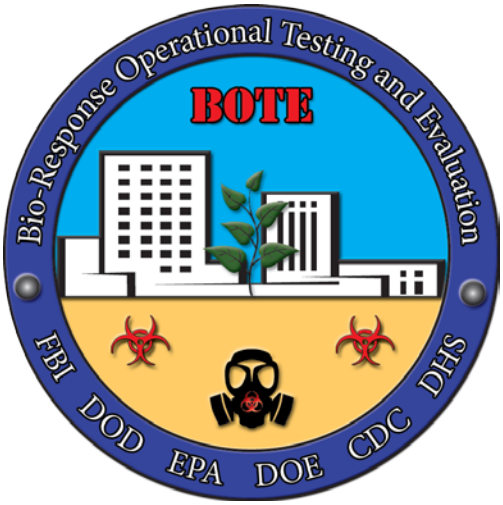
EPA
www.epa.gov/nhsrc
technical BRIEF

Bio-response Operational Testing and Evaluation (BOTE) Project

BACKGROUND:



The Bio-response Operational Testing and Evaluation (BOTE) Project is a multi-agency effort designed to operationally test and evaluate biological incident (anthrax release) response from health/law enforcement response through environmental remediation. The effort includes the coordinated project planning, support, and/or involvement from:

- Department of Homeland Security (DHS)
- Environmental Protection Agency (EPA)
- Centers for Disease Control and Prevention (CDC)
    - National Institute for Occupational Safety and Health (NIOSH)
    - Laboratory Response Network (LRN)
- Department of Energy (DOE) National Labs
- Department of Defense (DoD) Defense Threat Reduction Agency (DTRA)
- Federal Bureau of Investigation (FBI).

The effort was established through initial interactions between the DHS Science and Technology Directorate (S&T) and EPA's Homeland Security Research Program (HSRP) in partnership to further develop research products to support EPA's Homeland Security responsibilities.

The Agency's research has culminated in knowledge and products that have contributed to significant advances in the understanding of biological agent decontamination; the impacts of these products and expertise have been realized in field responses (such as the natural anthrax responses in Region 1), exercises, and EPA/Office of Emergency Management (OEM) guidance and policy documents. This research has helped improve EPA's preparedness and capability to respond to a biological incident, specifically related to improving the readiness for mitigating the effects of the release of a bio-agent over a wide area. It was recognized, however, that further advances in preparedness achieved through research and development required a scaled-up, systems oriented, approach to research conducted in an operational environment.

BOTE took place at the Idaho National Laboratory site near Idaho Falls, ID, using *Bacillus atrophaeus*, a harmless spore-forming bacterium, as a surrogate for *Bacillus anthracis*, the biological agent that causes anthrax. BOTE included extensive participation by EPA On-Scene Coordinators, EPA researchers, EPA's National Decontamination Team, and representatives from EPA Program Offices. The BOTE project was led by DHS, EPA and CDC, with DoD/DTRA serving as the interagency coordinating study directorate.

The BOTE project was divided into two phases: (1) a field-level decontamination assessment and (2) a multi-agency operational exercise. The objectives of Phase 1 were to:

- Evaluate three decontamination technologies/protocols (vaporized hydrogen peroxide [VHP], chlorine dioxide [ClO2], and amended bleach) at a field scale
- Demonstrate that biological sampling methods provide accurate characterization
- Analyze the results from the decontamination study and perform a cost analysis of the approaches
- Determine the exposures associated with reentry into a building that has been contaminated with surrogate *B. anthracis* spores and subsequently decontaminated.

The objectives of phase 2 were to:

- Evaluate the ability of the Laboratory Response Network (LRN) Program Office to share LRN test results with EPA via the Integrated Consortium of Laboratory Networks (ICLN) portal.
- Assess data management systems used in the field and evaluate the ability to share data among multiple systems.
- Implement Incident Command System (ICS) structure, processes, and communications between federal, state, and local partners for a *B .anthracis* event.
- Document costs associated with an interagency environmental response to a *B. anthracis* event..
- Exercise field sampling as well as evidence collection procedures from the involved agencies.
- Exercise communications and coordination between the field and the LRN laboratory.
- Exercise decontamination and waste management (WM) decision making process and implementation.

Phase 1 was completed during May 2011; Phase 2 was completed during September 2011. Although the field portions of the two phases have been completed, data analysis is ongoing. A comprehensive report is expected to be available later in 2012.

CONTACTS:

EPA Program Manager: Shawn P. Ryan (ryan.shawn@epa.gov) / Shannon Serre (serre.shannon@epa.gov)

DHS Program Manager: Chris Russell (christopher.e.russell@dhs.gov)

.