



NEWS

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Biodetection System Developed by National Laboratory Researchers Finds Use at Salt Lake City Olympic Games

Long before last Fall's anthrax attacks, scientists at two national laboratories were developing a system to rapidly detect the criminal use of biological agents at the direction of the Energy Department's National Nuclear Security Administration (NNSA).

The results of the work, by researchers at Los Alamos and Livermore national laboratories, will form part of the security network at the 2002 Winter Olympics in Salt Lake City.

"The events of Sept. 11 have demonstrated the importance of taking the bio-threat seriously," said NNSA Administrator John Gordon. "While our people have been concerned for years, and we have worked to be prepared, these events have heightened our resolve."

Since 1999, researchers at Los Alamos and Livermore have worked to develop a system capable of detecting airborne biological incidents for special events, such as political conventions, dignitary visits and major sporting events.

While no specific threats have been received for the Salt Lake City Olympic Games, according to law enforcement officials, BASIS has been deployed for use as part of the overall security for the event.

The system is called the Biological Aerosol Sentry and Information System, or BASIS.

BASIS consists of a network of sampling units, similar to those used by the Environmental Protection Agency to monitor air quality, to collect and check aerosols. Filters capture aerosols and are then collected for analysis several times a day.

At the heart of BASIS is a transportable field laboratory where collected samples are analyzed using the most reliable and sensitive identification techniques available. The samples are analyzed using DNA-based techniques that have been validated with the Centers for Disease Control and Prevention.

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Public health procedures have traditionally relied on observation and surveillance of symptoms displayed by infected individuals for detecting and tracking outbreaks of disease such as those that might result from a biological attack.

BASIS reduces the time for detecting a bioagent release from days or weeks to less than a day, allowing public health officials to have much more rapid warning, said Livermore project manager Dennis Imbro. "The early notice could mean the difference between life and death for people in any contaminated area," he said.

Wiley Davidson, Imbro's fellow project leader at Los Alamos, emphasized that the BASIS project is a partnership that includes public health and law enforcement agencies.

"A strength of this program is that we work with the people on the ground," Davidson said. "This allows feedback from responders to flow back into the program and guide future research."

BASIS has undergone extensive, real-world testing in urban environments.

During preparations for the Olympic Games, NNSA officials and researchers at Los Alamos and Lawrence Livermore National Lab worked closely with Utah Department of Health officials. "It's been a very good relationship," Imbro said.

In developing BASIS, Los Alamos scientists developed the system's aerosol collection units, the system's command and control software and sample handling procedures for outside the field laboratory.

For their part, Livermore scientists were responsible for the BASIS biodetection equipment and DNA analysis procedures, as well as the system's communications capability.

About 30 Livermore biomedical researchers, computer scientists and engineers have worked on the BASIS project during the past three years. At Los Alamos, about 10 staffers have been involved in the project. This work builds upon many years of research and development in the biological sciences at Los Alamos and Livermore, including the well-known work on the Human Genome Project.

Los Alamos and Lawrence Livermore National Laboratories are operated by the University of California for the U.S. Department of Energy's National Nuclear Security Administration.