

LRN – EPA Collaboration through Biological Incident Remediation Exercises

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Key Questions

- What!?! EPA has homeland security-related responsibilities??
- How is EPA using research to enhance incident response capabilities?
- How is EPA helping states and locals prepare for a biological incident?



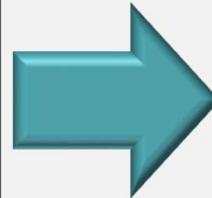
EPA's Homeland Security Responsibilities

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

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 disasters.

Develop a nationwide laboratory network

with the capability and capacity to analyze for chemical, biological and radiological (CBR) agents.

EPA's Homeland Security Enterprise

- Office of Homeland Security
- Regions 1 – 10, Federal On-Scene Coordinators
- Office of Land and Emergency Mgmt – CBRN CMAD
- Office of Research and Development – National Homeland Security Research Center



EPA's Homeland Security Research

- Aims to provide sound scientific solutions and tools
- End-user focused
- Practical, systems-based, applied science
- Scaled approach



Field-Scale Exercises

- Purpose: to conduct and evaluate field-scale biological remediation
- Interagency involvement
 - Environmental Protection Agency (EPA)
 - Department of Homeland Security (DHS)
 - Defense Threat Reduction Agency (DTRA)
 - Centers for Disease Control (CDC)
 - Federal Bureau of Investigation (FBI)
 - Department of Energy (DOE/INL)



LRN – Laboratory Response Network

- Established in 1999
- Founding partners CDC, FBI, APHL
- “integrated network of state and local public health, federal, military, and international laboratories that can respond to bioterrorism, emerging infectious diseases, chemical terrorism and other public health emergencies”



BOTE

Bio-Response Operational
Testing and Evaluation
Idaho Falls, ID

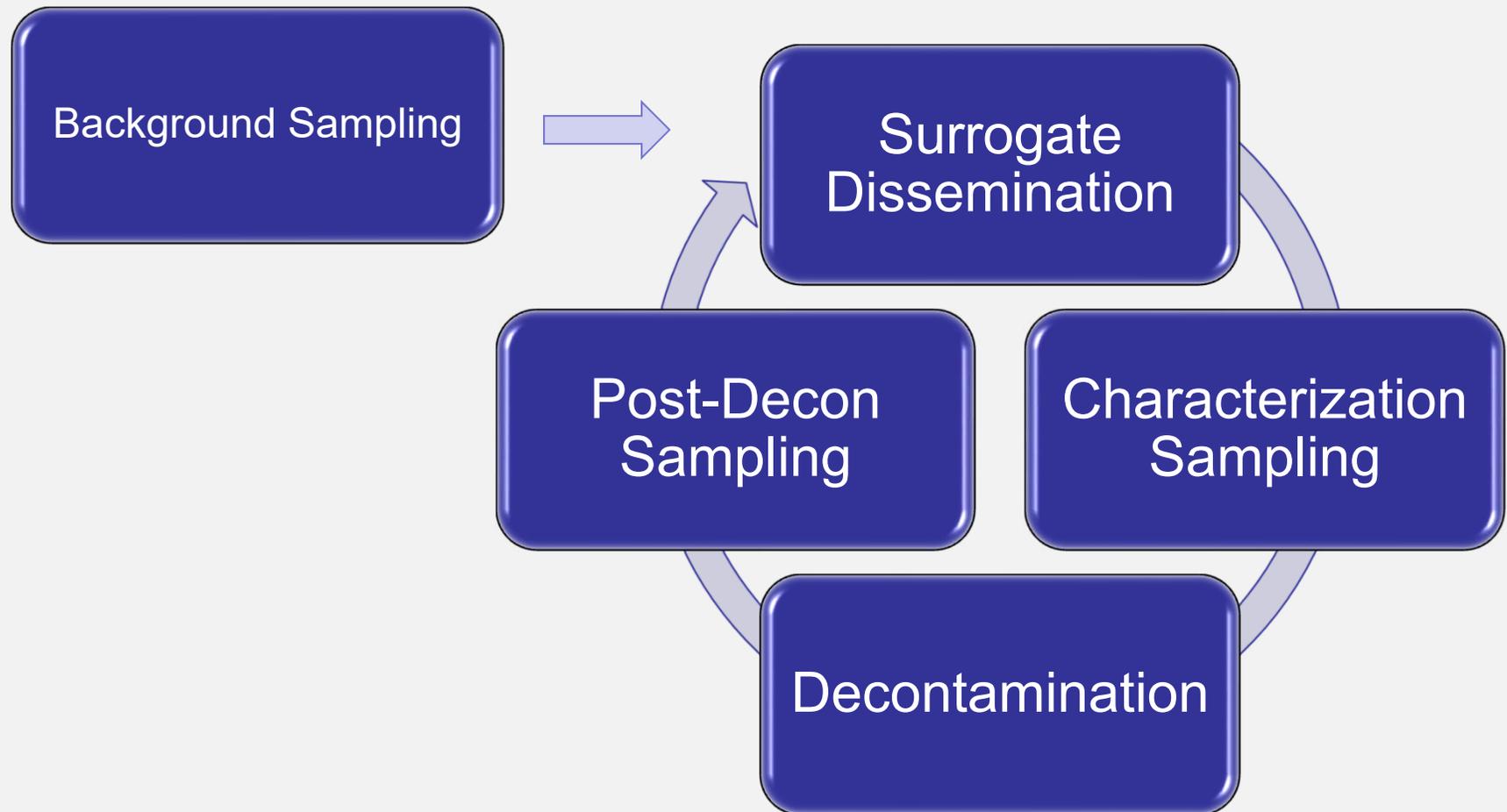


UTR

Underground Transport Restoration –
Operational Technology Demonstration
Fort AP Hill, VA

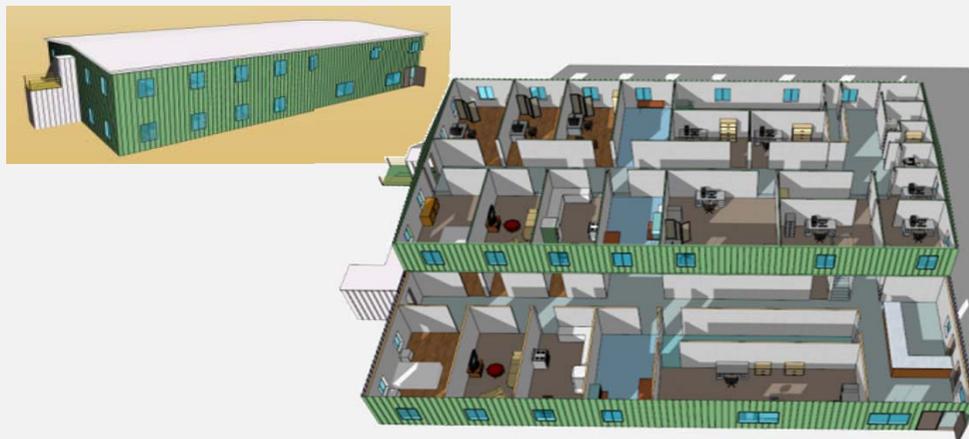


Biological Incident Scenarios



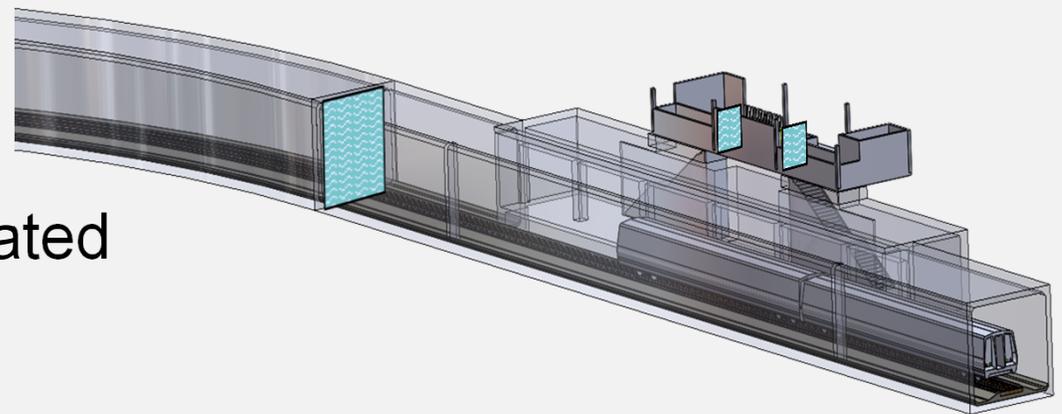
BOTE – 2011

- Simulated Anthrax Incident
- 8,000 ft² facility
- 3 release rounds, 7 sampling rounds
- >3,500 surface samples
 - Vacuum Sock
 - Sponge Stick
 - Swabs
- 7 LRN Labs Participated



UTR-OTD – 2016

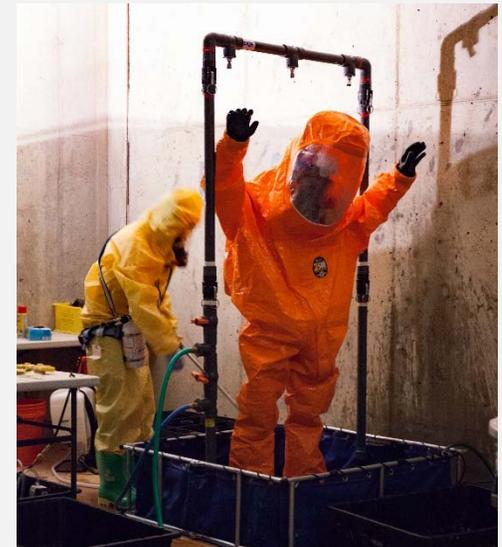
- Simulated Anthrax Incident
- Mock subway at Ft. AP Hill VA
 - 275 feet of track
 - Subway platform
- 2 release rounds, 5 rounds of sampling
- >1000 surface samples
 - 37mm Vacuum Cassette
 - Sponge Stick
 - Grab samples
 - Waste samples
- 6 LRN Labs Participated



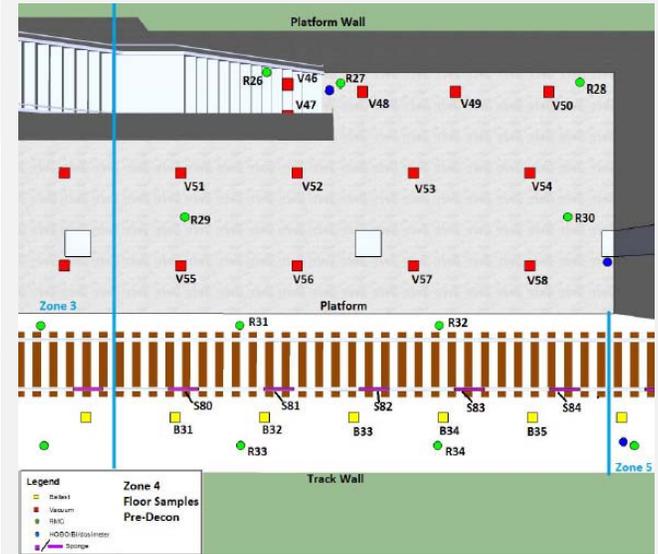
Response-minded Operations



Ingress / Egress through Decon Line



Sample Collection



Sample Collection



Sample Packaging, Shipment and Chain of Custody



Lab	Sample Type	Sample Shipment (test week)						Total
		1	2	3	4	5	6	
MN	Sponge		15		25		26	66
	37mm Vac	13		28		5		46
NY	Sponge	26			20	28		74
	37mm Vac	10			11	17		38
MI	Sponge	20		44		18		82
	37mm Vac		5		7		18	30
OH	Sponge		11	44			20	75
	37mm Vac		7	23			7	37
VA	Sponge		22		14	30		66
	37mm Vac		10		17	19		46
FL	Sponge				24	12	37	73
	37mm Vac				10	10	20	40
EPA – NC	BIs, RMCs	0	0	44	13	44	0	101
EPA - CO	Grab	8	0	73	94	73	94	342
Total		77	70	256	235	256	222	1116

Chain of Custody

Company: Dee Pettit, Virginia Division of Consolidated Lab Services				
Address: 600 North 5th Street, Richmond, VA 23219				
Phone: 804-648-4480				
Sample ID	Time Sampled	Sample Type	Floor	Collector
S160 ✓ 2802	5/16/2011 9:50 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S141 ✓ 2449	5/16/2011 9:55 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S140 ✓ 3165	5/16/2011 10:04 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S124 ✓ 2801	5/16/2011 10:08 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S136 ✓ 3106	5/16/2011 10:13 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S137 ✓ 3107	5/16/2011 10:17 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S130 ✓ 3103	5/16/2011 10:22 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S117 ✓ 3324	5/16/2011 10:56 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S123 ✓ 3321	5/16/2011 11:11 AM	Sponge Stick	Floor 2	Harvey <i>James Kusano</i>
S154 ✓ 3379	5/16/2011 1:46 PM	Sponge Stick	Floor 1	Jordan <i>Jordan</i>

Custody				
Name	Signature	Organization	Date	Time
Received by: <i>E. White</i>	<i>[Signature]</i>	<i>Inc</i>	5/16/11	160
Received by: <i>Elaine McCaffery</i>	<i>[Signature]</i>	<i>DELS</i>	5-17-11	1030
Received by:				
Received by:				
Received by:				

Electronic Data Directive

	A	B	C	D	E	F	G
1	COC	Samp_No	SampleMedia	Date Received	Date Plated	Spread Plate 10	Spread P
2	3-092116-163142-0028	OTD-R1PRE-VAC-050	37 mm Cassette				
3	3-092116-163142-0028	OTD-R1PRE-VAC-039	37 mm Cassette				
4	3-092116-163142-0028	OTD-R1PRE-VAC-037	37 mm Cassette				
5	3-092116-163142-0028	OTD-R1PRE-VAC-051	37 mm Cassette				
6	3-092116-163142-0028	OTD-R1PRE-VAC-044	37 mm Cassette				
7	3-092116-163142-0028	OTD-R1PRE-VAC-043	37 mm Cassette				
8	3-092116-163142-0028	OTD-R1PRE-VAC-042	37 mm Cassette				
9	3-092116-163142-0028	OTD-R1PRE-VAC-041	37 mm Cassette				
10	3-092116-163142-0028	OTD-R1PRE-VAC-038	37 mm Cassette				
11	3-092116-163142-0028	OTD-R1PRE-VAC-047	37 mm Cassette				
12	3-092116-163142-0028	OTD-R1PRE-VAC-049	37 mm Cassette				
13	3-092116-163142-0028	OTD-R1PRE-VAC-048	37 mm Cassette				
14	3-092116-163142-0028	OTD-R1PRE-VAC-040	37 mm Cassette				
15	3-092116-163142-0028	OTD-R1PRE-VAC-031	37 mm Cassette				
16	3-092116-163142-0028	OTD-R1PRE-VAC-035	37 mm Cassette				
17	3-092116-163142-0028	OTD-R1PRE-VAC-033	37 mm Cassette				
18	3-092116-163142-0028	OTD-R1PRE-VAC-032	37 mm Cassette				
19	3-092116-163142-0028	OTD-R1PRE-VAC-034	37 mm Cassette				
20	3-092116-163142-0028	OTD-R1PRE-VAC-030	37 mm Cassette				

Sample Analysis



REFER TO LRN WEBSITE FOR CURRENT VERSION

***Bacillus anthracis* Spore Environmental 37 mm Filter Cassette Processing Procedure for Porous Surfaces**



REFER TO LRN WEBSITE FOR CURRENT VERSION

***B. anthracis* Spore Environmental Wipe Processing Procedure**

Data Delivery

State Sample ID	Sample Type Swab, Sponge or HEPA	EPA Sample ID	Surface Area	Date Collected	Total Sample Volume	Spread Plate 10 ⁻¹			Mean	x 10
32	Sponge	3089	645.16	4/25/2011	4.30	ND	ND	ND	0.00	0.00
33	Sponge	3127	645.16		5.00	ND	ND	ND	0.00	0.00
34	Sponge	3128	645.16		4.90	ND	ND	ND	0.00	0.00
35	Sponge	2207	645.16		4.90	ND	ND	ND	0.00	0.00
36	Sponge	3137	645.16		4.80	ND	ND	ND	0.00	0.00
37	Sponge	2602	645.16		5.00	6	3	5	4.67	46.67
38	Sponge	2903	645.16		4.90	ND	ND	ND	0.00	0.00
39	Sponge	3136	645.16		5.10	ND	ND	ND	0.00	0.00
40	Sponge	2347	645.16		4.60	4	8	7	6.33	63.33
41	Sponge	3158	645.16		5.00	ND	ND	ND	0.00	0.00
42	Sponge	2610	645.16		4.00	ND	ND	ND	0.00	0.00
43	Sponge	3167	645.16		4.80	ND	ND	ND	0.00	0.00
44	Sponge	3502	645.16		5.10	ND	ND	ND	0.00	0.00
45	Sponge	3074	645.16		4.80	ND	ND	ND	0.00	0.00
46	Sponge	3501	645.16		5.20	ND	ND	ND	0.00	0.00
47	Sponge	3508	645.16		5.00	ND	ND	ND	0.00	0.00
48	Sponge	3067	645.16		5.00	TNTC	TNTC	TNTC	0.00	0.00
49	Sponge	3522	645.16		4.60	1	ND	ND	1.00	10.00
50	Sponge	3524	645.16		4.80	ND	ND	ND	0.00	0.00
51	Sponge	3520	645.16		5.60	1	ND	ND	1.00	10.00

Key Outcomes

- Labs understand workflow, equipment and supply requirements, and throughput for various sample types
- Agencies (local, state, fed) work together to build and exercise relationships
- Gaps and inefficiencies in methods identified
- All participants gain operational perspective
- Fulfill annual training requirements

Existing Gaps

- LRN is limited to particular sample types
- Inconsistencies with data reporting format
- High-throughput analytical methods developed, but...
- Collection to reporting data mgmt. software not universally utilized
- Prioritizing environmental vs. clinical during large incident

Questions?



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DISCLAIMER: The U.S. Environmental Protection Agency (EPA) through its Office of Research and Development (ORD) co-funded and managed the research described herein with the U.S. Department of Homeland Security and the U.S. Department of Defense. It has been subjected to the Agency’s review and has been approved for publication and distribution. Note that approval does not signify that the contents necessarily reflect the views of the Agency. Mention of trade names, products, or services does not convey official EPA approval, endorsement, or recommendation.

Backup slides

Bleach Spray Decon



Bleach Fogging Decon



