

Bioterrorism and Anthrax Attacks: Lessons Learned at the AMI Building

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Anthrax is a **zoonotic** disease caused by spores of *Bacillus anthracis*

- Naturally occurring among herbivores
- Spores can survive in soil for >40 years
- In humans, most common cases have been dermal (note black eschar)
- Fatality rate for inhalation anthrax may reach **95% even with antibiotic therapy**

(NRC, 2005, Reopening Public Facilities after a Biological Attack)



Photo courtesy CDC

**22 cases of anthrax were identified
in U.S. from Oct 4th to Nov 20th, 2001**

11 cutaneous

11 inhalational (5 were fatal)

32,000 people received antibiotics

**Ames Strain was identified as the sole
type of spore**

**NRC, Review of the Scientific Approaches Used During the FBI's
Investigation of the 2001 Anthrax Letters**

The American Media Building in Boca Raton housed National Inquirer, the Sun and Weekly World



Full Disclosure: My brother has written for Weekly World

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ROCKIES TO BREAK OFF & BECOME ASTEROIDS!

The blast will vaporize America's heartland & throw the Earth into another Ice Age!

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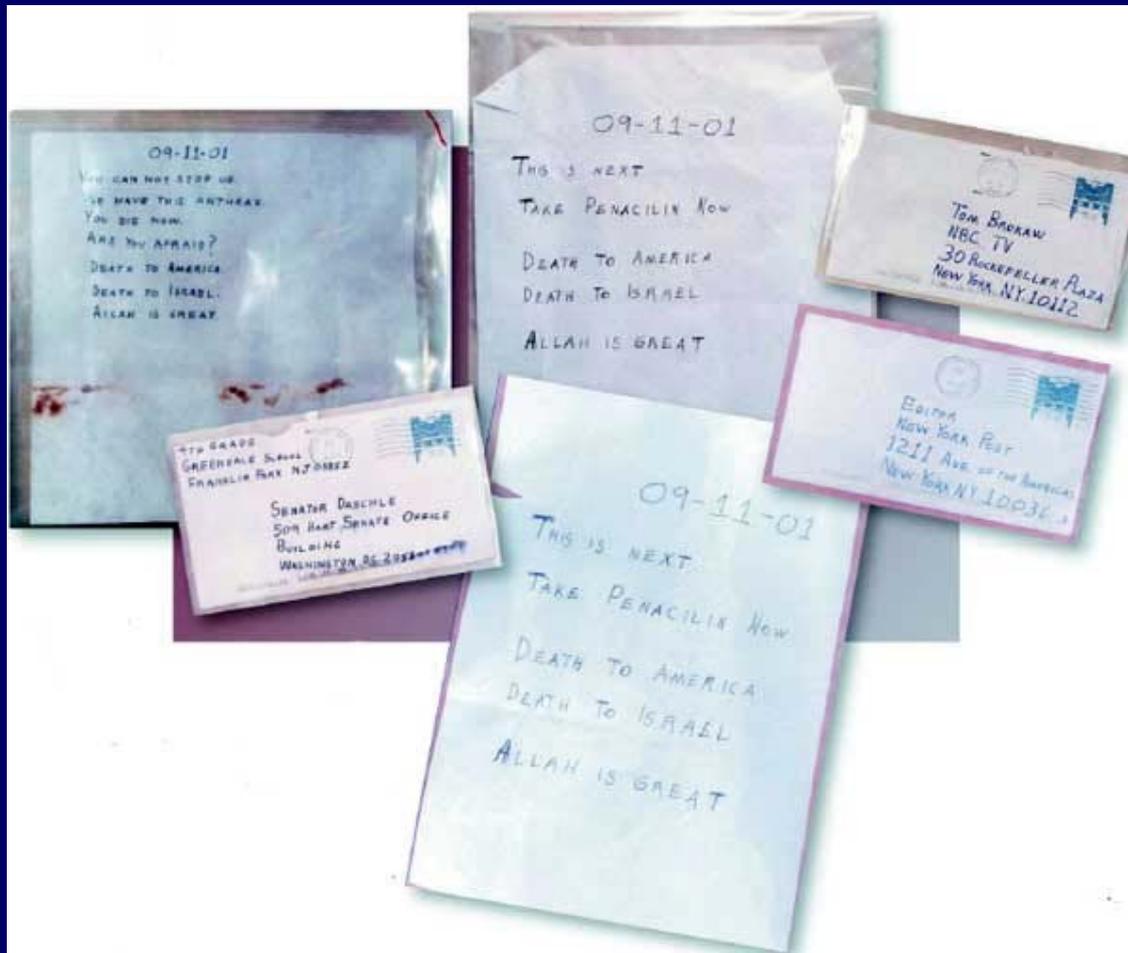
CPWR
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THE WORLD'S ONLY RELIABLE NEWSPAPER

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PHOTO COURTESY OF NASA

AMI was the first to have a fatality: Robert Stevens, first U.S. inhalation case in 25 years

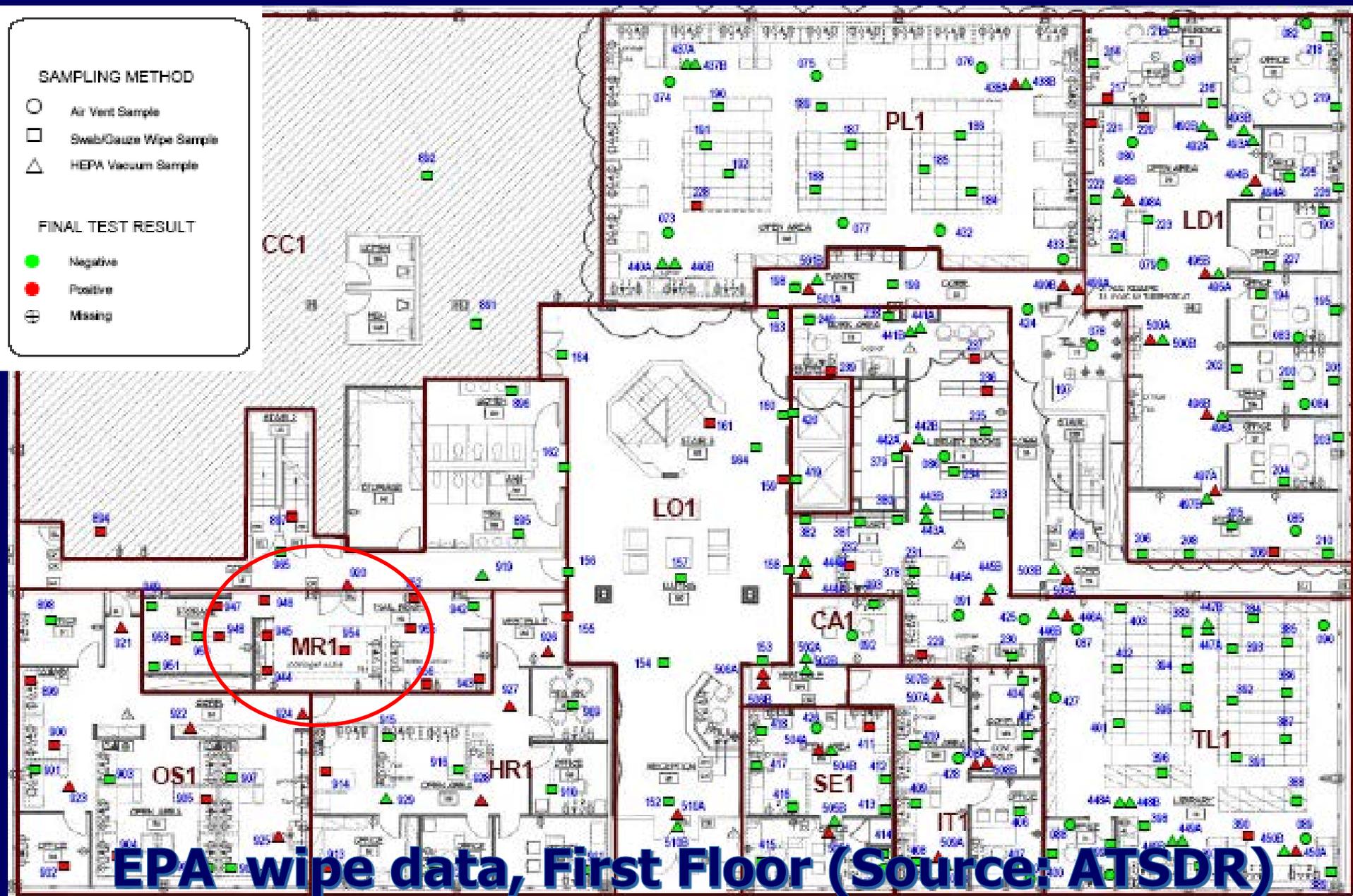


No letter found at AMI

Lesson One: Take full advantage of federal government resources

(They will be partners no matter what you want)

EPA and CDC shared all of their data. FBI shared none.



EPA wipe data, First Floor (Source: ATSDR)

**A Technical Working Group (TWG)
guided and approved sampling plan
and HASP**

Co-Chairs

- **Mark Durno**, EPA, On-Scene Coordinator, Region V
- **Bruce Lippy**, Senior Consultant, Environmental Profiles, Inc.
- ***Jointly signed the final release for the TWG***

Excellent support from TWG

- **Patricia Bray**, MD, MPH, OSHA, Office of Occupational Medicine
- **Tony Intrepido**, CIH, Field Operations, Chemical & Biological Countermeasures Division, Lawrence Livermore National Laboratory
- **Todd D. Jordan**, MSPH, CIH, OSHA Technical Center, Chemical Engineer, OSHA Health Response Team

Sampling protocol was developed with TWG

1. Risk-based strategy with multiple air and bulk sampling
2. Aggressive air sampling
3. Volumes 3 times > the space of each floor
4. Target clearance level: **no** culturable spores

HASP was developed from OSHA's template for anthrax cleanup



Lesson Two: Understand who calls the shots

EPA had regulatory authority
through a FIFRA Crisis Exemption
(because we used bleach)

PBCHD had final say in opening the
building

Lesson Three: Assume private sector projects will be different

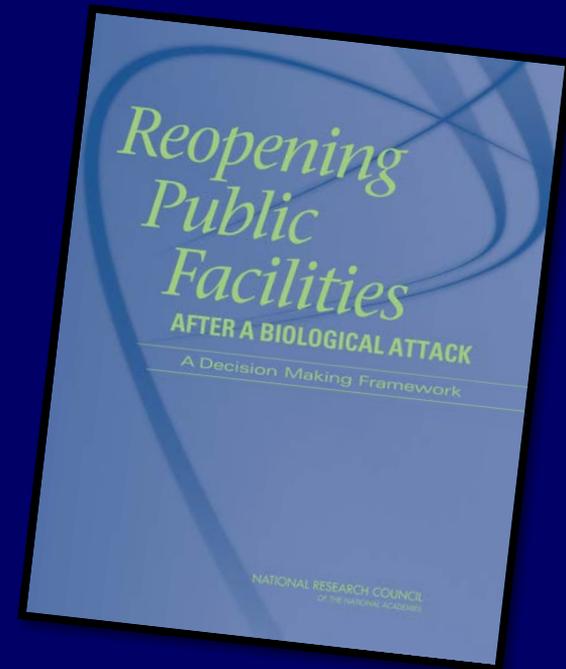
Previous sampling showed the building could have been opened

- Fumigated with chlorine dioxide gas beginning on July 11, 2004
- 2,000 spore strips. All showed a 100 percent kill rate (8 log kill)
- **Dispute between owner and abatement firm tied up data**

“In July 2004, the AMI building was declared to have been successfully decontaminated.”

NRC, Reopening Public Facilities After a Biological Attack, 2005

Feb 2006 EPA was asked to review the previous sampling report without releasing it so the quarantine could be lifted. No response was received.



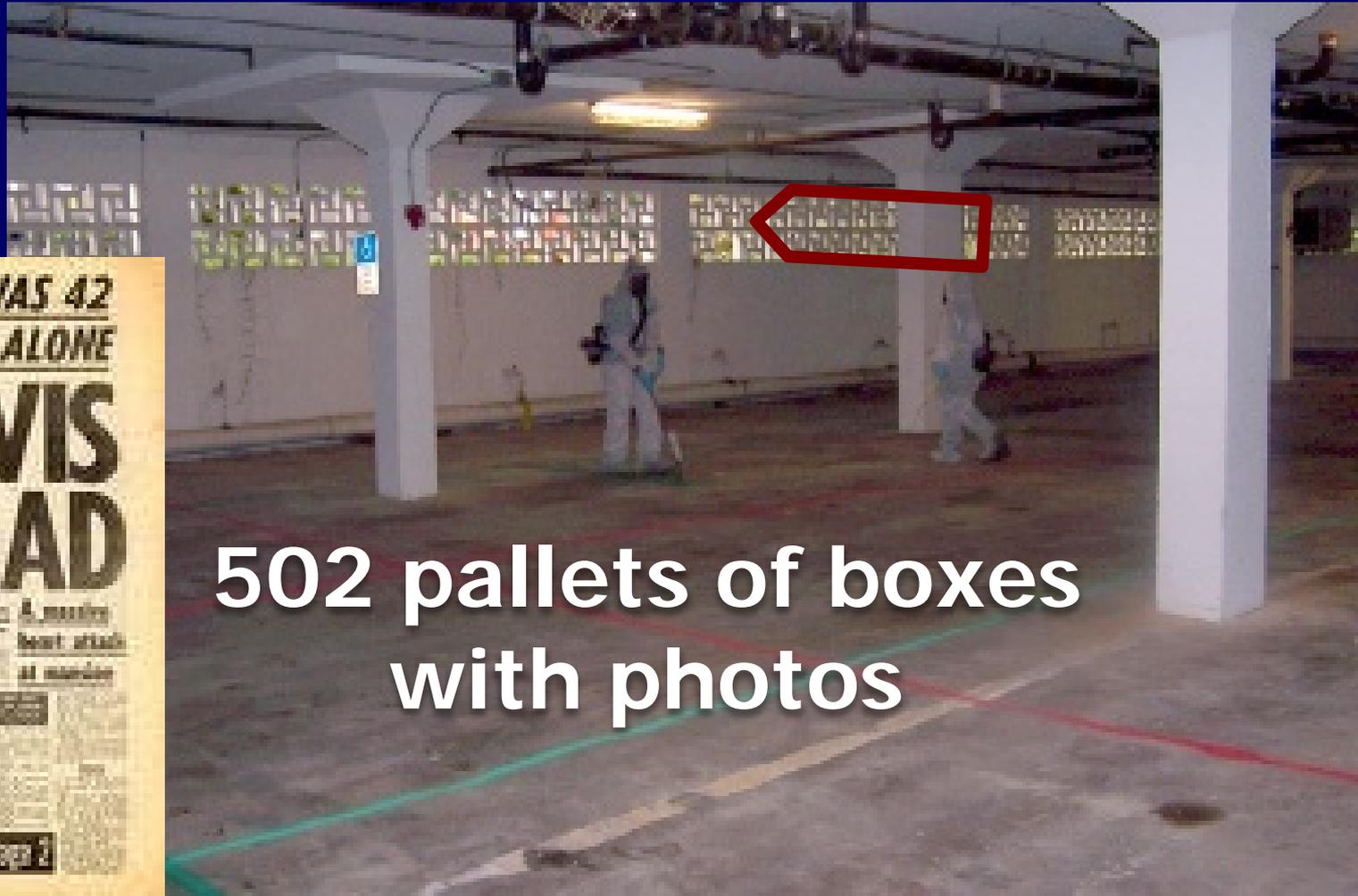
Lesson Four: Recognize HAZWOPER applies to biological attacks and use it

**All of the team had their cards
and lots of experience. HASP
briefing was important**

Boxes were disinfected and removed from basement for autoclaving, Dec. 2005 to Jan. 2006



Surfaces in basement were cleaned
and sampled in March 2006.
All were negative



502 pallets of boxes
with photos

Dry Filter Units (DFUs) were provided by EPA



- 15 CFM flow
- Designed by the military for battlefield sampling

DFUs proved useful, flexible and durable



Total Suspended Particulate Samplers had much greater flow



- Wide range of flow operating limits (39 to 60 CFM)
- Used for EPA environmental sampling

Shipping and analysis was performed by Microbiology Specialists, Inc.



B. anthracis colony;
overnight cultures on
Sheep blood agar

- Sentinel lab in the Laboratory Response Network
- No *Bacillus anthracis* isolated

**Quarantine was lifted on
February 12, 2007!**

Thanks!

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