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United States
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Office of Research and Development
National Homeland Security
Research Center
Cincinnati, OH 45268

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United States
Environmental Protection
Agency

National Homeland Security Research Center

Protecting America Through Environmental Science and Research

Andrew W. Breidenbach Environmental Research Center
Cincinnati, Ohio

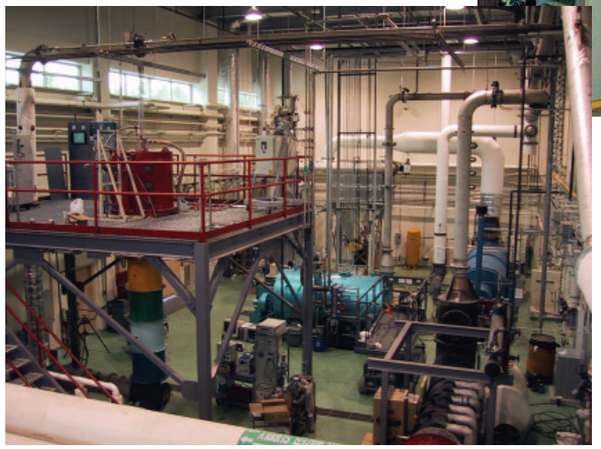
http://www.epa.gov/nhsrc/

The National Homeland Security Research Center (NHSRC) supports three major programs:

- **Safe Buildings Program** - protection of building occupants and cleanup of contaminated buildings
- **Water Security Research Program** - protection and decontamination of drinking water and wastewater systems
- **Rapid Risk Assessment Program** - development and application of risk assessment techniques

The Rapid Risk Assessment Program provides toxicological information and methods to assess health risk of priority contaminant scenarios

Closed loop piping is used to simulate drinking water distribution systems



The experimental incineration facility is used to study safe ways to dispose of contaminated materials with several types of incineration devices

National Homeland Security Research Center Mission

Objective

The goal of the NHSRC's research program is to rapidly provide appropriate, affordable, effective and validated technologies, methods and guidance to understand the risks posed by potential chemical and biological terror attacks on buildings and water infrastructure, and to enhance our ability to detect, contain and clean up in the event of such attacks.

Evaluation of plausible threat scenarios to building and water systems

Approach

- Applied research to rapidly deliver user-oriented products
- Priorities driven by highest consequence threat scenario analysis
- Maximum collaboration and leverage with Department of Homeland Security and dozens of key federal research organizations
- Support to the water industry, building owners and operators, and the emergency response community
- Source of scientific information on impacts of terrorist attacks

Field studies of contaminant fate in water distribution systems

Program Elements

Detection/Characterization
- Early warning, rapid screening, informed response

Prevention/Containment
- Protect responders, building occupants, water users
- Treat or isolate contaminants

Decontamination/Mitigation
- Efficiency, compatibility, cost, safety of methods

Disposal of Residues
- Packaging, transport, treatment, disposal

Risk Assessment
- Information systems, tools, models, toxicity data
- Risk communication

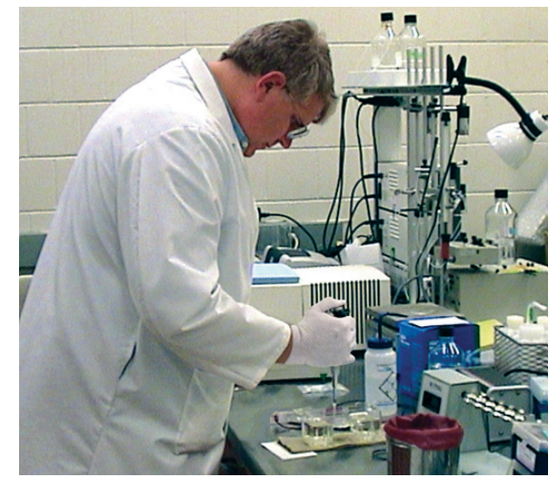
Technology Verification
- Detection, filtration, water treatment, decontamination, disposal

Technical Assistance/Technology Transfer
- Emergency technical assistance

Systematic studies of building decontamination methods

Key Synthesis Research Products

- Web-based catalogue of technical resources
- Compendium of sampling and analysis methods for chemical and biological agents
- Design and operational guidance for building protection
- Building and water system decontamination technical guidance
- Interactive database and expert system for rapid risk assessment
- Performance verification reports for commercially available detection, containment, and decontamination technology



Development of effective sampling and analysis methods for priority threat agents