TEMPORARY HOUSING AND CARE FOR LIVESTOCK AND POULTRY

Standard Operating Guide No. 003

MISSOURI DEPARTMENT OF AGRICULTURE
AGRICULTURAL EMERGENCY RESPONSE ACTIONS
LIVESTOCK DISEASE EMERGENCY

October 28, 2008

TABLE OF CONTENTS

1.0 SCOPE AND APPLICATION

The purpose of this standard operating guide (SOG) is to provide functional guidance about the establishment, operation and maintenance of temporary livestock and poultry housing and care. Generally, these activities will be associated with a livestock or poultry quarantine, an animal stop-movement order, or any other circumstance that places livestock or poultry in the temporary care of a county. Local emergency management should use this SOG as a template or reference to develop an operational plan for providing temporary livestock and poultry housing and care. Operational plans must be consistent with the Local Emergency Operations Plan (LEOP). Several sections of this SOG contain general descriptions of the scope of operations necessary to implement a particular component of the temporary housing and care of animals. In most cases, these sections were made general so local emergency planners could insert or reference more detailed, county-specific operational details. Examples of these sections include Health and Safety, Communication and Public Information.

This SOG is intended to apply to livestock and poultry. It is important for emergency managers to review the surrounding livestock and poultry production, and also the types of animals transported on roads through the county. Based on this review, emergency managers should identify the likely species of animals for which the county could become responsible on a temporary basis. The operational plan for the temporary housing and care of livestock and poultry will be highly dependant on the species of animals that could be temporarily stopped in a county.

This standard operating guideline contains information from and is consistent with current National Animal Health Emergency Management System (NAHEMS) guidelines as of October 2008.

2.0 SUMMARY OF PROCEDURES

This SOG presents the operational considerations and details associated with establishment, operation and maintenance of temporary livestock and poultry housing facilities, and for providing care and monitoring to temporarily housed animals.

Emergency managers must remember that several considerations must be evaluated as plans are developed to temporarily house and care for animals. First, planners must remember they will likely need to deal with animals that are not believed to be infected and those that are potentially infected. Wherever possible, these categories of animals should be segregated to reduce the potential to spread an infectious disease. Segregation of herds or flocks by animal owners will help with tracking health and veterinary care provided by the county, and will lessen the chance that animals, unfamiliar with each other, will fight and injure each other. Finally, in most cases, different species and animals in different phases of production should not be housed together. This prevents intra-species aggression and injury, and allows caregivers to deliver and track species and production-phase specific care.

2.1 Temporary Housing Locations for Livestock and Poultry

Local emergency planners should identify appropriate locations for temporary housing before the need arises. Publicly owned lands may be easier to use for this purpose. Wherever possible, emergency managers should strive to develop written access and use agreements with the landowners of the proposed areas. An example access and use agreement is provided in Appendix A. The number of temporary locations needed depends on the flow of animals being transported through the county and the number of different species involved. When choosing suitable locations, it should be remembered that temporary housing durations can be as short as a few hours to as long as several weeks.

Possible areas for both potentially infected and non-infected livestock and poultry should be identified. The greater the likelihood that animals are infected, the more isolated the temporary housing facilities should be. Local, state or federal veterinarians can assist emergency planners

with determining acceptable ranges of isolation distances or setbacks for these areas. These distances will be dependent upon the specific disease agent, species affected, and weather conditions. For the planning process, counties should consider a worst-case scenario. In the case of a foreign animal disease (FAD), the worst case would involve a highly contagious disease, like Foot-and-Mouth Disease (FMD), which can be spread in an aerosol form. In addition, thought should be given to the use of a temporary holding area as a mortality disposal site if the temporarily housed animals must be euthanized to mitigate the spread of a FAD.

Ideal temporary housing and care areas would include the infrastructure necessary to house (isolate and shelter), feed and water, and manage wastes associated with the species in question. These sites should provide access for feed and water delivery to the animal housing areas. The sites should be easy to secure, protecting the community from animals wandering off, and protecting the animals from human visitors and scavengers. In addition, these sites should provide adequate area to store livestock or poultry transport vehicles during the emergency. Ideally, sites should have separate access points for feed and water delivery, mortality removal and animal movement into and out of the area.

Possible sites might include: fairgrounds, abandoned or empty feedlots, abandoned or empty confinement buildings with adequate ventilation, airports, airplane hangers, conservation reserve program land (with a special-use exemption), livestock auction markets and fenced pasture. General guidance on space considerations for likely animal species to be involved in a temporary housing and care situation are provided in Appendix B. Where the appropriate infrastructure does not exist, emergency planners should identify the supplies and suppliers of the equipment necessary to house (isolate and shelter), feed and water the animals, as well as manage wastes associated with the species in question (See Section 2.2.2, *Equipment*).

2.2 Housing and Caring for Livestock and Poultry

The temporary housing and care of livestock and poultry involves two distinct activities: (1) unloading and loading animals, and (2) housing and caring for animals. These activities

should be carried out in light of proper cleaning and disinfection (C&D) (see Missouri Department of Agriculture (MDA) SOG No. 004, *Cleaning and Disinfection*).

Unloading and Loading Livestock

Personnel involved with poultry or livestock handling must be thoroughly trained in all aspects of animal handling and care. These skills will be necessary to effectively carry out the tasks required of them. Animal well-being must be maintained during the unloading and loading process.

Generally, poultry will be unloaded from their transport truck by manually or mechanically carrying their transport coops to the temporary housing area. Records of the initial stocking density of each area should be documented (see Appendix C). Once in the area, the coops should be opened and the birds released into the housing area. The coops should be stored either back on the trucks or in some other part of the area. Care should be taken to ensure that poultry from different flocks are not mixed. C&D of the transport equipment may be necessary prior to it leaving the site (see MDA SOG No. 004, *Cleaning and Disinfection*).

When it is time to reload the birds onto the trucks, the coops will need to be brought into the housing areas, and the birds will be manually caught and placed into the coops. Coops should be loaded so there is room for each bird to sit without sitting on another bird. Poultry should have feed and water available to them until the catch begins.

Under the direction of the responding lead veterinarian, and possibly in cooperation with the owner(s) of the poultry or their representative(s), personnel in charge of caring for the poultry should go through the temporary housing area just before loading in order to cull any unfit birds. Unfit birds are ones that are lame or sick and probably would not survive the catch and transport. One method to determine the condition of poultry is to apply Modified Kestin Gait Scoring to identify lame birds (Garner et. al., 2002). Birds that are visibly unfit before loading must not be transported but instead immediately euthanized. Cervical dislocation and carbon dioxide

asphyxiation are acceptable methods of euthanasia. Selected euthanasia methods should be listed as "acceptable" or "conditionally acceptable" by the American Veterinary Medical Association (NAHEMS, 2004). All feeders, waterers and other obstacles must be raised or removed from the housing area prior to catching to minimize the risk of bruising the animals. Careful documentation of identity and numbers of birds euthanized and the method and place of disposal should be kept. (See Section 2.6 of this SOG.)

Catching should take place in low lighting to minimize fear reactions in the birds. Poultry should be caught individually by grasping one or two legs, just above the feet. Care should be exercised to ensure birds can be held comfortably without distress or injury, and carrying distances should be kept to a minimum. No more than five birds should be carried in one hand (National Chicken Council, 2003).

Livestock will generally arrive in some type of trailer. These trailers will need to be directed to a loading ramp constructed on the edge of the temporary housing area. This loading ramp will need to be adjustable in height since it is likely that a variety of trailers will be unloading at the area. The ramp should not be steeper than 20 degrees, or it may cause animals to slip. (American Meat Institute, 2003.) Ramps should be fitted with some type of non-slip surface, such as cleating or grooving. The ramp should lead into an alleyway with holding pens situated along its sides. As animals are off-loaded, they can be directed into the appropriate holding pen. The number, species and condition of the animals that are unloaded should be documented (see Appendix C). If possible, holding pens should be loaded to a capacity where the animals still can lie down without being on top of each other. Animals from different herds should not be mixed (if possible), animals from different production phases should not be mixed, and different species should not be mixed in a pen. The use of electric prods should be discouraged; instead, non-electric devices, such as streamers on a stick or some type of rattle, can be a functional alternative. The animals' transport trailers should be stored at the temporary housing and care site. C&D of the transport equipment may be necessary prior to it leaving the site (see MDA SOG No. 004, *Cleaning and Disinfection*). When it is time to remove the animals, the unloading process is reversed.

Housing and Care of Livestock and Poultry

Temporary housing areas should contain the animals, shelter them from weather extremes, isolate them from scavengers and wild animals, provide adequate ventilation, and allow for manure and urine to be contained and eventually removed. These housing areas also must be fitted with appropriate feeders and waterers. In addition, an animal housing facility should provide separate housing for sick animals or those requiring veterinary care.

As emergency planners prepare a temporary housing and care for livestock and poultry plan, they should confer with local veterinarians, producer organizations or cooperative extension specialists to obtain plans for providing poultry or livestock housing on a temporary basis. Missouri Cooperative Extension resources can be found by contacting the appropriate county office listed in Appendix D. The Midwest Plan Service (MWPS) is a commercial source of guidance about animal housing and care. MWPS can be reached by phone at (800)-562-3618 and by fax at 515-294-9586, or online at http://www.mwps@iastate.edu. Planners should make allowances in their planning for the various phases of livestock or poultry production that they are likely to encounter. Again, it should be remembered that temporary housing durations can be as short as a few hours or as long as several weeks. At a minimum, these facilities must be constructed to prevent animals from escaping.

Generally, livestock can be housed in pens, either outside or inside buildings. Poultry should be separately housed or penned in order to maintain ownership identity. Careful documentation of ownership identity and numbers should be maintained (see Section 2.6 of this SOG).

2.2.1 Personnel

Personnel working at these temporary housing and care areas should have relevant experience with livestock and poultry care and handling. Common tasks associated with these areas will include feeding, watering, healthcare, manure management and animal movement. These workers should understand animal behavior and common animal illnesses or injuries in order to

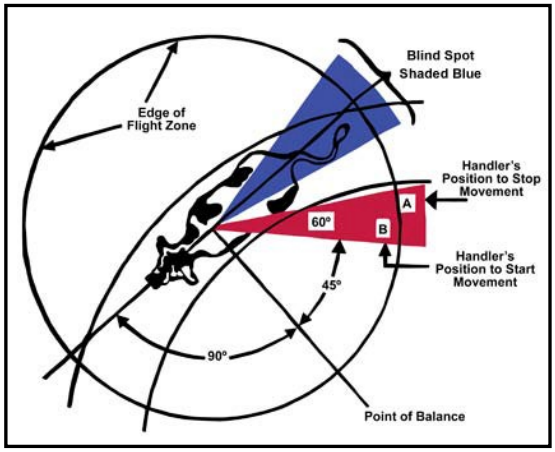
provide adequate care. In addition, they should be aware of the risk of traumatic accidental injury to themselves from the unpredictable behavior of livestock. Personnel with the above "relevant experience" should be pre-selected if possible. The county attorney should evaluate the volunteers' liability relative to assisting the county in the response to a livestock or poultry emergency. Every effort should be made to limit or remove associated liabilities for volunteers. In some cases, local producers or aligned industries may be able to supply personnel.

Two concepts that strongly influence livestock behavior are the *flight zone* and the *point of balance*. The *flight zone* is similar to what humans call "personal space." If someone you are not familiar with enters your personal space, you will become uncomfortable and probably move away from them. Likewise, if you enter an animal's *flight zone*, the animal will move away until it feels safe. If you stop moving into or retreat from the *flight zone*, the animal usually stops moving away. The size of an animal's *flight zone* is shaped by the following: breed or species type, sounds and visual cues, an animal's wildness or tameness, and the animal's recent experiences (especially with humans).

The *point of balance* is directly related to an animal's *flight zone* (Figure 1). The *point of balance* can vary from species to species, but is generally near an animal's shoulder. It determines the direction the animal is likely to move when its *flight zone* is penetrated. If you approach an animal from in front of its *point of balance*, it will move backward. Approaching from behind the point makes the animal move forward.

Personnel working at a temporary livestock or poultry housing and care area should be familiar with the *point of balance* and *flight zone* concepts, and also with the following tips to prevent unwanted impact on animal behavior (adapted from American Meat Institute, 2003):

Figure 1. Flight Zone and Point of Balance



Courtesy of Temple Grandin

- Livestock and poultry are generally sensitive to rapid and unexpected movements. Rapid or unexpected movement can cause animals to become agitated and excited, in some cases to the point of creating a health concern or causing them to injure themselves or even response personnel. Response personnel must remember to move slowly, steadily, and to avoid abrupt or sudden motions.

- Most species of livestock and poultry are at least partially colorblind and have poor depth perception, making them extremely sensitive to contrasts. A shadow across a walkway may look like a deep hole to the animal. This is why animals often hesitate (balk) when passing through unfamiliar gates, barn door openings or chutes.

- Many species of livestock may have difficulty moving from dark places to brightly lit places, and vice versa. If moving animals through changing light levels, allow them time to adjust to new light levels before moving them forward. Rushing them may cause them to balk.
- Most species of livestock have good hearing and will try to move away from the source of unfamiliar or unpleasant noise.
- Animals draw on past experiences when reacting to a situation, so animals that have been chased, slapped, kicked, hit or mistreated will have a sense of fear around humans. These animals will have a large *flight zone*. Many animals have an inherently large *flight zone*, even with no prior unpleasant event.

Personnel will be assigned to work at these temporary housing and care areas for shift-lengths determined by the Planning Staff. In most cases, these workers will need to be provided food, water and sanitary facilities.

The response team involved with the temporary housing and care of livestock and poultry should also be assigned at least one supporting veterinarian. This veterinarian will be responsible for providing medical care to sick animals and ensuring biosecurity for the temporarily housed

animals. Contact information for this veterinarian should be provided to each team assigned to work at a temporary livestock or poultry housing and care area.

It may be necessary to provide 24-hour security monitoring for the animals' protection and for protection of the public. If this is the case, local law enforcement or other volunteers may be used for this purpose.

2.2.2 Equipment

The following list of equipment may be needed to establish a temporary livestock or poultry housing and care facility:

- Livestock housing: portable squeeze chutes; livestock panels; portable fencing; species appropriate feeders (wet/dry, trough, bunks, etc.); species appropriate waterers (nipple, trough, tanks, etc.); water, ramps; prods (electric or non-electric); leads, halters, hoses; pumps; shade structures or supplemental cooling (fans, sprinklers, misters, etc.); shelter from weather extremes; bedding; manure removal equipment (shovels, scrapers, tractor, etc.); and species-specific feed and water.
- Poultry housing: waterers (i.e., can, bell, etc.), water, feeders, feed, grit, bedding, solid wall panels, small mesh chicken wire, and bird netting to cover temporary structures.
- Lighting: Lighting should provide general area illumination for staff working at the temporary housing area. With any lighting system, it will be necessary to provide electricity, either with batteries, generators or drop service from power lines. The use of a drop service will require coordination with the local power company.
- Communication: Each temporary animal housing and care team should be provided a means of communication with Incident Command (IC). Generally, this will consist of portable radios tied into the IC's frequency. Selection of radios should include consideration of local topographic and cultural interferences that could negatively impact transmission and reception. If line-of-sight or distance becomes a limiting factor, the use of portable antennas or repeater towers may be necessary. In some cases, pagers, cellular phones, citizen band radios or other devices will be appropriate. Whichever system is chosen, it must be compatible with other systems used in the Unified Command and must have the bandwidth or capacity to function effectively during an emergency.
- Cleaning and disinfection supplies: See MDA SOG No. 004, *Cleaning and Disinfection*.
- Portable sanitary facilities: Since it is possible that these services will be needed over an extended time, a cleaning and pumping schedule will need to be established. See MDA SOG 004, *Cleaning and Disinfection,* for appropriate cross-references.

2.2.3 Monitoring Animals

The Operations Section will need to develop a schedule for response personnel, charged with the care of these animals, to periodically monitor animals' health and to feed and water the animals. Veterinarians in the Command Staff can work with the Planning and Operations Sections to determine the frequency of feedings and animal monitoring needed for each species that a county is likely to house. Monitoring the general health and condition of animals should be conducted at least daily. These inspections should be tied to daily feedings and waterings. Any mortalities identified during these inspections should be removed from the animal living areas and disposed of promptly. Potentially infected mortalities should be disposed of on site, if possible (see MDA SOG No. 002, *Mortality Disposal*). Common disposal methods include burial, composting, rendering and incineration. The selection of the most appropriate disposal method will depend on available local resources. If sick animals are noticed during the monitoring, response personnel should contact the supporting veterinarian immediately and request assistance. In most cases a dead animal will require a postmortem examination by a veterinarian, prior to disposal.

Careful documentation of ownership identity, numbers of dead animals and animals euthanized, including the method, and place of disposal should be kept. See Section 2.6 of this SOG.

2.3 Biosecurity

Microorganisms, viruses and spores associated with a FAD can spread to non-infected animals in many ways. A general description of common FADs and possible means of transmission are presented in Table 1, below. Many of the mechanisms for disease spread cannot be controlled by responders (e.g., mechanisms associated with weather). Responders can directly control some mechanisms for spread. These mechanisms involve the spread of a disease through human movement, and the reuse of equipment and vehicle movement.

FAD agents can survive in soil, fodder, manure, feed, bedding, building surfaces, on equipment, on animals, and in the atmosphere at an infected location. Responders can be exposed to and become carriers of the FAD agent by simply being in the atmosphere of the infected location, or by stepping in or otherwise coming in contact with materials or objects that are contaminated. Besides being found in the visible contamination, such as dirty boots or coveralls, the FAD agents can adhere to clothing, hair and skin, if airborne. Biosecurity is a system designed to prevent the spread of disease into a healthy herd or flock and to prevent the spread of disease from an infected herd or flock.

Table 1
Highly Contagious Animal Diseases

Disease	Species affected	Transmission	Category of Virus
African Swine Fever	Swine	Ingestion, contact, ticks	A
Influenza (avian, equine, swine)	Birds, horses, swine	Aerosols, ingestion	A
Newcastle Disease	Birds	Aerosols, ingestion	A
Renderpest	Ruminants, cattle	Aerosols, ingestion	A
Peste des Petis	Small ruminants	Aerosols, ingestion	A
Foot-and-Mouth Disease	Cloven-hoofed animals	Aerosols, ingestion	B
Swine Vesicular Disease	Swine	Aerosols, ingestion	A
Classical Swine Fever	Swine	Contact, ingestion	A
Porcine Respiratory and Reproductive Syndrome (PRRS)	Swine	Contact, aerosols	A

Notes: Modified from AUSVETPLAN 2000**,** Agriculture and Resource Management Council of Australia and New Zealand, 2000. See MDA SOG No. 004, *Cleaning and Disinfection,* for more details.
A Best disinfectants are detergents, hypochlorites, alkalis, Virkon® and gluteraldehyde.
B Best disinfectants are hyporchlorites, alkalis, acids, Virkon®, and gluteraldehyde. Bactericides like quarternary ammonia compounds and phenolics are not effective against these viruses.

In order to preserve herd or flock health and prevent the spread of disease, local emergency planners should develop biosecurity guidelines for temporary livestock and poultry housing and care areas. All personnel associated with creating, operating and maintaining these areas should be required to conform to the county's biosecurity guidelines. Possible biosecurity guidelines should include the following:

- Workers may be required to wash and disinfect their vehicle, including tires, prior to entering and leaving the temporary housing and care area. Local veterinarians should be consulted on the need for this level of biosecurity. (See MDA SOG No. 004, *Cleaning and Disinfection,* for appropriate cross-references and details.)

- Workers and all visitors who enter and leave the temporary housing and care area should be required to sign in and sign out.
- Workers should be required to maintain a 48-hour animal-free period prior to entering the temporary housing and care area. Visits to state fairs, zoos and other places where animals are housed must be figured into the animal-free day calculation. In the case of poultry, response personnel must eliminate contact with pet birds (even being in the same house), or other bird gathering areas, such as feeders. Depending on the species involved and the potential risk, these animal-free periods can be modified, especially if unique crews can be assigned to each area.
- Workers should be required to wear clean clothes, typically including coveralls, head covering and boots. (See MDA SOG No. 004, *Cleaning and Disinfection,* for appropriate cross-references and details.)
- The veterinarian in charge may require that workers shower before entering and prior to exiting the temporary housing and care area. If this is done, local emergency planners must plan for the supplies and equipment necessary to provide this option.
- Workers should disinfect portable equipment prior to entering or leaving the temporary housing and care area.
- Workers should not wear jewelry into the temporary housing and care area.
- Workers should work on animals from areas of youngest animals to oldest animals when phases of production are co-located at a temporary housing and care area. Veterinarians should be consulted on this order for the various species considered.
- Workers should utilize boot disinfection solutions provided at the temporary housing and care area.

Biosecurity measures implemented to enter the temporary care and housing area should be repeated upon exiting the area (See MDA SOG No. 004, *Cleaning and Disinfection*).

2.4 Health and Safety

General first aid and access to emergency medical services must be provided at all temporary animal housing and care locations. The Safety Officer, a member of the Command Staff supporting the Unified Command, would coordinate this portion of a response.

Personnel working with these livestock or poultry should be aware of the dangers associated with handling livestock. In addition, they may be provided personal protective equipment (PPE) to

minimize their exposure to the animals. While most of the FADs that may be encountered are not zoonotic, the use of some level of PPE is still necessary to maintain personal hygiene and facilitate C&D upon leaving an infected zone. In the event a FAD response has the potential to expose workers to possible infection, PPE will be used to provide both dermal and respiratory protection. The Safety Officer and the State Veterinarian will determine the need for and specific types of PPE.

Generally, temporary animal care and housing workers should wear disposable clothing or clothing that can be disinfected and reused. This clothing should have a subdued color, not a bright white, and it should not fit so loosely as to make unwanted sudden noises when the wind blows. Synthetic (rubber or nitrile) gloves and rubber boots or disposable boot covers also will be needed. These items can be disinfected and reused. Under gloves, cotton or nitrile, should be worn under the outer synthetic glove.

Dust masks can be worn to protect the workers' mouths, preventing the possible ingestion of splashed materials. Generally, dust masks only provide protection against nuisance conditions and do not provide true respiratory protection. If the FAD is zoonotic, increased respiratory protection may be needed. Generally, respiratory protection may be provided by a disposable filter-type respirator, a full or half-face respirator with the appropriate filter cartridge or a powered air-purifying respirator with the appropriate cartridge. The proper use of any type of air purifying respirator will require a successful fit test for the user and the specific respirator being used. The criteria for a successful respirator fit test are defined in guidelines produced by the Occupational Safety and Hazard Administration. Cartridge selection should be based on the type of respiratory protection required.

According to NAHEMS 2005, all responders associated with a FAD emergency, who use PPE must:

- Understand why they need PPE (i.e., appreciate the importance of PPE in minimizing the spread of the disease agent and in preventing occupational injuries and diseases).
- Understand why PPE and devices are being used as a substitute for – or as an adjunct to – other hazard control methods.

- Understand the consequences of unprotected exposure and thus the rationale for compliance with proper procedures for the use of PPE and devices.
- Learn to recognize when equipment is not functioning properly so that it can be repaired or replaced as needed.
- Be able to inspect, fit-test, don, remove, clean, replace as necessary, and maintain PPE and devices.
- Appreciate the importance of the "buddy system" in using PPE and devices safely and effectively.
- Understand the limitations of PPE, particularly in emergency situations.

The use of PPE should be evaluated in conjunction with worker safety related to conducting their appointed duties while wearing PPE. PPE increases the physical and psychological stress associated with response work. A responder's manual dexterity, agility and stamina are generally impacted by the need to use PPE. Heat-related illness and fatigue are common side effects of wearing PPE. Much of this secondary effect is weather related. The use of PPE in hot weather may necessitate frequent breaks to protect worker safety. The use of a respirator can cause feelings of claustrophobia, create communication difficulties and impair vision.

Appendix E presents general PPE guidelines in the NAHEMS operational guidance manual on PPE.

2.5 Communication

Because of the dynamic nature of an emergency response to a FAD, the establishment and maintenance of temporary animal housing and care facilities must be coordinated with the ever-changing understanding of the nature and extent of the disease in question. In order to allow the teams in charge of the temporary housing and care areas to quickly respond to changing field conditions, communication between the teams and the IC must be maintained. Real-time communication and pre-shift meetings constitute the required communication needed to support temporary animal housing and care areas.

2.6 Documentation

Throughout the process of providing temporary animal housing and care, it will be necessary to provide various types of documentation. For indemnity payments to the responding agency or other forms of state or federal reimbursement or cost sharing, it will be necessary to document the resources applied and expended in providing temporary housing and care. Much of the required information may be contained on the initial data collection form presented in Appendix C. Appendix F provides a sample data collection sheet for recording information related to the care and monitoring of temporarily housed animals.

These costs can include labor charges, equipment rentals or purchase, costs of expendable equipment or supplies such as feed, subcontractor costs, or any other costs associated with providing the temporary housing and care services. Most of this information will be collected and evaluated by the Finance and Administration Section.

Because of the nature of an emergency response, it is critical to identify personnel who will have the responsibility of documenting these issues or monitoring and verifying that other parties are collecting the needed documentation. In some cases, identifying a specific response job that includes documentation will be preferable, especially if personnel will be rotated through shifts and response jobs. This role and responsibility should be identified and described in a county's LEOP.

Possible actions or items that should be included in a documentation checklist include:

Number of animals in an area
Condition of livestock or poultry
Responder time (hours)
Number of responders
Identity of responders
Mileage to the animal care area
Sanitation services provided
Coordinates of care areas
Feed used
Water provided
Care providers (vet services)
Mortalities and causes
Number of livestock or poultry at a location
Meals provided
Location of each responder
Equipment at each point
Usage time for equipment
Specific quantities of expendables used

Documentation also will be essential in tracking vehicles, heavy equipment, and people who exit and enter the temporary livestock or poultry housing area.

Documentation should be maintained in written form. Video, photographs and tape-recorded messages can be used to supplement the written documentation. Written documentation can be maintained in a logbook format, or by using documentation worksheets, or a combination of both. Documentation should be recorded with an ink pen, and any entry errors should have a single line drawn through them with the author's initials and date recorded at one end of the line. If a logbook is used, it should have numbered pages and the spine should be sewn, making the removal of pages both difficult and obvious. Pages should never be removed from a logbook. Anyone making entries in the logbook should sign and date the bottom of each page. If documentation worksheets are used, the author should sign and date the bottom of each worksheet. Sets of logbooks and worksheets should be assigned to each response task (i.e., traffic control, cleaning and disinfection, mortality disposal, etc.) or a master set of logbooks and sheets can be maintained. Logbooks and worksheets should be assigned unique identification numbers. When the logbooks or a group of worksheets is issued from Planning (response related) or Finance and Administration (cost and time reporting related) to a responder, the identification numbers of the logbooks and worksheets should be recorded and the recipient should sign them out in a document-tracking log maintained by the issuing Section. This establishes a chain-of-custody for the documentation.

If pictures, video, or taped messages or interviews are used to supplement the written documentation record, the following information should be documented for each picture, video segment or audio-taped message or interview: photographer or interviewer, subject, time, date, person interviewed (video or audio taped), photo and film roll number, direction (pictures and video), and general weather conditions (i.e., temperature, wind direction, humidity, sky condition, etc.).

2.7 Training

Personnel training can be an important component of planning to initiate a temporary animal housing and care plan due to either quarantine, a stop animal movement order issued by the Governor, or other circumstance. Besides the livestock and poultry-handling experience, all personnel associated with the temporary housing would benefit from training in: biosecurity, FAD, the operation and maintenance of the disinfection equipment, disinfection procedures, associated environmental protection issues, and documentation requirements. Cooperative extension personnel, local veterinarians, and other qualified state and federal employees can provide responders with training in animal care and handling. The local fire and emergency medical services personnel can provide training in C&D. In some counties, law enforcement and local public health personnel also can provide cleaning and disinfection training. Local veterinarians can provide training in biosecurity.

2.8 Public Information

Once a livestock or poultry emergency occurs and the county is called upon to provide temporary animal housing and care, the Public Information Officer (PIO) attached to the Command Staff will initiate the county's public information and media plan to inform the local community of the situation. This notification may involve public announcements via radio, television, web site, newspaper, signage announcing the traffic-control points, or any other appropriate mechanisms to inform the public of the county's response to the emergency. Locations of these temporary animal housing and care areas should not be made public. Any information release should be coordinated with state or federal public information agencies. Local appointed public information officers and spokespersons should identify and make use of any state or federal pre-prepared information or press releases that could be used in responding to a FAD.

In general, response workers should be trained to refer any press or other project-specific inquiries to the public information officers designated for the response.

REFERENCES

American Meat Institute. 2003. Recommended Animal Handling Guidelines for Meat Packers. AMI Foundation.

Garner, J.P; C. Falcone; P. Wakenell; M. Martin; and J. Mench. 2002. Reliability and Validity of a Modified Gait Scoring System and Its Use in Assessing Tibial Dyschondroplasia in Broilers. British Poultry Science, 43:355-363.

NAHEMS Operational Guidelines. (2005). *Personal Protective Equipment in Biologically Hazardous Environments*. United States Department of Agriculture. September 2005.

NAHEMS Operational Guidelines. (2004). *Euthanasia.* United States Department of Agriculture. January 2004.

National Chicken Council. 2003. Animal Welfare Guidelines and Audit Checklist. Washington, D.C.

APPENDIX A

TEMPORARY HOUSING AGREEMENT

TEMPORARY HOUSING AGREEMENT

THIS AGREEMENT is made effective as of this_____day of_____, 20 , by and between,___County ("COUNTY"), and_____("Landowner").

WHEREAS, COUNTY, in response to a foreign animal disease (FAD), is required by the State of Missouri to temporarily house and care for livestock or poultry to prevent the spread of a FAD will utilize the land and existing infrastructure of the Landowner, to temporarily house and care for livestock or poultry, ("TEMPORARY Storage Area") in_____County, Missouri, hereafter referred to as the "Storage Area."

WHEREAS, Landowner owns the Storage Area and more particularly described as follows: Township____, Range_____, Sections_____, and____in_____County, Missouri; and includes the following infrastructure:

_____ Barns
_____ Animal Pens
_____ Waterers
_____ Feeders
_____ Shade Structures
_____ Manure Storages
_____ Other (_____)
_____ Other (_____)

NOW THEREFORE, the parties hereto agree as follows:

1. Right to House_____, hereafter known as "animals." Landowner grants to COUNTY the right to house no more than_____animals on the Storage Area. Landowner agrees to cooperate with COUNTY in all reasonable respects to facilitate the housing and care of the animals. COUNTY shall have the right to enter the Storage Area to construct or install necessary temporary infrastructure, including penning, water storage, manure storage, shade structures and any other infrastructure necessary to

temporarily house and care for the animals. Right-of-entry and the right to construct infrastructure is only provided by the Landowner upon the issuance of a stop animal movement order, issued by the State of Missouri and including the county in which the Storage Area is located.

2. Right to House and Care for Animals. COUNTY agrees to cooperate with Landowner in taking all reasonable and necessary actions to ensure that the temporary housing and care of the animals on Landowner's Property shall not unreasonably interfere with customary agricultural land management practices. In return, COUNTY agrees to maintain the Storage Area by implementing good farm husbandry practices, including harvesting and storing or spreading manure in an environmentally protective manner.

3. Animal-Specific Information. Upon Landowner's request, COUNTY shall provide to Landowner information concerning the health and care of animals in the Storage Area. This request can be made up to one year after the FAD incident has been mitigated in the County housing the Storage Area.

4. Compliance with Environmental Laws. COUNTY agrees to take all action necessary to comply with federal and state environmental laws and regulations. COUNTY warrants that the temporary housing and care of animals in the Storage Area will not violate existing Missouri regulations governing the FADresponse.

5. Successors. The rights and obligations of COUNTY in and to this Agreement shall inure to the benefit of, and bind, its successors and assigns. The rights and obligations of Landowner in and to this Agreement shall run with the title to the Landowner's Property and shall accrue to the benefit of, and bind, all persons holding, or claiming to hold, a property interest therein.

6. Term. This Agreement shall continue for a term of five (5) years from the date of this Agreement. This Agreement shall automatically renew for another five-year period unless written notice is given by either party at least ninety (90) days prior to the

expiration of the Agreement. Notwithstanding the foregoing, COUNTY may terminate this Agreement prior to its stated term if (a) it is so directed by the State of Missouri, or (b) COUNTY delivers notice to Landowner that compliance with applicable laws or regulations would be unduly burdensome as described in Section 8 hereof.

7. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Missouri.

8. Right to Deny Use of the Storage Area. During the term of this Agreement, Landowner may deny COUNTY the right to temporarily house and care for animals, provided Landowner gives COUNTY written notice of such decision at least one year prior to the date use is denied. During a response to a FAD during the term of this agreement, COUNTY may in its sole discretion decide not to temporarily house and care for animals on Landowner's Storage Area. COUNTY may exercise it sole discretion not to temporarily house and care for animals should COUNTY believe that compliance with any applicable laws, regulations or any other circumstances would make it unduly burdensome or impractical to house and care for animals on Landowner's Storage Area.

9. Indemnification of Landowner. COUNTY shall indemnify and hold Landowner harmless from and against all claims, losses, demands and causes of action, including attorneys' fees, court costs/or judgments arising in favor of any person or other legal entity (including COUNTY's employees, agent invitees, contractors, tenants or licensees), provided such claim, loss, demand or cause of action is the result of the negligence or misconduct of COUNTY, its employees, agents, tenants or invitees.

10. Indemnification of COUNTY. Landowner shall indemnify and hold COUNTY harmless from and against all claims, losses, demands and causes of action, including attorneys' fees, court costs or judgments arising in favor of any person or other legal entity (including COUNTY's employees, agent invitees, contractors, tenants or licensees), provided such claim, loss, demand or cause of action is the result of the negligence or misconduct of Landowner, or Landowner's employees, agents, tenants or invitees.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

COUNTY

By:_____

Title: _____

LANDOWNER

By:_____

Print Name: _____

By:_____

Co-owner (if applicable): _____

Print Name: _____

APPENDIX B

EMERGENCY HOUSING SPACE CONSIDERATIONS FOR LIVESTOCK AND POULTRY

Livestock and Poultry Housing Space Considerations

The following table presents information that can be used to plan the possible housing space requirements for temporarily housing livestock and poultry in the event of a foreign animal disease outbreak. This information is intended to provide guidance to county planners and should be discussed with animal health professionals involved in local response planning and preparedness.

The space allowances presented below are not intended to be used for housing and care of livestock and poultry during non-emergency situations. Specific guidance on normal housing requirements can be found from industry organizations, Cooperative Extension and the United States Department of Agriculture.

Housing space requirements are dependent on multiple factors, including, but not limited to, animal age, species involved, climate, manure-handling system and ventilation. The space considerations presented below should be used for planning purposes to determine the approximate space needed by a county and the potential holding capacity of temporary housing areas. In an emergency situation, a county is responsible for housing and caring for animals in a manner that protects their health.

Animal Type	Size	Space Consideration	Reference
Cattle			
Calves	≤ 800 pounds (lbs)	20-35 square feet (ft^2)	Midwest Plan Service (MWPS) #6, Beef Housing and Equipment Handbook
Feeder Cattle	800-1,200 lbs	30-35 ft^2	
Mature Cattle	> 1,200 lbs	40-50 ft^2	
Hogs			
Pre-nursery	12-30 lbs	2-2.5 ft^2	MWPS #8, Swine Housing and Equipment Handbook
Nursery	30-75 lbs	3-4 ft^2	
Grower	75-150 lbs	6 ft^2	
Finisher	151-250 lbs	8 ft^2	
Chickens			
Broilers	< 4.5 lbs	≤ 6.5 lbs/ft^2	National Chicken Council, Animal Welfare Guidelines and Audit Checklist, April 2005
	4.5-5.5 lbs	≤ 7.5 lbs/ft^2	
	> 5.5 lbs	≤ 8.5 lbs/ft^2	
Laying Hens	Per hen	.55 ft^2	United Egg Producers, Animal Husbandry Guidelines for U.S. Egg Laying Flocks, 2005
Other Livestock and Poultry			
Sheep	Per mature animal	15-20 ft^2	University of New Hampshire Cooperative Extension, Housing and Space Guidelines for Livestock, March 2002
Goat		20-25 ft^2	
Horse		70-100 ft^2	
Turkey		4-6 ft^2	

APPENDIX C

TEMPORARY HOUSING AND CARE OF LIVESTOCK AND POULTRY
INITIAL DATA COLLECTION FORM

COUNTY LIVESTOCK AND POULTRY TRACKING AND REPORTING INFORMATION FORM

Instructions

When it is necessary to temporarily house and care for livestock or poultry during a foreign animal disease emergency, the following information should be collected and conveyed to the Missouri Department of Agriculture's Division of Animal Health (DAH) and the Missouri State Emergency Management Agency (SEMA). To allow response coordination at the state level and to facilitate state support, this information should be submitted as soon as possible to DAH and SEMA. The information should be submitted by facsimile to the following: DAH at (573) 751-6919 and SEMA at (573) 634-7966. If submission by facsimile is not practical, this information can be submitted by telephone to the following: DAH at (573) 751-4211 and SEMA at (573) 751-2748.

In some cases, a truckload of animals may involve individual or groups of animals from multiple points of origin. A point of origin may be a single farm or grow-out facility, or an auction market or sale barn. In these cases, identify groups of animals and provide the requested information for each group of animals. A group can consist of a single animal.

A county should develop an animal group numbering system. This will allow DAH or SEMA to coordinate more efficiently with local emergency management regarding support for specific groups of animals. A group identification number may consist of a prefix code for the location in the county, followed by a number assigned to a particular group. An example could be: CF2 (county fairgrounds, second group unloaded at the fairgrounds). This numbering system should be developed by a county in advance of an emergency and it should provide unique numbers to each group of animals off-loaded and under county care.

Please fill out as much of this information as possible. Information in bold text is mandatory. The information on the point of origin and final destination will be used to determine the final disposition of the animals or a release date.

County:_____

Group ID:_____

Date the county took charge of the group: _____

Housing location (address and either GPS coordinates in UTM units, or township range and section):_____

Type of animal:____Cattle,_____Dairy cows,_____Hogs,_____Sheep,_____Horses,

___ Goats,____Buffalo,_____Other livestock (_____),

___ Pullets,___Chicks, ___Broilers, ___Turkey,

___ Other fowl (_____)

Number of animals:_____

County contact name:_____

County contact phone number: _____

Relative age or point in production cycle: _____

Lot identification number or tag numbers: _____

_____

Date loaded on truck: _____

Point of origin: State_____City: _____

Name of facility of origin or owner: _____

Address: _____

_____

Contact name at point of origin or owner: _____

Contact phone number at point of origin or owner: _____

Receivers' contact name: _____

Receiver's contact phone number: _____

Hauler's contact name: _____

Hauler's contact phone number:_____

Hauler's truck or tractor identification number:_____

Hauler's trailer identification number:_____

County emergency veterinarian (monitoring the group): _____

County emergency veterinarian's phone number: _____

Name of person filling out form: _____

Please submit form by facsimile to MDA at (573) 751-6919 and SEMA at (573) 634-7966

APPENDIX D

MISSOURI COOPERATIVE EXTENSION
COUNTY OFFICES

University of Missouri Extension
County Offices

Adair County
503 E. Northtown Road
Kirksville, MO 63501
(660) 665-9866

Andrew County
Courthouse, P.O. Box 32
Savannah, MO 64485
(816) 324-3147

Atchison County
201 Highway 136 East
Rock Port, MO 64482
(660) 744-6231

Atchison County
201 Highway 136 East
Rock Port, MO 64482
(660)744-6231

Audrain County
Courthouse, Room 304
101 N. Jefferson
Mexico, MO 65265
(573) 581-3231

Barry County
700 Main, Suite 4
Cassville, MO 65625
(417) 847-3161

Barton County
801 East 12th Street
Lamar, MO 64759
(417) 682-3579

Bates County
Courthouse, 1 N. Delaware
Butler, MO 64730
(660) 679-4167

Benton County
119 W. Main
Warsaw, MO 65355
(660) 438-5012

Bollinger County
Courthouse, P.O. Box 19
Marble Hill, MO 63764
(573) 238-2420

Boone County
1012 N. Highway UU
Columbia, MO 65203
(573) 445-9792

Buchanan County
4125 Mitchell Ave.
St. Joseph, MO 64507
(816) 279-1691

Butler County
222 North Broadway St.
Poplar Bluff, MO 63901
(573) 686-8064

Callaway County
5803 County Road 302
Fulton, MO 65251
(573) 642-0755

Camden County
44 Roofener Street
Camdenton, MO 65020
(573) 346-2644

Cape Girardeau County
684 W. Jackson Trail
Jackson, MO 63755
(573) 243-3581

Carroll County University
111 N. Mason
Carrollton, MO 64633
(660) 542-1792

Carter County
1002 Broadway
Van Buren, MO 63965
(573) 323-4418

Cass County
302 S. Main
Harrisonville, MO 64701
(816) 380-8460

Cedar County
113 South St.
Stockton, MO 65785
(417) 276-3313

Chariton County
Courthouse, 306 S. Cherry
Keytesville, MO 65261
(660) 288-3239

Christian County
105 North 2nd Street
Ozark, MO 65721
(417) 581-3558

Clark County
115 W. Court
Kahoka, MO 63445
(660) 727-3339

Clay County
Clay County Annex
1901 N.E. 48th Street
Kansas City, MO 64118
(816) 407-3490

Clinton County
Plattsburg, MO 64477
(816)539-3765

Cole County
2436 Tanner Bridge Road
Jefferson City, MO 65101
(573) 634-2824

Cooper County
608 E. Spring Street
Boonville, MO 65233
(660) 882-5661

University of Missouri Extension
County Offices

Crawford County
202 N. Main St
Steelville, MO 65565
(573) 775-2135

Dallas County
Courthouse
Buffalo, MO 65622
(417) 345-7551

Daviess / Caldwell County
102 N. Main St., Ste. 1
Gallatin, MO 64640
(660) 663-3232

Dent County
Judicial Building
112 E. 5th Street
Salem, MO 65560
(573) 729-3196

Douglas County
Courthouse
Ava, MO 65608
(417) 683-4409

Dunklin County
Courthouse Annex
101 S. Main Street
Kennett, MO 63857
(573) 888-4722

Franklin County
116 West Main Street
Union, MO 63084
(636) 583-5141

Gasconade County
1106 West Hwy 28
Owensville, MO 65066
(573) 437-2165

Gentry County
1109 S. Birch St
Albany, MO 64402
(660) 726-5610

Greene County
833 N. Boonville Avenue
Springfield, MO 65802
(417) 862-9284

Harrison County
Courthouse Basement
Bethany, MO 64424
(660) 425-6434

Henry County
100 W. Franklin, Room 16
Clinton, MO 64735
(660) 885-5556

Holt County
Courthouse, P.O. Box 407
Oregon, MO 64473
(660) 446-3724

Howard County
1 Courthouse Square
Fayette, MO 65248
(660) 248-2272

Howell County
217 S. Aid Avenue
West Plains, MO 65775
(417) 256-2391

Iron County
Courthouse, 250 S. Main
Ironton, MO 63650
(573) 546-7515

Jackson County
1501 NW Jefferson Street
Blue Springs, MO 64015
(816) 252-5051

Jasper County
Courthouse Basement
Carthage, MO 64836
(417) 358-2158

Jefferson County
301 3rd Street
Hillsboro, MO 63050
(636) 797-5391

Johnson County
135 W. Market
Warrensburg, MO 64093
(660) 747-3193

Knox County
110 North 4th Street
Edina, MO 63537
(660) 397-2179

Laclede County
299 E. Second Street
Lebanon, MO 65536
(417) 532-7126

Lafayette County
14 E. 19th St., Suite 102
Higginsville, MO 64937
(660) 584-3658

Lawrence County
Courthouse
Mt. Vernon, MO 65712
(417) 466-3102

Lewis County
104 E. Jefferson St.
Monticello, MO 63457
(573) 767-5273

Lincoln County
880 W. College
Troy, MO 63379
(636) 528-4613

Linn County
Courthouse
Linneus, MO 64653
(660) 895-5123

University of Missouri Extension
County Offices

Livingston County
609 Locust
Chillicothe, MO 64601
(660) 646-0811

Macon County
514 E. Briggs Drive
Macon, MO 63552
(660) 385-2173

Madison County
137 West Main
Fredericktown, MO 63645
(573) 783-3303

Maries County
Vienna, MO 65582
(573) 422-3359

Marion County
Courthouse, Room 201
Palmyra, MO 63461
(573) 769-2177

McDonald County
Old Courthouse
Pineville, MO 64856
(417) 223-4775

Miller County
Courthouse Annex
Tuscumbia, MO 65082
(573) 369-2394

Mississippi County
109 N. First St.
Charleston, MO 63834
(573) 683-6129

Monroe County
208 North Main
Paris, MO 65275
660-327-4158

Montgomery County
310 Salisbury, Suite E
Montgomery City, MO 63361
(573) 564-3733

Morgan County
100 E. Newton St
Versailles, MO 65084
(573) 378-5358

New Madrid County
420 Mott Street
New Madrid, MO 63869
(573) 748-5531

Nodaway County
Courthouse Annex
305 N. Market Street
Maryville, MO 64468
660/582-8101

Oregon County
Courthouse, P.O. Box 97
Alton, MO 65606
(417) 778-7490
Osage County
Osage County Community Center
Linn, MO 65051
(573) 897-3648

Ozark County
Courthouse
Gainesville, MO 65655
(417) 679-3525

Perry County
321 N. Main, Suite 1
Perryville, MO 63775
(573) 547-4504

Pettis County
1012A Thompson Blvd.
Sedalia, MO 65301
(660) 827-0591
Phelps County
Courthouse, 200 N. Main
Rolla, MO 65401
(573)458-6260

Pike County
Courthouse, 115 W. Main
Bowling Green, MO 63334
(573) 324-5464

Pike County
Courthouse, 115 W. Main
Bowling Green, MO 63334
(573) 324-5464

Platte County
11724 NW Plaza Circle
Kansas City, MO 64153
(816) 270-2141

Polk County
451 South Albany
Bolivar, MO 65613
(417) 326-4916

Putnam County
Courthouse, Room 104
Unionville, MO 63565
(660) 947-2705

Ralls County
Courthouse, P.O. Box 540
New London, MO 63459
(573) 985-3911

Randolph County
Suite B
Moberly, MO 65270
(660) 269-9656

University of Missouri Extension
County Offices

Ray County
108 W. North Main, #2
Richmond, MO 64085
(816) 776-6961

Ripley County
Courthouse, 2nd Floor
Doniphan, MO 63935
(573) 996-2921

Saline County
353 S. Lafayette
Marshall, MO 65340
660/886-6908

Schuyler County
Courthouse, P.O. Box 310
Lancaster, MO 63548
(660) 457-3469

Scotland County
117 South Market, Rm 200
Memphis, MO 63555
660/465-7255

Scott County
6458 State Hwy 77
Benton, MO 63736
(573) 545-3516

Shelby County
P.O. Box 230
Shelbyville, MO 63469
(573) 633-2640

St. Charles County
260 Brown Road
St. Peters, MO 63376
(636) 970-3000

St. Clair County
Courthouse
Osceola, MO 64776
(417) 646-2419

St. Francois County
1 N. Washington #102
Farmington, MO 63640
(573) 756-4539

St. Louis City
724 North Union
St. Louis, MO 63108
314/367-2585

St. Louis County
121 S. Meramec, Suite 501
Clayton, MO 63105
(314) 615-7637

Ste. Genevieve County
255 Market St.
County Services Building
Ste. Genevieve, MO
63670
(573) 883-3548
Stoddard County
NE Corner of Courthouse
Square
Bloomfield, MO 63825
(573) 568-3344

Stone County
307 North Main Street
Galena, MO 65656
(417) 357-6812

Sullivan County
Courthouse, 3rd Floor
Milan, MO 63556
(660) 265-4541

Taney County
122 Felkins Ave.
Forsyth, MO 65653
(417) 546-4431

Texas County
1418 S. Sam Houston
Blvd.
Houston, MO 65483
417/967-4545

Vernon County
Courthouse, Ground Floor
Nevada, MO 64772
(417) 448-2560

Warren County
107 W. Walton
Warrenton, MO 63383
636/456-3444

Washington County
113 N. Missouri Street
Potosi, MO 63664
(573) 438-2671

Wayne County
P.O. Box 200
Greenville, MO 63944
(573) 224-3035

Webster County
800 S. Marshall St.
Marshfield, MO 65706
(417) 859-2044

Wright County
190 W. Rolla
Hartville, MO 65667
(417) 741-6134

APPENDIX E

GENERAL PPE GUIDANCE

(Adapted from NAHEMS, 2005)

PPE for FADs That Have No Human Health Risk Component

Recommended PPE for routine field investigations may include coveralls, a cooling vest, an apron, gloves, boots, eye protection, respiratory protection, and head and hearing protection. If disposable equipment is used, it should not be re-used.

Coveralls—Acceptable coveralls for use in a routine field call include: (a) clean, washable, reusable, long-sleeved, one-piece cloth coverall suits or (b) clean, disposable, long-sleeved one-piece Tyvek® coverall suits.

Either type of coverall may be worn over street clothes; however, warm, humid weather conditions may result in some discomfort for the worker wearing long-sleeved coveralls, especially over street clothes. Colored Tyvek® suits are preferred and less likely to spook animals.

Cooling Vest—If the weather is warm, a cooling vest may be used under the coveralls. Cold weather operations may require additional insulated underclothing.

Apron — An apron should be used to prevent gross contamination of coveralls when conducting work that could result in this level of contamination (i.e., cleaning and disinfection, post mortem examination, etc.)

Gloves—Appropriate gloves should be considered standard PPE for routine FAD calls. Standard disposable latex gloves are recommended for clinical use in the field. Gloves made from other materials may be substituted for latex gloves under certain conditions. Such materials include nitrile, butyl, polyvinyl chloride (PVC), and neoprene, which are available commercially.

Cut-resistant gloves made of materials such as steel mesh, Kevlar®, and Surgipath® are essential PPE for personnel who are conducting necropsies and collecting and cutting tissue specimens in the field. These gloves should be worn as essential PPE on both hands over the latex or other waterproof gloves and should be disposed of or thoroughly cleaned and disinfected before being removed from the necropsy area.

Boots—For field use, high pull-on boots worn over stocking feet are far preferable to overshoes or overboots, neither of which is recommended. To permit thorough cleaning and decontamination, the boots should be of rubber or plastic waterproof material with shallow treads to permit thorough cleaning. Safety boots with flexible steel toes and midsoles, which provide extra protection from puncture wounds and events involving crushing, are especially recommended for wear in the field.

Eye Protection—Acceptable eye protection in the form of unbreakable, splash-proof goggles or glasses should be worn during a response. A full-face shield may be substituted.

Respiratory Protection—In this instance respiratory protection might be provided to assist workers in dusty environments or relative to preference or comfort issues particular to an individual responder.

Specific types of respiratory protection should be determined by the incident Safety Officer and may range from a dust mask to a powered air-purifying respirator. The use of respiratory protection above a dust mask may require medical monitoring of the wearer. The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor requires that users of filtering respirators such as the N-95® be enrolled in a respiratory protection program that includes pulmonary function testing, medical clearance, respirator fitting and testing, initial and periodic respiratory protection care-and-use training, and medical surveillance. In addition, the user must be clean-shaven.

Head and Hearing Protection—Under certain circumstances, a hard hat and hearing protection may be recommended.

PPE in Settings with Significant Human and Community Health Risk

Examples of FADs with significant human and community health risk include the hanta, hendra, and nipah viruses; Q fever; Rift Valley fever; and Highly Pathogenic Avian Influenza (H5N1). Below is a brief overview of the types of PPE and suggestions for use in situations on premises on which diseases such as these have been diagnosed.

Recommended PPE for visits to settings with significant human and community health risk include coveralls, a cooling vest (optional), gloves, boots, and respiratory and eye protection. If disposable equipment is used, it should not be reused.

Coveralls—A clean, disposable, long-sleeved, one-piece Tyvek® coverall suit is recommended for this setting. The visitor should remove all street clothing (both outerwear and underwear, including socks) before putting on the coveralls. If the weather is warm, a cooling vest may be used under the coveralls. Cold weather operations may require use of additional insulated underclothing that is dedicated to use for this purpose. Dedicated socks also should be donned. To ensure complete, thorough personal decontamination, all garments—including coveralls, cooling vest or insulated underwear, and socks—should be removed at the end of the investigation or visit.

Gloves—Double sets of gloves are essential PPE in situations involving disease agents in this risk category.

Double-Gloving—The first pair of gloves that is donned may be nitrile disposable gloves, followed by a pair of thicker nitrile or other rubber gloves. If wearers are working in a potential cut-hazard environment, cut-resistant gloves (e.g., steel mesh, Kevlar® or Surgipath®) may be used as well. If the outer nitrile or rubber glove could be damaged by abrasion, a cotton or leather disposable outer glove should be used.

Taping Cuffs—To prevent the responder's exposure to the disease agent of concern, a tight seal must be made between the cuffs of the coveralls and the cuffs of the gloves. The cuffs of the coverall sleeves should be placed over the cuffs of outer gloves and taped in place with duct or similar type tape. On both sleeves, the tape should be placed so that it extends equal distances over the coverall cuff and the cuff of the glove. One to three turns then should be made with the tape around the wrists to secure the coverall sleeves to the glove cuffs. One turn is sufficient with wide tape (3-4 inch or 7.6-10 cm in width), whereas two or even three turns are required with narrow tape (1-2 inch or 2.5-5 cm in width).

Boots—Pull-on boots worn over stocking feet are recommended in this risk category. The use of overshoes or overboots is not recommended. To permit thorough cleaning and decontamination, the boots should be of rubber or plastic waterproof material with shallow treads to permit thorough cleaning. Safety boots with flexible steel toes and midsoles, which provide extra protection from puncture wounds and events involving crushing, are especially recommended for wear in the field.

Respiratory and Eye Protection—For this risk category, the use of a protective hood with a face shield in conjunction with a battery powered air-purifying respirator (PAPR) may be required.

Desirable attributes for a hood with a face shield include wearer comfort, resistance to shifting during strenuous use, ease of cleaning and disinfection, a reasonable initial cost and shelf life, and commercial availability. Several hood configurations and styles are compatible with a PAPR. Use of a PAPR has many advantages, including:

- Comfort;
- Greater encapsulation from the outside environment than other respirators;
- Some limited body cooling effect during hot and/or humid weather; and
- Wearability by individuals with beards or mustaches.

The disadvantages of a PAPR include:

- Initial cost of purchase;
- The need for maintenance (e.g., battery recharging and filter replacement);
- Potential difficulty in disinfecting the blower units completely;
- Difficulty of user in communicating verbally with others; and
- Possible adverse perception by the farming public of an FADD wearing a PAPR.

APPENDIX F

EXAMPLE LIVESTOCK AND POULTRY MONITORING DATA COLLECTION SHEET

Temporary Housing Area Identification:				
Date and Time Examined	**Type and Number**	**Treatment**	**Condition**	**Examiner Initials**
Each temporary animal housing area or facility should monitor its animals at least daily.				