater ability to interdict by having more eyes and ears in the area, there has been an increase in roving patrols throughout the Lab, and these people are being armed with newer and better equipment. New armored vehicles are being procured, weapons such as a new generation of machine guns are being issued, night vision equipment is also in the works, and there have been communication upgrades for the entire protective force. Tactical training enhancements have been added to operational training with the new equipment. This includes explosive

detection by K-9 patrols of vehicles passing through and materials shipped into our warehouses.

Other standard security and defensive measures are either in place or contemplated. Installing newer and more cameras and sensors have upgraded alarm systems. Clear zones have been established and improved lighting installed that will provide a greater field of vision for guards and electronic devices. A comprehensive study has been completed for airborne detection that could warn of the presence of incoming hostile aircraft. Securing and

controlling the high ground is critical to any defensive strategy. It is being done.

It's a whole new ballgame. It's also a deadly serious business that has reestablished our priorities and reemphasized why we are here. Any resulting inconveniences are a small price to pay in order to succeed in our mission. So, when driving through the area, if some guy in a camouflage outfit with a pistol on his hip and a rifle over his shoulder, stops your car, asks for ID and poses a question or two, please cut him some slack. He's doing his job. He's helping to defend our country. He's protecting you.

Nested Safety Committees Focus on Awareness and Solutions

The Laboratory has always had a vested interest in safety for both its employees and its neighbors, but recent terrorist activities combined with an increased awareness of personal safety and security have raised the Lab's safety focus to an all-time high.

Danny Branch, Acting Chief of Staff for the Communication and External Relations Division (CER) said, "Within the CER division, safe working conditions for our people are of the utmost concern. Safety first isn't just a slogan; it is a way of life. The nested safety committee is a means to identify safety issues and communicate safety concerns up and down the chain of command. But most of all, it is an important means to resolve safety problems," he said. "By getting folks involved in their own safety, we can quickly identify unsafe conditions and start work immediately to alleviate hazards."

Peggy Durbin, the nested safety committee chairperson for Rich Marquez, the Associate Director for Administration said, "Because safety is so important, Rich asked me to take things one step further by focusing the Director's Safety Initiatives within the ADA directorate."

Team members attend monthly meetings at which they not only identify safety prob-

lems, but also whether the problems can be addressed at the lowest level.

"With just the three meetings that the Nested Safety Committee has had, team members have done a tremendous amount of networking, sharing safety tips, and providing solutions among themselves and for each other," explained Durbin.

Another advantage of the safety focus is the coordination of Integrated Safety Management principles.

"Integrated Safety Management fits in with life," Durbin said. "We all use these principles even if we are unaware that we are using them. For example, when we plan a trip to Santa Fe or Albuquerque, we decide what we're going to do. We plan the drive by making sure we have enough gasoline to get to our destination and back, we analyze the hazards (weather, construction, etc.), we develop controls (wear our seatbelts, slow down at the construction sites, drive with our lights on, etc.) and finally, we evaluate how the trip went—did anything go wrong? What can we do to make the next trip better?"

The ADA-level Nested Safety Committee has produced several notable accomplish-

ments already and is geared to help drive continuous improvement. It can be a vehicle to ensure that communication and problem solving are shared among employees and managers alike.

"We developed a list of contacts and resources that will be published soon so that everyone can benefit and get help with any safety issues in the easiest way possible," Durbin said. "We also raised awareness of the scope and our team role in the Lab's safety initiatives. We are also now more aware of the kinds of work done in the other offices within our directorate."

Durbin said that when team members can see how they fit into the bigger picture, they are usually better able to respond to emergencies and to assist others.

The next step for the Nested Safety Committee is to help ensure that employees have the training they need to do their jobs.

"We want everyone to understand that we are not only working to protect our employees, but also their friends, relatives and neighbors," she said. "We're all in this together."

Lab's Homeland Security Chief Sees Advances in Technology

Long before the horrifying events of September 11, 2001, Lab researchers were applying cutting-edge science and technology to potential challenges to our national security. One year after the attacks in New York, Washington D.C., and Pennsylvania, the Lab created the Center for Homeland Security (CHS) to engage the Laboratory's broad capabilities in the areas of counterterrorism and homeland security, and to provide a single point of contact here for all programs linked to the federal Department of Homeland Security (DHS).

J. Wiley Davidson, a longtime Lab technical leader in Systems Engineering and Integration, was named CHS director six months ago. He reports to the Lab Director and works closely with other senior managers to develop and implement plans that broadly engage the

Laboratory's science and technology base in support of homeland security. Under his leadership, the Lab's considerable technical expertise and resources have been brought to bear on a variety of real and potential security threats.

Davidson is quick to point out that the work of the CHS is hardly new.

"Los Alamos has been engaged in homeland security and counterterrorism work for years, and we have been developing and applying nuclear detection technologies for decades," he said. "Although many of these missions were already being addressed, some have grown or have been refocused."

"We have a good portfolio of programs, but the technology has to advance," he said. "Now that it's clear that the threat is

real and that the effects can be very complex, we need the next generation of technologies."

The Lab's Homeland Security Program is organized around three focus areas: Radiological and Nuclear Threat Reduction, Chemical and Biological Threat Reduction and Borders, and Information and Infrastructure Protection. Technologies developed at the Lab have already proved instrumental in threat reduction at large public events, as well as at points of entry into this country.

Current Los Alamos projects with a key role in homeland security include Biowatch, derived from BASIS (the Biological Aerosol Sentry and Information System). The technology will provide early detection and warning of biological incidents for special events such as large assemblies, dignitary visits, high-visibility meetings, and major sporting events. Planned for use in civilian settings, it will detect a biological incident within a few hours of attack, early enough to allow the public health system to mount an effective medical response. The BASIS system was tested and installed at the 2002 Salt Lake City Winter Olympics.

Another Lab contribution to Homeland Security is a novel nuclear detector, the Palm CZT Spectrometer. Running on a lightweight handheld computer and using wireless technology to transmit data, first responders or border officials can identify most radioactive sources on the spot and can send information to experts who can provide further analysis, as needed. Using the detector, operators can identify whether radiation exists, how close it is, what and where its source is, what radioactive materials may be involved and in what quantity — all based on the data collected by the detector and analyzed by an enclosed microcomputer. The radiation



The Lab's Center for Homeland Security Director, J. Wiley Davidson, predicts that LANL scientists will continue to contribute to the next generation of Homeland Security technologies.

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monitors are currently in use at U.S./ Mexico border crossings. Other test beds for nuclear detection have been installed at the New York/New Jersey Port Authority.

A critical role for Homeland Security science is in emergency management response, whether the emergency results from a terrorist attack or a natural disaster. For example, Lab scientists and emergency first-responders from the U.S. Environmental Protection Agency have developed airborne infrared sensor technology that can aid emergency crews by detecting and mapping hazardous and toxic chemical plumes unleashed by disaster or terrorist acts.

The Airborne Spectral Photometric Collection Technology, known as ASPECT, is a high-tech sensor package on board a small aircraft operated by the EPA that allows for timely surveillance of gaseous chemical releases from a safe distance. ASPECT gives emergency first responders on the ground critical information regarding the size, shape, composition, and concentration of gas plumes emanat-

ing from disaster scenarios such as a derailed train, a factory explosion, or a terrorist attack.

In partnership with Sandia, the Lab has established the National Infrastructure Simulation and Analysis Center (NISAC) to provide improved technical planning, simulation, and decision support for the analysis of critical infrastructures. "NISAC supports the Information Analysis and Infrastructure Protection Directorate of the DHS," Davidson said. "It builds on our research of the interdependent consequences of attacks on our infrastructure."

Davidson said the past year has been challenging for the Lab's Homeland Security effort because of the complexities involved in working with a brand new federal agency still in the process of getting organized.

"Anything that complex will take a few years to get up and running smoothly," he said. "They began with very little staff or internal support and it was a bit frustrating for us, because we were poised to get our programs launched."

This year, the Lab's Center for Homeland Security has a total budget of \$87.3 million, allocated to the more than 16 divisions that contribute to its programs.

Davidson said his staff and all of the Lab divisions who contribute to CHS projects are excited about the future prospects for their emerging technologies.

"We are now using our bio collectors to monitor agricultural threats like foot-and-mouth disease, which might be engineered to be threats," he said.

Davidson said that Lab NISAC tools were also used to analyze the impacts on electric power and other systems in several recent emergencies, including last August's blackout in the northeast and Hurricane Isabel, which lashed the southeast last September.

"This kind of analysis is right down our alley," he said. "It's exciting to have new challenges in this important mission."



Document Classification Promotes Lab Security

Of the nearly 11,000 items reviewed, processed and catalogued through the Lab's classification office in 2003, only about 10 percent were classified, said Jay Brown, leader of the Classification Group. The items reviewed included brochures, journal articles, conference proceedings, and even presentations.

"We classify information based on the rules given to us by the National Nuclear Security Administration (NNSA) that are based on the same rules that cover all classified information within the U.S. Government. It's actually illegal to classify information in a manner inconsistent with those rules," he said.

Classified materials come in three levels and three categories. The levels are Confidential, Secret, and Top Secret and pertain to the potential damage that



could be done to national security should the information be released to the wrong parties, with Top Secret having the greatest potential for harm.

The categories, on the other hand, include Restricted Data (RD), Formerly Restricted Data (FRD), and National Security Information (NSI). The categories relate to the type of information the media contain. All FRD was once RD, but a decision was made back in 1954 to separate out military information regarding nuclear weapons (FRD) from that directly related to the design of nuclear weapons or the Special Nuclear Materials (SNM) they use.

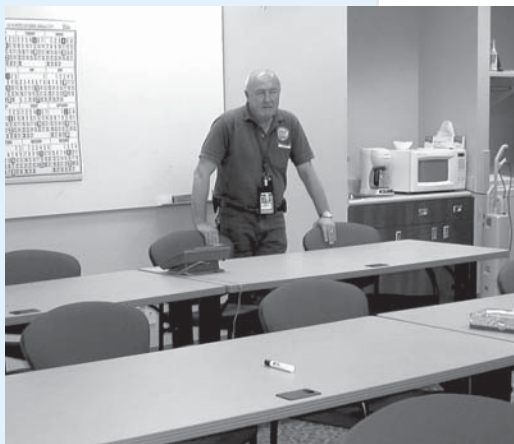
New Emergency Operations Center Allows Coordinated Response



A new Lab/County Emergency Operations Center (EOC) was opened last fall on Lab property near the intersection of State Road 501 and Anchor Ranch Road. The two-story, 38,000 square foot building will provide office space for all emergency agencies in the event of a disaster or other emergency event.

The photo at top left shows the parking lot and entrance to the new EOC. At top right, Team Leader for Response, Gene Darling, stands near the new Public Affairs media interface, used for video storage and editing equipment. In an emergency, Public Affairs staff will use this equipment to gather all the video footage and edit it for distribution to broadcast media. In the center photo, Darling points to the new Christie Wall, made up of 27 individual screens and used to display 27 different media feeds or electronic input. It can also be used as one huge screen.

At the bottom left, Darling stands at the table inside the dual-use training room. The tables fold up and the room can be used as temporary sleeping quarters. At bottom right, is the new electronic emergency sign board on NM 502.



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“Although RD and FRD come under the auspices of the Atomic Energy Act, NSI is classified by Executive Order and includes national-security information not involving nuclear weapons. Lab personnel handle all levels and categories of data although the Top Secret designation is relatively uncommon here,” said Brown.

In addition to classified information, there are a number of unclassified

from the moment they are created until such time that copies of the information need to be destroyed, regardless of their format. Around 650 people throughout the Lab can classify information and support the classification effort overseen by the Classification Office. Classifiers, predominately with technical degrees, must be trained and certified to perform their work and work only within their given field of expertise,” Brown said.

Although the rules that govern how information is classified and handled have not really changed since 9/11, there has arisen a need for more coordination across agencies because some that didn't have much classified information before (such as the U.S. Department of Agriculture that now must concern itself with a possible terrorist threat to the food supply) now find themselves with more than in the past.

markings used within NNSA, including UCNI (Unclassified Controlled Nuclear Information), NNPI (Navel Nuclear Propulsion Information), ECI (Export Control Information), AT (Applied Technology), RSI (Reactor Safeguards Information), C/FGI-MOD (Confidential Foreign Government-Modified Handling), and OOU (Official Use Only) that have restrictions on dissemination even though they are not classified.

“At any time, the Lab must control and protect between 8 and 9 million classified documents or their associated media,” said Brown, “and there are rules that govern how the documents or information are handled and stored

“Consistent classification efforts are also important for the new, national Department of Homeland Security,” Brown said, “which collects information from across the government on various issues, and it's important that it receives classified documents with similar designation if they contain similar types of information. Careful linking with other classification departments helps us make that happen.”

Between 1996 and 2002 the Department of Energy/NNSA embarked on an unprecedented historical review of documents more than 25 years old to determine if they could be declassified.

“Of the more than 40,000 pages we reviewed here at Los Alamos, the vast majority of the documents reviewed were cleared for release. At the beginning of the country's weapon's program everything was automatically classified—down to the memo requesting a coat rack for Oppenheimer's [the original head of the weapon's project at Los Alamos] office,” Brown said. Specific documents are also reviewed for release if there is a Freedom of Information Act (FOIA) request or if they're required for other business purposes.

What's impressed Brown the most over 14 years of reviewing documents for classification has been the synergy he's seen between the various organizations. “It's remarkable how, what would seem to be an arcane discovery in an area like Materials Science and Technology has a practical and almost immediate application in the Stockpile Stewardship program. First, I'll read a report of a discovery in one document only to shortly after find that it's being used in a practical application. That sort of thing happens a lot here,” said Brown. “Being able to watch it happen through our routine review of publications is one of the perks of the job.”

For more information on classification, see the Oak Ridge National Laboratory documents: *Security Classification of Information. Volume 1. Introduction, History, and Adverse Impacts* as well as *Security Classification of Information. Volume 2. Principles for Classification of Information*, (Both documents can also be accessed through <http://www.fas.org/sgp/library/quist/>.)



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Los Alamos
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Ideas That Change the World



Jemez Road Controls Anticipated

More than 100 Jemez Mountains residents and business owners attended a meeting in Los Alamos to hear Ralph Erickson, chief of the Department of Energy's (DOE) Los Alamos office, explain the need for additional security controls on Jemez Road. DOE plans to install access controls at both ends of the road, which runs past many of the Lab's critical facilities, to monitor the contents of trucks and other large vehicles. A traffic study will be conducted during the next six to 12 months to facilitate design of the project.

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