

# Animal Decontamination:

## Natural Disasters/Chemical Events

During some animal health emergencies, animals may be exposed to toxic materials in the environment. Efforts to decontaminate animals may be necessary to prevent adverse health effects.

### Risks of Contamination of Animals

- **Natural disasters:** floods, hurricanes, tornadoes, earthquakes
- **Agricultural or industrial:** chemical spill, gas leak
- **Terrorism/criminal event:** chemical toxins, microbial pathogens

### Decontamination

- The process of neutralizing and removing harmful materials that animals (or people) have been exposed to
- **Goals of decontamination**
  - Confine to specified area
  - Limit exposure time
  - Limit tissue damage and absorption
  - Prevent systemic poisoning
  - Prevent secondary contamination to responders and other animals
- A wide variety of contaminants may be present
  - Hazardous substances may be in the form of solids, liquids, particulates, or gases;
  - Many are flammable, reactive with water, toxic.
- **It is very important to know the specific toxicant or contaminants involved.**
  - Determines the level of risk and specific decontamination measures needed, and any short-term or long-term impacts

### Animal Exposure

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

### Affects To Animals

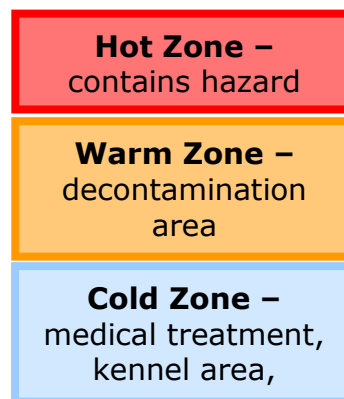
- **Similar to humans**
- **Immediate (acute) damage**
  - Skin irritation, redness
  - Chemical burns, hair loss
  - Respiratory distress
  - Systemic shock, death
- **Chronic injury**
  - Respiratory damage, scarring
- **Carcinogenesis**

### 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 (e.g., leashes, collars, halters, hair)
  - Legal or jurisdictional issues/regulations - consult with officials before and after regarding appropriate disposal measures
  - Weather conditions

### Decontamination Setup

- **Site Control Zones**
  - All areas should be clearly demarked
  - Monitor access
  - Prevent unauthorized access
  - Contain the contaminant



## ➤ Site Setup

- Locate upwind and uphill from hot zone at a close but safe distance from the incident
- The area should be flat and level and of ample size for animals and responders
- Water supply
- Runoff must be contained to avoid environmental impact

## Decontamination Procedure

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### ➤ Warm Zone: Station 1

- Medical assessment
- Photograph and record owner and location information
- Remove and discard contaminated items (e.g., collars, halters)
- Place clean restraining device
- 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 with saline solution. **DO NOT USE eye ointment** until there is confirmation there is no contamination or ocular damage (e.g., corneal ulcers). Petroleum based ointments can absorb chemical agents and worsen the damage
- Wash with mild liquid detergent and lukewarm water
- Wipe head area with moist towelette/gauze
- Pay careful attention to skin folds and creases
- Provide non-slip surface for the animal
- Rinse thoroughly with lukewarm water
- Repeat as needed; 3 times for maximum benefit
- The animal's temperament may require use of muzzle or other restraint; head gate or chute for large animals. Use chemical sedation only on limited basis.
- Move to Station 3

### ➤ Warm Zone: Station 3

- Kill microbial contaminants through the use of antimicrobial solutions
- Minimum contact time is essential
- Set up like Station 2 with a wash basin/shower and a rinse station
- Re-examine the animal.
- If contaminant found, re-decontamination
- If no residual contaminant, move to the Cold Zone for drying and veterinary care

## Responder Safety

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### ➤ HAZMAT training

- **Personal Protective Equipment:** Eye protection, gloves, waterproof clothing, respirator
- **Experienced animal handlers:** Not animal owner – Exception for working dogs
- **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

## Additional Resources

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- National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP). Animal Decontamination Best Practices. 2012. <http://www.learn.cfsph.iastate.edu/dr/node/157>.
- Soric S, Belanger MP, Wittnich C. A method for decontamination of animals involved in floodwater disasters. J Am Vet Med Assoc. 2008 Feb 1; 232(3):364-70.
- FEMA Animals In Disasters – Technological Hazards at <http://www.training.fema.gov/emiweb/downloads/is10a-6.pdf>
- Murphy L, Slessman D, Mauck B. Decontamination of Large Animals. In Technical Large Animal Emergency Rescue, Gimenez R, Gimenez T, May KA, editors. 2008. Wiley-Blackwell, Ames. ISBN#978-0-813801998-3.
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- Murphy L. Responding to Mass Exposures. In Small Animal Toxicology, 3<sup>rd</sup> edition. Peterson ME, Talcott PA, editors. 2013. Elsevier Saunders: St Louis. ISBN#978-1-4557-0717-1.
- Soric S, Belanger MP, Wittnich C. A method for decontamination of animals involved in floodwater disasters. J Am Vet Med Assoc. 2008 Feb 1; 232(3):364-70.

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