Disposal of Wastes From Anthrax Contaminated Sites

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Presentation Overview

- Waste Streams
- Regulatory Considerations
- Disposal Options
- Federal/State/District Coordination
- Transportation
- Plans and Procedures
- Conclusions
Waste Streams Generated

- Personal Protective Equipment
- Decon Water
- Decontaminated Debris
- Other
Waste Streams

Personal Protective Equipment (PPE)

- Tyvek and Saranex Suits
- Gloves
- Rubber Booties
- HEPA Filters
- Decontaminated Per Site Safety Plan
### Waste Streams

**Decon Water**

- Results from washing of PPE and equipment passing through contamination reduction zone

- 0.5% Sodium Hypochlorite Solution
  - 1 part household bleach
  - 8 parts tap water
  - 1 part white vinegar
Waste Streams
Decontaminated Debris

- Decontaminated primarily with 500 ppm Aqueous Chlorine Dioxide Solution
  - Capitol Hill Anthrax site
- Office furniture
- Carpeting
- Vacuum Cleaners
- Mail Carts
Regulatory Considerations

State Regulated Waste

- Not a RCRA Hazardous Waste
  ➤ Proper treatment renders material a Solid Waste
- Regulated Medical Waste
  ➤ Clean Air Act Regulates Incinerators
  ➤ States Regulate Medical Waste
- Infectious Substance
  ➤ U.S. DOT Hazardous Material Regulations
  ➤ HMR 49 CFR Parts 171-180
  ➤ Packaging, Labeling, and Transportation
- Select Agent
  ➤ As defined by CDC (42 CFR 72.6)
- FIFRA
  ➤ EPA approval of anti-microbial use
On-Site Treatment Options

Spore Load Reduction

- **HEPA Vacuuming**
- **Anti-microbial Solutions**
  - 0.5% Sodium Hypochlorite Solution
  - 500 ppm Aqueous Chlorine Dioxide Solution
  - “Spor-Klenz”
- **Fumigation**
  - Chlorine Dioxide Gas
  - Para formaldehyde
  - Vapor Hydrogen Peroxide
- **Anti-microbials require FIFRA exemption**
  - http://www.epatechbits.org
Waste Management
Packaging

- **Triple Packaging** (§§173.196, 178.609)
  - Water tight primary receptacle
  - Water tight secondary receptacle
  - Absorbent material between primary and secondary, if needed
  - Outer packaging of adequate strength for capacity, mass, and intended use
  - Itemized list of package contents placed between secondary receptacle and outer package

- **Labeling** (§172.400) – *Infectious Substance Label*

- **Marking** (§172.301) – “Infectious Substance , affecting humans (Bacillus anthracis), 6.2, UN 2814”

- **Shipping Documents**– “Infectious Substance , affecting humans (Bacillus anthracis), 6.2, UN 2814”

- **Bulk outer containers require exemption**
Waste Management

Storage

- Wastes are Properly Packaged
- Provide Weather Protection
- Restrict Access
  - Unauthorized Individuals
  - Vermin
- Facilitates Load-out
- State Regulations
  - Red Bag
  - Storage Time Limits
  - Other Conditions
Disposal Options

“Special Waste”

- **PPE and Debris**
  - *Per Review of certain State’s Regulations*
    - *Incineration in Medical Waste Incinerator*
    - *Autoclave*
    - *Approved Alternative Method*
  - Other Incinerators

- **Decon Water**
  - POTW Issue
  - Further Chemical Treatment
  - Filtration
  - Physical (Heat)
Federal / State / Local Coordination
(at the Capitol Hill Anthrax site)

- District of Columbia
- State of Maryland
- Commonwealth of Virginia

- **US DOT**
  - Research and Special Programs Administration

- **DOD**
  - Fort Detrick
  - USAMRIID
Plans and Procedures

- **Packaging, Labeling, Transportation, and Disposal Plan**
  - Cradle to Grave Procedures

- **Objective**
  - Nature of waste
  - How generated
  - Treatment to date

- **Logistics**
  - Personnel
  - Equipment

- **Tactics**
  - Step-by-step procedures
Plans and Procedures (cont.)

- *US DOT Regulations*
  - Infectious Substance vs. RMW
  - Packaging Requirements
  - Exemption Requests

- *State Certified Haulers*

- *Security Plan*

- *Contingency Plan*

- *Appropriate Approvals*
Capitol Hill Anthrax Site
Case History

- **PPE**
  - Medical Waste Incinerator

- **Decon Water**
  - Sampled – no growth/non-hazardous
  - Steam Sterilization
  - POTW not an option

- **Decontaminated Debris**
  - Municipal Waste Incinerator
  - Facilitated handling of large items
Conclusion

- Disposal of waste from the Capitol Hill Anthrax site has been successful due to the high degree of coordination, and cooperation among involved State and Federal agencies.

- There is a need to examine current regulations as they pertain to this incident.

- There is a need for scientific investigations/studies to provide alternative treatment options.
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