

FAD PReP/NAHEMS Tactical Topics:

Cleaning and Disinfection

Information is based on the **Foreign Animal Disease Preparedness and Response Plan (FAD PReP)/National Animal Health Emergency Management System (NAHEMS) Guidelines: Cleaning and Disinfection (2014)** to be used in training for or during an animal health emergency. References to the Guidelines sections are provided in parenthesis for more detail.

Introduction/Overview: Cleaning and Disinfection (C&D) procedures are employed to inactivate or destroy targeted microorganisms and inhibit or prevent their further spread. Follow proper C&D protocols to protect non-exposed animal populations, ensure the safety of response personnel and the community in zoonotic situations, and also safeguard public health and the environment.

FOR QUESTIONS REGARDING C&D PROCEDURES: Contact your immediate supervisor. Follow chain of command.

Responsibilities for C&D within the ICS – Cleaning and Disinfection Group (3)

- Incident Commander (IC): Holds ultimate responsibility for C&D activities.
- C&D Group Supervisor: Leads C&D Group which is part of the Operations Section. Supervises C&D activities, provides technical advice, ensures appropriate C&D protocols are implemented, assigns personnel, and coordinates C&D activities with other response groups.
- C&D Team Leader: Supervises on-site activities of C&D Team. Trains C&D personnel on policies and procedures.
- C&D Team Member: Performs assigned C&D tasks. Properly uses and disposes of C&D agents and materials, follows all safety requirements at assigned site such as production facility, processing site, or C&D station.

Basic Cleaning and Disinfection Protocol for All C&D Tasks

Step 1: Cleaning (4.1):

- Dry Cleaning: Remove all gross contamination and organic material from equipment or production areas to achieve maximum disinfectant efficacy.
- Washing: Wash items or area with detergent and warm to hot (90-130° F [32-54 C°]) water to further reduce the number of microorganisms and remove oil, grease, or exudates. Presoaking, mechanical scrubbing, or scraping may be necessary to fully remove materials. **NOTE: Turn off and remove or tightly cover all electrical equipment prior to washing.**
- Rinse and Dry: Thoroughly rinse all surfaces to remove cleaner and detergent residues. Rinse with cold water at low pressure. Inspect surfaces to ensure they are visibly clean. Dry surfaces completely before applying disinfectant.

Step 2: Disinfection (4.2):

- Accomplish by either chemical or physical means or a combination of methods.

Chemical Disinfection (5.2)

- Application: Apply disinfectant to surfaces which have been thoroughly cleaned, rinsed and dried.
- Contact Time: Allow disinfectant to sit on surfaces for the contact time specified on the label. Reapply the disinfectant as needed to keep the surface wet throughout the contact time.
- Rinse and Dry: After the contact time has elapsed, thoroughly rinse. Allow areas to air dry.
- Premises Downtime: Following C&D, premises should have a specified period of downtime (remain free of animals or activity) to allow complete drying and to further reduce or eliminate any remaining microorganisms.

Physical Disinfection (5.1)

- Methods used in the field include heat (steam, bake, flame), pasteurization, and ultraviolet radiation (sunlight).

General Considerations for Disinfectant Use (6.2)

- Follow all label instructions when preparing, handling and applying disinfectants.
- Match the application method (wiping, brushing, spraying, misting, fumigating) with an appropriate product for the surface or item and pathogen.
- Dilute chemical disinfectants with clean water to the proper concentration as indicated on the label.

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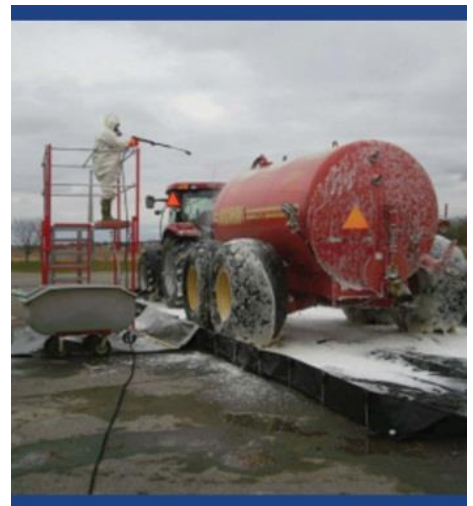
- Apply disinfectant to dry surfaces. Moisture on surfaces (e.g., rainfall) dilutes and can reduce the efficacy of the disinfectant.
- Observe label instructions regarding stability and storage. In general, store disinfectants in a cool, dark place, preferably in stock concentrations.
- Follow all safety precautions when handling, mixing and applying chemical disinfectants. Read Material Safety Data Sheets (MSDS) listing the stability, hazards, personal protection needed, and first aid for all chemical disinfectants. Use PPE including gloves, face and eye protection.
- Use products on surfaces for which they have been approved.

Environmental Conditions Impact Disinfectant Efficacy (6.3)

- Organic load
- Surface topography
- Temperature
- pH
- Water hardness
- Relative humidity and excessive moisture on surfaces
- Presence of other chemicals

Preparation and Application (7.5)

- Prepare and apply all disinfectant solutions as directed. Only EPA-registered or approved products should be used.
- If possible, prepare fresh solutions immediately prior to use. Some solutions may remain active for only a short time. Test kits can help determine the efficacy.
- Determine the quantity of disinfectant solution needed based on the total surface area to be covered, include the floor, ceiling, walls, and fixed equipment. One gallon of diluted disinfectant usually covers approximately 100-150 square feet of surface area.
- Apply disinfectants in a systematic manner to ensure all areas/surfaces are adequately treated for the recommended contact time.
- Use caution applying disinfectant around feeders, waterers or other animal contact areas and thoroughly rinse areas before reintroducing animals.
- Properly clean pressure sprayers and pumps to remove potentially corrosive disinfectant solutions.
- Treat used cleaning and disinfection supplies (e.g. mops, towels) as biohazardous waste and discard or properly disinfect them before removal from premises.



Safety and Precautions (10)

- Do not use any disinfectant method until trained on proper procedures and safety precautions.
- **Chemical Hazards:** Follow all safety precautions and wear appropriate PPE. Chemical disinfectants may cause skin, eye or respiratory irritation or damage.
- **Physical Hazards:** Be alert for physical hazards at C&D sites. Be aware of your surroundings to avoid slips, trips and falls on uneven or wet surfaces. Use extra caution while wearing PPE as it may impair mobility. Exercise caution to avoid burns when using steam or flame disinfection methods. High pressure sprayers can cause skin damage. Dust generated during C&D efforts may cause respiratory irritation.
- **Environmental Hazards:** Avoid allowing runoff containing infectious or chemical waste to flow into lakes, creeks, ponds or other waterways.
- **PPE:** At a minimum, personnel engaged in C&D operations should wear coveralls, boots and gloves. Face, eye, and respiratory protection should be worn as needed based on the product or application method, and in cases of zoonotic diseases. Additional PPE may be required based on the type of disinfectant or disinfection method such as with formaldehyde or acidic disinfectants.