



Decontamination of Equipment Used in the Area of Operations (AO) Impacted by Ebola Virus Disease (EVD)

Technical Information Paper No. 13-032-1014

1. Purpose. This information paper provides guidance for decontaminating equipment used in the Area of Operations (AO) impacted by Ebola Virus Disease (EVD). This document is intended to provide decontamination information specific to Department of Defense (DOD/DoD) equipment deployed with U.S. troops to EVD affected areas. It is not intended to change any existing DoD directives, policies, or procedures provided by Combatant Commands, concept plans (CONPLANS), or Operation Orders (OPORDs) in the AO or the U.S. Africa Command (AFRICOM) Area of Responsibility.

2. Applicability. This information is applicable to DOD-owned equipment. This is preliminary information based upon limited available data. This document is not intended to be a step-by-step instruction and should be read and understood in its entirety prior to commencing any decontamination activity. Hence, there is an expectation that personnel involved with decontamination activities have been trained with the proper use of personnel protective equipment (PPE) respirator protection program, working with hazardous materials, hazards associated with working with infected persons and remains, and waste management and disposal practices.

3. Background. The United States Centers for Disease Control and Prevention (CDC) notes that the 2014 outbreak is the largest outbreak of EVD in history and the first in West Africa. There may be instances during responses to the outbreak when DOD equipment comes in contact with suspected and/or confirmed EVD patients or their bodily fluids.

4. References. Established military procedures for decontamination of military equipment are found in Field Manual (FM) 3-11.5/MCWP 3-37.3/NTTP 3-11.26/AFTTP(I)3-2.60, *CBRN Decontamination: Multiservice Tactics, Techniques, and Procedures for Chemical Biological Radiological and Nuclear Decontamination*, April 2006. The information in this document is meant to supplement methods and procedures in FM 3-11.5 based on current guidance from the CDC and World Health Organization (WHO). See Appendix A for additional references.

5. EVD Transmission.

a. Body fluids and tissue from individuals who develop EVD symptoms are highly infectious. EVD spreads through human-to-

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human transmission with infection resulting primarily from direct contact (broken skin or mucous membranes) with blood, secretions, organs, or other bodily fluids of infected people, and indirect contact with environments contaminated with body fluids. Proper use of PPE when in contact with EVD-infected persons, handling blood or body fluids, and remains of the deceased prevents EVD. Simply being in a country where persons are ill with EVD does not constitute contamination.

b. Persons in contact with suspected and/or confirmed EVD patients must consistently apply appropriate infection control procedures (standard, contact, and droplet precautions). These include basic hand hygiene, respiratory hygiene, and PPE to reduce the risk from splashes or other contact with infected materials, and patient isolation. Prevention guidelines for medical and transport personnel who may come in contact with EVD patients or their bodily fluids are available at <http://www.cdc.gov/vhf/ebola/hcp/index.html>.

c. Given the apparent low infectious dose, potential for high virus titers in the blood of ill patients, and disease severity, higher levels of precaution are warranted to reduce the potential risk posed by contaminated surfaces.¹

d. Infection control guidelines and procedures to disinfect in healthcare settings are readily available from the CDC. The CDC also provides guidance for decontamination procedures for air medical transport of EVD patients and disinfection for airport cargo and cleaning personnel.² This document is intended to augment these resources by providing decontamination information specific to DOD equipment deployed to EVD affected areas.

6. Decontamination and Waste Management Process. The following processes are discussed in this paper.

a. Equipment to disinfect. Mission leadership in theater along with infection control will decide what equipment is reusable and can be disinfected and what equipment will be treated and disposed.

b. Select PPE.

c. Appropriate disinfection chemicals. The on-site Infection Control Officer (ICO) will select the disinfection method and chemicals.

d. Positive control of reusable equipment.

e. Decontamination steps for porous and non-porous equipment.

f. Disposal of solid waste and wastewater generated in the decontamination process.

g. Management of contaminated items selected for disposal.

h. In-theater treatment and disposal of infectious waste.

7. Equipment to Disinfect. Equipment in the AO that does not come in contact with persons ill with EVD does not require special decontamination but should undergo established cleaning protocols for equipment retrograde back to the U.S. Equipment that has come in contact with a suspected and/or confirmed EVD patient or their bodily fluids must be decontaminated as soon as possible after contact.

8. Select PPE. Personnel cleaning and disinfecting equipment must wear PPE. The on-site ICO will determine the appropriate level of PPE for disinfection of equipment. Disposable PPE will not be reused. The ICO will also determine which PPE can be reused and the disinfection procedures necessary. Reusable PPE items will require proper cleaning and disinfection after each use.

a. Donning and doffing of PPE are critical steps in the prevention of exposure. It is imperative that personnel carefully remove PPE after working in potentially contaminated environments to avoid exposure of non-protected skin and mucous membranes. It is highly recommended that donning and doffing of PPE is performed in pairs or with supervision to minimize potential for unintentional exposures. Instructions for putting on and removing PPE are available at <http://www.cdc.gov/HAI/prevent/ppe.html> and <http://www.cdc.gov/vhf/ebola/pdf/ppe-poster.pdf>.

b. The onsite ICO will determine the PPE necessary for the disinfection process. At a minimum, PPE should include doubled disposable gloves with the inner glove taped to the suit, fluid resistant/impermeable gown, eye protection (face shield), and N95 respirator to protect against direct skin and mucous membrane exposure of cleaning chemicals, contamination, and splashes or spatters during cleaning and disinfection activities. Additional barriers (e.g., leg covers, shoe covers) may be required for disinfection process requiring a low pressure sprayer.

c. When there is a greater risk of splashes or splatters, use full Tyvek[®] coverall suit, and overboots, heavy gauge rubber gloves over disposable gloves taped to the coverall suit, along with powered air purifying respirator (PAPR) during cleaning and disinfection activities. (Tyvek[®] is a registered trademark of E.I. DuPont de Nemours and Company.)

9. Selection of Decontamination Method. There are a number of procedures and materials that can be used to decontaminate surfaces suspected of Ebola virus contamination. Not all decontamination methods are suitable or amenable to the material/item that is suspected of contamination. The best method to use depends on the type of material that is contaminated, how the material is contaminated, the ability to obtain decontamination supplies, and other factors specific to the AO. One key element impacting decontamination is the porosity of the material and whether electronic components are present. Establish a decontamination area according to FM 3-11.5/MCWP 3-37.3/NTTP 3-11.26/AFTTP(I)3-2.60, *CBRN Decontamination: Multiservice Tactics, Techniques, and Procedures for Chemical Biological Radiological and Nuclear Decontamination*, April 2006. Dispose of used materials along with any trash and debris in leak-proof bags. Use a rigid waste receptacle designed to support the bag to help minimize contamination of the bag's exterior (see paragraph 17c). Care must be taken to prevent splashes and/or spread of fluids beyond the area of contamination

a. Porous materials. These are materials that will allow liquid and gas to pass through them. These will vary in hardness, density and porosity. As a result, liquids spilled or applied to porous materials absorb into the material making it difficult to decontaminate. Examples of porous materials include paper, fabric, untreated wood/deteriorated wood and foam padding.

b. Non-porous materials. These are materials that will limit or prevent liquid and gas from passing through them. Liquids spilled or applied to these materials will pool or run off the material. Examples of non-porous materials include glass, metals and plastics.

c. Electronic materials. These are items containing electronic circuitry, switches, batteries, wiring, and so forth. The items may or may not be installed or manufactured to prevent exposure to vapors and liquids such as contaminants and decontamination products.

d. Heavily soiled items. These will require repeated treatments of disinfectant to ensure any dried material, soil deposits, organic materials, and so forth, are sufficiently saturated with disinfectant to neutralize any virus present.

10. Disinfection Chemicals. Selected disinfectants and bleach are recommended for killing the Ebola virus. Note that while alcohol is part of any hand sanitation/infection control program (alcohol-based hand sanitizer), it is not effective for decontaminating objects that have been in contact with the Ebola virus.

a. Commercial disinfectants. The EPA has identified a number of disinfectants suitable for Ebola virus decontamination (Table 1). The disinfectants on *List G: EPA's Registered Antimicrobial Products Effective Against Norovirus* have been identified as being effective for use against Ebola virus. Many of these products are peroxide and acidic/alkaline-based cleaners.³ Prepare and use commercial disinfectant following the directions on the product container or packaging. Prepare fresh solutions every 2 hours.

Table 1. National Stock Numbers (NSNs) for Some EPA-Approved Disinfectants

NSN	Trade Name	Nomenclature
6840-01-389-6088	Dispatch	Disinfectant-Detergent, General Purpose
6840-01-491-4889	Dispatch	Disinfectant-Detergent, General Purpose
7930-01-084-3103	Spray Nine	Cleaner, Industrial, Multi-Purpose
7930-01-177-0795	Spray Nine	Cleaner, Industrial, Multi-Purpose
7930-01-346-5280	Spray Nine	Cleaner, Industrial, Multi-Purpose
7930-01-346-5281	Spray Nine	Cleaner, Industrial, Multi-Purpose
7930-01-346-5284	Spray Nine	Cleaner, Industrial, Multi-Purpose
7930-01-393-6747	Spray Nine	Cleaning Compound Solvent Detergent Liquid Disinfectant 25oz 12s

b. Bleach. Dilute bleach is highly effective for decontaminating surfaces and items contaminated with the Ebola virus. Non-porous surfaces that are relatively free of debris and caked or pooled material can be decontaminated with a solution of 0.05 percent bleach [1:100 (~8 teaspoons of bleach added to 1 gallon of water or 10 milliliters (mL) of bleach to 990 mL of water)]. For soiled, dirty and porous surfaces, or when decontaminating an item by immersion, a solution of 0.5 percent bleach solution should be used [1:10 (1 cup of bleach added to 9 cups of water or 100 mL of bleach added to 900 mL of water)].⁴ The bleach solution should be in contact with surfaces/items for at least 10 minutes.

(1) Full strength bleach emits toxic fumes and should never be used in small or enclosed spaces. Ideally, mix your solution outside. If this is not possible, go to a large, well-ventilated room and open the windows.

(2) Carefully pour the bleach into the container first, and then add cold water. Mixing the solution in this order will prevent the bleach from splashing. If any bleach splashes onto skin rinse it off immediately with clean water.

(3) Place the lid on the container and gently invert the container back and forth a few times to mix the bleach and water solution. The solution is now ready to use. Never add any other ingredients to the bleach solution because many substances create harmful fumes when mixed with chlorine bleach.

(4) Chlorine bleach solution begins to lose its disinfectant power rapidly when exposed to heat, sunlight, organic material, and evaporation. To ensure the solution is still strong enough to neutralize the Ebola virus, mix a fresh batch every two hours using cold water and discard any remaining solution.

(5) Use of Super Tropical Bleach (STB) as specified in FM 3-11.5 can be utilized where applicable if it will not degrade/damage the contaminated item.

c. MicroChem Plus™ solution. MicroChem Plus solution is highly effective at decontaminating surfaces and items contaminated with the Ebola virus. Add approximately 190 mL of MicroChem Plus solution to 1 gallon of water to achieve the correct dilution for decontaminating surfaces. The MicroChem Plus solution should remain in contact with surfaces/items for at least 15 minutes. An advantage of MicroChem Plus is that it is not as damaging to sensitive equipment and metal as bleach. (MicroChem Plus™ is a registered trademark of National Chemical Laboratories, Inc).⁵

d. Encapsulated treatment. This method requires encapsulating an item, or area to be decontaminated, within a sealed enclosure whereupon all items within the enclosure are subjected to treatment. Treatment may be in the form of heating, vaporized chemical oxidizers (e.g., hydrogen peroxide vapor, chlorine dioxide), or disinfectant bombs/fogs. The amount of time required to effectively decontaminate the area will be dependent on the concentration used, the contact time, environmental controls (maintaining the temperature and/or concentrations), the size of the space (this will be a factor for reaching the desired concentration), and the integrity of the encapsulation (maintained positive pressure, sealed, and so forth). Failure of any one of these may compromise the decontamination process. Additionally, it will be necessary to validate the treatment process to demonstrate all locations within the enclosed area were adequately subjected to the treatment method used. Validation should occur according to the product instructions. The drawback to encapsulation is the potential for the treatment itself to adversely impact sensitive items contained within the enclosure (i.e., corrosion of electronics, melting of plastics, chemical residues). This form of treatment should only be used in those instances where surface decontamination or disposal of a

contaminated item is not feasible due to the total area requiring treatment, when contamination is not limited to a surface, and/or when the cost to replace an item is high. Specialized equipment for dispersing fumigants and controlling the environment will be required.

This type of treatment, while effective, may not be available in theater.

11. Positive Control of Reusable Equipment. Establish a system for tracking items selected for disinfection and reuse. Establish a means for identifying and tracking all items that have and have not been disinfected. Whether through the use of colored tape, flags, tags, spray paints, or designated holding areas, this is absolutely necessary to ensure all reusable items are decontaminated prior to being released for reuse. Identify one person (or team) as the central controller for tracking and documenting all items subject to disinfection. By utilizing a centralized POC or team, this allows for greater control, monitoring, tracking, and review of potentially contaminated items.

12. Decontamination of Non-Porous Surfaces (e.g., Glass, Metal, Painted Surfaces, Plastics). Coat the surface with disinfectant and let stand for 10-30 minutes. If using hand sprayers, hold the spray nozzle a minimum of 12 inches from the surface to minimize the potential of creating airborne droplets containing virus. Ensure PPE designed for splash protection is worn. During this time, a disinfectant saturated media (i.e., sponge, rag, wipe) can be used to gently spread the disinfectant across and around the surface. Allow to dry. Pressurized applicators (i.e., power washers or garden sprayers) set to 'stream' will increase the potential for creating contaminated airborne droplets.

13. Decontamination of Porous Surfaces. Porous items in direct contact with body fluids from infected patients will be considered saturated beyond in-theater treatment capabilities and will be disposed.

a. Destruction of contaminated clothing and equipment.

(1) Individual clothing. Follow provisions in Army Regulation (AR) 735-5. Replace contaminated clothing when directed to be destroyed by medical authority using DA Form 3078 (Personal Clothing Request) prepared as a gratuitous issue (see AR 700-84 for detailed instructions).

(2) Organizational clothing. Contaminated organizational clothing and individual equipment destroyed by direction of medical authority will be adjusted from property records. List this property on a memorandum, bearing a signed statement naming the medical officer who directed the destruction of the articles, and the signature

of the unit commander. When received by the person maintaining the accountable record, a document number will be assigned to the memorandum, and the memorandum posted as a loss to the accountable record(s).

(3) Property ordered to be abandoned. Follow provisions in AR 735-5. In the course of combat, contingency operations, military advisory activities, or to meet other military requirements, situations may develop requiring the abandonment or destruction of property.

b. Items with porous surfaces that WILL NOT be placed back into use. Saturate items with disinfectant and place into a leak-proof biohazard bag and secure for infectious waste disposal.

c. Some items with porous surfaces will be needed such as passports or other personal items. The ICO will determine the disinfection method for passports.

(1) Remove debris and free liquids/solids from the item by wiping with a disinfectant soaked disposable wipe and place the debris in a leak-proof biohazard bag, saturate with disinfectant, and dispose as described below.

(2) Immerse the item in disinfectant for 10-30 minutes depending on the size and volume of the item being disinfected. The disinfectant bath may need to be replaced if the items are heavily soiled.

(3) Remove the item from the disinfectant and allow excess fluids to drain.

(4) Immerse the item in clean rinse water and allow sufficient time to wash off the disinfectant. One or more rinses may be required depending on the absorbent qualities of the material.

(5) Remove the item from the rinse water and allow to air dry.

NOTE: Infection control will determine how to accomplish disinfection and collect wastewater for items that cannot be immersed due to size or inability to detach from a mount. .

d. Decontamination of injured personnel is addressed in ATP 4-02.84/MCRP 4-11.1C/NTRP 4-02.23/AFMAN 44-156-IP, *Multiservice Tactics, Techniques, and Procedures for Treatment of Biological Warfare Agent Casualties*, March 2013. Physical removal of contaminants is the primary method of decontamination for personnel. Physical removal starts with removing contaminated clothing and then washing and wiping the injured person but never vigorous scrubbing that could abrade

the skin. Skin abrasions whether through rubbing or harmful chemical reaction allow infectious agents to move rapidly through the skin barrier. Wipe with disinfectant soaked disposable cloths, followed by soap and water. Fat-based soaps and emulsifiers (for example, baby shampoo, Castile liquid soap, or soft soap) are much more effective than liquid or powder detergents. Detergents tend to dry the skin and should not be used. Soap and water is best used during a thorough decontamination, but can also be used for immediate (gross) and operational patient decontamination if available and practical. Do not use hot water for skin decontamination as it will open skin pores allowing infectious agents to rapidly penetrate and absorb into skin. For best results, use tepid or lukewarm water with soap.⁶

14. Decontamination of Electronic Equipment. Moisture, dust, and corrosive decontamination chemicals can damage unsealed electronic equipment circuitry. Most field electronic equipment is watertight to protect it from environmental damage. This also provides good protection against biological contamination. Contamination will probably not penetrate gasket-equipped protective covers and sealed components on electronic equipment; but if exposed, the contaminants may be present on the outside of cases containing the electronic equipment. Wipe down the outside of the equipment case with an approved decontaminant and let stand for the contact time required for that decontaminant. After decontaminating the outside, wipe down the equipment with water or an approved solvent to remove traces of decontaminant solution. If equipment seals appear damaged or penetration of the Ebola virus into the equipment is suspected, treat the item as if it were unsealed. Under no circumstances should electronic equipment be immersed in a decontaminant solution or subjected to high-pressure application of decontaminant solutions.⁷ Segregate contaminated electronic equipment in a dirty area until technical experts can determine the best decontamination method. Electronic equipment that cannot be decontaminated must be disposed as infectious waste.

15. Decontamination of TA-50 Including Body Armor and load Bearing Equipment. Chlorine bleach must not be used on body armor intended for reuse as it can destroy the composition of the gear and compromise its ballistic integrity. Use of MicroChem Plus and water solution treatment is recommended as less harmful to the material than bleach or STB. If the item must be decontaminated and no chemical disinfection options can be utilized, boiling the item for 1 hour in soapy water is the preferred decontamination method.⁷

16. Disposal of Solid Waste and Wastewater Generated During Decontamination.

a. Solid waste generated from equipment decontamination and disinfection (to include PPE) should be placed in leak-proof bags. These bags should be tied off and the exterior sprayed with disinfectant and placed in a second leak-proof bag, tied off, and the exterior sprayed with disinfectant. These are then disposed as infectious

waste¹ (see paragraph 17c). Care must be taken to prevent splashes and/or spread of fluids beyond the area of contamination

b. Wastewater. Although decontamination is intended to destroy or inactivate the Ebola virus, it is very likely that wastewater from the decontamination process contains the active virus. Disposing of the wastewater through sanitary sewers is advisable only if additional disinfection occurs as part of the wastewater treatment process. However, in the areas of Africa where EVD is present, functioning modern sewers with disinfection prior to discharge may not be available.

c. Using a soakage pit (Technical Manual (TM) 3-34.56/MCIP 4-11.0, para 4.25) is an option if the site selected is completely isolated from any surface water or subsurface source of drinking water. If soakage pits are used, after the rinse water enters, add enough lime to achieve a pH of 12 or above and maintain the pH at this level for 2 hours without adding more lime. Each time the pH slips below 12, add more lime and wait another 2 hours from the time the additional lime was added.⁸ After the pH has successfully been maintained for 2 hours as described above, cover the area with soil and secure the area so that it is not used for farming, irrigation, digging of wells, and so forth.

d. Lime is generally available at farm supply stores in the U.S. for soil pH adjustment and may be available in less developed areas of the world. The lime addition rate to the pit should be approximately 50 pounds (23 kilograms) per 1,000 gallons (3,785 liters) of contaminated rinse water. The lime will react with the water to produce heat. It is best to add the lime as a slurry to the pit by premixing it with other water (NOT the contaminated rinse water), rather than pouring the powdered lime directly into the contaminated rinse water.

17. Management of Contaminated Items Selected for Disposal.

a. Non-porous Items. All non-porous items/surfaces must be decontaminated using specified disinfectants. Items can then be classified as noninfectious and placed back into service. If a unit determines the decontaminated items are unserviceable or unwanted, utilize established military procedures for turn-in and disposal.

b. Porous Items. Porous items in direct contact with body fluids from infected patients will be considered saturated beyond in-theater treatment capabilities and will be disposed as infectious waste. Ensure that porous items identified for disposal are placed in leak-proof bags. These bags should be tied off and the exterior sprayed with disinfectant and placed in a second leak-proof bag, tied off, and the exterior sprayed with a disinfectant and disposed as infectious waste

Hospital tents will be disinfected while still in use. To disinfect, measure out 5 feet in all directions around the area soiled with body fluids and mark this boundary. Disinfect the measured area plus approximately 2 feet beyond the marked boundary in all directions. Disposition of the tent will be determined when operations in theatre cease.

c. Packaging and Handling for disposal. Use heavy duty red bags with biohazard symbols if possible.

(1) Once the material is placed into the leak-proof bag, securely tie the bag and place it in a secure area for storage.

(2) Treat the exterior surface of the primary bag with bleach or other approved disinfectant by spraying the bag thoroughly.

(3) Place the primary bag into a secondary leak-proof bag and securely tie the second bag.

(4) Treat the exterior surface of the secondary leak-proof bag with bleach or other approved disinfectant by spraying the bag thoroughly.

(5) If use of red biohazard bags is not possible, affix signs or paper labels to the secondary bags to indicate the contents of the bags are infectious waste.

(6) Place the bags in a designated, clean rigid waste receptacle for transport to the infectious waste storage area.

d. Storage area. To store the infectious waste prior to treatment and disposal, select a secure location that provides maximum protection from vectors, is enclosed, and protected from the weather. A Military Van (MILVAN) or Container Express (CONNEX) may be used for this purpose. Keep this waste separate from all other types of waste.

18. In-Theater Treatment and Disposal. Personnel handling the EVD waste containers in the treatment and disposal process will don and doff the same level of PPE used by personnel who generate the infectious waste.

a. Incineration is the preferred and most effective disposal method for infectious waste; however, incineration options may be limited. Incineration options include:

(1) Collaborating with local hospitals which may have incineration capabilities.

(2) Determining whether DOD Mediburn incinerators are in the AO and coordinating for their use.

(3) Constructing an inclined plane incinerator as described in Chapter 3 of TM 3-34.56/MCIP 4-11.01, Waste Management for Deployed Forces, July 2013. The inclined-plane incinerator is a field-expedient means to treat and destroy infectious waste, including sharps (syringes, and so forth). Depending on the size constructed, it can accommodate the waste generated by a combat support hospital or similar-size unit. The waste feed to the inclined-plane incinerator should be mixed at approximately 10 percent, by weight, infectious waste (to include sharps) to 90 percent, by weight, of regular trash. This mixture will help ensure the hottest and cleanest burn possible. General specifications for the inclined plane incinerator are:

(a) Insert a sheet of metal through two telescoped 55-gallon drums that have had both ends removed.

(b) The sheet of metal should extend 2 feet beyond the upper end of the telescoped barrels to serve as a loading or stoking platform.

(c) Position the drums, with the plane in place on an inclined surface (hill).

(d) Position a grate at the lower end of the drums. The fire (wood or fuel oil) will be built under the grate.

(e) After the incinerator becomes hot, place the infectious waste on the loading platform (metal sheet). As the waste starts to burn, push it down the incline in small amounts.

(f) Final combustion takes place on the grate.

(4) Burning should be avoided when the wind may blow the resulting smoke toward the base camp or other inhabited areas. Depending on the guidance established for the theater of operations, if the ash does not contain sharps and has been evaluated for hazardous characteristics, it can be buried with other solid waste. If it is determined to be hazardous, manage as hazardous waste. If it is nonhazardous but contains sharps, it must be placed in 55-gallon drums that will be retrograded to an approved landfill. A retrograde shipment of drums containing this ash is not considered a hazmat shipment. If retrograding sharps is not an option, they should be buried below scavenger depth (approximately 8 feet).⁹

(5) Soldiers involved in the actual burning of medical waste must wear PPE that is both protective from exposure to infectious waste as well as inhalation hazards. An

air-purifying respirator (cartridge or canister) with a high-efficiency particulate air filter is recommended. Paper surgical masks do not protect from hazards inherent in the burning of waste and should not be substituted for an air-purifying respirator. Wearing a Soldier's personal protective mask is also not recommended. Though a Soldier's personal protective mask is equipped with a high-efficiency particulate air filter, it is best used to protect the Soldier against chemical and biological threats.⁹

b. The DoD Instruction (DoDI) 4715.19, *Use of Open-Air Burn Pits in Contingency Operations*, prohibits the disposal of waste in open-air burn pits during contingency operations except in circumstances in which no alternative disposal method is feasible as determined in accordance with the procedures in this document. Refer to DoDI 4715.19 for details.

c. The WHO provides the option of burying waste in a designated pit of appropriate depth (2 meters or about 7 feet) and filled to a depth of 1–1.5 meters (about 3–5 feet). After each waste load, the waste should be covered with a layer of soil 10–15 centimeters (4–6 inches) deep.¹⁰

19. Point of Contact. The point of contact for this document is the Army Institute of Public Health Waste Management Program at 410-436-3651 or DSN 584-3651.

Endnotes:

¹<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

² <http://www.cdc.gov/quarantine/air/managing-sick-travelers/ebola-guidance-airlines.html>

³http://www.epa.gov/oppad001/list_g_norovirus.pdf

⁴<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php>

⁵http://www.nclonline.com/products/view/MICRO_CHEM_PLUS_

⁶ATP 4-02.84/MCRP 4-11.1C/NTRP 4-02.23/AFMAN 44-156_IP, *Multiservice Tactics, Techniques, and Procedures for Treatment of Biological Warfare Agent Casualties*, March 2013, Appendix B

⁷FM 3-11.5/MCWP 3-37.3/NTTP 3-11.26/AFTTP(I)3-2.60, *CBRN Decontamination: Multiservice Tactics, Techniques, and Procedures for Chemical Biological Radiological and Nuclear Decontamination*, April 2006, page E-2

⁸40 Code of Federal Regulations, Part 503, Rules on lime stabilization of biosolids

⁹TM 3-34.56/MCIP 4-11.01, *Waste Management for Deployed Forces*, July 2013, Chapters 3 and 6

¹⁰<http://www.who.int/csr/resources/who-ipc-guidance-ebolafinal-09082014.pdf>, page 9

Appendix A

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