

**ORAL STATEMENT OF MARY ANNE YATES**

**SENIOR ADVISOR, THREAT REDUCTION**

**LOS ALAMOS NATIONAL LABORATORY**

Before the:

**NEW MEXICO LEGISLATURE**

**COMMITTEE ON INFORMATION TECHNOLOGY OVERSIGHT**

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Thank you Mr. Chairman and distinguished members of the Committee for inviting me here today to discuss Los Alamos National Laboratory's role in counter terrorism and homeland security. I am Mary Anne Yates, senior advisor for Threat Reduction activities at the Laboratory. At Los Alamos, I advise the Associate Director for Threat Reduction, Don Cobb, and coordinate many of the Laboratory's homeland security and counter terrorism efforts. I have a doctorate in nuclear chemistry and more than 20 years of work in the areas of energy security, nuclear deterrence, nonproliferation, arms control and threat reduction.

In my remarks today, I will provide a brief sampling of some of the many homeland security and counter terrorism efforts that Los Alamos has been engaged in both before and after Sept. 11, 2001, including technology applications and increases in security. I will be highlighting interactions in this important area with New Mexico's universities, businesses and state government. Lastly, I will discuss two specific Los Alamos technologies.

As many of you know, Los Alamos is operated by the University of California for the Department of Energy and the National Nuclear Security Administration. We are one of three NNSA laboratories, along with Lawrence Livermore National Laboratory and Sandia National Laboratories, responsible for maintaining the nation's nuclear stockpile. In addition to our stockpile responsibilities, these three laboratories have been involved for decades in technology development and problem solving in the realm of arms control and nonproliferation, biological impacts of radiation, and modeling and simulation. Through our work in these areas, Los Alamos has developed a skill and technology base that enabled us to respond immediately to calls for assistance following the attacks of last Fall.

The Homeland Security Strategies presented by President Bush for the nation and Secretary English for New Mexico focus on four areas: Information Analysis and Infrastructure Protection; Chemical, Biological, Radiological, and Nuclear Countermeasures; Border and Transportation Security; and Emergency Preparedness and Response. My statement today will describe some of the key contributions Los Alamos and the other national laboratories can make to homeland security in each of these areas and then I will touch on some of Los Alamos' security efforts.

In the area of information analysis and infrastructure protection, there are three projects I would like to highlight.

The National Infrastructure Simulation and Analysis Center, or NISAC, is a joint venture of Los Alamos with Sandia National Laboratories. The Center is intended to provide support for the analysis of critical infrastructures, their interdependencies, and their vulnerabilities to aid in policy analysis and emergency planning. NISAC will provide the comprehensive level of

information that will enable the nation's senior leadership to act proactively in denying terrorists attack options against potentially high-value targets.

For the Immigration and Naturalization Service, Los Alamos is providing advice and objective recommendations to the INS task force regarding the design and development of an integrated, automated entry/exit system. We are working with a Congressionally created Task Force to evaluate how the flow of traffic at United States ports of entry can be improved while enhancing security and implementing systems for data collection and data sharing.

Lastly, there is some internally funded basic research with colleagues at UNM in the area of pattern and shape recognition software that has many potential future applications in the area of homeland security.

In the area of chemical, biological, radiological, and nuclear countermeasures, Los Alamos has a long history in detecting, monitoring, and protecting such materials. The response to each of these threats necessarily takes very different approaches. Given the prevalence of chemical and biological materials, the primary focus is on early detection of attack, early warning to authorities and first responders, and rapid characterization of the agent to guide response and to identify perpetrators. Radiological and nuclear materials, on the other hand, are best dealt with through preventing terrorists from ever acquiring the necessary materials, protecting them at their source.

Several years ago, Los Alamos scientists developed a chemical sensor that can identify the contents of a chemical munition without opening it. Current work is proceeding to do this identification from a significant distance.

Due to our initial work done on the effects of radiation on humans and extending to leadership in the Human Genome Project, we had the skill and technology base to respond to the biothreat during last fall's anthrax attacks. Los Alamos researchers have supported federal agencies by providing DNA forensics expertise in support of identifying the source of the material and characteristics important for medical response. In addition, we have been developing a number of tools to defend against the biothreat including field detection and even earlier identification of pathogens and pathogen characterization for forensics, attribution and response.

The Biological Aerosol Sentry and Information System or (BASIS) is a joint Los Alamos-Livermore project, providing early warning of airborne biological weapons attacks. BASIS can detect a biological attack within a few hours, early enough to treat exposed victims and limit

casualties significantly. It was deployed at the 2002 Winter Olympics in close coordination with authorities from the state of Utah.

Advanced BASIS technology is currently being integrated into the Biological Defense Initiative, which is sponsored by the Defense Threat Reduction Agency of the Department of Defense and the NNSA, and is a joint Los Alamos, Livermore, and Sandia program. The tri-lab effort is establishing an urban test bed for biosurveillance in and around Albuquerque this fall, working closely with the City of Albuquerque and the New Mexico State Department of Health. We have been working with key city agencies, the Albuquerque Mayor's Office, and the New Mexico State Department of Health to determine how testbed resources might aid the city in identifying and responding to a bioagent attack. The goal of the testbed is to explore existing options for urban biodefense with the ultimate aim of creating a system that can integrate cleanly with existing city operations.

Los Alamos has also been working closely with the New Mexico State Department of Health and the University of New Mexico School of Medicine to develop the medical surveillance system B-SAFER (Bio-Surveillance, Analysis, Feedback, Evaluation, and Response). The system compiles and analyzes medical information from a variety of sources. This fall, B-SAFER will be obtaining clinical data from seven Albuquerque hospitals, as well as data from lab tests, pharmacies, the Office of the Medical Investigator, and Albuquerque Ambulance Services. The compiled data will be accessed and analyzed by an agent of the New Mexico State Department of Health.

Another technology that shows great promise is biological toxin detection. We have developed a prototype that I will show you later of a simple, compact sensor system for detection of biological toxins, viruses, and bacteria.

Related to this particular detector, known as the optical biosensor, Los Alamos is also working with UNM on systems that will help detect hantavirus and influenza. In particular, we are working with Dr. Brian Hjelle, the head of the UNM Hantavirus Reference Laboratory for the Western Hemisphere and with Dr. Steven Young of the UNM Medical School and of the Tri Core Reference Lab on the development of an influenza sensor. One of the team's longer-term goals is to develop this technology for influenza and hantavirus so that it can be used in small rural clinics in New Mexico and elsewhere.

Now, in the area of nuclear and radiological countermeasures, Los Alamos has a most distinguished and long history of developing technologies and methods for monitoring and protecting nuclear materials and has applied these to international nonproliferation for over 30 years. As described earlier, the radiological and nuclear threat must be dealt with in marked

contrast to how the chemical and biological threat is managed. For example, if you wait to detect the use of a radiological or nuclear device, in most cases, it's too late. Instead, what is critical in this area is making every effort possible to secure materials at their source and ensure that terrorists cannot access them.

In the area of border and transportation security, we are working with INS as I described earlier. In addition, we are working to support NNSA's efforts with U.S. Customs on issues including nuclear detection. Also, it's important to note that in our nonproliferation programs, we have a number of students from UNM working with our scientists to develop improved protection of nuclear materials.

In the area of emergency preparedness and response, Los Alamos has a very active program. In particular, Los Alamos plays an important role within the area of nuclear emergency response. More than 100 Los Alamos scientists and engineers are involved in various aspects of the Nuclear Emergency Support Team, which was created in 1975 in response to concerns over nuclear terrorism activity. NEST is focused on responding to a threatened act involving radiological or nuclear materials or devices. NEST includes the capabilities to search for, diagnose, and disable an improvised nuclear device.

Related to but distinct from NEST is Los Alamos' involvement with the Radiological Assistance Program (RAP). Through RAP, DOE and Los Alamos maintain response plans and resources to provide radiological assistance to other federal agencies; state local, and tribal governments; and private groups requesting such assistance in the event of a real or potential radiological emergency. Los Alamos RAP team members have provided much support over the years to state and local communities in New Mexico. For instance:

- Supporting training and exercises along the WIPP transportation corridors;
- Conducting a variety of actual responses (for example, Wagon Mound landfill alarms or concerns and the assessment of an old Army tritium compass at Pojoaque Pueblo).

Similar to our nuclear emergency response efforts, Los Alamos has also been very active in providing hazardous materials response capabilities to the state and region. For instance, the Department of Energy has memoranda of understanding with Los Alamos County and with the NM Department of Public Safety to provide hazmat response and assistance. Los Alamos has also participated with cities and organizations throughout the state on the development and conduct of emergency hazmat exercises and training. For example, Los Alamos personnel have developed and presented in several forums a training module on water system sabotage awareness.

Los Alamos has also served as host for the New Mexico State Hazmat Challenge since its inception in 1997. The challenge, whose principal sponsor is the N.M. Department of Public Safety, had participating teams in 2002 from Farmington, Hobbs, Santa Fe, Gallup, Española, Intel, Sandia, LANL, NASA White Sands, NM State Police Explosive Ordnance Disposal and NM National Guard 64<sup>th</sup> Civil Support Team.

Los Alamos also is represented on a number of emergency response and security-related groups: N.M. Surety Task Force; N.M. Anti-Terrorism Working Group; N.M. Weapons of Mass Destruction Working Group; and the N.M. Emergency Managers Association, through which Los Alamos has provided assistance to a number of pueblos and communities in developing emergency and all-hazards plans.

Linked to our homeland security research efforts is the actual physical security of the Laboratory. Our Security and Safeguards Division and our Protection Technology Los Alamos (PTLA) guard force have done a tremendous job ensuring the continued security of the Laboratory since the attacks of 9/11. We're also proud of our security team for their regular cooperation with outside organizations:

- PTLA has MOUs for fresh pursuit and cooperation with local law enforcement agencies.
- The National Park Service, Los Alamos Police Department and the N.M. State Mounted Patrol all have MOUs with PTLA to use the PTLA firing range.
- PTLA has started discussions with the N.M. State Police Tactical Team regarding the possibility of joint tactical exercises and training between the two teams.

#### CONCLUSION

In conclusion, I want to emphasize that as you've heard today Los Alamos is a national laboratory, but one with many important links to the state of New Mexico. We have a broad set of capabilities in the area of homeland security and a long history of serving the nation in this area. As President Bush stated in his June 6, 2002, address to the nation, "In the war against terrorism, America's vast science and technology base provides us with a key advantage." Our capabilities will continue to be at the service of the nation and the state. Thank you again for the opportunity to testify and I would be more than happy to respond to any questions.