Animal Decontamination

Chemical Events and Natural Disasters

Risks

- Natural disasters
  - Floods, hurricanes, tornadoes, earthquakes
- Agricultural or industrial
  - Chemical spill
  - Gas leak
- Terrorism/criminal event
  - Chemical toxins
  - Microbial pathogens

Goals of Decontamination

- Neutralize/remove harmful materials
- Confine to specified area
- Limit exposure time
  - Limit tissue damage and absorption
  - Prevent systemic poisoning
- Prevent secondary contamination to responders and other animals

Contaminants of Concern

- Solids
  - Fecal materials from manure pits or septic tanks containing pathogenic microorganisms
  - Mold spores
- Liquids
  - Gasoline, diesel fuel, motor oil, solvents, kerosene, propane
  - Insecticides, herbicides, fungicides, rodenticides
  - Soaps, detergents, disinfectants, household cleaners
  - Heavy metals: Arsenic, lead
- Particulates
  - Dust, smoke, debris in air
  - Fiberglass and asbestos fibers
- Toxic gases
  - Confined manure pits or tanks
  - Methane, hydrogen sulfide, carbon dioxide, ammonia
  - Anhydrous ammonia, chlorine
  - Toxic fumes from burning products
  - Chemical reactions
    - Ammonia + hypochlorite (bleach) = chlorine gas
  - Pipeline breakage
  - Gasoline/diesel exhaust
  - Welding/cutting torch fumes

Exposure

- Contact with skin
- Ingestion
  - Eating, drinking
  - Licking fur or contaminated surface
- Inhalation
- Ocular (eyes)
  - Fumes, dust, particulates, splashing liquid
- Indirect cross contamination

Animals Affected

- Pets
- Service animals
- Working dogs
- Livestock, horses, poultry
- Captive and concentrated animal populations
- Wildlife
Affects To Animals

- Similar to humans
- Immediate (acute) damage
  - Skin irritation, redness
  - Chemical burns, hair loss
  - Respiratory distress
  - Systemic shock, death
- Chronic injury
  - Respiratory damage, scarring
- Carcinogenesis

Considerations

- Human safety
  - Animal welfare and health
- Response needs
  - Personnel and resources required
  - Personnel safety
- Specific toxic substance
- Number and variety of species
  - Time constraints

Environmental Issues

- Large volumes of wastewater
- Contaminated objects
  - Leashes, collars, halters, hair
- Legal or jurisdictional issues/regulations
  - Consult with officials before and after regarding appropriate disposal measures
- Weather conditions
  - Fans, shade, shelter to avoid overheating
  - Dryer, heater, shelter to avoid hypothermia

DECONTAMINATION SETUP

Site Control Zones

- All areas should be clearly demarked
- Monitor access
  - Prevent unauthorized access
  - Contain contaminant

- Hot Zone – contains hazard
- Warm Zone – decontamination area
  - 3 stations
- Cold Zone – medical treatment, kennel area, quarters

Site Setup

- Location
  - Upwind and uphill
  - Close but safe distance from incident
  - Flat, level area
  - Ample size
- Water supply
- Runoff containment
  - Avoid environmental impact

**DECONTAMINATION PROCEDURE**

**Warm Zone: Station 1**
- Medical assessment
  - Emergency decontamination
- Photograph and record information
  - Owner, if available
  - Location found
- Remove and discard contaminated items (e.g., collars, halters)
- Place clean restraining device

**Station 1, continued**
- Preliminary rinse
  - Some contaminants may be reactive (and more dangerous) when mixed with water
- Move to Station 2

**Warm Zone: Station 2**
- Flush animal’s eyes
  - Saline solution
  - Not eye ointment
- Wash-Rinse
  - Mild liquid detergent
  - Lukewarm water
  - Wipe head area with moist towelette/gauze
  - Careful attention to skin folds and creases
- Provide non-slip surface

**Station 2, continued**
- Rinse thoroughly
- Repeat process as necessary
  - 3 times for maximum benefit
- Animal temperament
  - Muzzle or other restraint
  - Head gate or chute for large animals
  - Chemical sedation on limited basis

**Warm Zone: Station 3**
- Kill microbial contaminants
  - Use antimicrobial solution
  - Minimum contact time
- Set up like Station 2
  - Wash basin/shower
  - Rinse station
- Re-examine
  - Contaminant found – Re-decontamination
  - No residual contaminant – Cold Zone
Cold Zone

- Re-examine for residual decontamination
  - If found, repeat decontamination procedure
- If decontamination was adequate
  - Move to cold zone
  - Triage room for veterinary care

Responders

- HAZMAT training
- Personal Protective Equipment
  - Eye protection, gloves, waterproof clothing, respirator
- Animal handlers
  - Not animal owner
  - Except for working dogs

Responder Safety

- Injury from animals
  - Bites, scratches, crushing, kicks
  - Contaminant exposure
- Heavy lifting
  - Back injuries, muscle strain
- Biological hazards
  - Zoonoses
- PPE safety issues
  - Slip, trips and falls

Resources


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