



# ***National Homeland Security Research Center Technology Testing & Evaluation Program Overview***

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# ***Who/What is the National Homeland Security Research Center?***



**RESEARCH & DEVELOPMENT**

*Building a scientific foundation for sound environmental decisions*



# ***NHSRC's Mission***

The National Homeland Security Research Center (NHSRC) develops and delivers reliable, responsive expertise and products based on scientific research and *evaluations of technology*.

Our expertise and products are widely used to prevent, prepare for, and recover from public health and environmental emergencies arising from terrorist threats and incidents.



# National Homeland Security Research Center

## Research Areas



- Risk assessment (RA) methods
- Rapid RA tools
- RA data management
- Threat analyses
- Technical support



- Sampling & analysis methods
- Containment
- Decontamination technology
- Residue disposal
- Agricultural biomass
- Exposure modeling
- Structures & outdoor decontamination



- Sampling & analysis methods
- Decontamination methods
- Surveillance systems
- Exposure modeling
- Water and wastewater systems



RESEARCH & DEVELOPMENT

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# ***Who Are Our Customers?***

- EPA – WSD, OEM, Regions
- Federal and State agencies - USGS, CDC, DoD, DHS
- Water and wastewater industry – AWWA, AwwaRF, WERF, AMWA
- First responders
- Consequence managers
- Public health officials and practitioners
- Analytical laboratories
- Real property managers
- Vendors



# Who Are Our Collaborators?



- Other parts of EPA
- Federal and State agencies - USGS, FBI, USCG, CDC, DoD, DHS, FEMA
- Water and wastewater industry – AWWA, AwwaRF, WERF, AMWA, various water utilities
- Universities, consortia, and non-profit organizations
- DOE National Laboratories



# Why is an EPA T&E Program Necessary?



- At a minimum, to support EPA's homeland security mission and our customers
  - State-of-the-art or –practice is not sufficient for addressing new threats and threat agents
- Our customers rely heavily on technology for protecting human health and the environment
  - Tools for detecting, monitoring, treating, decontaminating, etc. in the event of an intentional or unintentional contamination event
  - Information to assess the nature and extent of an event
  - Information to warn of an attack or accidental release
  - Information to monitor the progress of a clean up





# ***Technology Users Need...***

- High-quality technology performance information
- Somebody they trust telling them that it's okay to try it
- Some assurance or proof that the technology works as advertised
- Their risk reduced when trying a new “unconventional” tool or approach
- Low(er) cost solution for heading-off or solving homeland security-related problems





# ***Technology Vendors Need...***



- Acceptance/recognition by users
- Timely information dissemination
- Return on investment/value-added



# ***Technology Testing & Evaluation Program***



## **PURPOSE:**

To test, evaluate, and report on the performance of homeland security-related technologies for use by water utility operators, building and facility managers, emergency responders, and the public to detect, contain, decontaminate, and manage hazardous chemical, biological, and radiological materials purposefully introduced into structures, drinking water, or the environment.





# ***Multi-Faceted Approach***

- Testing and evaluating the performance of technologies
- Continuously searching, cataloging, and assessing emerging and commercially-available technologies
- Supporting role in developing national technology policy in form of setting national standards – specifications, test methods, and guides
- Regularly communicating with our customers
- Collaborating with others
- Fostering, encouraging, and nurturing technology development



Technology Identification *Response Technology Ready Reference*

Stakeholder Group (input & review)

**Testing and Evaluation Technology Category A**

Test plan preparation and logistics (3 months)

Conduct test (2 months)

Report preparation (3 months)

**Testing and Evaluation Technology Category B**

Test plan preparation and logistics (3 months)

Conduct test (2 months)

Report preparation (3 months)

**Testing and Evaluation Technology Category C**

Test plan preparation and logistics (3 months)

Conduct test (2 months)

Report preparation (3 months)





# *Origin of TTEP*

- Modification of EPA's Environmental Technology Verification (ETV) Program
- Different from ETV
  - “User driven” rather than “vendor driven”
  - Focuses on the needs or requirements of stakeholders, rather than the capabilities of the vendor's technologies





# *Features of TTEP*

## ➤ Technology testing

- Involuntary testing of technologies
- De-emphasize vendor involvement in testing
- Testing to a range of desirable performance characteristics, requirements, or spec's
- Use existing test/QA plans when possible
- Testing with live agents

## ➤ Products

- User-oriented products for procurement/application decisions
- Brief summary report at conclusion of effort (10 to 20 pages)
- Side-by-side comparisons will be offered when possible.



# Features of TTEP *cont'd*



## ➤ Outreach

- A single, quarterly newsletter containing information on all T&E activities
- Minimal exhibiting at technical conferences and workshops
- Create a monthly listserv – analogous to ETVoice
- Technology comparison fact sheets or overviews to be prepared



# Features of TTEP *cont'd*



## ➤ Peer Review

- Test plans and letter reports will continue to be stakeholder and peer reviewed

## ➤ Stakeholders

- Two stakeholder groups – Building Decontamination and Water Security
- Technical panels established to support different technology categories.





# What Types Of Technologies Are Being Tested?



- Water Security-related
  - Detection and monitoring
  - Sampling
  - Drinking water treatment (planned)
  - Water system decontamination (planned)
  - Wastewater treatment (planned)
  - Software (i.e., event detection systems, network design)
- Safe Building-related
  - Decontamination
  - Detection and monitoring to support decon
  - Air cleaning/filtration



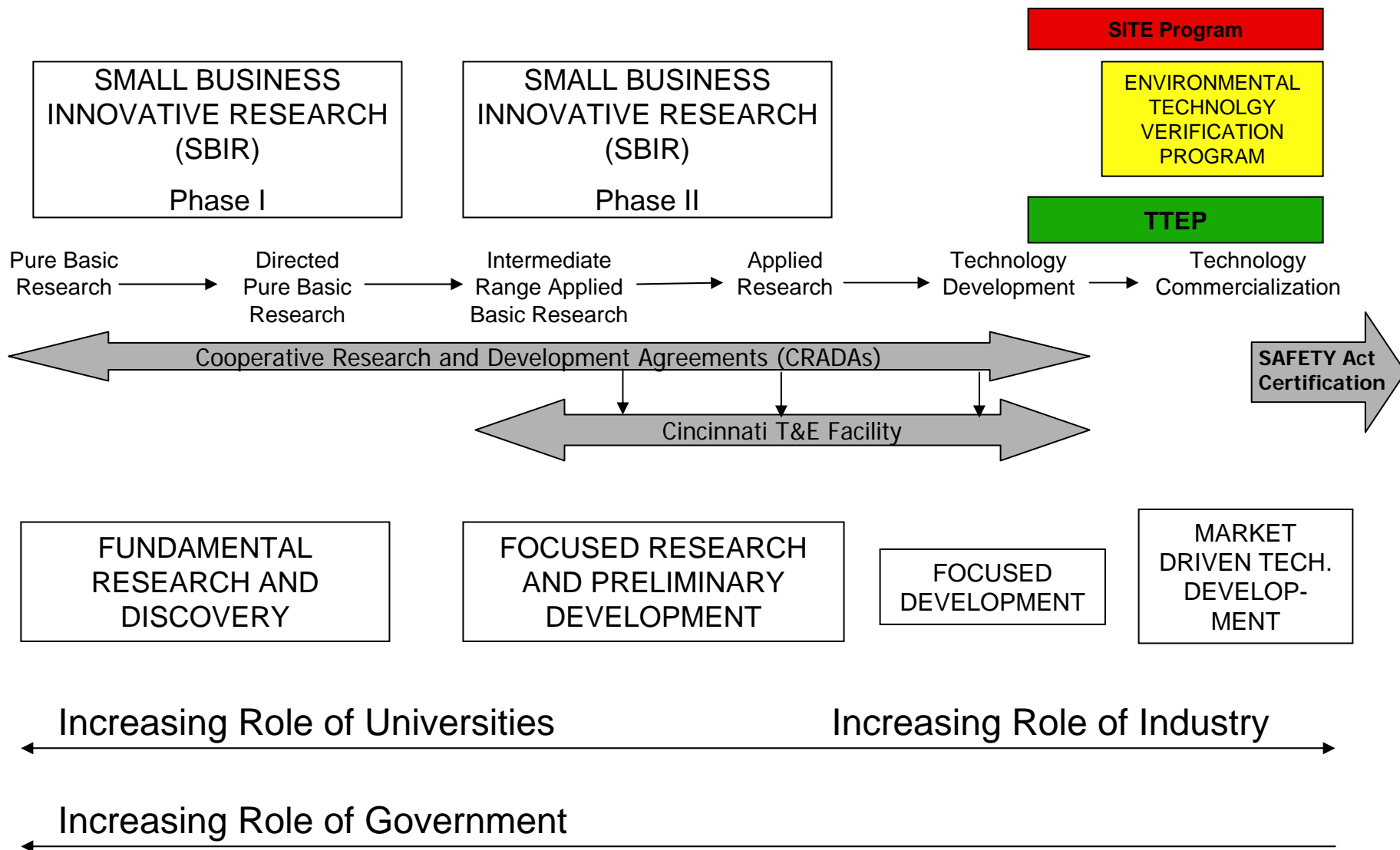


# ***“Flavors” of Testing***

- Technologies that are being touted as a homeland security solution of some kind
- Technologies that may have potential to be used in a homeland security application, but as yet untested (voluntary or involuntary). We have access to facilities that allow for the use of chemical and biological warfare agents in testing where the vendors don't.
- Technologies that other agencies are interested in and are willing to collaborate with us to test for them



# Technology Development Continuum



Adapted from: M. Crow, 1998, *University Research and the Changing Environment*, Presented at the National Association of State Universities and Land Grant Colleges, St. Louis, MO, April 6, 1998.



# *Where is TTEP Headed?*

## ➤ Near-Term

- Continue to test and evaluate technologies, particularly in areas that haven't been engaged much (e.g., drinking water treatment)
- Improve communication with stakeholders. Ensure they are seeing and using the products.
  - ❖ Readily, web-accessible repository of technology information

## ➤ Longer-term

- Dovetail TTEP into a larger, nationally focused testing program
- More participation in national standards setting organizations

