FOOT-AND-MOUTH DISEASE STANDARD OPERATING PROCEDURES: 9. BIOSECURITY

FAD PReP

Foreign Animal Disease Preparedness & Response Plan

National Center for Animal Health Emergency Management

United States Department of Agriculture • Animal and Plant Health Inspection Service • Veterinary Services

DRAFT DECEMBER 2010

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP) Standard Operating Procedures provide an operational guidance for dealing with an animal health emergency in the United States.

These draft procedures are under ongoing review. This document was last updated **December 2010**. Please send questions or comments to:

National Center for Animal Health Emergency Management
Veterinary Services
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
4700 River Road, Unit 41
Riverdale, Maryland 20732-1231
Telephone: (301) 734-8073
Fax: (301) 734-7817
E-mail: FAD.PReP.Comments@aphis.usda.gov

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Contents

9.1 Introduction

Foot-and-mouth disease (FMD) is a highly contagious viral disease that affects domestic cloven-hoofed animals (cattle, swine, sheep, and goats) and more than 70 wildlife species (deer, bison, pronghorn antelope, and feral swine). The disease is characterized by fever, vesicular (blister-like) lesions, and subsequent erosions (ulcers) of the surfaces of the mouth, tongue, nostrils, muzzle, feet, and teats.

Farm-to-farm movement of infected livestock is the most effective means for spreading FMD. Contact with animals and with their excrement poses significant risks. Clothes, boots, vehicles, and equipment can become contaminated and can carry disease from one premises to another. Diseases can also spread by other means, such as wildlife or other vectors.

Implementing biosecurity measures as standard practice helps ensure that those working with farm animals or coming into contact with them do not spread FMD when they enter or leave a premises. This is important whether or not any disease outbreaks have been reported. Because FMD is an extremely contagious viral disease—it can be transmitted between animals—there are good public and occupational health reasons for having biosecurity measures.

This standard operating procedure (SOP) is meant to support biosecurity procedures to prevent the spread of FMD implemented after identifying the index case. Properly implemented, these measures will reduce the risk of pathogen transmission during the movement of personnel and material necessary for the extensive activities of a disease campaign, such as surveillance, vaccination, appraisal, depopulation, and disposal.

Several key APHIS documents complement this SOP and provide further detail when necessary. This SOP references the following APHIS documents:

- FAD PReP/NAHEMS Guidelines:
  - Cleaning and Disinfection (2010)
  - Disposal (2010)
  - Health and Safety (2010)
  - Mass Depopulation and Euthanasia (2010)
  - Quarantine and Movement Control (Coming 2011)
- FAD PReP SOPs (an SOP that does not have a date specified is currently under development):
  - Cleaning and Disinfection (2010)
  - Communications
  - Disposal (2010)

- Health and Safety/Personal Protective Equipment (PPE)
- Quarantine and Movement Control

- Veterinary Services Memorandum No. 580.4

For individuals who have access to the APHIS intranet, many of these documents are available on the internal APHIS FAD PReP website: http://inside.aphis.usda.gov/vs/em/fadprep.shtml. For individuals who do not have access to the APHIS intranet, these documents are available on the external FAD PReP website: https://fadprep.lmi.org. New users will need to follow the link—"Need access? Click here to submit your request?"—to establish a user name and password.

9.1.1 Goals

The goals for biosecurity are to:

- Develop incident wide biosecurity plans, fixed operation biosecurity plans, and mobile operation biosecurity plans, prior to the incident or outbreak.
- Ensure biosecurity procedures to prevent the spread of animal disease will be implemented within 24 hours of the identification of the index case.

9.1.2 Guidelines

Observe the following guidelines to ensure proper biosecurity measures:

- Establish biosecurity programs that are demonstrable and measurable, prior to the outbreak. Identify gaps or critical control point in biosecurity process and functions and provide correction prior to the outbreak.
- During an FMD outbreak, biosecurity measures are intended to prevent the disease from spreading among susceptible animal species. The biosecurity program includes plans, controls, and actions focused on movements of animals, personnel, and conveyances, into and out of potentially infected areas, to avoid cross contamination. Implement rapid coordination and identification of the resources needed to implement biosecurity operations, including the necessary types and quantity of PPE and disinfectants, and the personnel requirements to implement biosecurity plans.
- A biosecurity plan will be implemented for all Infected Premises (IP), Contact Premises (CP), Suspect Premises (SP), checkpoints, and livestock facilities. Each State will set up a notification process that informs owners of susceptible livestock of the current risk of being infected with FMD.

9.1.3 Coordination

The biosecurity activities outlined here should be implemented in close coordination with health and safety activities and the site safety officer (SSO). Please refer to the FMD Health and

Safety/PPE SOP. Detailed communication procedures are contained in the FMD Communications SOP.

9.2 Purpose

This SOP provides guidance on biosecurity principles, policies, and procedures for animal health emergency deployments to APHIS Veterinary Services (VS) and other official response personnel in the event of an FMD outbreak.

The procedures serve as guidance for Biosecurity Group Supervisors and associated personnel for biosecurity activities. However, deviations from these procedures may be permissible, if necessary, to address a given situation. In addition, details provided in various sections may need to be combined to meet the requirements of a particular situation.

The first section of the SOP serves as a basis for creating a thorough biosecurity plan and the second section provides the operational SOP for the implementation of biosecurity measures outlined in the plan.

The SOP is being reviewed and updated on an ongoing basis, and comments and suggestions are welcome.

9.3 Responsibilities

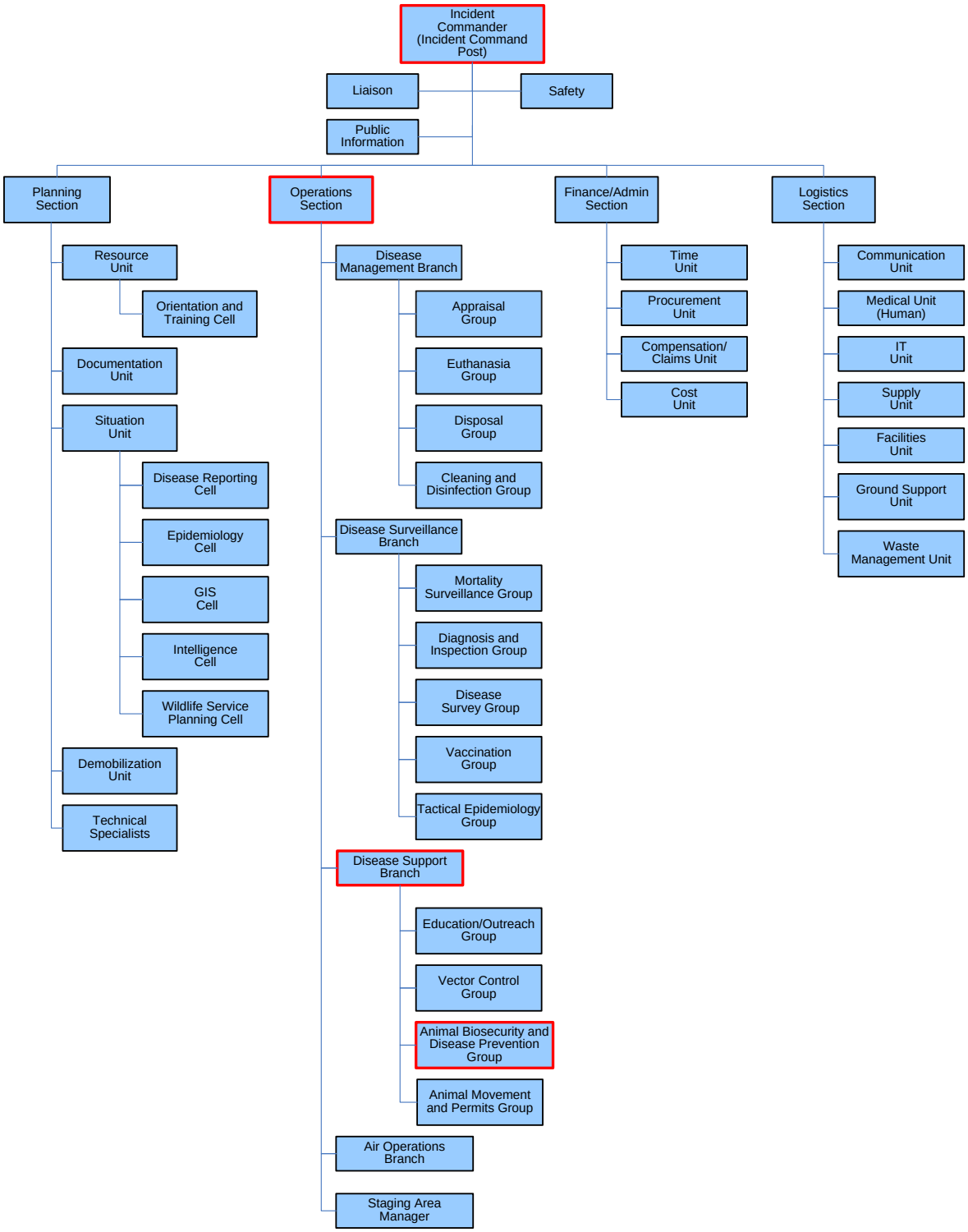
The roles of biosecurity response personnel will vary depending on the incident and may even vary during the same incident. The number of personnel and the command structure are dependent on the size, duration, and complexity of the incident. Large scale incidents may involve more than one premises and may cover large areas. As the response progresses personnel requirements may change. All roles and responsibilities may be designated to available and qualified personnel as needed. The command structure and positions below are provided as guidance.

9.3.1 Animal Biosecurity and Disease Prevention Group

Under the Incident Command Structure (ICS) the Animal Biosecurity and Disease Prevention Group[1] is part of the Operations Section and falls under the Disease Support Branch. See Figure 9-1 for the command structure at the incident level.

[1] For the remainder of this SOP the Animal Biosecurity and Disease Prevention Group will be referred to as the Biosecurity Group.

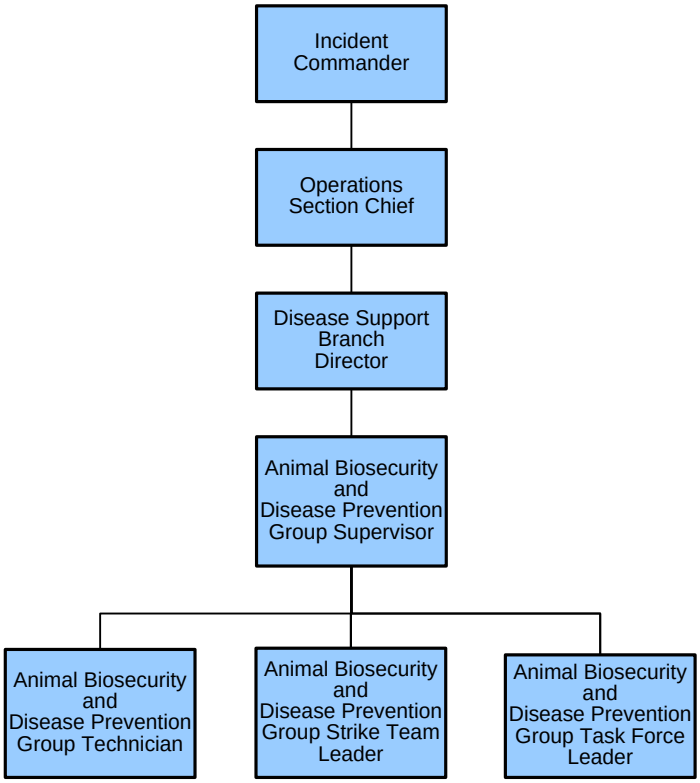
Figure 9-1. Example Incident Command Structure



The Biosecurity Group is led by the Biosecurity Group Supervisor, who reports to the Operations Branch Director. The Biosecurity Group Supervisor may deploy Strike Teams or Task Forces depending on the incident. A strike team contains similar resources and disease specific skills,

while a task force contains various resources and no disease specific skills. Biosecurity Team Members work on Infected or Contact Premises and provide front line assistance in containing and controlling the outbreak. The Biosecurity Group Technician facilitates coordination of efforts among leaders to include those in the Planning, Finance, and Logistics Sections. See Figure 9-2 for the Biosecurity Group command structure. Further details on the roles and responsibilities of these positions are provided below.

Figure 9-2. Bioscecurity and Disease Prevention Group Structure



9.3.1.1 Biosecurity Group Supervisor

The Biosecurity Group Supervisor is assigned to the incident command post (ICP) and is in charge of all Biosecurity Teams (Strike Team or Task Force) and Biosecurity Team Members. Individuals selected as Biosecurity Group Supervisors will be trained before an animal health emergency occurs.

The Biosecurity Group Supervisor must:

- Coordinate with the SSO and create a site-specific biosecurity plan(s) and submit it to the incident commander (IC) for approval.
- Consult with Biosecurity Team Leaders to assess the need for biosecurity personnel, vehicles, and equipment during a response.

- Determine the number and type of personnel and resources needed to conduct biosecurity operations.

- Communicate with the Operations Section Chief to ensure availability of resources; advise the Operations Section Chief when resources cannot be satisfied locally so that arrangements for additional resources can be made.

- Verify the credentials, training, and security clearances of all personnel assigned to the Biosecurity Group. Maintain documentation indicating that credentialing requirements have been met.

- Work with appropriate officials to issue contracts and leases regarding equipment or personnel for the biosecurity operation.

- Appoint Biosecurity Team Leaders and assign personnel to Biosecurity Teams.

- Identify personnel training requirements and ensure that responders receive the appropriate orientation training upon arrival at the Incident Site.

- Ensure all biosecurity personnel receive training on the routes of pathogen transmission and measures to reduce the risk of pathogen transmission.

- Ensure that Biosecurity Team Leaders perform their tasks in accordance with established biosecurity policies and procedures.

- Coordinate Biosecurity Group activities with the activities of other groups (for example, Appraisal, Euthanasia, and Disposal).

- Establish and maintain effective working relationships with industry groups and producers, including producer groups, processing plant leaders, renderers, feed-mill operators, transportation company representatives, and other stakeholders.

- Prepare regular briefings and reports. Verify the accuracy and completeness of all required reports and submit them promptly to the Operations Section Chief.

- Inform the Operations Section Chief of any problems.

- Serve as a resource for technical information about biosecurity methods and procedures and maintain files and resource materials on these topics.

9.3.1.2 Biosecurity Team Leader

The Biosecurity Team Leader supervises a Biosecurity Team assigned to a clearly defined area or a number of premises. Depending on the size of the response, there may be several Biosecurity Teams, each with its own Team Leader. Two types of teams may be deployed:

- *Biosecurity Strike Team.* Team with experience and technical knowledge in biosecurity and disease prevention techniques applicable to specific diseases. Team employs similar resources to carry out biosecurity and disease prevention tasks on a specific premises or set of closely related premises

- *Biosecurity Task Force.* Team with skills and experience necessary to perform biosecurity and disease prevention tasks on a large complex premises or a diverse group of premises. This team has a wide variety of resources and does not possess the technical knowledge in biosecurity diseases and prevention techniques applicable to specific diseases.

Biosecurity Team Leaders (Strike Team or Task Force) report to the Biosecurity Group Supervisor.

The Biosecurity Team Leader must:

- Assist the Biosecurity Group Supervisor in creating a site-specific biosecurity plan.

- Help determine the number and types of resources needed to effectively and efficiently perform biosecurity and disease prevention activities.

- Assign and supervise Biosecurity Team Members.

- Establish a communication system between Team Members and the Team Leader.

- Assist the Biosecurity Group Supervisor with training personnel.

- Assist Biosecurity Team Members with their specific duties and biosecurity policies and procedures.

- Ensure that all personnel follow biosecurity measures and that biosecurity measures are implemented for all people, animals, vehicles, equipment, and other materials entering or leaving the Control Area.

- Work with premises owners and/or managers to create detailed property maps identifying roads, neighboring premises, fences, gates, property access points and other relevant geographic information.

- Ensure control movements on and off premises. This may include

    - assigning Biosecurity Team Members to establish a premises security system or to serve as guards at entrances,

- preventing the entry of unauthorized people, animals, equipment or vehicles on to the premises,
- assigning a biosecurity team to the decontamination post to monitor and control disinfection and decontamination of vehicles prior to exiting the premises,
- arranging for patrols of boundary fences and repairing fences as necessary, and
- providing daily briefings to security staff on activities and issues related to biosecurity.

- Encourage premises owners and/or managers to establish or upgrade premises biosecurity plans and assisting with the implementation of such plans.
- Ensure that Biosecurity Team members work with owners and managers of IP to increase biosecurity awareness and ensure compliance with established movement restrictions. In cases where residents leave their property, ensure that biosecurity and cleaning and disinfection (C&D) protocols are followed on the premises.
- Ensure that the movement of animals and/or animal products arriving at or leaving the affected premises is closely monitored to guarantee compliance with movement and permit restrictions. In consultation with the Biosecurity Group Supervisor, ensure compliance with the permit system implemented to facilitate interstate and intrastate movement of animals and animal products.
- Verify that quarantine notices are posted at all premises entrances. For further information, see the Quarantine and Movement Control SOP or the FAD PReP/NAHEMS Guidelines: Quarantine and Movement Control.
- Establish a system to identify, monitor, and control individuals entering premises and to prevent the entry of unauthorized individuals. Ensure that Biosecurity Team Members maintain accurate logs of all personnel, equipment, and vehicles entering and leaving each IP and CP.
- Report all possible biosecurity breaches to the Biosecurity Group Supervisor and immediately notify the Biosecurity Group Supervisor of any issues or problems.
- Provide information and advice to owners and the appropriate officials in order to secure support and acceptance of biosecurity procedures.
- Stay current on information related to disease prevention principles and practices.
- Prepare briefings and reports for the Biosecurity Group Supervisor.

9.3.1.3 Biosecurity Team Members

Biosecurity Team Members are assigned to work on Infected or Contact Premises and provide front line assistance in containing and controlling a disease outbreak. Biosecurity Team

Members may be assigned to premises by either the Biosecurity Team Supervisor or the Biosecurity Group Supervisor. Biosecurity Team Members usually work individually on assigned premises with the owner, the owner's family, employees, and visitors.

After arriving on the premises, the Biosecurity Team Members assist the Biosecurity Team Leader. Team members must:

- Brief the owner, the owner's family, and premises' employees about hazards associated with the emergency.

- Encourage the owner to establish and/or upgrade an ongoing premises biosecurity plan. The plan should include the following elements: C&D; movement controls for people, including residents, employees and visitors, animals, vehicles and equipment; isolation of new, returning or ill animals; assessment of the risks posed by visitors; and plans for dealing with visitor risk during the outbreak.

- Increase biosecurity awareness and ensure compliance with established movement restrictions. In cases where residents leave their property, ensure that Biosecurity and C&D protocols are followed.

- Coordinate activities with teams from other Groups (for example, appraisal, depopulation and euthanasia, or disposal) that may visit the premises.

9.3.1.4 Biosecurity Technician

Under the ICS, Technicians are assigned by the IC to serve in the Section where their specialized knowledge and experience are required (for example, logistics, operations, planning, and finance.) The Biosecurity Technician must:

- Assist in development of ICP biosecurity policy and help to create the biosecurity procedures for the ICP operations and facilities.

- Read and become knowledgeable on the biosecurity policies and procedures of the ICP.

- Review and monitor the biosecurity procedures at all levels of the ICP.

- Attend meetings as required, including the morning operational meetings, planning meetings, and the command and general staff meetings. If field duties preclude the attendance at a meeting, advise the person in charge of the meeting of his or her proposed absence.

- Prepare a biosecurity message for the incident action plans.

- Ensure that biosecurity procedures are being implemented at ICP field locations and facilities, and evaluate them.

- Identify biosecurity breaches and coordinate with the ICP staff to correct them using practical and operationally feasible solutions.

- Advise IC, Section Chiefs, Branch Directors, and Group Supervisors on biosecurity issues as needed and requested.
- Set a good example in the area of disease prevention for all ICP personnel.

9.3.2 Logistics Staff Responsibilities

Logistics personnel must:

- Maintain footbaths. See Attachment 9.A Protocol for Maintaining Footbaths.
- Monitor disposal, laundering, and cleaning of contaminated materials (for example, disposable uniforms, cloth overalls, shovels, and boots).
- Mix and provide disinfectants for handheld sprayers.
- Monitor supply inventory related to biosecurity (for example, disinfectants, uniforms, footwear, and sprayers).
- Coordinate with operations staff to ensure that supplies are adequate for field personnel.

9.3.3 Local Government Employees

The following guidance is for local government employees (such as code enforcement, environmental health, and building inspection employees) in the quarantine zone.

When possible, suspend activities within neighborhoods with active disease. Contact the state liaison officer to receive periodic updates regarding activities. When local government employees visit neighborhoods with active disease cannot be avoided, those employees will take the following biosecurity measures:

- Use disposable footwear that can be disposed upon leaving the property. Alternatively, they may use footwear that can be disinfected.
- Wash/disinfect hands prior to and upon leaving homes (dry hand sanitizers may be used).
- Follow biosecurity protocol as outlined above, including not handling animals, avoiding walking within the areas where animals are caged or fenced, and avoiding visiting other properties after visiting an IP.
- Contact the Response or State Liaison Officer upon observing sick animals.
- Take extra care in cleaning/disinfecting hands and footwear upon exiting the property.
- Launder clothing as soon as possible.
- Shower.

9.3.4 Public Utility Employees

a. If there are no infected animals conduct business as usual; there are no special requirements.

1. If infected animals are present or if there is a quarantine sign present:

   a. Avoid these areas if possible, or follow step 2c.

   b. Avoid driving onto these premises.

   c. Exercise minimal precautions if entering these premises:

      i) Avoid areas where the infected animals are located.

      ii) Wash hands, boots, and equipment before leaving these premises, when it is necessary to work in areas where the infected animals are located.

2. IP (past 30 days):

   a. The ICP will inform the public utility companies of the location of the IP over the past 30 days. The ICP will also inform the companies of any IP in the future.

   b. Avoid these premises, if possible.

   c. Avoid driving onto these premises.

   d. If entering these premises:

      i) Avoid areas where the animals are located.

      ii) Wash hands with antimicrobial soap prior to entering IP.

      iii) Wear boot covers (or rubber boots) and gloves when minimal contact with the environment is expected. Also wear disposable (or clean) coveralls, hair net, and mask if the work being done is expected to cause clothing to become contaminated.

   e. When exiting the IP:

      i) Clean and disinfect all equipment used before leaving premises.

      ii) Dispose of all outer disposable clothing and footwear at the premises. Otherwise, place disposable clothing inside two sealed plastic garbage bags for later removal.

      iii) Disinfect footwear and tires.

      iv) Wash hands with antimicrobial soap when leaving the IP.

v) When possible, do not visit any other properties that day.

vi) Launder clothing as soon as possible.

vii) Shower.

9.4 Procedures

9.4.1 Planning—Site-Specific Biosecurity Plan

In order to prevent disease spread, it is vital to maintain biosecurity at all times. Planning is essential to ensure that biosecurity is maintained. The Biosecurity Group Supervisor must prepare a site-specific biosecurity plan in consultation with the SSO. The IC must approve the plan prior to implementation.

This section provides an overview of topics to be considered when preparing the site-specific biosecurity plan. Subsection 9.4.2 covers the procedures necessary to implement the plan described herein.

9.4.1.1 Outline

The Biosecurity Group Supervisor will develop a written plan detailing biosecurity activities. The plan should include the following sections:

1. Biosecurity risk assessment
2. Biosecurity implementation
    a. Mobile
    b. Fixed
    c. Control zones
    d. On-premises movement
    e. Disinfectant selection and use
    f. Shipping and transportation
3. Personnel
    a. Roles and responsibilities
    b. Credentials, training, and security clearance
4. Materials, Supplies, and equipment
5. Regulatory permits and approvals

6. Quality assurance/quality control (QA/QC)

7. Briefings

8. Documentation and reporting

9. Demobilization.

9.4.1.2 Considerations

A good biosecurity plan is important for eradicating and controlling FMD and for the routine maintenance of animal health. Biosecurity minimizes disease spread via people, animals, vehicles, and equipment from premises to premises during disease control and eradication efforts.

Biosecurity plans should plan for unavoidable breaks in biosecurity due to the need to protect life or property such as ambulance or fire truck entry. A basic biosecurity plan for attaining these goals—both in an emergency situation and in routine practice—consists of four essential elements:

1. Biosecurity awareness for all response personnel. Fatigue, stress, distraction, and lack of forethought all can cause even the most conscientious individual to forget the crucial importance of biosecurity measures. Thus, it is essential that all personnel exercise the utmost thought, patience, persistence, and care in creating and carrying out a biosecurity plan—both under normal circumstances and during a disease outbreak. The measures outlined in the biosecurity plan must be communicated to all response personnel.

2. Design and implement C&D procedures to reduce or eliminate pathogens and pathogen transmission. See the FMD Cleaning and Disinfection SOP (2010).

3. Control of the movement of people, cloven hoofed animals and other susceptible animals, vehicles, and equipment.

4. Maintain a closed herd to the fullest extent possible. Herds that are "closed" to the introduction of new animals (with population increase occurring only from herd offspring) decrease the potential for transmission of disease agents from "outside" animals. If a closed herd is not possible, isolate newly purchased cloven hoofed animals and other returning livestock. Vaccination status of introduced cloven hoofed animals and other livestock should be known.

9.4.1.3 Biosecurity Risk Assessment

The biosecurity risk assessment is location and task specific and based on the potential or actual risks and hazards that may be encountered in the specific situation. A good biosecurity plan requires a thorough risk assessment so that biosecurity measures can be drafted to mitigate these risks. The biosecurity risk assessment must be performed prior to drafting the following sections of the site-specific biosecurity plan.

9.4.1.4 Biosecurity Implementation

9.4.1.4.1 Mobile Biosecurity Protocol

This section addresses mobile activities such as surveillance, where response personnel travel from one premises to another in the course of a workday. The protocols should address biosecurity procedures between premises.

9.4.1.4.2 Fixed Biosecurity Protocol

This section addresses biosecurity requirements related to a fixed site that is visited by multiple personnel over multiple days. For example, these protocols should address biosecurity at an IP where depopulation, disposal, and decontamination are taking place.

9.4.1.4.3 On Premises Movements

This section addresses movements from one part of an IP to another part of the IP. For example, if a single premises has multiple barns and residential buildings, this section would address how to handle biosecurity when moving from one building to another.

9.4.1.4.4 Disinfectant Selection and Use

This section addresses which disinfectants will be used to eradicate FMD on specific surfaces. It should also address how to mix and apply the selected disinfectants. Reference to the site-specific C&D plan may be appropriate. Coordination with the Cleaning and Disinfection Group is necessary. See the FMD C&D SOP (2010).

9.4.1.4.5 Shipping and Transportation

This section addresses how biosecurity-related disposable materials, supplies, and equipment that have become contaminated are packaged for shipment or transport for disposal. This is particularly relevant to mobile biosecurity operations involving disposable PPE. See the FMD Disposal SOP (2010).

9.4.1.5 Personnel

This section identifies all Biosecurity Group members and the specific tasks each is responsible for. Refer to Section 9.3 on personnel responsibilities for additional information.

The Biosecurity Group Supervisor must verify credentials, training, and security clearance for all personnel in the Group. If necessary, the Biosecurity Group Supervisor must make arrangements to provide personnel with just-in-time training. No personnel will be allowed to enter a premises without verified credentials. The Biosecurity Group Supervisor must maintain documentation that the requirements have been met for each member of the team at the site during the response. If documentation is not available, personnel must obtain the training and associated documentation prior to participating in biosecurity activities. Some examples of required credentials include:

- Pesticide applicator license (if applicable)
- Hazardous Waste Operations and Emergency Response certification
- Respirator fit test
- Medical fitness for duty.

Identify specific briefings required prior to beginning biosecurity activities, including biosecurity requirements, site conditions, and specific tasks. Include the frequency of briefings and coordinate with other plans that involve briefings, such as the site-specific health and safety, depopulation, disposal, and C&D.

9.4.1.6 Materials, Supplies, and Equipment

This section specifies the materials, supplies, and equipment necessary to perform the biosecurity activities recommended in the plan. The following equipment and supplies are generally needed for biosecurity:

- Equipment
  - PPE (as specified in the site-specific health and safety plan, see the FMD Health and Safety/PPE SOP), which may include:
    - 2 Tyvek or similar suits
    - disposable boots
    - disposable gloves
    - respiratory protection.
- Materials/supplies
  - Bucket and brush for cleaning boots and equipment
  - Broad-spectrum surface disinfectant
  - Fingernail brush
  - Hand sanitizers
  - Garbage bags
  - Resealable bags (zip-lock)
  - Water supply where water is unavailable or possibly contaminated.

9.4.1.7 Regulatory Permits and Approvals

This section identifies any regulatory permits or other approvals related to biosecurity activities. For example, this section should address the need for the following:

- Approval to visit a SP in a Surveillance Zone.
- Discharge permits required for releasing disinfectant solution to the environment.

9.4.1.8 QA/QC

This section addresses inspections and spot checks that may be performed by the Biosecurity Group Supervisor or designee may perform to ensure strict adherence to all biosecurity measures. Each inspection and spot check will be documented. Documentation will include the following:

- Time
- Place
- Activity observed
- Outcome of observations.

9.4.2 Operations

9.4.2.1 Briefings

The Biosecurity Group Supervisor will brief Biosecurity Group members on all aspects of the biosecurity effort, including their duties, policies, and procedures such as biosecurity protocols before entering the Hot Zone-Exclusion Zone (EZ). The Biosecurity Group Supervisor will also regularly prepare briefings and reports for the Operations Section Chief (see the FMD Communications SOP [2010]) and notify him or her immediately of any problems.

Other briefings include:

- The SSO will brief all responders on safety precautions for each operation in accordance with the site-specific health and safety plan. See the FMD Health and Safety/PPE SOP.
- Orientation Training Group personnel will brief C&D Group members on the nature of the disease and any other circumstances that might affect the response.

9.4.2.2 Site Security and Safety

9.4.2.2.1 General

Place signs in the appropriate areas in the site to indicate instructions or precautions that site personnel and visitors must follow when entering the site. Refer to Attachment B for sample signs to use during an FMD response.

All personnel entering the site must

- meet security requirements as established by the IC,
- present documentation of verified credentials showing they are qualified to perform their assigned tasks,
- present documentation that they have received all required briefings as defined in the site-specific biosecurity plan, and
- wear the required PPE specified in the site specific health and safety plan. See the FMD Health and Safety/PPE SOP.

Each day prior to entering a potentially infected site for the first time, personnel will perform the following tasks:

- Don PPE as specified in the FMD Health and Safety/PPE SOP and use only clean equipment and supplies.
- Verify that control zones are properly delineated.
- Do not attempt to disinfect a surface without thoroughly cleaning it first.

9.4.2.2.2 Visitor Risk Mitigation

In the event of an FMD outbreak, the risk posed by visitors increases, especially if the premises are within or near the quarantine area. The Biosecurity Group Supervisor should consult with the Quarantine and Movement Control Group to establish policies for indentifying and controlling access to quarantined areas and premises. For further guidance on visitor risk see the Quarantine and Movement Control SOP.

As a general rule, the closer a premises is to the IP, the greater the risk and the greater the need for strict biosecurity and C&D procedures.

In an outbreak, consider all visitors as high risk visitors, especially if the premises are located in a quarantined area. High-risk visitor procedures are shown below (Steps 1-15). Steps 1–4 cover minimum biosecurity measures necessary for a low-risk visitor. Steps 1–7 cover the biosecurity measures necessary for medium-risk visitors. During an outbreak, all visitors should follow steps 1–15 to ensure maximum biosecurity.

9.4.2.2.2.1 Visitor Biosecurity in a Quarantined Area

If premises are located within the animal health emergency quarantine area, all visitors should be considered "high risk." Premises visits must be kept to a minimum. Please refer to FAD/PReP NAHEMS Guidelines: Biosecurity (2010) for further details on visitor-risk levels.

The Biosecurity Group Supervisor, Team Leader, and Team Members will work with any visitors allowed on the premises to ensure that highly rigorous biosecurity and C&D measures are observed. These procedures include the following:

1. Identify and maintain a "clean" area in the vehicle (usually the passenger area or compartment). The "clean" area must be separate from a "dirty" area of the vehicle, usually the cargo area of a truck, the trunk of a car, or the back of a station wagon. Once entering the premises, a visitor should be considered "dirty" and should not go into the "clean" area of the vehicle (for example, to replace equipment or supplies) unless he or she has disposed of or cleaned and disinfected exposed clothes, footwear, hats, gloves, equipment, supplies, and any other potential sources of pathogen transmission.

2. After the visitor exits the vehicle, biosecurity personnel should immediately consult with him or her to designate an arbitrary line demarcating a "clean" side (on the vehicular side of the line) and a "dirty" side (on the premises side of the line). Once the visitor has crossed the line and into the "dirty" side, he or she should not return to the "clean " side unless exposed clothing, footwear, hats, gloves, equipment, supplies, and any other potential sources of pathogen transmission have been disposed of or cleaned and disinfected.

3. Visiting personnel should bring the necessary clothing, equipment, and supplies for visits and arrange to have a supply of water to be used for cleaning available near the vehicle parking area.

4. Before leaving for a premises visit, personnel should place the clean clothing, equipment, and supplies in the designated "clean" area of the vehicle.

5. Only vehicles that are clean and free of dirt, debris, and organic material should be allowed on the premises.

6. Vehicle interiors must be clean and equipped with easily removable rubber floor mats. Vehicle exteriors and trailers—including tires, wheel wells and undercarriage—should be cleaned and disinfected prior to arrival on the premises.

7. Park vehicles on graveled, paved, or concrete areas a minimum of 500 feet from the animal production area to minimize contact with soil, mud, or manure. Keep vehicle windows closed.

8. Check the drainage of the premises to ensure that used disinfectant and water used for C&D do not flow off the premises or into water sources such as lakes, creeks, or rivers.

9. Immediately upon exiting the vehicle at each premises, put on clean disposable or reusable outerwear (for example, coveralls, coats, and jackets) and clean disposable or rubber boots.

10. Clean and disinfect the interior and exterior (including tires, wheel wells, and undercarriages) of all vehicles and trailers immediately prior to arrival and immediately after departure. At minimum, vehicle and trailer exteriors (including tires, wheel wells, and undercarriages) should be cleaned with soapy water immediately prior to arrival and immediately after departure and/or the vehicle/trailer should be taken through a pressure car wash.

11. All visitors entering the premises must wear clean disposable or reusable protective clothing (for example, coveralls, hats, gloves, and boots) and clean disposable or reusable footwear. If footwear is soiled, it will need to be cleaned and disinfected. See the FMD Cleaning and Disinfection SOP (2010) before entry onto the premises.

12. Visitors should wash their hands with soap and water before entering and after leaving the premises to avoid transmitting disease agents from person to person or to animals.

13. Clean and disinfect all equipment after each use.

14. Clean, disposable plastic sleeves and/or gloves must be worn whenever direct contact with animals' bodily fluids, tissues, or excrement will occur (for example, births, inseminations, postmortems, or butchering). Ensure that instruments and equipment such as dehorners, castrators, and syringes are sterile before use. Disposable needles and syringes should be used whenever possible and left at the site.

15. Visitors should follow exit procedures outlined in this SOP.

9.4.2.3 Biosecurity Implementation

9.4.2.3.1 General Biosecurity Protocol

Government personnel with oversight responsibility, as well as other individuals, visit multiple premises routinely and can inadvertently come into contact with viruses and bacteria on these properties. Without the proper precautions, personnel can spread microorganisms to other premises. Therefore, field personnel should make extraordinary efforts to prevent the spread of FMD to other facilities or animals. During a known emergency animal disease outbreak, additional precautions specified by animal health officials must be followed.

All response personnel will take the following minimum biosecurity measures:

1. Wear rubber boots (or other footwear that can be cleaned and disinfected) or disposable plastic boots. Clean street shoes or boots are acceptable when visiting low-risk areas such as offices or homes away from animal areas. It may be possible to store footwear at facilities that would only be worn there. Some animal owners provide rubber boots or disposable plastic boots for visitors.

2. Prior to entering or leaving an animal facility, remove all dirt and organic matter from boots and thoroughly disinfect them using a bucket, brush, and an appropriate broad-spectrum disinfectant. Animal facilities include backyard facilities.

3. Wear disposable or clean coveralls, laboratory coats, smocks, or other suitable outerwear when coming into contact with animals, manure, or animal secretions. When visiting multiple facilities, personnel must have an ample supply of disposable or clean coveralls so a fresh pair can be used at each site. Remove outwear when leaving a premises. Place dirty materials in a double plastic bag and seal it.

4. Thoroughly wash hands with antimicrobial soap prior to entering and when leaving a premises. The proper hand washing technique is

    a. remove all watches, jewelry, and other items prior to washing;

    b. lather soap in hands vigorously for 15–20 seconds; and

    c. rinse under a stream of warm water.

5. Avoid driving through manure and wastewater. Park the response vehicle away from pens, pastures, or areas where animals may be held. Park on concrete or paved areas when available.

6. Do not enter animal production areas unless authorized and accompanied by a facility employee.

7. Clean the response vehicle between visits to animal facilities, including tires and floor mats (carpets should be covered with plastic floor mats). A commercial car wash is adequate. Tire sprays may be necessary in some situations.

8. Dispose of used disposable boots, gloves, and coveralls at the facility, if possible. Otherwise, place them in a double plastic garbage bag and seal them for later disposal in the designated trash container at the facility designated area for disposal of contaminated items.

9. Keep all equipment used in the field clean. Disinfect any equipment that comes into contact with animals or their secretions before taking it to another property, or use disposable equipment. When visiting farms, select equipment that is easily disinfected (for example, plastic clipboards are easier to disinfect than wooden ones because organic material is easier to see on them).

10. Keep clean and dirty clothing, equipment, and supplies separate. Designate “clean” and “dirty” storage areas in vehicles.

11. Personnel that come in contact with a sick or dying animal and should be considered “carriers” of FMD and should follow proper disinfection procedures prior to coming into contact with other animals.

9.4.2.3.2 Surveillance Biosecurity Protocol

The following protocol applies to surveillance or similar operations where responders travel to multiple potentially infected sites within the course of a workday.

1. Upon reaching the premises, park the vehicle in a location off the road near where the containers are placed at each designated premises location.

2. Team members will suit up following the biosecurity procedures below:

    a. Before leaving the vehicle, place two pairs of Tyvek or similar boots over shoes. The team members can then exit the vehicle.

    b. Put on Tyvek or similar suit, gloves, dust mask, and hair bonnet. Pull the second pair of gloves over the sleeves of the Tyvek or similar suit so that the skin on the arms is not exposed.

3. One team member remains by the vehicle and is considered the "clean team member." This person handles all clean equipment and forms. The team member entering the premises will be considered potentially exposed or contaminated and is considered the "dirty team member." The clean team member hands equipment from the vehicle as needed to the dirty team member. The dirty team member remains dirty for the entire day; there is no switching back and forth of clean and dirty duties during a day.

4. The dirty team member retrieves the sample bags containing the specimens to be sampled from the container at each site.

5. After retrieving the sample bags, the dirty team member returns to the vehicle, where the clean team member provides a second trash bag into which the dirty team member places each sample bag for transport. The dirty team member sprays the outside of each bag with disinfectant before placing it inside the other one.

6. The dirty team member places the double-bagged sample into a third bag, which is the shipping bag. Place a yellow tag with a premises label on it on the outside bag. Write the date sampled and house identification (ID) on the label.

7. The dirty team member closes the shipping bag, sprays/sponges it off with disinfectant, and places it in the back of the vehicle, in a cooler with ice packs or ice.

8. The dirty team member sprays the inside and outside of the trash cans with disinfectant, then turns the cans upside down to signal to the owner that the collection has been completed. The lids are also sprayed on both sides and placed by the cans.

9. The dirty team member sprays the vehicle wheels and wells with disinfectant.

10. Both team members remove their bonnets, Tyvek or similar suits, and outer elastic banded boots in exactly that order, and place them in a trash bag. They place the bag in a

second trash bag. The second bag is wiped down or sprayed with disinfectant and placed in a third bag. Leave inner plastic boots and gloves on.

11. The dirty team member sprays the sprayer with disinfectant, and then places the sprayer in the back of the vehicle.

12. Both team members sit in the seat of the vehicle with feet outside, and remove their gloves and plastic boots by rolling them inside out. They place gloves inside boots, ball up the boots and gloves, and place both balls into a trash bag.

13. Both team members spray their shoes with disinfectant and wash hands with waterless cleaner before placing their feet inside the vehicle.

14. Return to the designated area for dropping off sample bags. Put on one pair of booties and gloves before bringing the samples inside. Place the samples into the mortality surveillance cooler. Leave completed lab submission forms in the pocket on the exterior of the cooler. Return to the vehicle, remove boots and gloves, place them in a trash bag, spray bag with disinfectant, spray shoes with disinfectant, and wash hands with waterless cleaner. Discard all trash in the designated trash container.

15. Wash the vehicle at a car wash that has an undercarriage spray system.

9.4.2.3.3 Control of Work Zones Biosecurity Protocol

This protocol applies to depopulation, disposal, and decontamination activities where response operations will occur in a single location over multiple days. Biosecurity control zones must be established to prevent spread of contamination away from the IP. All work zones will be adequately marked using signs, fencing, traffic cones, and caution tape.

There are three types of control zones:

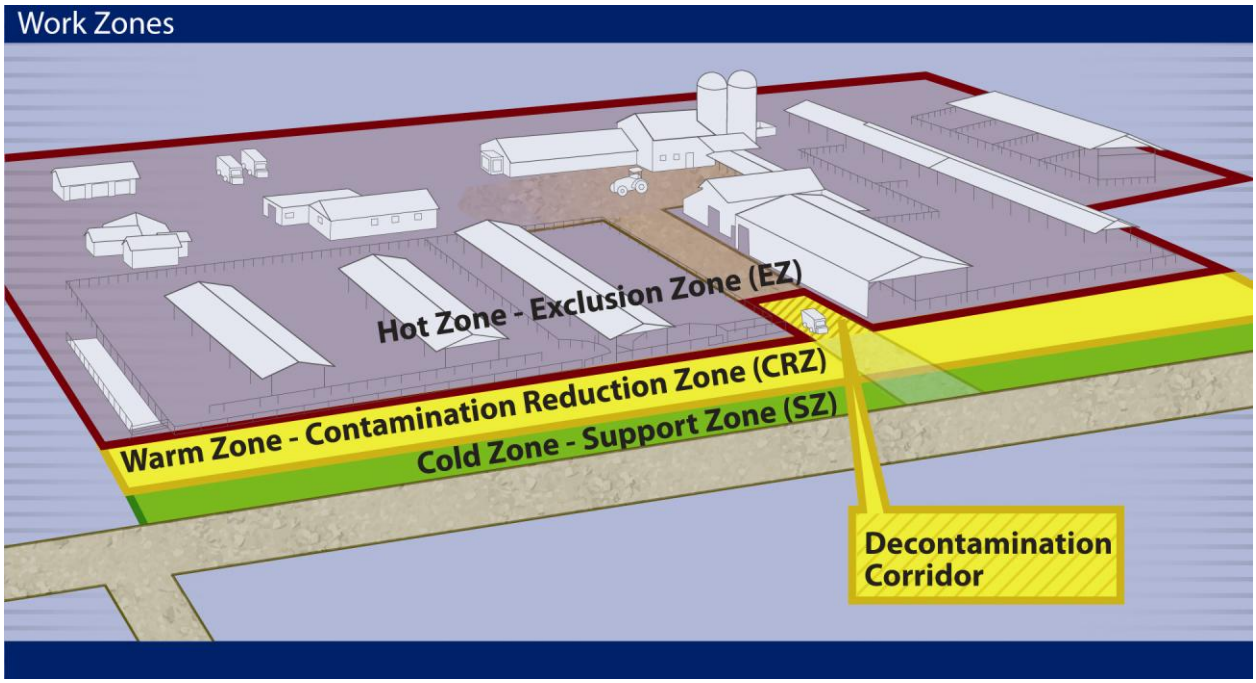
1. Hot Zone – Exclusion Zone (EZ)

2. Warm Zone – Contamination Reduction Zone (CRZ)

3. Cold Zone – Support Zone (SZ)

The zones are shown in Figure 9-3 and discussed below.

Figure 9-3. Work Zones with Decontamination Corridor



Source: Dani Ausen, Andrew Kingsbury, Iowa State University

9.4.2.3.3.1 Support Zone Description

The Cold Zone –SZ is the "cleanest" of the three zones and poses the lowest relative risk of exposure to pathogens and other hazards such as decontamination chemicals. In this zone:

- Personnel are not required to wear PPE or handle contaminated articles or equipment, nor are they required to conduct decontamination.
- Medical support is provided to personnel in this zone, and facilities are provided for personal needs such as eating, drinking, or bathroom use.
- Equipment resupply and assembly takes place.
- Donning of PPE occurs and accommodations for dressing are provided.
- Management of all activities occurs, directing personnel and depopulation, decontamination, and disposal activities.
- This area is staffed by at least one person.
- Workers are not exposed to hazardous conditions.
- Administrative, clerical, and other support functions are based here.

- Air and surface monitoring are conducted as needed to ensure that it remains uncontaminated. If contamination is detected, zone boundaries are adjusted until corrective action is taken and monitoring results indicate that this zone is again uncontaminated.

- Access to the Hot Zone-EZ and Warm Zone-CRZ are strictly limited to individuals who meet all medical monitoring, training, and PPE requirements.

- Visitors must receive appropriate training, be medically qualified, wear the appropriate level of protection, receive a safety briefing, and be escorted by qualified personnel. Visitors who do not meet the specified requirements must remain in the support zone.

9.4.2.3.3.2 Warm Zone-CRZ Description

The Warm Zone –CRZ is the high risk area in which:

- Personnel complete the final decontamination of equipment and personnel, perform final washing/rinsing, and apply disinfectant.

- Final doffing of personal protective equipment is completed, with accommodations for dressing if necessary.

- There is a strict adherence to restrictions on movement of contaminated personnel and materials.

- At least one person will remain in the Warm Zone-CRZ to assist in the decontamination of those exiting the Hot Zone-EZ.

- This is considered a high-risk environment, with potential exposure to disease pathogens as well as chemical exposure to disinfectants.

- All personnel are required to wear full PPE.

- Decontamination of PPE takes place.

- Based on monitoring results, the Warm Zone-CRZ boundaries may be adjusted to ensure that the Cold Zone-SZ remains uncontaminated.

- Workers and equipment exit the Hot Zone-EZ through the designated access point(s) into the Warm Zone-CRZ.

- Workers and equipment are decontaminated in the Warm Zone-CRZ, according to the procedures specified in the decontamination section of the site-specific biosecurity plan.

- Workers and equipment exit the Warm Zone-CRZ into the Cold Zone-SZ through the designated access points, shown in Figure 9-3.

- If necessary, emergency decontamination procedures are implemented.

- A decontamination corridor is established between the Hot Zone-EZ and the Warm Zone-CRZ where decontamination of personnel and equipment takes place.

- Response teams enter and exit the Hot Zone-EZ through the access control points that are located at each end of the decontamination corridor.

9.4.2.3.3.3 Hot Zone-EZ Description

The Hot Zone-EZ is the potentially infected or contaminated area, likely an area of a farm, local market, or roadside stand where infected animals have been stored and sold. This zone is where:

- Depopulation, disposal, and decontamination of the site and equipment are performed. See the FMD Depopulation, Disposal, and Cleaning and Disinfection SOPs (2010).

- Decontamination of equipment and personnel, including boot/glove wash and gross material decontamination, is conducted.

- For disposal activities, waste collection containers must be decontaminated before transport off-site.

- There is a high risk of exposure to pathogens or chemicals.

- The adherence to PPE requirements can create risk of heat stress due to the non-breathability of the PPE and the high level of physical activity.

- Workers will need to be monitored and rotated out with some frequency. The site leader determines the frequency of rotation based on local conditions.[2]

- Staffing consists of at least a two-person team while activities are being undertaken.

- Personnel and equipment enter and exit via the designated access points in the Warm Zone-CRZ, shown in Figure 9-3.

- Personnel adhere to established work procedures.

- A "hotline" where personnel routinely enter or exit will be located upwind from the Hot Zone-EZ, whenever possible.

- No person may exit or be removed until they have been properly decontaminated or it has been confirmed to be safe to remove them without first being decontaminated.

- No person may enter the Hot Zone-EZ without the proper level of personnel protective equipment as specified in the site-specific health and safety plan.

[2] Based on recommendations from the Expert panel and USDA it was estimated that there will need to be at least 4–5 rotations per 1 day shift.

- No person may enter the Hot Zone-EZ prior to the establishment of a decontamination area.

- Once entry has been made into the Hot Zone-EZ, anyone who remains in the Warm Zone-CRZ must be decontaminated or checked for contamination before they may exit into the support zone.

9.4.2.3.3.4 Establishing Control Zones

1. Demarcate the outer edge Cold Zone-SZ with green tape. This provides a visual barrier for entry into the site. Only personnel who are a part of the operation may go beyond the green tape. All others must stay out of this area.

2. Demarcate the inner edge of the support zone with yellow tape. Beyond the yellow tape is the Warm Zone-CRZ.

3. Place all tools, equipment, and water that will be used in the Cold Zone-SZ between the green and yellow tape.

4. The Warm Zone-CRZ worker and two exclusion workers don PPE in accordance with the site-specific health and safety plan.

5. The Cold Zone-SZ worker remains in the Cold Zone-SZ and does not need to don PPE.

6. Before entering the Warm Zone-CRZ, the Warm Zone-CRZ worker verifies that the exclusion workers are in full PPE compliance.

7. Exclusion workers establish the Hot Zone-EZ by placing the red tape appropriately.

8. The Warm Zone-CRZ worker places a tarp on the ground to establish the corridor for entering and exiting the Warm Zone-CRZ from the Cold Zone-SZ.

9. All required equipment is now transferred from the Cold Zone-SZ to the Warm Zone-CRZ. This includes all equipment required for cleaning, disinfection, depopulation, and preparation for disposal.

10. Two exclusion workers enter the Hot Zone-EZ with all equipment required for depopulation, disposal, and decontamination.

9.4.2.4 Disinfectant Selection and Use

See the FMD Cleaning and Disinfection SOP (2010) for disinfectant selection and use protocols.

9.4.2.5 Decontamination Procedures

Preventing contamination is the most important step to avoid a decontamination process. Good biosecurity measures would include contamination prevention activities as well as proper establishment of decontamination areas. Contamination prevention measures as well as general

procedures for establishing decontamination areas and general decontamination practices are addressed below. Please refer to the FMD Cleaning and Disinfection SOP (2010) for further details.

9.4.2.5.1 Contamination Prevention

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure and help ensure valid sample results by preventing cross-contamination. Procedures for contamination avoidance include the following:

- Do not walk through areas of obvious or known contamination.
- Do not handle or touch contaminated materials directly.
- Make sure all PPE has no cuts or tears prior to donning.
- Fasten all closures on suits, covering with tape, if necessary.
- Particular care should be taken to protect any skin injuries.
- Stay upwind of airborne contaminants.
- Do not carry cigarettes, gum, food, or drink into contaminated areas.

Precautions to minimize contaminating equipment are similar to those for personnel. These precautions include the following:

- Take care to limit the amount of contamination that comes into contact with heavy equipment and vehicles.
- If contaminated tools are to be placed on non-contaminated equipment or vehicles for transport to the decontamination pad, use plastic to keep the equipment or vehicles clean.
- If samples must be taken from a site, bag the sample containers before removing them from the site.

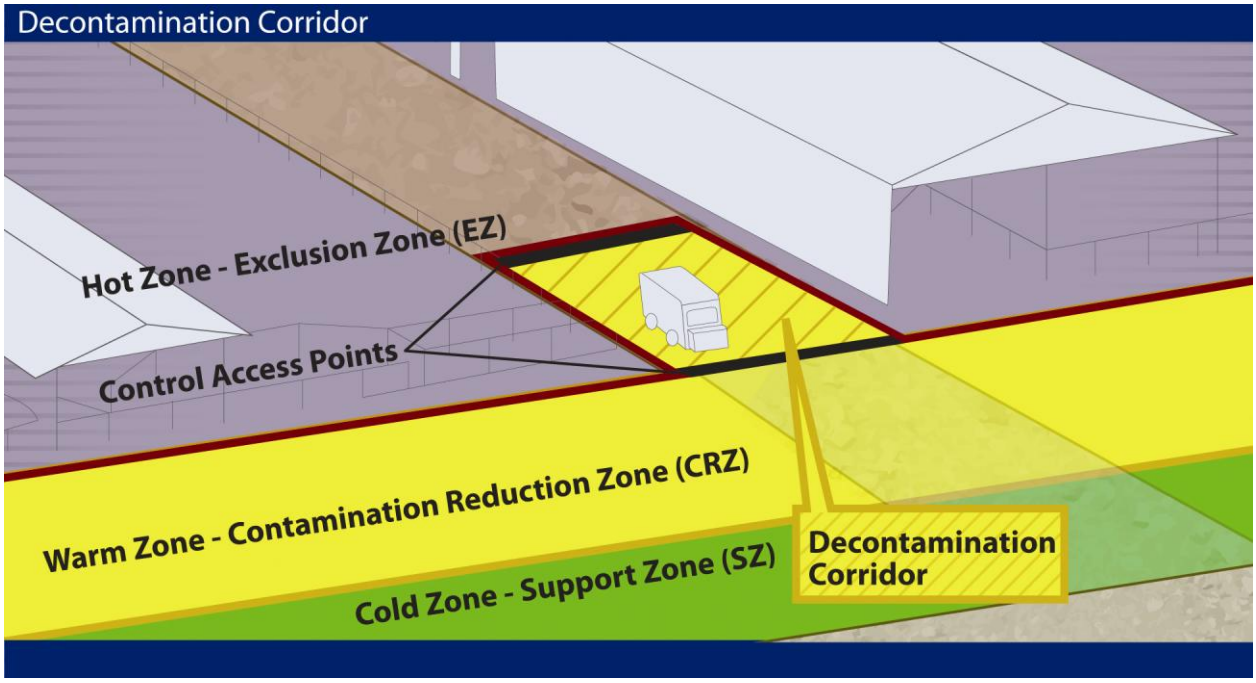
9.4.2.5.2 Establishing Decontamination Area

A decontamination area must be set up before any personnel or equipment may enter areas that pose the potential for exposure to hazardous substances. Decontamination area guidelines include the following:

- Establish the decontamination area within the Warm Zone-CRZ perimeter, adjacent to the entrance/exit and a safe distance from the contamination source.
- Personnel, equipment, and apparatus may not leave the Hot Zone-EZ without approval from the Warm Zone-CRZ workers.

- The decontamination area should provide a decontamination corridor leading away from the source of contamination (Hot Zone-EZ) toward the exit (Cold Zone-SZ). Decontamination of personnel and equipment occurs along the corridor with stations along the way for depositing tools, equipment, protective clothing, and other items. See Figure 9-4 for a depiction of the corridor's location.

Figure 9-4. Decontamination Corridor



Source: Dani Ausen, Andrew Kingsbury, Iowa State University.

- Monitoring personnel and equipment should be appropriately placed along the path. A person traveling along the path should experience a decreasing level of contamination along the way.

- When showers or spray nozzles are used, adequate space must be provided to avoid contamination of other areas or persons.

- All contaminated items must remain within the perimeter of the Hot Zone-EZ until they are decontaminated or safely packaged for removal.

During the decontamination process, all personnel working in the decontamination area must be adequately protected from contaminants. Decontamination area precautions include the following:

- The SSO identifies and requires the appropriate protective equipment to be used.

- The Decontamination Group must decontaminate themselves and their equipment at the end of the incident.

- Any runoff or residue from decontamination procedures should be contained within the perimeter of the Warm Zone-CRZ and retained for proper disposal.

- Contaminated run-off should not be allowed to spread or escape. Diking may be necessary and should be directed back to the Hot Zone-EZ. Disinfectant solution should be collected for proper disposal, and not allowed to run over the ground to the Hot Zone-EZ.

9.4.2.5.3 General Decontamination Practices

1. Locate a decontamination station at the hotline in the decontamination area of the Warm Zone-CRZ where personnel routinely enter or exit the Hot Zone-EZ.

2. When exiting the Hot Zone-EZ, personnel will doff overboots (if used), chemical-resistant boots, coveralls, and outer gloves only at the specified decontamination station. Air purifying respirators will be removed last.

3. Instruct personnel in proper decontamination techniques. This includes removing protective clothing in an "inside out" manner.

4. Arrange the decontamination area so as not to contaminate the ground under and surrounding the area. Using pools, pads, tarps, and other such coverings can aid in this effort.

5. All doffed reusable PPE remains at the decontamination station for reuse. At the conclusion of work in the Hot Zone-EZ, all disposable and reusable PPE are placed in separate plastic bags before disposal or transfer offsite.

6. Personnel are not permitted to exit the Warm Zone-CRZ until contaminated clothing and equipment have been removed and they have washed their hands and face with soap and water.

7. No smoking, eating, drinking, chewing gum or tobacco, taking medication, or applying cosmetics will be permitted within the Hot Zone-EZ or Warm Zone-CRZ.

8. Partial decontamination that is always required when exiting the Hot Zone-EZ includes an equipment drop (hard hats, tools, samples, etc.) in the decontamination area of the Warm Zone-CRZ on plastic labeled "EQUIP" and a glove and boot wash/rinse at the hotline of the decontamination area.

9. While standing in appropriate tubs, scrub gloves and boots as needed while spraying them with disinfectant solution and a clean water rinse.

10. When disposable outer garments cover boots and gloves, wash/rinse procedures may not be necessary, as determined by the Operation Section Chief.

11. Discard all disposable outer garments in appropriately labeled plastic bags before disposal or transfer.

12. Removing contaminants from clothing or equipment by blowing, shaking, or any other means that may disperse material into the air is prohibited.

13. At the conclusion of work in a Hot Zone-EZ, place all PPE in plastic bags before disposal or transfer.

14. Conduct equipment decontamination on a concrete pad or plastic sheeting constructed so decontamination fluids can be collected and drummed.

15. Dispose of decontamination fluids properly, in accordance with procedures outlined in the approved site-specific biosecurity plan.

9.4.2.5.3.1 Respirator Decontamination

1. Clean respirators with soap and water after each day of use, and when personnel change work.

2. Make clean water available for such purposes.

3. After washing, disinfect each respirator by wiping both the inside and outside with isopropyl alcohol.

4. Store the cleaned respirators in clean plastic bags.

9.4.2.5.3.2 Reusable Equipment Decontamination

1. Items such as boots, goggles, and hard hats are considered reusable. Decontaminate these items by washing them with a detergent such as Alconox and/or disinfectant, then rinse thoroughly and either air dry or wipe them down with paper towels.

2. Reusable equipment used for sampling (for example, hand augers, stainless steel bowls and spoons) should be either steam cleaned or cleaned with a disinfecting agent.

9.4.2.5.3.3 Disposable Equipment Decontamination

1. Discard disposable coveralls, nitrile rubber gloves, disposable sampling materials, unusable safety equipment (for example, used respirator cartridges, punctured disposable boots), and other materials, such as bags and paper towels, in such a way that they cannot be reused.

2. Double-bag all disposable items in heavy plastic garbage bags and dispose of them as outlined in the approved site-specific biosecurity plan.

3. Dispose of coveralls and nitrile rubber gloves at least daily, and more frequently if they are torn or grossly contaminated.

9.4.2.5.3.4 Monitoring Effectiveness of Decontamination

Use visual examination and sampling to evaluate the effectiveness of decontamination procedures, in compliance with 29 CFR 1910.120(k)(2)(iv), as applicable.

Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Sampling, both air sampling and surface sampling, is used to verify the effectiveness of decontamination. Take air samples in the clean zone to ensure that airborne contaminants have not spread to clean areas of the site. Take surface samples from the inside surfaces of PPE, from decontaminated heavy equipment, and from surfaces within clean areas of the site to ensure that site decontamination and control procedures are performing as anticipated. The type and frequency of air and surface sampling to ensure effective decontamination are determined by the Incident Safety Officer (see the FMD Health and Safety/PPE SOP), based on the contaminant, the concentrations, and the sampling methods available. If site procedures change as a result of inspection and monitoring, notify all affected employees of these changes.

As an example, refer to the Commonwealth of Massachusetts Department of Fire Services Decontamination Standard Operating Guideline provided as Appendix 9.A Hazardous Materials Response in the Health and Safety Plan outlined in the FMD Health and Safety/PPE SOP.

9.4.2.6 Shipping/Transportation Biosecurity Practices

See the FMD Disposal SOP (2010) for shipping and transportation protocols.

9.4.2.7 Documentation and Reporting

This protocol describes the process for carrying out the initial epidemiological interview and the follow-up biosecurity evaluations of commercial premises and how to file the necessary reports. Attachment D contains a sample questionnaire. The Biosecurity Group monitors each commercial premises in the Control Area by regularly auditing its biosecurity status. Each biosecurity activity is linked to a corresponding form or report. Standardized questionnaires were devised for consistency in the investigations and in the resulting reports.

9.4.3 Demobilization

To help ensure the safety and health of the responders, several activities should occur at the end of each day or when exiting a premises. The exit procedures are:

- Use soapy water, remove dirt, debris, and organic material from the vehicle and trailer tires, wheel wells, and undercarriage, and/or take the vehicle through a pressure car wash.

- Use a brush and approved disinfectant solution to clean and disinfect all equipment thoroughly—including personal items such as eyewear and jewelry. If these items are harmed by disinfectant, they may be washed thoroughly with soap and water or dipped in vinegar (acetic acid) since FMD is an acid susceptible virus. See the FMD Cleaning and Disinfection SOP (2010).

- Follow guidance provided by the Vector Control Group Supervisor regarding pest control measures related to vehicle biosecurity. Place all disposable “dirty” items (for example,

disposable coveralls, boots, and supplies) in a plastic garbage bag to be left on the premises with the owner for disposal. If this is impossible, place the plastic bag in the "dirty" area of the vehicle and dispose of it in a manner that prevents animal exposure to the items.

- Place "dirty" reusable coveralls and boots into a clean plastic garbage bag or other container and place in the "dirty" area of the vehicle for C&D.

- Scrub the bottoms of soiled rubber boots with a brush to remove all dirt or debris. Clean and disinfect the boots with an approved disinfectant.

- Dispose of the disinfectant solution according to the label instructions.

- Before entering the "clean" area of the vehicle, remove soiled coveralls so that they are "inside out," place them in plastic garbage bags, and put them in a "dirty" area of the vehicle along with other soiled reusable clothing.

- Shower and shampoo.

- Launder clothing.

Attachment 9.A Protocol for Foot Baths

Equipment and Supplies Needed

1. Plastic grass rugs
2. Holding tray
3. Rubber-backed carpets
4. EPA-approved disinfectant for influenza viruses
5. Water.

Procedures for Maintaining Foot Baths

1. Logistics personnel are responsible for maintaining foot baths to prevent the spread of animal disease.
2. Foot baths will be located in the front of entrances to building doors.
3. Plastic rugs will be placed inside fiberglass trays and covered with a 1 Stroke solution (½ ounce to a gallon of water) or disinfectant solution (1.3 ounces to a gallon of water).
4. Rubber-backed carpets (4’ × 6’) will be placed in front and behind the trays. Trays have nonskid carpet under them to keep them from moving when used.
5. Foot baths will be cleaned at least once a day and more often if they become dirty.

Attachment 9.B Sample Biosecurity Signs to Place at Site Entrances

Sample signs to post at the farm entrance in the event of a FMD outbreak. This is an excerpt from the Center for Food Security and Public Health, Iowa State University, FMD Response Package, June 2006. It is available at the following site:
http://www.cfsph.iastate.edu/BRMForProducers/English/FADs/FMD_response_package.pdf


DISEASE
PREVENTION AREA
STOP
AUTHORIZED PERSONNEL
ONLY


DISEASE
CONTROL
AREA
STOP
HELP US MAINTAIN HERD HEALTH
PLEASE KEEP OUT


ALL VISITORS
MUST REGISTER
AT OFFICE


NOTICE
ALL VISITORS
MUST CHECK IN
AT OFFICE BEFORE
ENTERING PREMISES

Attachment 9.C Protocol for On-Site Commercial Biosecurity Visits

The following are the procedures requiring special consideration at commercial facilities.

Before Visiting a Commercial Premises

- Be certain your vehicle has been cleaned and disinfected including the undercarriage. A commercial carwash is adequate.
- Establish a time and date for the visit with the owner or manager.
- Call the company veterinarian informing him/her of the visit.
- Review the biosecurity protocols and complete a biosecurity questionnaire with owner.
- Each biosecurity reviewer will visit only one commercial ranch per day.

Biosecurity upon Arrival to a Commercial Premise

- Park up-wind in a designated "clean" area outside the entrance to the premises.
- Vehicle windows should be closed.
- If possible, park in a firm, dry area, avoiding mud and organic material (i.e., grass).
- Before leaving the vehicle, pull on two pairs of boots over your shoes (yellow boots for larger shoe sizes). The last pair of boots should be put on as you swing your legs out of the vehicle with your feet not touching the inside of the vehicle.
- Put on lower part of coverall suit before getting out of your vehicle. Put on a bonnet, two pairs of gloves, and a dust mask. Get out of the vehicle.
- Be sure all of your hair is covered by the bonnet.
- Your suit should be fully zipped.
- Your pant legs should be tucked inside of your outer boots.
- Your last pair of gloves covers the sleeves (cuff) of the coverall suit (use duct tape if necessary).
- Unlock your trunk.

Returning to the Vehicle

- Remove the sprayer from the back of the vehicle (dirty area) and thoroughly spray tires and wheel wells; mud or any organic material needs to be removed or thoroughly saturated.
- Before replacing sprayer, thoroughly disinfect all surfaces with disinfectant or Lysol. DO NOT place the sprayer on the ground.
- Remove garbage bags (of 1.1 mm thickness or more) from the back of the vehicle.
- Remove mask, bonnet, outer pair of boots, and outer pair of gloves.
- Remove coverall suit by "rolling down" and "stepping out" and placing in a trash bag.
- Triple bag and spray with disinfectant.
- Place in sealed container in "dirty" area of vehicle.
- Sit in the car without your hands or feet touching the inside of the vehicle.
- Remove both pairs of boots by inverting them. Compress into a tight "ball".
- Disinfect each shoe with Lysol before putting them inside the vehicle (taking care not to touch the door sill).
- Remove the last pair of gloves by inverting them over the "balled boots". Spray ball with disinfectant.
- Place "ball" into a zip lock bag and put the zip lock bag into a small garbage bag and seal with duct tape.
- Thoroughly wash hands with waterless antibacterial gel.
- Dispose of both bags (the one containing the coverall suit and the other containing the boots and gloves) into the designated dumpster at the ICP.

End of the Day

- Wash your car at a car wash with an undercarriage washing system.
- Keep the interior of the vehicle clean and free from dirt and debris by properly disposing of items.
- If the visit has been conducted under windy conditions or in any instance where there is the possibility of contamination to the inside of the vehicle with organic material from the

ranch, the interior of the vehicle must be completely cleaned and disinfected using a vacuum followed by wetting and drying of all exposed surfaces.

- If conditions are normal and there is no evidence of contamination, then only the interior floor mats must be vacuumed and sprayed with disinfectant as a precaution before vehicle is re-used.

- If available, use plastic floor mats.

Refilling Sprayers with Disinfectant

- Filling is done in the designated area at the ICP.

- Wear gloves and boots when refilling.

- Spray vehicle wheels and wheel wells upon leaving.

- Disinfectant has an "effective life" of seven days. Judge the efficacy of disinfectant solution by its color. A faint or colorless mixture is no longer effective.

"Expired" disinfectant should be disposed of in the designated area at the ICP (DO NOT dump disinfectant into municipal drainage systems).

Attachment 9.D Protocol for Commercial Mortality Surveillance Biosecurity

All personnel participating in the disease mortality surveillance must be instructed in the following Biosecurity protocol:

Upon reaching the premises the vehicle will be parked in a location off the road near where the containers are placed at each designated premises location.

Both team members will suit up entirely following the procedures below:

1. Before leaving the vehicle place two pairs of coverall boots over shoes. Get out of vehicle.

2. Put on coverall suit, gloves, dust mask, and hair bonnet. Be sure that skin on arms is not exposed by pulling second pair of gloves over sleeves of coverall suit.

3. One team member will remain clean and will handle all clean equipment and forms. Equipment will be handed from the vehicle as needed to the dirty team member. (The team member entering the premises will be considered potentially exposed or contaminated and will be referred to in this document as the "dirty team member".) The dirty team member will remain dirty for the entire day. There will be no switching back and forth of clean and dirty duties during a day.

4. The dirty team member will retrieve the sample bag(s) from the container at each site.

5. After the sample bag(s) is/are retrieved, the dirty team member will return to the vehicle, where the clean team member will provide a second trash bag into which each sample bag will be placed for transport. The dirty team member will spray the outside of each bag with disinfectant before it is placed inside of the other one.

6. The double bagged sample will be placed into a third bag, which will be the shipping bag. A yellow tag with a premises label on it will be placed on the outside bag. Write the date sampled and house ID on the label.

7. The shipping bag will be closed and sprayed/sponged off with disinfectant and placed in the back of the vehicle, in a cooler with ice packs or ice.

8. The dirty person will spray the inside and outside of the trash cans with disinfectant, then turn the cans upside down to signal to the owner that the collection has been completed. The lids will also be sprayed on both sides and placed by the cans.

9. The vehicle wheels and wells will be sprayed with disinfectant.

10. Each team member will remove their bonnet, coverall suit and outer elastic banded boots in exactly that order, and place them in a trash bag. The bag will be placed in a second

trash bag. The second bag will be wiped down or sprayed with disinfectant and placed in a third bag. Leave inner plastic boots and gloves on.

11. The dirty person will spray the sprayer with disinfectant, and then place the sprayer in the back of the vehicle.

12. Sit in the seat of the vehicle with feet outside; remove the gloves and the plastic boots by rolling inside out. Place gloves inside boots, ball up the boots and gloves, and place both balls into a trash bag.

13. Both team members will spray their shoes with disinfectant and wash hands with waterless cleaner before placing feet inside the vehicle.

14. Return to the designated area for dropping off sample bags. Put on one pair of booties and gloves before bringing the samples inside. Place the samples in the Mortality Surveillance cooler. Leave completed lab submission forms in the pocket on the exterior of the cooler. Return to vehicle, remove boots and gloves, place them in a trash bag, spray bag with disinfectant, spray shoes with disinfectant, and wash hands with waterless cleaner. Discard all trash in designated dumpster.

15. Wash vehicle at car wash that has an undercarriage spray system.

Attachment 9.E Epidemiology Quetionnaire

Date: _____

Business/farm name: _____

Primary contact: _____

Business address: _____

Business telephone number: _____

Cell telephone number: _____

Fax number: _____

Home telephone number: _____

E-mail address: _____

Secondary contact: _____

Business address: _____

Business telephone number: _____

Cell telephone number: _____

Fax number: _____

Home telephone number: _____

E-mail address: _____

Farm address (911 and Animal Location): _____

City: _____ ZIP code: _____

County: _____ Township: _____

Range: _____ Section: _____

GPS coordinates (decimal degrees): _____

Premises identification number: _____

The purpose of this epidemiological questionnaire is to help provide premises designations: Suspect Premises, Contact Premises, At-Risk Premises, or Monitored Premises.

A. General Information

1. Species on premises: _____
2. Type of premises (commercial or backyard): _____
3. Have you observed feral or wild animals on or near the premises?
   ☐ Yes ☐ No ☐ Don't know
4. Are there backyard premises with susceptible livestock nearby?
   ☐ Yes ☐ No ☐ Don't know
5. Do you have multiple, non-contiguous premises between which you travel and work (yes/no)?
   ☐ Yes ☐ No
6. Are there contiguous premises with susceptible livestock (not owned by you)?
   ☐ Yes ☐ No

B. Animal Population on Premises

Species	Males > 1 year	Females > 1 year	< 1 year
Swine			
Sheep/goats			
Cattle			
Other susceptible species			

Non-susceptible species (type and number): _____

_____

_____

_____

C. Trace Back Information. In the last 28 days, did the following movements **onto** the farm occur? Please provide as much accurate information as possible for each unique source.

1. **Susceptible animals** ☐ Yes ☐ Don't know ☐ No

If yes,

a. What species? _____

b. How many animals? _____

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Animals tested for FMD prior to movement (Yes/No)	Entered in visitor log (Yes/No)

2. **Milk products or byproducts** ☐ Yes ☐ Don't know ☐ No

If yes,

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Milk or product tested for FMD prior to movement (Yes/No)	Entered in visitor log (Yes/No)

3. **Feed trucks** ☐ Yes ☐ Don't know ☐ No

If yes,

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

4. **Fresh litter/bedding** ☐ Yes ☐ Don't know ☐ No

If yes,

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

5. **Manure** ☐ Yes ☐ Don't know ☐ No

If yes,

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

6. **Hoof trimmers** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

7. **Mortality pickup/renderer** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

Did the driver leave the vehicle while on the premises? ☐ Yes ☐ Don't know ☐ No

If Yes,

a. What area of the premises did he enter? _____

b. Was driver required to wear outer clothes and footwear provided by the premises? ☐ Yes ☐ Don't know ☐ No

8. **Company vet/service tech** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

9. **Non-company vet/consultant** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

10. **Construction or service person (e.g., gas, plumbing, pest control)** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

11. **Customer/buyer/dealer** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

12. **Other producer** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

13. **Non-business visitor (friend/neighbor)** ☐ Yes ☐ Don't know ☐ No

Source/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

D. Trace Forward Information. In the last 28 days, did the following movements **off** the farm occur? Please provide as much accurate information as possible for each unique destination.

1. **Susceptible animals** ☐ Yes ☐ Don't know ☐ No

If yes,

a. What species?_____

b. How many animals?_____

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Animals tested for FMD prior to movement (Yes/No)	Entered in visitor log (Yes/No)

2. **Milk products or byproducts** ☐ Yes ☐ Don't know ☐ No

If yes,

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Milk or product tested for FMD prior to movement (Yes/No)	Entered in visitor log (Yes/No)

3. **Feed trucks** ☐ Yes ☐ Don't know ☐ No

If yes,

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

4. **Fresh litter/bedding** ☐ Yes ☐ Don't know ☐ No

If yes,

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

5. **Manure** ☐ Yes ☐ Don't know ☐ No

If yes,

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

6. **Hoof trimmers** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

7. **Mortality pickup/renderer** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

Did the driver leave the vehicle while on the premises? ☐ Yes ☐ Don't know ☐ No

If yes,

a. What area of the premises did he enter? _____

b. Was driver required to wear outer clothes and foot wear provided by the premises? ☐ Yes ☐ Don't know ☐ No

8. **Company vet/service tech** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

9. **Non-company vet/consultant** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

10. **Construction or service person (e.g., gas, plumbing, pest control)** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

11. **Customer/buyer/dealer** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

12. **Other producer** ☐ Yes ☐ Don't know ☐ No

Destination/ name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

13. **Non-business visitor (friend/neighbor)** ☐ Yes ☐ Don't know ☐ No

Destination/name; date	Truck and equipment C&D before entering (Yes/No)	Truck and equipment C&D when leaving (Yes/No)	Personnel enter livestock areas (Yes/No)	Entered in visitor log (Yes/No)

E. Biosecurity Employee Risk Factors

1. Do any of your personnel work at other premises with susceptible animals or have they visited other premises, feedlots, dairy, processing plants, or livestock slaughtering facilities within the past 28 days? ☐ Yes ☐ No

   If yes, what premises? _____

2. Do any of your workers live with someone who works at another livestock premises, feedlot, dairy, processing plant, slaughter facility, or rendering plant? ☐ Yes ☐ No

3. Have you hired new personnel during the past 28 days? ☐ Yes ☐ No

If yes, did they work for another livestock premises before you hired them? ☐ Yes ☐ No
If yes, where did they work prior to coming to your premises? _____

4. Has an employee from the premises visited a slaughter/rendering facility within the past 28 days? ☐ Yes ☐ No

   If yes, what facility? _____

   If yes, did the person clean and disinfect his vehicle? ☐ Yes ☐ No

   If yes, did the person change outer clothes? ☐ Yes ☐ No

   If yes, did the person disinfect footwear or change into footwear assigned to the premises upon return? ☐ Yes ☐ No

5. Have any of your employees been overseas? ☐ Yes ☐ No

   If yes, where? _____

F. Biosecurity Risk Factors

1. Have wild ruminants been seen on the property in the last 28 days? ☐ Yes ☐ No

2. Have rodents, dogs, or cats been observed in livestock housing in the past 28 days? ☐ Yes ☐ No

3. Which of the following ***best*** describes this farm's usual carcass (normal mortality) disposal method?

   ☐ Rendering ☐ Burial on site
   ☐ Composting on site ☐ Incineration on site
   ☐ Other specify: _____

4. Do you dispose of livestock for other farms? ☐ Yes ☐ No

5. Have you maintained all requirements since your last regular biosecurity audit? ☐ Yes ☐ No

   If no, what requirements have not been met? _____

   _____

6. What additional biosecurity measures have been implemented? (For example, once the premises have been determined to be within a Control Area, all vehicles, including feed trucks, must be cleaned and disinfected prior to entry and exit.)

   _____

   _____

   _____

   _____

   _____

   _____

G. Is there any other information that would assist with movement tracing? Have there been any unusual movements for the premises within the last 28 days that were not captured on this form?