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Access Control Point Monitoring Technologies for the Biological Defense Initiative

The Defense Threat Reduction Agency is executing the Biological Defense Initiative (BDI). The purpose of this program is to achieve early detection and characterization of a biological related incident in an urban area to reduce casualties, support consequence management efforts, and minimize disruption to infrastructures. The monitoring of access control points is one technology to be incorporated in a biological defense system.

Access control point monitoring (ACPM) in urban areas focuses on two objectives: (1) detection of bio-agents at chokepoints in the flow of people or goods at locations such as transportation hubs, and (2) detection of the release of biological agents in a critical facility such as a major government building, sports/convention venue or airport. The ACPM technologies to be examined in the BDI are environmental monitoring and nondestructive evaluation.

For a critical facility, environmental monitoring technologies include filter-based aerosol collectors supported by an analytical laboratory as well as autonomous detectors. These technologies lead to a high confidence identification of a biological agent, but require from 10 minutes to one hour up to six hours to make that identification.

In addition, environmental monitoring for access control points will be supplemented by near-real time (minutes) early warning sensors. The current technology for early warning sensors is derived from particle detection technology such as that employed by the Environmental Protection Agency. These sensors utilize laser scattering, coupled with detection of ultra-violet fluorescence to discriminate between biological and non-biological particulates. They are relatively low cost but have a higher probability of alarming for a non-biological agent material and do not provide definitive identification of the agent.

For the BDI testbed, access control point monitoring technologies are being studied at the Albuquerque International Sunport (airport) in Albuquerque, NM. A variety of higher confidence, but slower, environmental monitoring systems are being examined at the airport

as well as several commercially available early warning sensors. Each critical facility and chokepoint has its own unique physical characteristics, security requirements and rapid response options. However, a common requirement will be to minimize any disruption in the flow of people or goods through the facility. Understanding the broad range of technical and implementation issues for access control point monitoring is one objective for the BDI.

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