

EPA Region 2 Ebola Experience



April 2016

What is Ebola?

- Highly contagious sheathed virus
- Transmitted from animals to humans
- Transmitted humans-to-human by body fluid contact
- Mortality rate as high as 90%
- Incubation period is 21 days

History

- March 2014 – Ebola outbreak in West Africa
Liberia, Monrovia, Sierra Leone, Guinea
- As of January 3, 2016 – 28,637 reported cases
and 11,315 deaths (CDC)
- Airports receiving flights from West Africa
limited – JFK*, Newark*, O'Hare, Dulles, Atlanta
- October 2014 – NYC Doctor returning from
West Africa tests positive for Ebola

Bacillus anthracis vs. Ebola Virus

- *Spores are resistant to many disinfectants*
- *Spores are highly resistant to physical inactivation (drying, heat, and sunlight)*
- *Adequate sterilization requires direct exposure to 249°F for at least 30 min*
- *Spores can survive outside host on various materials for >50 years & in landfill leachate for more than 200 days*
- *Vaccine & antibiotics available*
- *Transmission from person to person rare*
- *Envelope virus susceptible to alcohol based products and dilutions of bleach.*
- *Moderately sensitive to UVC radiation & heating for 60 minutes at 140F*
- *Can survive in blood for weeks & on contaminated surfaces at low temperatures*
- *No effective antiviral treatment (experimental drugs Z-Mapp, TKM-Ebola, etc.)*
- *Person to person transmission via close personal contact*

NYC Ebola Incident

November, 2015

- NYC challenged with staggering waste stream and costs from a single Ebola patient
 - 352 drums of waste
 - 335 from patient treatment
 - 17 from apartment cleanup
 - 7 trailer loads sent for disposal
 - \$160,000 per load (T&D)
- TOTAL COST = \$ 1,120,000.00

EPA Assistance Request

- NYCDEC, NYCOEM, NYCDOHMH and EPA collaborating
- NYC submits official request for EPA assistance to the White House
- EPA Authority
 - CERCLA - pollutant or contaminant
 - Does not meet Stafford Act/ESF 10 requirements
- EPA requested to provide assistance with decontamination of residential spaces and waste management

Region 2 Preparations

- Coordination with other agencies
 - Daily calls with NYCDOH, NYSDEC, NYCOEM
 - OSHA, USCG AST, DOT
- Develop procedures for:
 - Decontamination of residential spaces
 - Decontamination of personnel
 - Waste management and disposal
- Exercise procedures

Exercises

- November 2014 – exercise decon strategies of residential spaces and personnel
- February 2015 – exercise finalized decon strategies

EXIT

NO SMOKING

FIRST CROSS
DECON

HUSKY
Contractor
Clean-Up Bags
50 count CONTRACTOR PACK

01/01/2023

Entrance to Ebola exercise venue



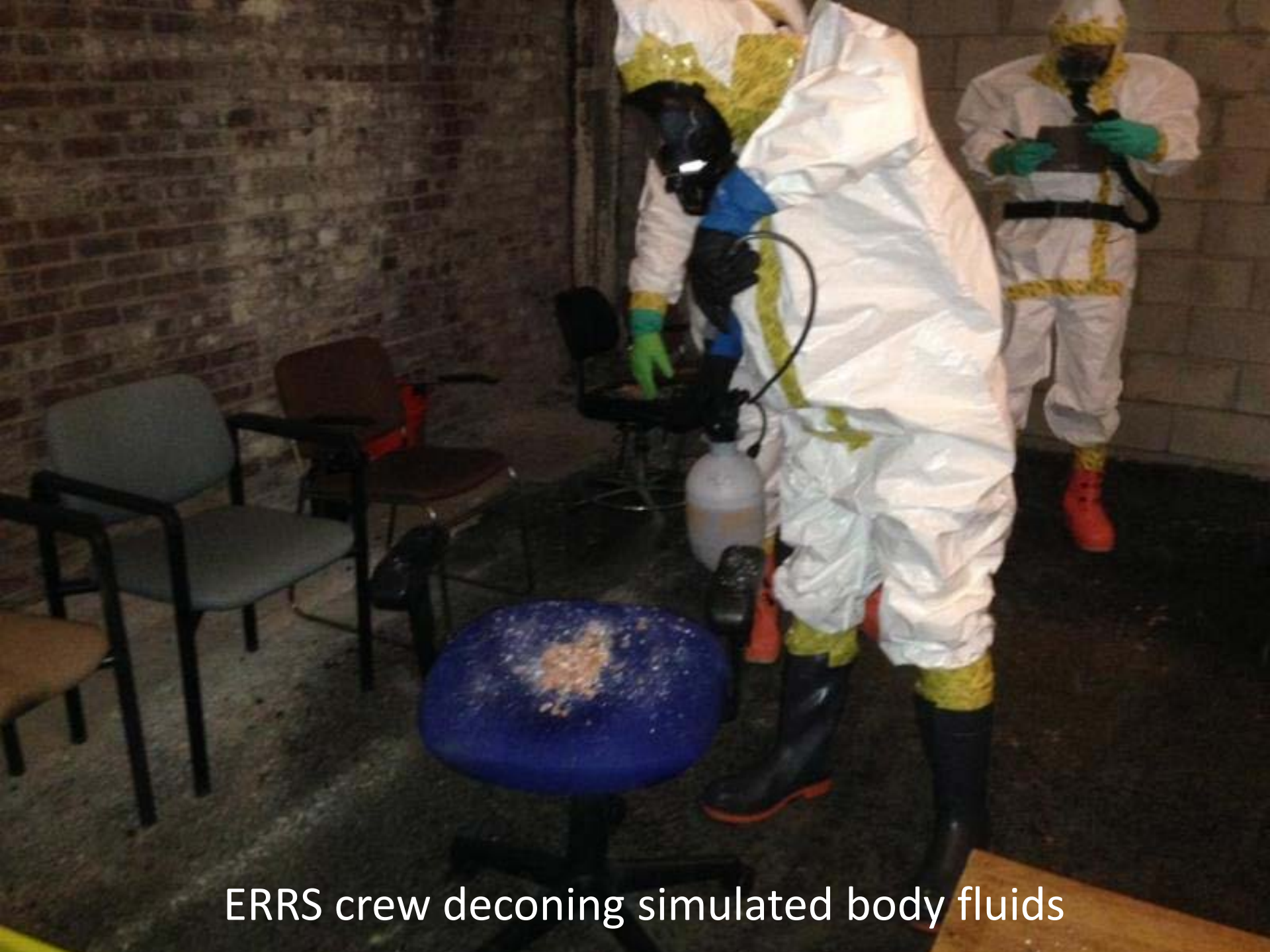


01/01/2023

Interior of Ebola exercise area



ERRS crew in exercise venue, Edison, NJ



ERRS crew deconing simulated body fluids



Decon Line

Decon



Residential Space Decon

- Assessment of area contaminated with bodily fluids conducted by local health department, EPA OSC (or federal representative e.g. USCG NSF member)
- Pre-clean surfaces contaminated with body fluids with dilute bleach solution spray
 - Cover visible contamination with absorbent material (e.g., paper towels)
 - Saturate absorbent material with a decontaminant
 - Allow 30 minutes contact time
 - Dispose of collected material as infectious waste

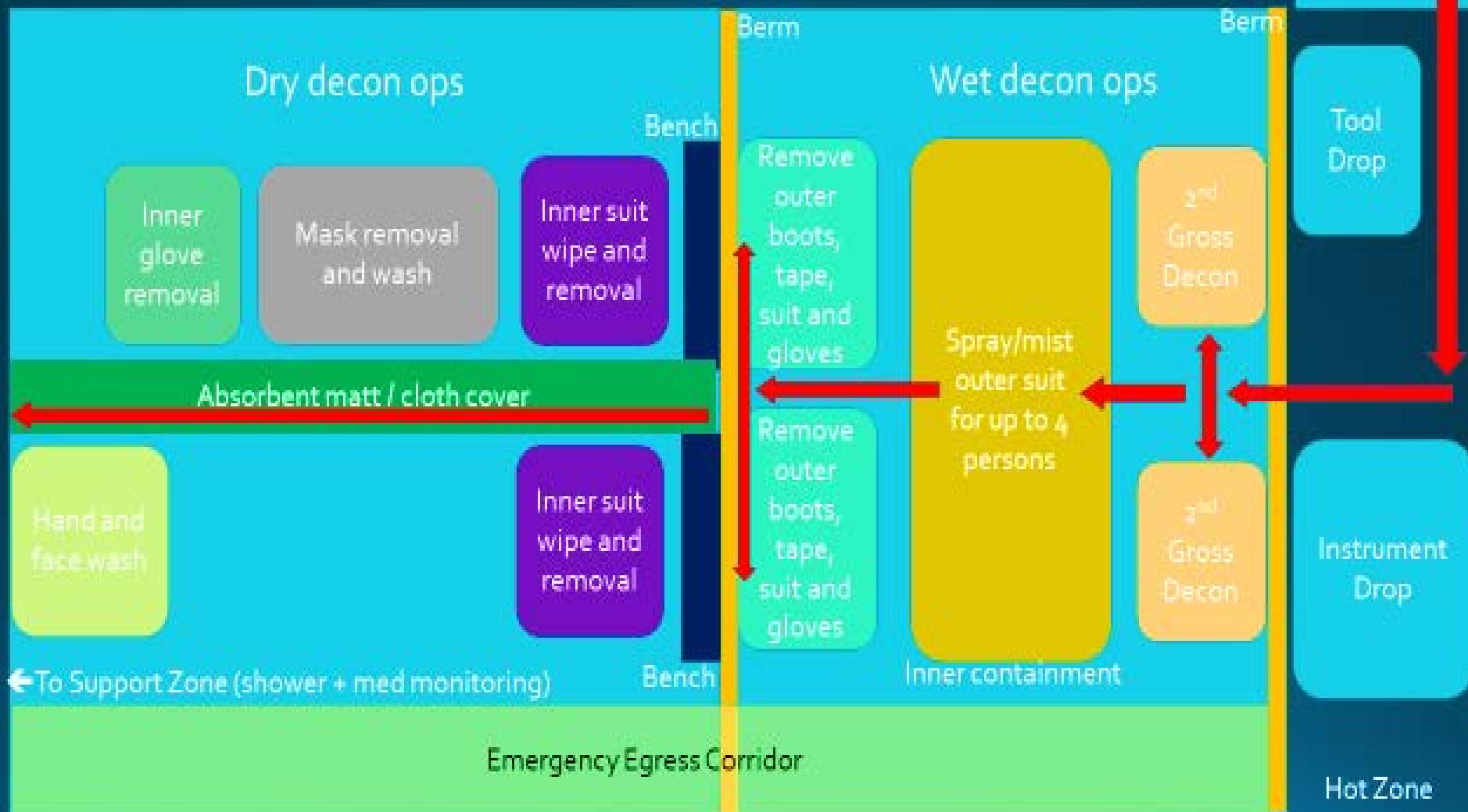
PPE

- Level C
 - Organic vapor cartridges
- Double suit
 - Tychem SL with hood and boots



Personnel Decon

Updated decon layout



Health and Safety

● Off Hours Medical Monitoring Checklist

TIME		ACTIVITY or PLACE NAME	LOCATION(S) (include City & State)	MODE OF TRANSPORT	CLOSE CONTACT WITH OTHERS?	SYMPTOMS
FROM	TO					
1600	1645	Drove from work to store	Edison, NJ to store	Personal Car	N/A (no passengers)	None

● Post Response Work Monitoring

- 21 Day monitoring (Ebola virus incubation period)
- Self monitor – temperature and symptoms

Waste Management

- Problems to solve
 - What to do with the waste?
 - Where do we send it?
 - How do we get it there?

- Where do we send Ebola Virus Waste?
 - 1 Available disposal facility
 - Veolia, Port Arthur, Texas Incinerator



Smokestacks at Veolia Incinerator Facility near Port Arthur

photo by Chris Hartman

● How do we transport Ebola waste?

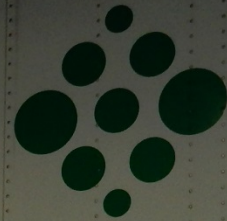
- Need to transport to Port Arthur, Texas
 - Long haul truck
 - Proper permits (Category A Infectious Substance)
- Need to make sure waste is properly packaged
 - DOT Category A Infectious Substance
 - DOT Special Permit SP16279
- Need to do something now
 - Because we can't leave drums of Ebola waste on the street in front of the doctors apartment!

- NYC owned and operated vehicle to move drums from apartment
- Stored at NYC Public Health Lab garage – secure location



- NYC needed to get waste to Veolia, Port Arthur
 - No equivalent of an EPA ERRS contractor
 - Needed separate contracts for transport and disposal
- Worked with Bellevue Hospital
 - Bellevue was treating Ebola Patient
 - Bellevue had existing contracts with a medical waste transporter
 - Bellevue had an agreement with Veolia
- Bellevue agreed to allow apartment cleanup waste to be incorporated into a patient treatment waste load

- NYC truck taken to the waste loading dock at Bellevue Hospital
 - Apartment waste was unloaded from NYC vehicle
 - Overpacked on the loading dock
 - Loaded onto the Stericycle vehicle
- Stericycle truck transported waste non-stop from Bellevue Hospital to the Veolia incinerator in Port Arthur, Texas
 - Required a chase vehicle with full crew and emergency response capabilities



Stericycle
BIO SYSTEM

Protecting People. Reducing Risks

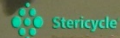
CT-BMW-005
NY-IL-033
TNH-0210
RIMWTRAN-260
REGULATED MEDICAL WASTE

NJ. DEP. 19713
PAHC. 0196

14427

INFECTIOUS WASTE
CHEMOTHERAPEUTIC

53'
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION



910 E. 138th ST.
BRONX, NY 10454
USDOT 287862

GVWR 65,000

L-9164g

6093

6093




NO
IDLING

NO
IDLING



NO IDLING

12:00



Fully taped seams were a
transport requirement

- Ebola Waste Management for an EPA Response
 - Minimize waste generation during cleanup and personnel decontamination
 - Verify current DOT packaging requirements for Category A Infectious Substances
 - Special Permit SP16279
- Must use waste transporters that have “party” status under DOT SP16279
 - List can be found on the DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) website

- DOT Special Permit SP16279
 - Provides alternative packaging and procedures for Ebola containing waste
 - Provides packaging requirements for oversized Ebola contaminated items (large items that cannot be drummed)
- Check with your transporters and disposal facility (facilities) regarding their packaging requirements
 - DOT requires the use of an outer drum but does not specify the size
 - Your transporter or disposal facility may require the use of the 95 gallon overpack

Are you preparing suspected Ebola-contaminated waste for transportation?

Ebola-contaminated waste is considered a Category A infectious substance and must be double bagged and placed in rigid outer package prior to transportation.

Packaging Requirements:

Use plastic film bags, 175 liters or smaller (46 Gallons) that weigh no more than 22 lbs., when filled.

Plastic film bags must be compatible with the EPA-registered disinfectant that is recommended by the CDC for use against the Ebola virus. For the EPA list of registered disinfectants see www.epa.gov/oppad001/list-1-ebola-virus.html.

Packaging Preparation:

1 Bag the waste

- Place contaminated waste into plastic bag
- Use authorized container for sharps
- Wrap sharp edges to prevent puncturing of the plastic bag
- Add EPA-registered disinfectant
- Tie a knot to close the bag
- Treat exterior surface with EPA-registered disinfectant



2 Double bag

- Place first bag into a second plastic bag with the knot facing upward
- Tie a knot to close the bag
- Treat exterior surface with EPA-registered disinfectant



3 Place contaminated waste in outer drum/box

- Place absorbent material in bottom of drum or liner if using fiber drum/box
- Put bags in outer drum (can be metal, poly, or fiber drum/box with plastic liner*)
- If using fiber drum/box, zip-tie liner
- Secure the drum/box

Diagram illustrating the third step: the double-bagged waste is placed into an outer drum/box. The drum/box contains 'ABSORBENT MATERIAL' at the bottom.



For more information on transporting infectious substances, please visit PHMSA's website:
<http://phmsa.dot.gov/hazmat/transporting-infectious-substances>
or contact the Hazmat Info Center: 1-800-467-4922

October 24, 2014



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 16279
(FIRST REVISION)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
 - a. This emergency special permit authorizes the transportation in commerce of certain Ebola contaminated medical waste for disposal. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
 - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.196(a) in that alternative packaging is authorized.

- EPA Waste Management Guidance for Response to Ebola Incidents 2014/2015
 - Guidance (not a set in stone procedure)
 - To assist OSC's with Ebola waste management, packaging, transport and disposal
 - Update in progress
 - Will be available as soon as update complete

● Other Disposal Options

● At this time – NONE

- Veolia, Port Arthur, Texas is still the only facility accepting Ebola virus waste

● Autoclave

- Several successful efficacy tests have been completed
- Possible option in future
- Currently no facilities are permitted
- Facilities may not wish to accept material



THANK YOU VERY MUCH

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