

EMERGENCY RESPONSE

Tools, technologies, and training for a fast, effective, and targeted first response

Context

In an actual terrorist attack, first responders—firefighters, police, the military, and bomb disablement squads, among others—will be the first line of defense. These public servants are constantly on the lookout for new tools and training opportunities to help them prevent and prepare for emergencies and react effectively in a crisis.



μChemLab™ systems provide a fast, portable means for first responders to detect chemical and biological agents.

Solution

Sandia National Laboratories has developed an array of methods and technologies to respond to attacks on our homeland. These advances are derived from our deep knowledge base—built up over many decades—of protecting our nation's nuclear weapons stockpile. From training, to tools that detect weapons of mass destruction, to blast mitigation and decontamination foams—these solutions provide first responders with new ways to approach the challenges posed by terrorists.

Preventing and Preparing for Attacks

Advance preparation is invaluable in both preventing and preparing for attacks. To this end, Sandia provides training, vulnerability assessments, information management, and technology support to local and national organizations. For example, we have helped train National Guard units involved in weapons of mass destruction (WMD) incidents as well as provided the Northern Command with



Using WMD–DAC, first responders can explore different responses to a terrorist attack.

vulnerability assessments, information management, and technology through the NORTHCOM Support Program.

Our Weapons of Mass Destruction–Decision Analysis Center (WMD–DAC) is an interactive advanced computer simulation and visualization tool that addresses the threat of an urban terrorist attack. To help refine this tool, we have led the Alameda County Public Health Department and San Francisco International Airport, among others, through exploratory training exercises that have helped demonstrate the challenges of crisis management and illuminate opportunities for improvement.

Sandia also hosts Operation America, a five-day workshop on advanced bomb-disablement technology for bomb squad personnel. To date, Operation America has trained approximately 1,200 law-enforcement and military personnel.

Detection

Sandia detection tools can enable first responders to quickly detect and identify radiological, chemical, and biological agents. Such knowledge accelerates and targets the response, putting resources right where they are needed.

- Sandia's μChemLab is a handheld device that can detect and identify chemical weapons and a variety of toxic industrial chemicals or bioagents within minutes. Sandia is working with several outside firms to commercialize this device.
- Sandia is currently exploring licensing opportunities for Hound™, a hand-portable sample collection and

preconcentration device that, when combined with chemical detectors, enables the detection of trace amounts of explosives, drugs, and other chemicals. The South Texas Specialized Crimes and Narcotics Task Force used the Hound system to identify methamphetamines after a routine traffic stop by law enforcement officers revealed that a vehicle was carrying hidden containers loaded with suspicious powders and liquids. The quick identification of this dangerous substance allowed the officers to classify the event as a Type 1 HazMat incident and call in the local fire department for assistance, potentially saving lives.

Response

Sandia has a suite of response tools to stop the devastating effects of a terrorist attack as quickly as possible.

- We've developed and licensed rapid, noncorrosive aqueous foam for rapid decontamination of chemical and biological agents. Formulations are currently available from two commercial vendors.
- Our aqueous containment foam is rapidly applied around an explosive device to significantly reduce the blast effects and capture WMD materials from terrorist explosive dispersal devices.
- Sandia has a suite of inexpensive, commercially available bomb disablement tools that allow first responders to safely and remotely disable improvised explosive devices (IEDs) without destroying forensic evidence.
- Sandia's Turbo FRMAC is a proprietary software program that provides radiological dose assessment experts with the essential information required



Bomb squad personnel learn to use Sandia's Percussion-actuated Nonelectric (PAN[®]) Disrupter at Operation America.

to make crucial recommendations during a radiological emergency.

Part of the Solution

Sandia maintains a core group of trained personnel who volunteer to rapidly deploy worldwide to supply technical assistance in the event of a WMD incident. Sandia provides team members and equipment to Radiological Assistance Team (RAP), Joint Technical Operations Team (JTOT), Accident Response Team (ARG), Disposition, and Consequence Management (CM).

Status

Sandia continues to work closely with first responders to better understand their needs and provide training and support for our available tools. Our research and development efforts will soon bring new tools and technologies to commercialization.

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