

Program Overview



*BOSC Homeland Security Subcommittee Meeting
August 25, 2015*

Tuesday, August 25

8:00	Welcome	Mr. Thomas Tracy, Designated Federal Official
8:15	Introductions and Review of Charge Questions	Dr. Paula Olsiewski, Subcommittee Chair
9:00	Program Overview	Dr. Gregory Sayles, National Program Director
10:00	Break	
10:15	Research Overviews	EPA Project Leads
11:15	Partner Engagement throughout the Research Lifecycle	Dr. Emily Snyder, Deputy NPD
12:15	Lunch	
1:30	Classified Briefing on Homeland Security Threats (Closed)	Dr. Sayles and others
2:30	Research Overview Posters and Engagement with Researchers (Session 1)	All
4:00	Group Q &A on Posters	All
5:00	Adjourn for the day	

Wednesday, August 26

8:00	Research Overview Posters and Engagement with Researchers (Session 2)	All
10:00	Group Q &A on Posters	
11:00	Video Presentation of the Bio Operational Testing and Evaluation Project	All All
11:30	Lunch	
1:00	Tools Café	All
3:00	Subcommittee Work Time	Dr. Olsiewski
6:00	Adjourn for the day	

Thursday, August 27

8:00	Assemble and coffee	
8:30	Partner Panel Discussion	Dr. Snyder, moderator
10:00	Public Comment	
10:30	Open Discussion and Wrap up	All
11:30	Subcommittee Work Time	Dr. Olsiewski
3:30	Adjourn	



HOMELAND SECURITY @ EPA?



Drivers = EPA's Homeland Security Responsibilities

Drivers

Bioterrorism Act

Presidential Directives

Executive Orders

National Response Framework

Elements of:

- Comprehensive Environmental Response, Compensation and Liability Act
- Emergency Planning and Community Right-to-Know Act
- Clean Water Act
- Safe Drinking Water Act
- Oil Pollution Act
- Clean Air Act
- Resource Conservation and Recovery Act



Responsibilities

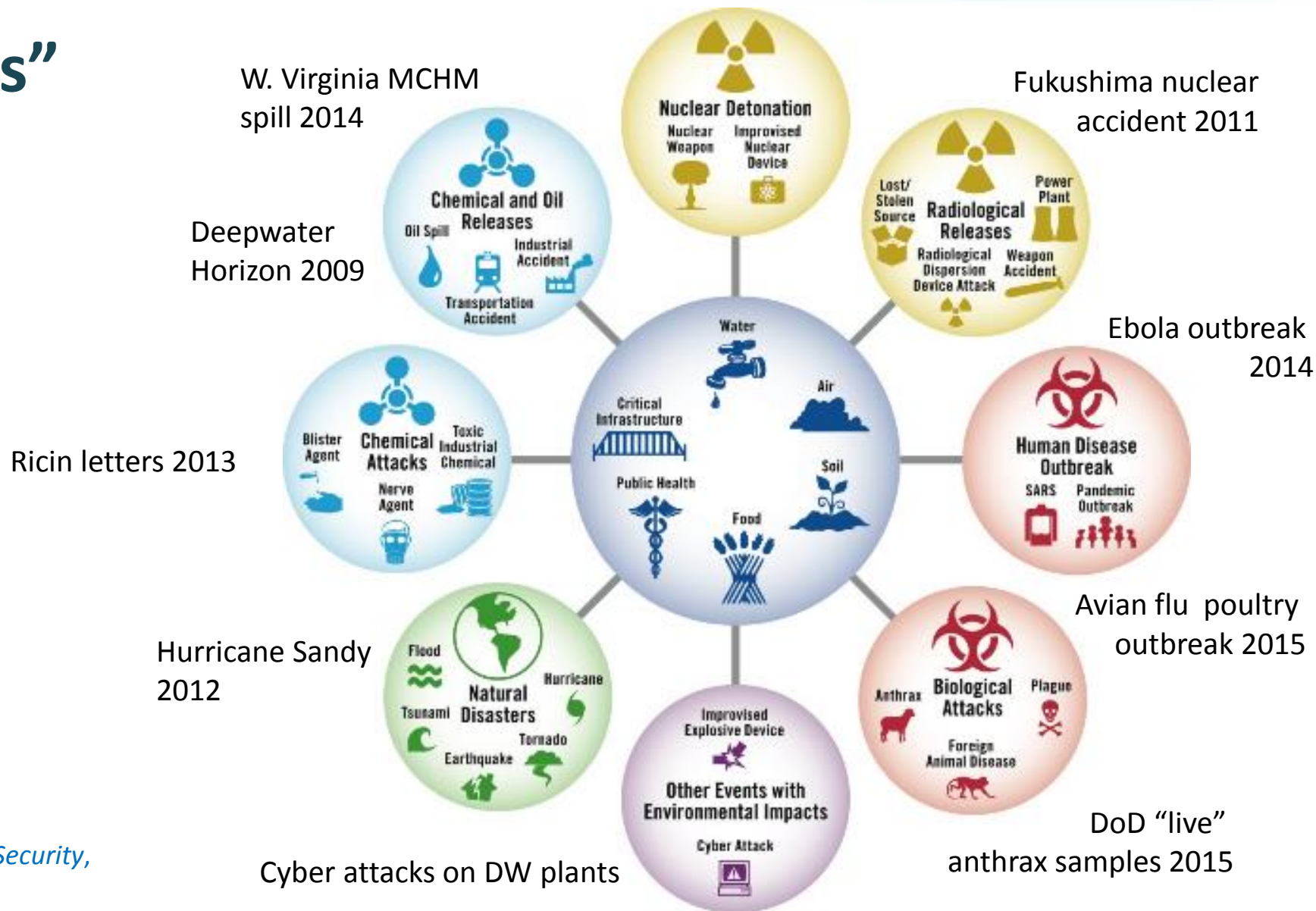
- **Support water systems to prepare for and recover from attacks and other disasters**
by leading efforts to provide States and water utilities guidance, tools and strategies. *EPA is the federal government Sector Specific Agency (SSA) lead for water infrastructure.*
- **Clean up buildings and outdoor areas**
impacted by a terrorist attack or other disaster by leading efforts to establish clearance goals and clean up.
- **Develop a nationwide laboratory network**
with the capability and capacity to analyze for chemical, biological and radiological (CBR) agents for routine monitoring and in response to a terrorist attacks.

EPA in Homeland Security Leveraging Core Competencies

- EPA mission : “Protect Human Health and Safeguard Environment”
- Capabilities in core programs directly related to homeland security
 - Emergency response
 - Water quality protection
 - Pesticides registration / testing
 - Hazardous materials cleanup
 - Rad monitoring / cleanup
 - Research & development
- Core competencies took on new importance post 9/11

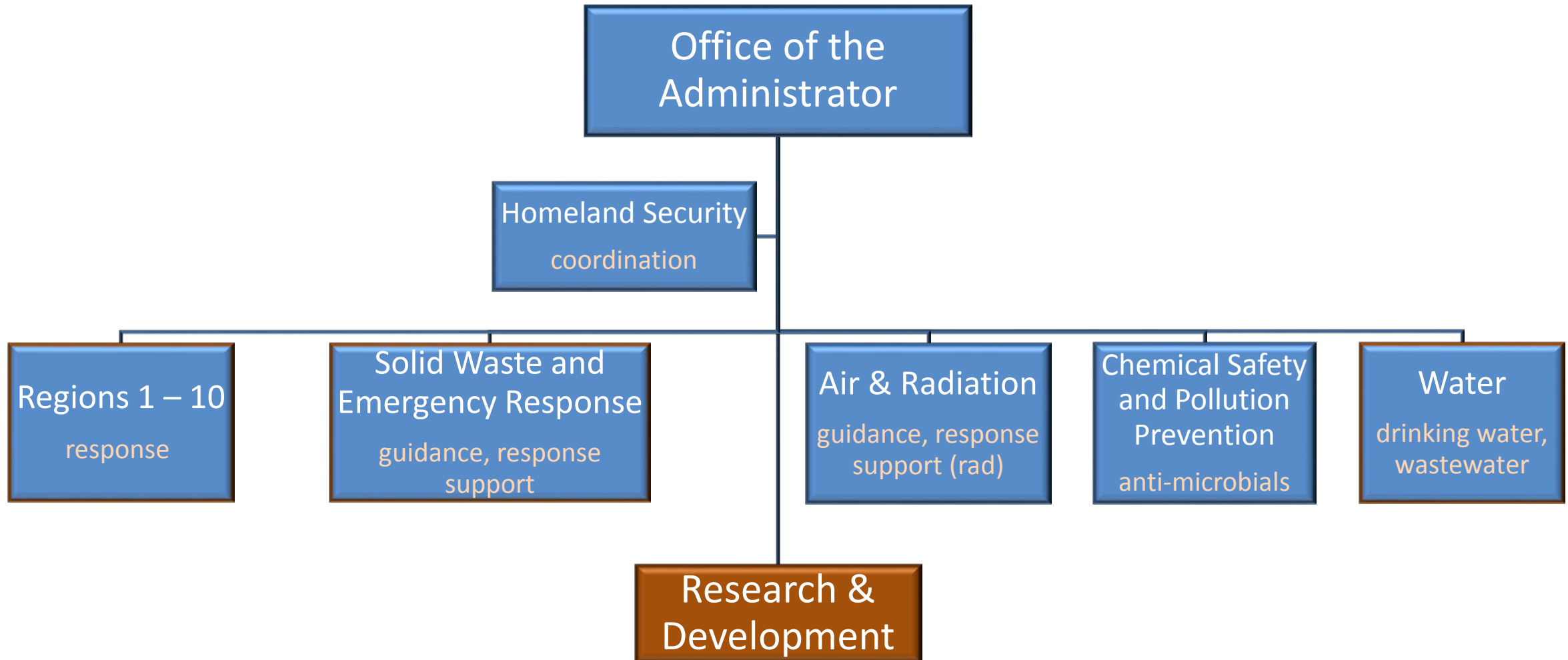


EPA's "All Hazards" Homeland Security Universe



Refining EPA's Approach to Homeland Security, Office of Homeland Security (2011)

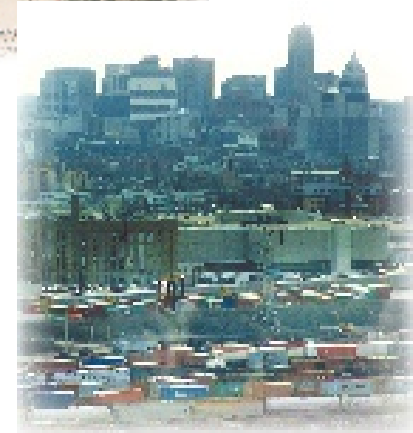
EPA's Homeland Security Enterprise (simplified)



Homeland Security Research Program

***Mission:** to conduct research and develop scientific products that improve the capability of the Agency to carry out its homeland security responsibilities*

**ADVANCING
OUR NATION'S
SECURITY
THROUGH
SCIENCE**



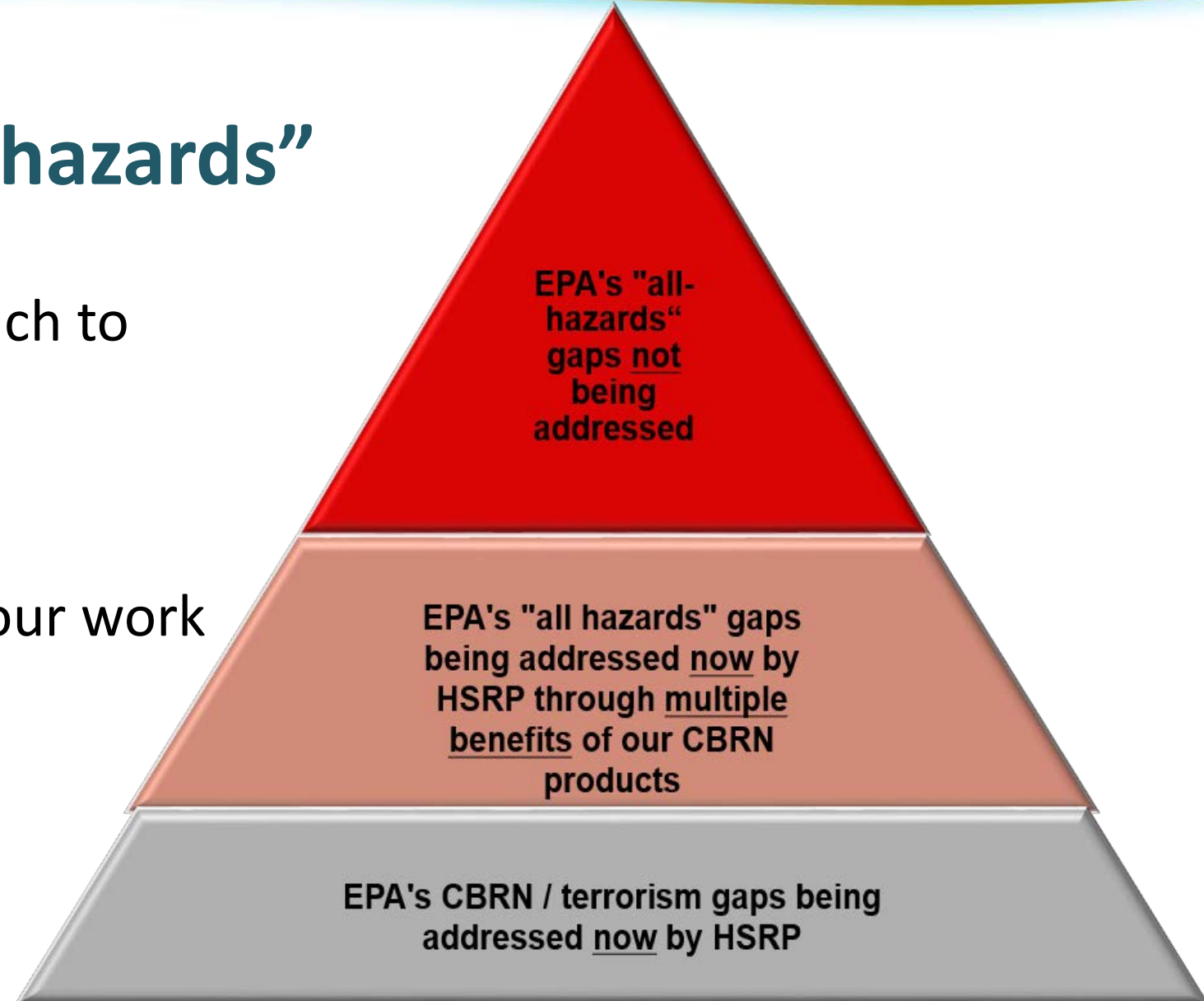
HSRP Alignment with EPA's Strategic Plan

<p>EPA Strategic Plan</p> <p>Goals</p>	<p>HS Research Strategic Action Plan</p>		
	<p>Objectives</p>	<p>Topics</p>	<p>Projects</p>
<p>2 Protecting America's Waters Objective 2.1 - Protect Human Health: “...protect and sustainability manage drinking water resources...”</p>	<p>Improve water utilities' abilities to prepare for and respond to incidents that threaten public health</p>	<p>Water System Security and Resilience</p>	<p>13 integrated, transdisciplinary Projects</p>
<p>3 Cleaning Up Communities and Advancing Sustainable Development Objective 3.1 – Promote Sustainable and Livable Communities Land, “Support sustainable, resilient, and livable communities by working with local, state, tribal, and federal partners to promote...emergency preparedness and recovery planning”</p>	<p>Advance EPA's capabilities to respond to wide area contamination incidents</p>	<p>Characterizing Contamination and Assessing Exposure</p>	
		<p>Remediating Wide Areas</p>	

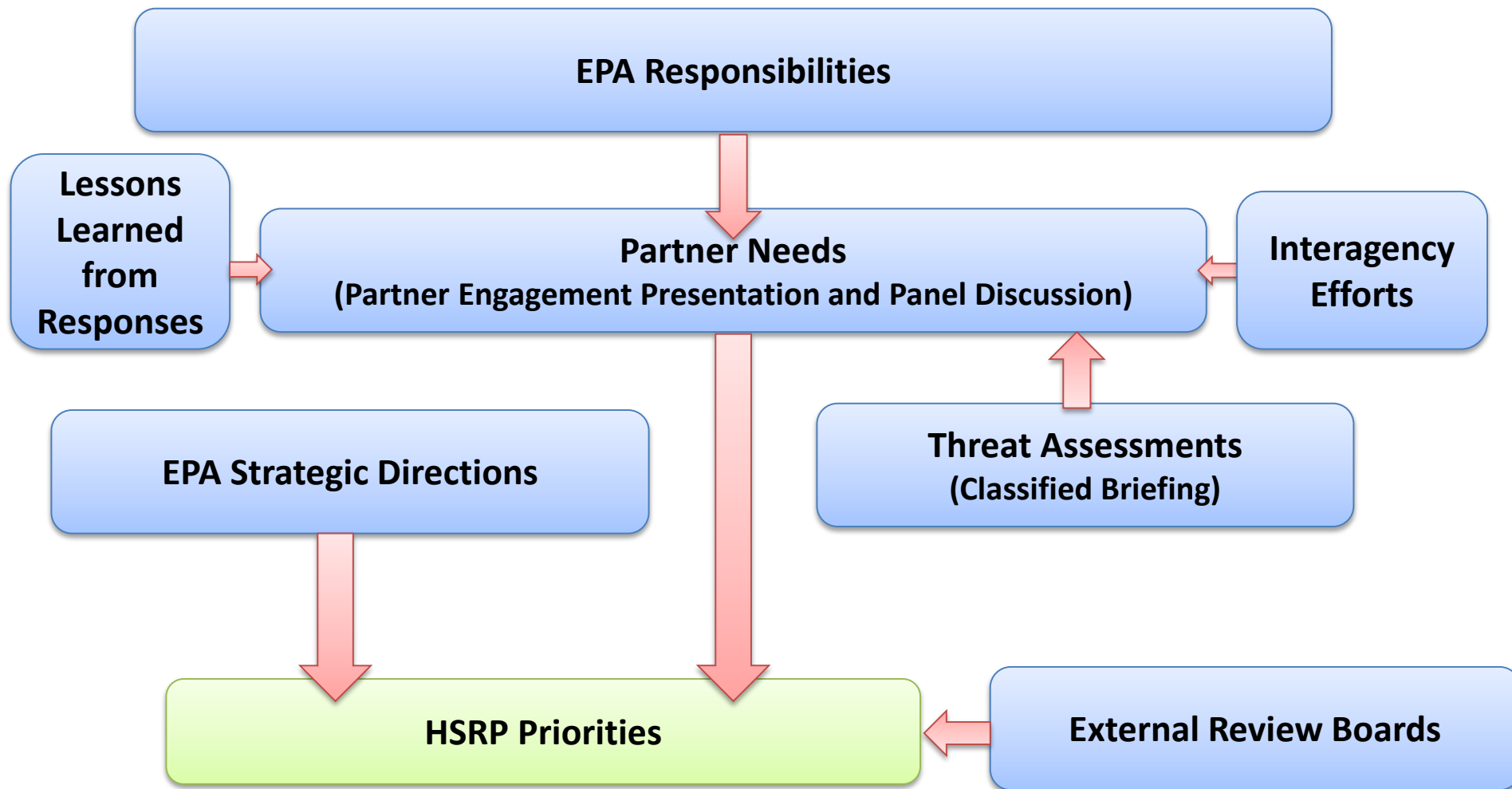
HSRP approach to “all hazards”

Built on EPA's all hazards approach to disasters while mindful of:

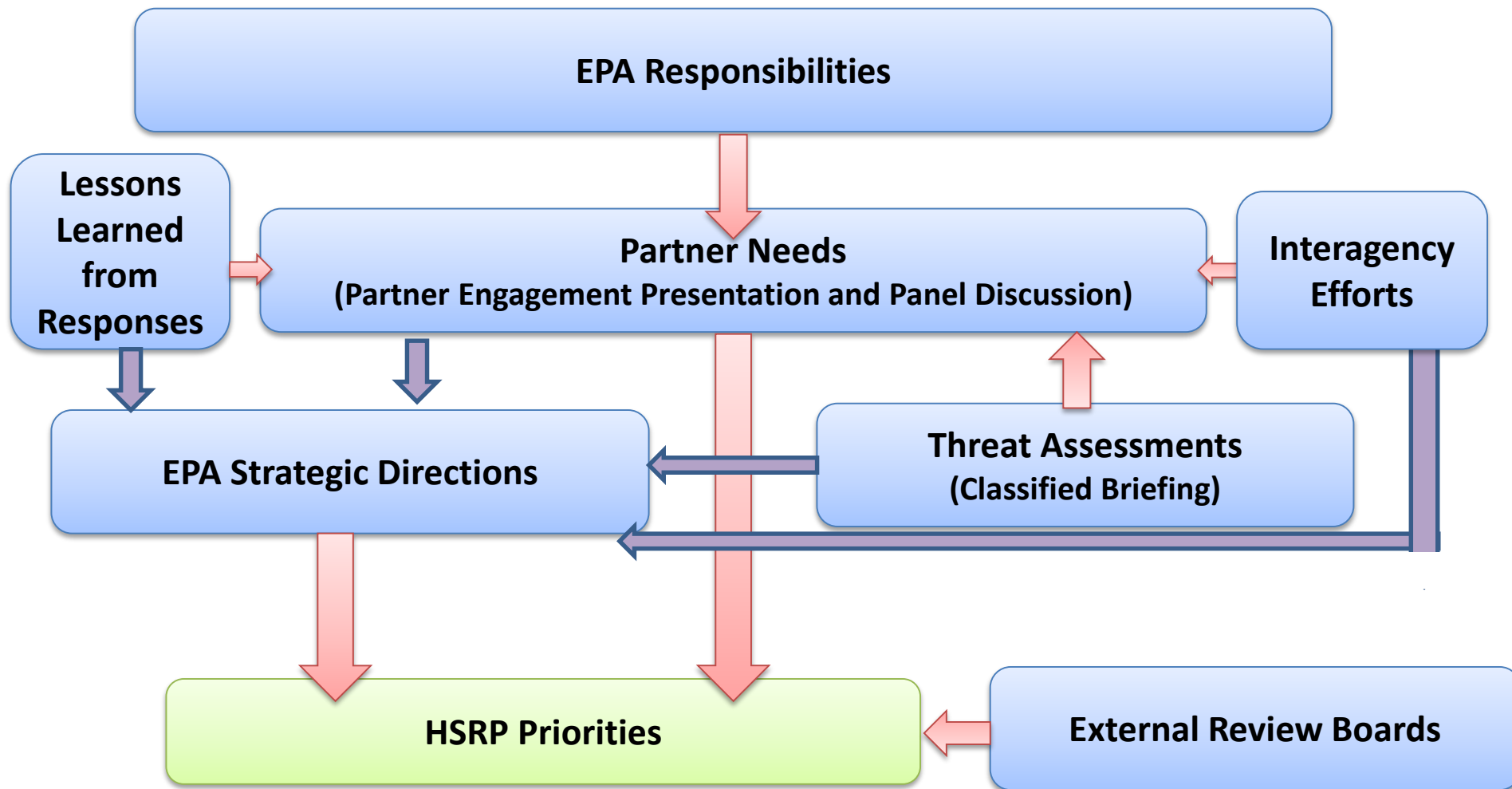
- SAB/BOSC 2014 feedback:
 - Keep main focus on CBRN
 - Highlight multiple uses of our work
- Shrinking resources



How does HSRP set its research agenda?



How does HSRP set its research agenda?



Interagency Engagement

Strategic Direction and Identifying Leveraging Opportunities
OSTP and National Security Council


(CBRN) Research and Development Roadmaps



Leveraging and Identifying Opportunities for Supplementing
ORD HS Research
Other Interagency Workgroups

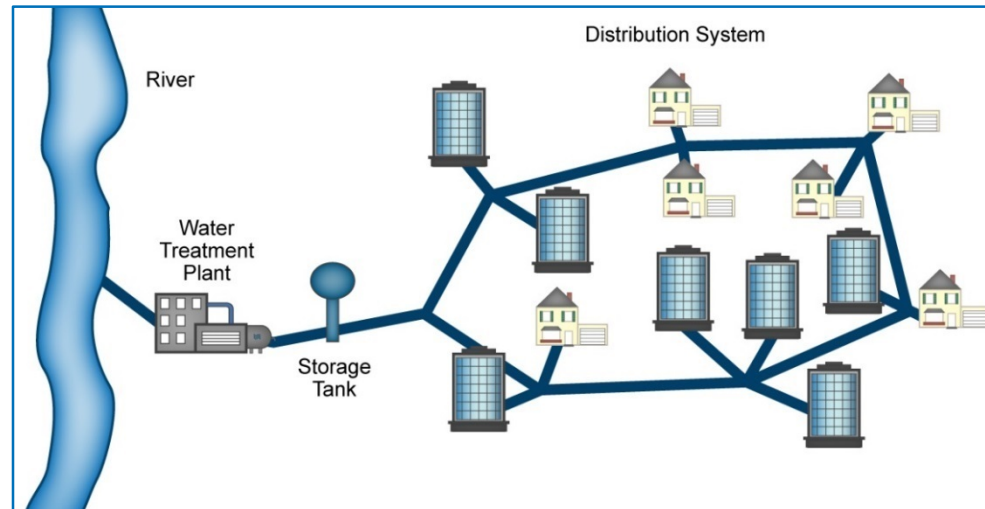


Conduct Joint Research
DHS, DOD, CDC, and others



Water Security and Resilience

Evolution of Program



Schematic of drinking water distribution system.

Indoor / Outdoor Cleanup

Evolution of Program

Buildings

Wide areas

Emerging issues

Efficacy, engineering,
traditional CBR agents

Efficacy, systems
approaches, decision
support tools

Ag security, emerging
chemicals, all hazards



Transportable gasifier for carcass management.

Strategic Action Plan FY 2016-2019

Research Objectives

- Improve water utilities' abilities to prepare for and respond to incidents that threaten public health
- Advance EPA's capabilities to respond to wide area contamination incidents

Research Topics

- Characterizing Contamination and Assessing Exposure
- Water System Security and Resilience
- Remediating Wide Areas

Reviewed

- SAB/BOSC 2014
- EPA partners 2015



Research Objective 1

Improve water utilities' abilities to prepare for and respond to incidents that threaten public health

HSRP products promote:

- Resilience before a disaster occurs
 - Modeling tools to support design of resilient water systems
- Rapid recovery from disasters
 - Rapid Detection
 - Mitigative Actions
 - Risk Assessment
 - Water Treatment
 - Infrastructure Decontamination



Research Objective 2

Advance EPA's capabilities to respond to wide area contamination incidents

HSRP products support:

- Determine the nature and extent of contamination
- Assess Risks
- Mitigate Damages
- Efficient Cleanup
- Manage Waste



Research Topic

Characterizing Contamination and Assessing Exposure

- Develop Sampling and Analysis Methods
- Provide Science to Establish Sampling Strategies
- Develop Methods to Assess Exposure Pathways
- Utilize Exposure Modeling to Support Risk Assessment

Example Outputs:

- Analytical Protocol for Lewisite by-products in environmental matrices
- Composite sampling of a *Bacillus anthracis* surrogate with cellulose sponge surface samplers
- Incorporation of showering inhalation model into drinking water consequence and vulnerability tool



Research Topic

Water System Security and Resilience

- Develop water systems models that support design and operation of resilient water systems
- Promote understanding of various operational and design decisions on the overall resilience
- Develop approaches for detecting and responding to a water system contamination
- Develop methods to decontaminate water systems and treat contaminated water

Example Outputs:

- Decontamination Approaches for Drinking Water Infrastructure Contaminated with *B. anthracis*
- Field Demonstration of operation and water infrastructure decontamination technologies
- Treatment of chemically contaminated water and washwater



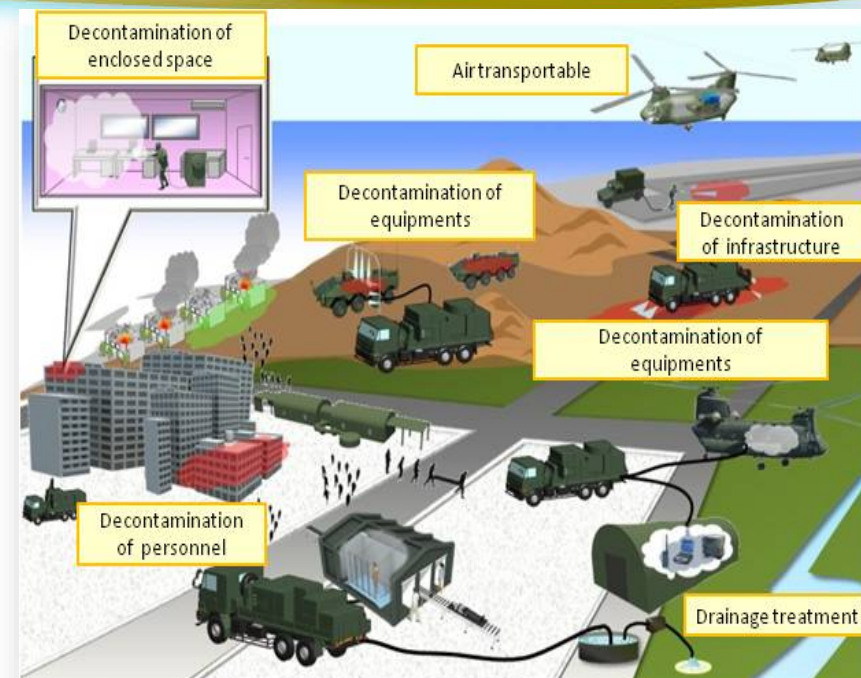
Research Topic

Remediating Wide Areas

- Clean up Approaches for Wide Areas
- Gross Decontamination and other Mitigation Measures
- Waste Treatment and Disposal

Example Outputs:

- Summary of the Effectiveness of Decontamination Methods as a Function of Operational Conditions
- Assessment of decon efficacy for widely used soil or structural fumigants when applied to anthrax
- Surface Decontamination Methodologies for a Wide Area B. anthracis Incident



Technical Support

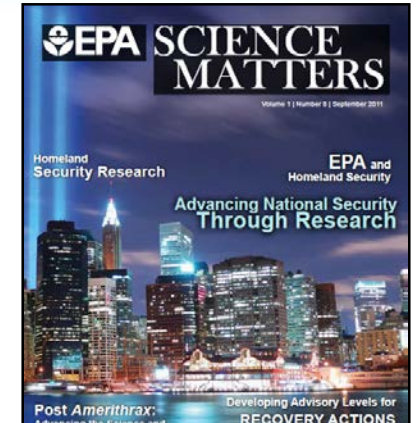
HSRP technical support is highly valued by partners

- Science translation, expert advice -

- Support Response to Ebola Outbreak
 - preparedness planning for laboratory capacity and sample analysis
 - Advise on Personal Protective Equipment (PPE) decontamination
- Support Responses to Ricin Incidents
 - technical support for the analytical methods
 - coordinated the availability of Ricin assay reagents
 - Evaluated efficacy of hydrogen peroxide fumigant-based systems against ricin toxin on sensitive materials
- Support Response to Burkholderia Incident at Tulane University
 - liaison between the EPA field responders and the CDC lab
 - assisting CDC with sample tracking, processing and turnaround times

Outreach

- HSRP website www2.epa.gov/homeland-security-research
- Homeland Security Webinar Series
- International Decontamination Research Conference
- EPA's Homeland Security Collaborative Network
- National, international technical conferences
- Stakeholder email updates, > 1,000 subscribers
- EPA communication vehicles
- Participation on > 40 Interagency groups



Homeland Security Research Program Webinar Series
 The series is presented to share the work of the HSRP with all of our EPA colleagues, and to invite others to join us as we learn from guests whose talks further our knowledge, spark innovation, and keep our program state of the art.

Decontamination Strategy and Technology Selection Tool
 Leroy Mickelsen and Shawn Ryan
 Noon (Eastern time), Tuesday, July 15, 2014
<https://epa.connectsolutions.com/nickel/>
 1-866-299-3188 code 513 569 7907#

Abstract: The Decontamination Strategy and Technology Selection Tool (DeconST) provides a comprehensive, data-rich framework for considering decontamination options and facilitating the development of facility-specific, efficient, and effective remediation approaches following an "ambrox" attack. The comparison includes for each decontamination technology the required operational conditions, source reduction, materials compatibility, waste management, and costs particular to the facility. The technical working group (TWG) functioning under a Unified Command and the Incident Commander (IC) on decontamination technologies webinar will outline the functionality of the tool and demonstrate its



chemical engineer with the US Environmental Protection Agency's Team (CMAT). For 25 years he worked for the Centers for Disease Control and Prevention (CDC) where he did research in occupational engineering control. He received a B.S. in Chemical Engineering and an M.S. in Chemical Engineering in 1991 from North Carolina State University. He is currently a Senior Engineer in the State of Ohio.

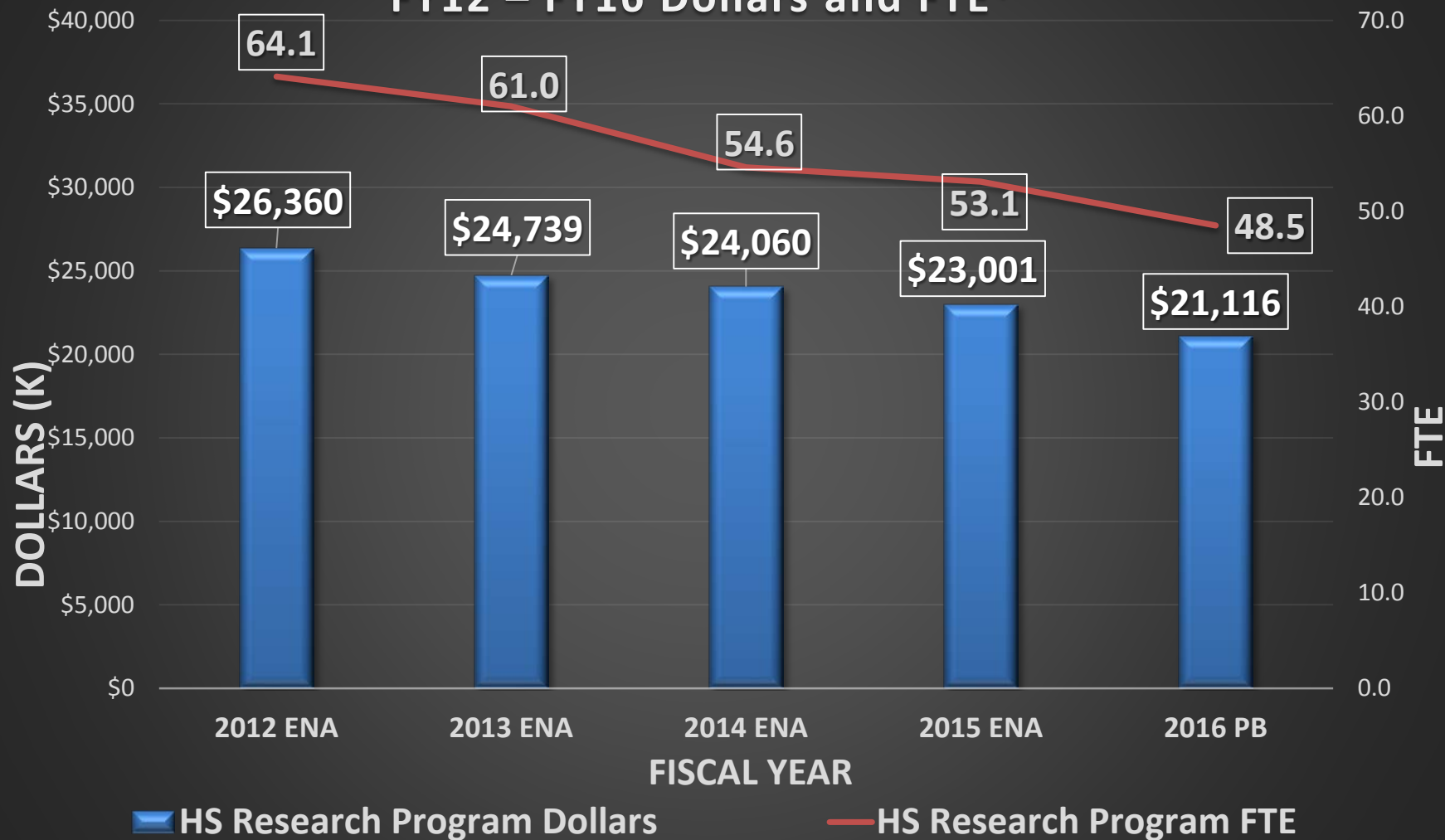
for the US Environmental Protection Agency's (EPA), serving as the Incident Commander (IC) on decontamination technologies webinar.

We conduct our research at most efficient, capable locales

- EPA laboratories and modeling facilities
 - Cincinnati
 - Research Triangle Park, NC
- Extramural organizations
 - Surety labs
 - Unique facilities
 - Specialized capabilities

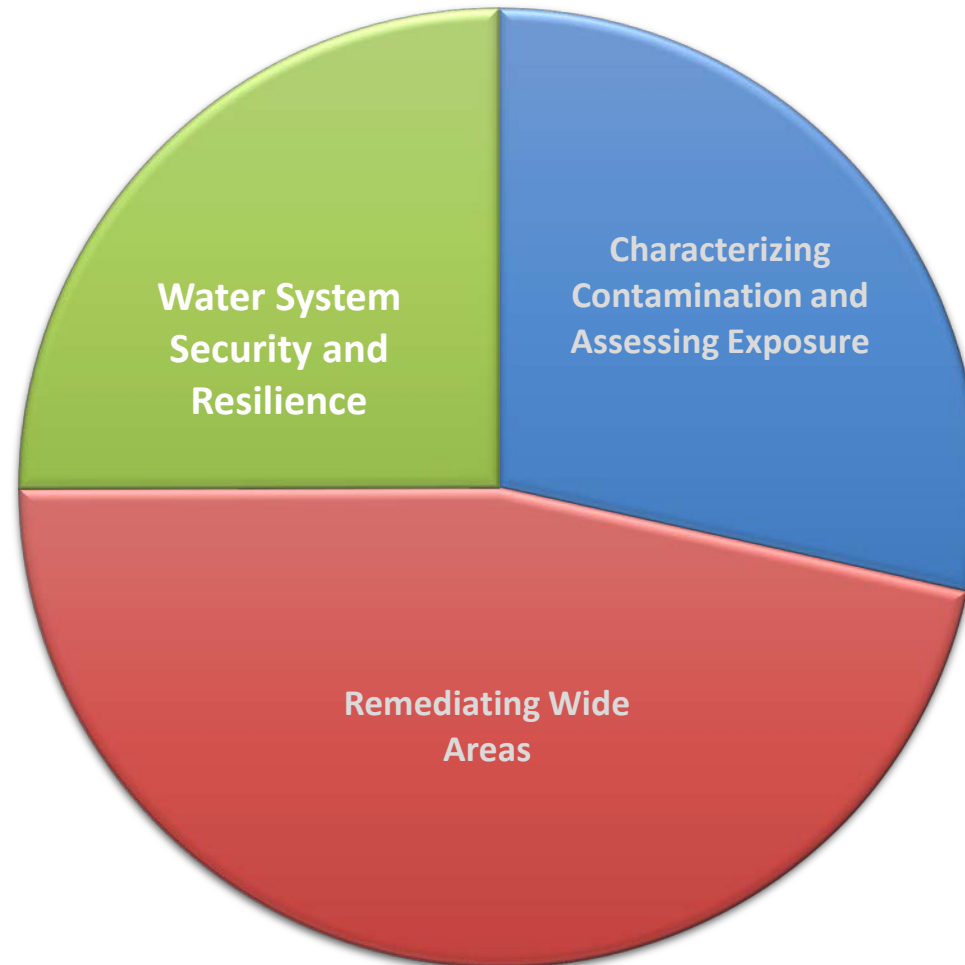


ORD – Homeland Security Research Program Resources FY12 – FY16 Dollars and FTE*



*Includes Science and Technology and Superfund transfer to S&T appropriations

FY 2015 Enacted Budget by Topic Area



Homeland Security Research Program - summary

Our work is:

- Applied R&D – solutions to urgent capability gaps
- Relevant – customer-driven portfolio
- Useful – tools, methods, models and data that end-users can put into action immediately

