

# Bio-Response Operational Testing & Evaluation (BOTE) Project

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## Homeland Security

Science and Technology

## Report Documentation Page

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# Outline

- Program Overview
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- Technical Approach
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- Impact & Transition
- Summary





# Overview

- **Goal:** Execute biological incident response roles and responsibilities from public health and law enforcement response through environmental (remediation) response, in an operational setting
- **BOTE project is an interagency effort involving six federal agencies:**
  - Environmental Protection Agency (EPA)
  - Department of Homeland Security (DHS)
  - Department of Energy (DOE)
  - Department of Defense (DoD)
  - Federal Bureau of Investigation (FBI)
  - Centers for Disease Control and Prevention (CDC)
- **BOTE is jointly managed by the EPA and DHS, and divided into two distinct phases:**
  - Phase 1: Field-level decontamination assessment (Apr-May, 2011)
  - Phase 2: Interagency biological threat exercise (Sep 2011)



# Project Objectives

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## **Objective 1: Decontamination**

Conduct field-level studies to evaluate the performance of three select decontamination methods and associated protocols

## **Objective 2: Sampling**

Develop, execute, & evaluate a sampling plan designed to measure relative decontamination efficacies of three decontamination methods

## **Objective 3: Cost Analysis**

Conduct an cost analysis of three decontamination methods based on Log Kill results, measurable costs, and “downtime” of structure

## **Objective 4: Exposure Assessment**

Determine the potential exposures associated with re-entry into a building that has been contaminated with surrogate Ba spores and subsequently decontaminated



# BOTE Program

- **Phase I Objectives:**

- Conduct and evaluate field-level facility remediation studies of various decontamination, and disposal procedures
- Evaluate the effectiveness of waste/wash water collection, decontamination, and disposal procedures
- Determine the total cost of applying the selected decontamination technology or remediation method/strategy (i.e., including waste handling and treatment)
- Identify any damage to the building or materials/objects that are located inside the building arising from the use of the decontamination technologies

- **Phase II Objectives:**

- Implement the Incident Command System (ICS) structure, processes, and communications between Federal, State, and local partners
- Assess field data management systems and data sharing capabilities
- Exercise field sampling and evidence collection procedures
- Exercise decontamination and waste management processes
- Document all costs associated with an interagency environmental response to an anthrax event in one building

**DHS and EPA collaborative program**



# Idaho National Laboratory Facility



PBF-632 at Idaho National Laboratory





## Phase I:

# Decontamination and Cost/Benefit Analysis Study

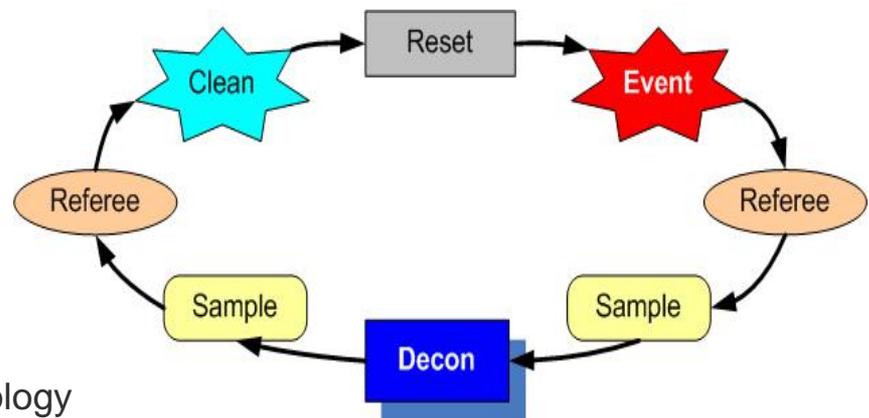
The BOTE decontamination tests involved three rounds (or test and evaluation iterations) where simulant levels, room configurations, and sampling procedures are virtually the same inside the test facility. The ground floor had high contamination and the top floor low contamination.

### A variety of decontamination technologies were employed:

- Off the shelf technologies (e.g., amended bleach)
- Less availability, requiring lead time and expertise (e.g., ClorDisys-CLO2)
- Requires significant lead time and expertise (e.g., VHP)

### Post-demonstration analysis included:

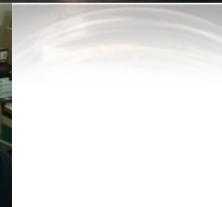
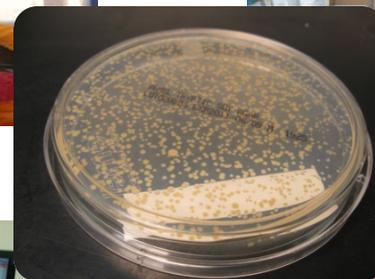
- Efficacy of decontamination methods
- Documentation of operational parameters
  - Time requirements
  - Labor hours
  - Waste generation
  - Adverse impacts on the facility
- Economic Analysis
  - Capture data from studies
  - Assessment of cost of application of technology
  - Estimator for future events
- Risk Analysis



# Phase II: Interagency Response

Bio-Incident Response – Covert release followed by an interagency response that includes evidence collection, analysis and facility remediation:

- Conducted September 2011
- Covert Release in Facility
- Coordinated Interagency Response
- Determination of decon methods
- Environmental Clearance Committee



# Impact & Transition

BOTE provides:

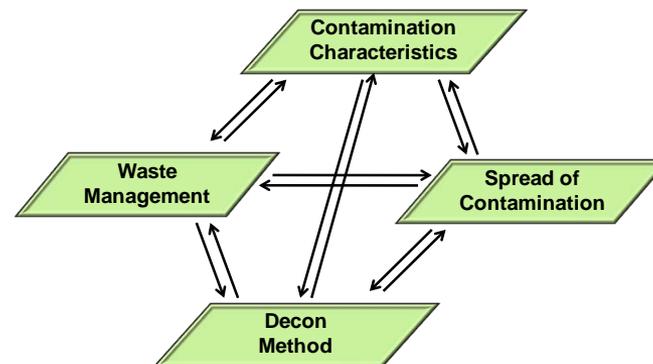
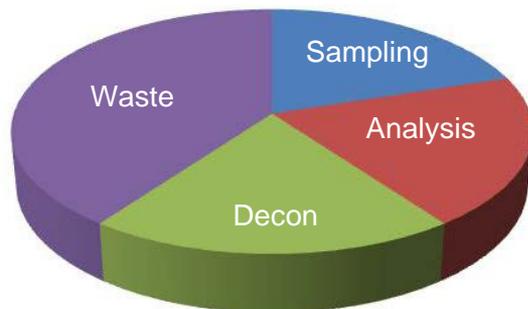
- Information on the efficacy of several decontamination methods
- Information on the time requirements, labor requirements, waste generated, and adverse impacts on the facility
- Information that can be used to estimate costs associated with a decontamination approach
- Data that can be used to help guide decision making for future events





# Summary

- **BOTE provides information on:**
  - Efficacy of several decontamination methods
  - Time requirements, labor requirements, waste generated, and adverse impacts on the facility
  - Data management systems and information sharing capabilities
  - Sampling, decontamination, and waste management processes
  - Cost estimates associated with a decontamination approach
  - Data that can be used to help guide decision making for future events





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