HAZARD/VULNERABILITY ANALYSIS & MITIGATION STRATEGIES

# Instructions This step is expected to take 1 – 2 hours

The purpose of a hazard & vulnerability analysis (or HVA) is to help you identify, analyze, and prioritize the array of hazards facing your organization so that you can take steps to minimize their impacts and increase your organization’s resiliency.

**Columns A, B, & C:** The chart below contains a broad list of hazards located in the far left column. The remaining columns correspond to the LIKELIHOOD of a particular hazard and its potential CONSEQUENCES for your organization/facility. To complete the chart, simply rate each hazard on a scale of 1 to 3 for columns (A) and (B), then calculate each hazard’s Overall Risk Rating in column (C). The examples below can be used to help you get started.

**Column D:** Once you have calculated a risk rating for each hazard/threat, you will need to come up with ways to mitigate/minimize their impacts on your organization. In many cases, a few simple preventative actions can greatly reduce these risks or eliminate them altogether. If you are not sure what you can do to mitigate or eliminate hazards, don’t worry! The Internet and websites such as [www.ready.gov](http://www.ready.gov) can be an excellent source of information. For your convenience, there is also a listing of general safety and risk reduction tips for some of the most common hazards (and a few uncommon ones) on the last page of this document for your convenience.

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| **HAZARD/THREAT** | **(A) LIKELIHOOD**  **What is the chance that this hazard will occur at or near your organization or facility?**  Very Unlikely = 1 Somewhat Likely = 2  Very Likely = 3 | **(B) CONSEQUENCE**  **What is the potential for injury, death, property damage or interruption to services if the event were to occur?**  Low = 1  Medium = 2  High = 3 | **(C) OVERALL RISK RATING**  To calculate your overall risk rating, simply multiply  Column A by  Column B  (A) X (B) = (C) | **(D) MITIGATIONS STRATEGIES**  List actions that you will take to minimize/mitigate the potential risk to your organization or facility. |
| *Ex: Earthquake* | *3* | *3* | *9 = High* | *Secure any objects that could fall on animals; get outside asap; avoid unstable buildings; anticipate aftershocks; provide first aid/veterinary care; anticipate tsunamis; evacuate to higher ground; secure any objects that could fall on animals…* |
| *Ex: Water-borne illness* | *1* | *2* | *2 = Low* | *Do not serve animals water from non-potable sources. Use only boiled or bottled water & store bottled water on site; Monitor animals for signs of water-borne illness; Keep facility clean...* |
| *Ex: Internal*  *Fire* | *2* | *3* | *6 = Moderate* | *Install fire extinguishers, sprinkler systems & smoke detectors; Enforce “No Smoking” policies; Replace faulty wiring; Create an evacuation plan and exercise it regularly.* |

\*Hazards Rated **7 - 9** in Column (C) = **High Risk** Hazards Rated **4 - 6** in Column (C) = **Moderate Risk** Hazards/Threats Rated **1 - 3** in Column (C) = **Low Risk**

**Naturally-Occurring Events**

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| *Dam Inundation or Flash Flood* |  |  |  |  |
| *Drought* |  |  |  |  |
| *Earthquake* |  |  |  |  |
| *Extreme Cold Spell* |  |  |  |  |
| *Extreme Heat* |  |  |  |  |
| *Flood* |  |  |  |  |
| *Hurricane* |  |  |  |  |
| *Ice Storm* |  |  |  |  |
| *Land/Mudslide* |  |  |  |  |
| *Severe Thunderstorm &/or Lightning* |  |  |  |  |
| *Severe Winter Storm* |  |  |  |  |
| *Snowfall or Blizzard* |  |  |  |  |
| *Tornado* |  |  |  |  |
| *Tsunami* |  |  |  |  |
| *Volcano* |  |  |  |  |
| *Wildfire* |  |  |  |  |

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**Man-Made & Animal-Caused Events**

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| *Animal Abduction* |  |  |  |  |
| *Attack on Animals by Humans* |  |  |  |  |
| *Bomb Threat* |  |  |  |  |
| *Break-In or Theft* |  |  |  |  |
| *Civil Disturbance (protest, riot, etc.)* |  |  |  |  |
| *Explosion* |  |  |  |  |
| *Fire (external)* |  |  |  |  |
| *Chemical Release or Spill* |  |  |  |  |
| *Infectious Disease Epidemic* |  |  |  |  |
| *Mass Casualty (trauma/medical/infectious)* |  |  |  |  |
| *Nuclear/Radiologic* |  |  |  |  |
| *Poisoning (of animals)* |  |  |  |  |
| *Terrorism* |  |  |  |  |
| *Unintended Release of Animals* |  |  |  |  |

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**Technological Events**

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| **HAZARD/THREAT** | **(A) LIKELIHOOD**  **What is the chance that this hazard will occur at or near your organization or facility?**  Very Unlikely = 1 Somewhat Likely = 2  Very Likely = 3 | **(B) CONSEQUENCE**  **What is the potential for injury, death, property damage or interruption to services if the event were to occur?**  Low = 1  Medium = 2  High = 3 | **(C) OVERALL RISK RATING**  To calculate your overall risk rating, simply multiply  Column A by  Column B  (A X B = C) | **(D) MITIGATIONS STRATEGIES**  List actions that you will take to minimize/mitigate the potential risk to your organization or facility.  Note: “Low Risk” events *can* and *do* occur as a result of inadequate data, assessment errors, freak occurrences, and the like. Be careful not to overlook this category and develop mitigation strategies for all hazards and threats facing your organization. |
| *Building Collapse/Unsafe Structure* |  |  |  |  |
| *Communications Failure (telephones, 2-way radios, etc.)* |  |  |  |  |
| *Electrical Failure* |  |  |  |  |
| *Fire (internal)* |  |  |  |  |
| *Flood (Internal)* |  |  |  |  |
| *Generator/Back-up Failure* |  |  |  |  |
| *HVAC Failure (Air Conditioning)* |  |  |  |  |
| *HVAC Failure (Heating)* |  |  |  |  |
| *IT/Information Systems Failure* |  |  |  |  |
| *Supply Shortage (food/water/medicine)* |  |  |  |  |
| *Water/Sanitation Failure* |  |  |  |  |

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**Here are some SAMPLE MITIGATION STRATEGIES to help you get started:**

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| **Dam Failure/Flash Flood** | Do not house animals in low-lying areas or flood zones; get animals to higher ground immediately & avoid areas subject to flooding (such as recent burn areas, locations surrounded by steep hillsides, etc.); do not attempt to walk across flowing streams or drive through flooded roadways; if water rises before you evacuate, go to the top floor, attic, or roof; do not tie up animals or leave them in carriers to drown. |
| **Drought/ Extreme Heat** | Ensure animals have ready access to sufficient supplies of suitable water, shade, air conditioning, etc.; limit exercise; watch for signs of heat stroke; apply ice packs, cool water, or other cooling measures; plan for power outages; have a back-up generator to run refrigerator & air conditioning; don’t forget that the ground-especially concrete and asphalt can get extremely hot! Take measures to protect animals’ paws during walks and other outings with booties or by walking/laying on other, cooler surfaces such as grass or areas with plenty of shade. |
| **Earthquake/ Tsunami** | Get outside as soon as possible; keep animals calm so they won't bolt and run away; avoid areas with gas leaks, contaminated water, downed electrical lines, & unstable buildings; anticipate aftershocks & loss of power/water; provide first aid/veterinary care; anticipate tsunamis & evacuate to higher ground (if possible); post a rescue alert sticker which will let rescuers know that animals are inside your facility; keep an emergency kit & supplies handy with items such as medical records, water, pet food, medications & First Aid supplies; arrange a safe haven for your animals in the event of evacuation; secure any objects, materials, & shelving that could fall on animals. |
| **Winter Storm/Extreme Cold Spell** | Keep animals inside, warm, hydrated & well fed; during/after walks, check animals’ paws frequently for signs of cold-weather injury or damage, such as cracked paw pads or bleeding; recognize signs of cold distress such as shivering, anxiety, slow movements, or burrowing for warmth; avoid ice (e.g. frozen lakes, streams, etc.); plan for power outages (i.e. have a back-up generator to run heaters); make sure portable space heaters do not emit carbon monoxide. |
| **Tornado** | Bring most animals inside (release horses & livestock & close barn doors); if you have to evacuate, take animals with you; make sure all animals & carriers are tagged; keep animals calm so they won't bolt & run away; afterwards, avoid areas with gas leaks, contaminated water, downed electrical lines, & unstable buildings; anticipate loss of power, water, sewer; provide first aid/veterinary care; make tornado shelters “animal friendly” spaces. |
| **Wildfire** | Remove dry vegetation & other combustibles to create a defensible space around building or facility; create an evacuation plan; evacuate early; plan for loss of power, water, etc.; post a rescue alert sticker, which will let rescuers know that animals are inside your facility; keep an emergency kit & supplies handy with items such as medical records, water, pet food, medications, & First Aid supplies; arrange a safe haven for your animals in the event of evacuation; do not leave your pets behind; tag all animals with permanent form if I.D. and label all carriers. |
| **Water and/or Sanitation Failure** | Do not drink or serve animals water from non-potable sources (water-borne illness); use only boiled or bottled water & store bottled water on site; separate/quarantine sick animals; clean-up & dispose of animal waste as soon as possible; ration water supplies as a last resort. |
| **Hazardous Materials Release/ Chemical Spill** | Store chemicals properly (i.e. in a locked/limited access as far area away from animals as possible, separate incompatibles, store in ventilated, dry, cool areas; read labels & the material safety data sheet (MSDS) before using any material (especially around animals); make sure all materials are properly labeled and in an appropriate container; report any damaged containers or illegible labels; after handling any chemicals, wash thoroughly with soap & water (DO NOT touch animals with contaminated hands, gloves, etc.); clean up spills immediately so that contamination risks are minimized; in the event of a spill, move animals uphill/upwind immediately. |
| **Infectious Disease Epidemic** | Quarantine sick animals/those showing symptoms; do not expose healthy animals to contaminated waste, bedding, carriers/crates, toys, food bowls, feed & water, staff members, etc.; get veterinary assistance immediately; instruct staff to wear PPEs (personal protective equipment) & decontaminate after touching animals. |
| **Supply Shortage** | Have enough supplies on site to sustain animals for 7-14 days; establish partnerships with local suppliers/businesses that can provide critical resources (food, medicine, etc.) to outlast a supply shortage; ration supplies as a last resort. |
| **Hurricane/ Cyclone/ Typhoon** | Always bring animals/pets indoors at the first sign or warning of a storm or disaster; make sure all animals have ID tags with up-to-date identification or other permanent form of I.D.; post a rescue alert sticker, which will let rescuers know that animals are inside your facility; keep an emergency kit & supplies handy with items such as medical records, water, pet food and medications, & animal First Aid supplies; arrange a safe haven for your animals in the event of evacuation; do not leave your pets behind. |
| **Fire (Internal)** | Install fire extinguishers, sprinkler systems & smoke detectors; Enforce “No Smoking” policies; Replace faulty wiring; Create an evacuation plan and exercise it regularly; stay low to the ground; for barns or similar facilities: Avoid parking tractors and vehicles in or near the barn. Engine heat and backfires can spark a flame; Store other machinery and flammable materials outside the barn; Inspect electrical systems regularly and immediately correct any problems. Rodents can chew on electrical wiring and cause damage that quickly becomes a fire hazard; Keep appliances to a minimum in the barn. Use stall fans, space heaters, and radios only when someone is in the barn; Be sure hay is dry before storing it. Hay that is too moist may spontaneously combust. Store hay outside the barn in a dry, covered area when possible. |
| **Water-Borne Illness** | Do not serve animals water from non-potable sources. Use only boiled or bottled water & store bottled water on site; Monitor animals for signs of water-borne illness; Keep facility clean; make sure employees are wearing gloves, wash their hands and clothing regularly, wash all dishes such as food bowls, water bowls and utensils with clean/sanitary water; quarantine sick animals; do not share items between animals; keep animals hydrated (especially for those suffering from vomiting and/or diarrhea; watch for signs of dehydration; get qualified veterinary care on-site asap. |
| **Nuclear/ Radiologic Incident** | If you are at home during a hazardous materials emergency, it is especially important to bring your animal(s) with you if asked to evacuate, since you may be away for a lengthy period. Alternately, you may be asked to shelter in place. Sheltering in place is required when it would be more harmful for you to evacuate your location than it would be for you to stay. Owners should not treat animals themselves. Your local veterinarian and some poison control centers can provide needed information on how to deal with animal poisonings due to a radiologic event; Animals that graze or live outside may be exposed to low levels of hazardous materials and may not appear clinically affected, but their meat, milk and eggs may contain residues that present health risks for humans; When animals are sheltered they should be fed only stored covered feed and water that is protected from radioactive fallout; If animals are left outside and become exposed to radioactive material, a veterinary should evaluate the animals as soon as safety permits; Some forms of external contamination on animals can be washed off; If none of the material has been absorbed, the animal may no longer be contaminated; It is important that a veterinarian check animals for exposure; No products should be used until appropriate laboratory tests for radioactivity are performed. |

**\*Remember, this is not a comprehensive list. There are many more simple and creative ways to minimize your risk and protect your animals, your facility, and your staff. Take the time to identify the ways that work best for your organization!**