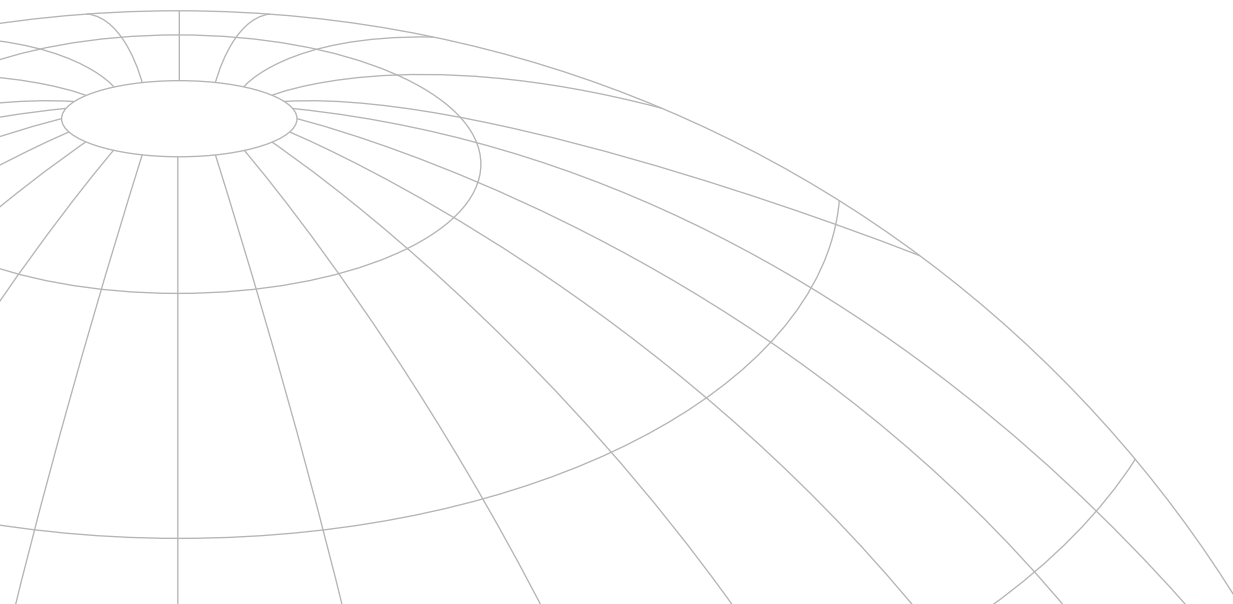




HIGHLY PATHOGENIC AVIAN INFLUENZA STANDARD OPERATING PROCEDURES: 9. BIOSECURITY

FAD PReP

**Foreign Animal Disease
Preparedness & Response Plan**



**United States
Department of
Agriculture**

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

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The Foreign Animal Disease Preparedness and Response Plan (FAD PreP) Standard Operating Procedures (SOP) provide operational guidance for responding to an animal health emergency in the United States.

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9.1 Introduction

Avian influenza is an infectious, viral disease that occurs throughout the world. In birds, the disease can vary from mild to severe, depending on the virus strain involved and the species of bird. Wild waterfowl can carry the avian influenza virus without becoming sick. Domestic poultry are very susceptible to the disease and can die in large numbers.

The most severe strain, called highly pathogenic avian influenza or high pathogenicity avian influenza (HPAI), is a foreign animal disease (FAD) in the United States affecting poultry, such as chickens, turkeys, pheasants, quail, domestic ducks, geese, and guinea fowl. Outbreaks have occurred in many countries, including Europe, Africa, parts of Asia, and sporadically in the United States. The widespread outbreak in domestic poultry that occurred in the United States during 2014–2015 was controlled and eradicated: it was the largest animal health event in U.S. history. Certain types of HPAI may be zoonotic, or transmissible between birds and humans, and pose a public health risk; no human cases of influenza transmitted by HPAI infected poultry have occurred in the United States. Most human cases in other countries have resulted from close contact with sick poultry.

Avian influenza is spread by direct contact between infected and susceptible birds in close proximity. Exposure to the disease can also occur indirectly through environmental contact with the infectious virus in respiratory secretions and feces. Domestic poultry may become infected through direct and indirect contact with wild birds that have been carrying the virus. Oral exposure to the virus appears to be the major route of infection. Although the virus is relatively fragile, it survives well enough to be transmitted by contaminated inanimate objects such as vehicle tires, equipment, and shoes, all referred to as fomites. Farm-to-farm movement of fomites has been regarded as the major cause of disease spread. Some data have suggested airborne feathers and dust particles contaminated with the virus may also expose new poultry flocks. Due to the high mortality rate in poultry and the potential as a zoonotic disease, quick control, containment, and eradication of an HPAI outbreak is critical.

Biosecurity is a series of management practices designed to reduce the risk of disease agents being introduced and spread within animal populations. In broad terms, it refers to anything designed to prevent the transfer of disease-causing pathogens. Biosecurity is crucial in controlling and containing a disease such as HPAI, as well as in the daily management practices protecting the health of all livestock and poultry. To be effective, implemented biosecurity measures need to be disease-specific, as well as site-specific. Should HPAI also be zoonotic, biosecurity is necessary to protect responders and public health.

HPAI may affect domestic poultry raised under a variety of conditions on diverse types of premises. These facilities may also have a residence on the site involving movements unrelated to poultry production. A complete assessment of the situation is necessary to develop an effective and comprehensive biosecurity plan.

This *Foreign Animal Disease Preparedness and Response Plan (FAD PReP) HPAI Biosecurity Standard Operating Procedures (SOP)* describes the development and implementation of operational biosecurity measures to prevent the introduction and escape of the HPAI virus during an outbreak in poultry production facilities. It focuses on preventing pathogen transmission during the movement of personnel and materials necessary for the extensive activities of an

incident response, such as surveillance, appraisal, depopulation, disposal, and cleaning and disinfection (C&D) (virus elimination). These biosecurity measures need to be effective and implemented quickly. This document addresses biocontainment of the virus on an infected, quarantined premises. Using similar concepts, this document also addresses bioexclusion, keeping virus out of a non-infected premises during disease response activities.

While this SOP focuses on biosecurity during an HPAI outbreak, the *FAD PReP/National Animal Health Emergency Management (NAHEMS) Guidelines: Biosecurity* also discusses concepts and principles that can be applied as day-to-day, routine biosecurity measures for livestock and poultry producers to prevent the introduction of disease. During an FAD outbreak, it is the producers' responsibility to work to prevent their animals from becoming infected. Along with operational measures, the Guidelines document presents information on conceptual and structural biosecurity. A disease such as HPAI will test the effectiveness of operational biosecurity practices; the effectiveness of these practices are highly dependent upon the compliance level of people on the operation.

Other key Animal and Plant Health Inspection Service (APHIS) documents below complement this SOP to provide further detail. They can be accessed on the United States Department of Agriculture (USDA) FAD PReP website at: www.aphis.usda.gov/fadprep.

- *HPAI Response Plan: The Red Book*
- *Foreign Animal Disease (FAD) Investigation Manual* (FAD PReP Manual 4-0)
- Veterinary Services (VS) Guidance Document 12001.2—*Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents (FAD/EDI)*
- FAD PReP/NAHEMS Guidelines:
 - Biosecurity
 - Cleaning and Disinfection
 - Disposal
 - Health and Safety
 - Personal Protective Equipment (PPE)
 - Wildlife Management and Vector Control for a Foreign Animal Disease Response in Domestic Livestock
- FAD PReP SOPs:
 - Cleaning and Disinfection
 - Disposal
 - HPAI Health and Safety and Personal Protective Equipment (PPE)
- Other FAD PReP Resources and/or HPAI Policy Guidance, including
 - FAD PReP Ready Reference Guide—Overview of Zones
 - HPAI Response: Using Heat Treatment for Virus Elimination
 - HPAI Response: Cleaning and Disinfection Basics (Virus Elimination)

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- HPAI Response: Mortality Composting Protocol for Avian Influenza Infected Flocks
 - HPAI Response: Landfill Disposal Guidance—Recommended Waste Acceptance Practices for Landfills.

Premises biosecurity is also an important component of continuity of business plans. These plans, also known as the Secure Food Supply Plans, are focused on managing non-infected premises, animals, and animal products in the event of an FAD outbreak; they address biosecurity for bioexclusion and provide guidance on permitted movement into, within, and out of a Control Area of animals and animal products with no evidence of infection. To be eligible for managed movement, specific biosecurity standards must be met. Biosecurity standards are described in, and are specific to, each plan. Some standards are still in development. See [Attachment 9.A Secure Food Supply Plans](#) for links to websites for the Milk, Pork, Beef, and Poultry Plans. The Secure Poultry Supply Plan includes the Secure Egg Supply, the Secure Broiler Supply, and the Secure Turkey Supply Plans.

These documents are available on the USDA FAD PReP website: www.aphis.usda.gov/fadprep.

9.1.1 Goals

9.1.1.1 Preparedness Goals

The preparedness goals for biosecurity are as follows:

- Develop biosecurity plans to protect poultry raised in production facilities from exposure to HPAI (bioexclusion).
- Develop biosecurity plans for production facilities with HPAI infected poultry to prevent escape of the virus (biocontainment).
- Develop biosecurity plans to prevent the transfer of HPAI virus during disease response activities involving movement onto and off of infected and non-infected premises (biocontainment and bioexclusion).
- Develop biosecurity plans to protect the health of responders in a potentially zoonotic HPAI outbreak.
- Train personnel on biosecurity concepts and exercise biosecurity plans to develop a surge capacity of biosecurity responders.

9.1.1.2 Response Goals

The response goals for biosecurity are as follows:

- Implement biosecurity measures as quickly and effectively as possible with suspect or presumptive positive cases.
- Contain the HPAI virus to Infected Premises through biocontainment measures, including (but not limited to) rapid depopulation, disposal, and virus elimination activities.
- Prevent the introduction of HPAI to non-infected premises through bioexclusion measures, including stringent biosecurity practices for all fomites and personnel moving onto a poultry premises.

9.1.2 Guidelines

HPAI response activities involve contact with infected poultry populations and contaminated premises, as well as contact with poultry and premises considered non-infected. Biosecurity measures are implemented to prevent the escape and/or introduction of the virus during the response. Certain concepts should be used as guidelines in developing and implementing biosecurity procedures.

- A biosecurity plan should be carefully conceived, clearly written, and situation-specific. It should detail procedures to be implemented, monitored, and enforced.
- Procedures and protocols will vary with the type and arrangement of each poultry facility—small backyard, open outdoor facilities, confinement facilities including large and complex production units—as well as with the disease pathogen, the disease/health status of the poultry, and type of response activities ongoing.
- Consideration is given to the pathways of HPAI transmission and routes for exposure.
- The disease/health status of the poultry will determine if protocols should focus on biocontainment or bioexclusion.
- The biosecurity plan needs to address site-specific pathways for disease movement, identify critical control points within those pathways, and prioritize mitigation measures based on effectiveness and practicality.
- All necessary resources (personnel and equipment) need to be quickly identified and deployed.
- The containment of disease and protection of responders' health is best accomplished through institutionalizing the plan with training, developing a culture of biosecurity, and implementing the protocols consistently.

9.1.3 Coordination

Coordination is essential to ensure everyone complies with biosecurity measures all the time. Due to the risks presented by movements of people and things, and due to the inconvenience, time, and effort to follow the biosecurity measures, only essential (e.g., response activities) or critical (e.g., for animal welfare) movements onto and off from a quarantined premises are allowed.

Communication throughout the Operations Section is critical to coordinate with other ongoing response groups that may need access to the premises, such as surveillance, appraisal, depopulation, and disposal. C&D, also known as virus elimination, is a component of biosecurity, and will be included as part of the biosecurity plan to eliminate the virus. Response activities will prompt the movement of people, vehicles, equipment, and supplies; all pose risks for the transfer of disease. All personnel must know and follow the specific biosecurity plan for each premises.

During an HPAI outbreak, essential visits related to poultry production may involve deliveries and mechanical service calls. There will be specific biosecurity protocols for these visits based on the on-farm activities, prior exposures and possible contamination, areas which are to be

serviced, and possible contact (direct or indirect) with the poultry. Efforts need to be made to communicate expectations ahead of the visit. Communication may be handled by supervisory personnel at the Incident Command Post, or by the on-site biosecurity personnel; ideally the same message should be delivered by both. The producer is responsible for communicating biosecurity expectations on a non-infected premises.

A Site Manager, or other designee may be tasked with coordinating activities on an Infected Premises. All essential visitors accessing the facility need to comply with biosecurity standards. Modifications may be necessary in order to deliver mail; conduct regulatory visits from local government, such as building and code inspection; and manage public utility visits, such as meter reading. Visits related to human health may include medical visits for those who reside at the premises or public health monitoring of exposed employees. The Medical Unit of the Logistics Section coordinates medical care and monitoring of responders and would make arrangements for medical personnel to avoid accessing the premises, except in an emergency.

In addition, the Safety Officer or designee needs to confirm safe working conditions and safe on-site work practices. The Safety Officer has the authority to stop any unsafe activity to protect the health of responders. For more detailed information about health and safety, please refer to *FAD PReP/NAHEMS Guidelines: Health and Safety*, *FAD PReP/NAHEMS Guidelines: Personal Protective Equipment (PPE)*, and *FAD PReP HPAI Health and Safety & Personal Protective Equipment SOP*.

Everyone having access to the quarantined premises—response personnel, essential delivery and service personnel, producers, and any residents living and working on the poultry facility—needs to comply with the same level of established biosecurity measures. Coordination is necessary to ensure all are aware of the necessary procedures to enter/exit the facility.

It is advisable for producers whose flocks are uninfected to impose rigid biosecurity protocols to prevent the introduction of disease.

9.2 Purpose

This *HPAI Biosecurity SOP* addresses measures to prevent the spread of disease during an HPAI outbreak in poultry. It serves as a resource for creating a comprehensive biosecurity plan to mitigate risks posed by the movement of birds, personnel, and things. It also provides operational guidance for implementing biosecurity measures outlined in the plan.

This document focuses on biocontainment on quarantined premises, as may apply to Infected Premises, Contact Premises, and Suspect Premises within the Control Area. It also addresses bioexclusion related to response activities on premises considered non-infected, such as At-Risk Premises and Monitored Premises inside the Control Area, and Free Premises in the Surveillance Zone and the Free Area. For a summary of these designations, please see [Attachment 9.B Zones, Areas, and Premises](#).

The first section of the SOP serves as a basis for creating a comprehensive biosecurity plan, and the second section provides the operational guidance for implementing biosecurity measures outlined in the plan. However, deviations from these procedures may be necessary to address

situations that arise. In addition, details provided in various sections may need to be combined to meet the requirements of a particular situation.

9.3 Biosecurity Group Responsibilities

In an FAD response, the Incident Command System (ICS) is the organizational management structure utilized to coordinate activities and delegate specific responsibilities. An VS National Incident Management Team (IMT) composed of the Incident Commander and appropriate staff may be deployed to the incident. This IMT will integrate with State, Tribal, and/or local personnel to create a unified Incident Command. This organizational structure is flexible and scalable based on the needs of the incident. The structure will depend on the size, scope, and nature of the incident, which may vary greatly among incidents and over time. The responsibility for designing and implementing biosecurity procedures is delegated to qualified personnel within the Operations Section. However, it is the responsibility of all response personnel and others on site to comply with biosecurity protocols to prevent the spread of disease. See [Attachment 9.C Example Incident Management Team](#); this organizational structure may change according to the scale and demands of the response.

Implementing biosecurity measures is crucial, beginning with the first report of a potential FAD. The FAD diagnostician is responsible for implementing initial biocontainment principles on the premises during the FAD investigation. If an FAD such as HPAI is suspected, the premises will be quarantined to prevent movements of domestic birds and other animals that may allow the disease to spread; other types of movements on/off the premises may also be restricted. Biosecurity measures will be initiated and conducted on quarantined premises, which may include Infected Premises, Contact Premises, and/or Suspect Premises. Suspect Premises are typically redesignated as another type of premises as quickly as their disease status is established.

As ICS is implemented, the responsibility of overseeing biosecurity will be delegated to one or more responders. Responsibility of individual components may be implemented by different positions with the Operations Section, such as the Animal Biosecurity Group in the Disease Support Branch and the C&D Group in the Disease Management Branch. If teams of responders are needed on a premises, each team will be led by a Team Leader, and teams will be supervised by a Group Supervisor or other designee in the chain of command.

Someone within the Animal Biosecurity Group, possibly the Biosecurity Group Supervisor or designee, is responsible for ensuring that a site assessment of each Infected Premises is performed, a site-specific biosecurity plan is developed, and appropriate biocontainment measures are implemented to prevent the spread of disease off the premises. A Site Manager, or another responder designated by the unified Incident Command, is typically assigned to one or more premises to oversee the procedures, provide coordination and gain compliance by personnel assigned to other response activities. These duties may involve supervision and/or on-site management. Assistance in implementing biocontainment measures may be provided by other unified Incident Command personnel. Needs, problems, challenges, and biosecurity violations must be reported to the appropriate personnel per the chain of command. Site Managers also have the ability to halt operations or stop a worker from breaching biosecurity. In

an HPAI outbreak, it is anticipated that a variety of production systems may be affected; biosecurity plans need to be individualized, and constant attention to compliance is crucial.

In any HPAI outbreak, there will be biosecurity plans developed for biocontainment as well as biosecurity plans for non-infected premises, focused on bioexclusion to protect uninfected animal populations within the Control Area and Surveillance Zone. Typically, unified Incident Command Personnel work with the producer to develop biocontainment plans; bioexclusion plans are typically developed and implemented by the premises/producer. Responders and other farm-related personnel should never travel between known Infected Premises and non-infected premises or premises with unknown disease statuses. Responders assigned to surveillance and conducting other clean activities will look to these bioexclusion protocols to protect naïve livestock populations. Biosecurity plans and procedures must be followed by all, including responders and company personnel.

9.3.1 Biosecurity Personnel in Supervision

Individual tasks will be divided between those in supervisory roles at the Incident Command Post and those involved in on-site operations. Activities delegated to those responsible for supervising the design and implementation of biosecurity measures, such as the Biosecurity Group Supervisor or designee, may include:

- Creating a site-specific biosecurity plan.
- Submitting the site-specific biosecurity plan to appropriate personnel for approval.
- Consulting with the Safety Officer to ensure safe working conditions and safe work practices. In a zoonotic event, additional personal protections may be necessary for anyone accessing the premises.
- Assessing the need for biosecurity personnel, vehicles, and equipment during a response and requesting appropriate resources to conduct biosecurity operations, including coordination to issue contracts if necessary.
- Advising the Operations Section of any current or anticipated shortfall of resources (personnel, equipment, and especially PPE) so that arrangements for surge capacity can be made.
- Verifying the credentials, training, and clearances of all personnel assigned to implement biosecurity measures, and maintaining documentation indicating that credentialing requirements have been met.
- Appointing Biosecurity Team Leaders and assigning personnel to Biosecurity Teams.
- Identifying personnel training requirements and ensuring that responders receive the appropriate orientation training upon arrival.
- Ensuring all biosecurity personnel receive training on the routes of pathogen transmission and measures to reduce the risk of pathogen transmission.
- Coordinating with personnel responsible for on-site activities such as appraisal, depopulation, and disposal to ensure compliance with the biosecurity plan as these groups move onto, around, and off of the premises.

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- Confirming contact has been made with local officials concerning restrictions on service visits, such as from local government or public utility companies. Essential visits involving access to restricted areas will require compliance with biosecurity protocols; the Site Manager, or designees, may initiate these contacts.
 - Establishing and maintaining effective working relationships with industry and producer groups, including processors, renderers, feed-mill operators, transportation company representatives, and other stakeholders to emphasize the importance of enhanced biosecurity within their facilities.
 - Preparing accurate and complete regular briefings and reports that are promptly submitted to the Operations Section.
 - Timely reporting of any problems to the Operations Section.
 - Serving as a resource for technical information about biosecurity methods and procedures.

9.3.2 Biosecurity Personnel On Site

Depending on the size of the response, biosecurity activities on quarantined premises may be delegated to specific on-site teams; there may be several Biosecurity Teams, each with its own Team Leader, deployed to one or more premises to contain the disease. These Team Leaders would supervise team members and report to a supervisor within the chain of command.

Activities that may be assigned to on-site personnel, such as a Biosecurity Team, may include:

- Assisting the Biosecurity Group Supervisor to:
 - Create a site-specific biosecurity plan.
 - Develop detailed property maps of the premises that identify roads, neighboring premises, fences, gates, property access points, and other relevant geographic information.
 - Determine the number and types of resources needed to effectively and efficiently perform biosecurity and disease prevention activities.
 - Monitor the inventory of biosecurity-related supplies on hand (for example, disinfectants, coveralls, footwear, and sprayers) and notify supervisors of any supply needs.
 - Ensure safe working conditions and safe work practices. In a zoonotic event, additional personal protections may be necessary for anyone accessing the premises.
 - Train all personnel accessing the site to implement the site-specific biosecurity plan.
 - Gain support and compliance, with the Site Manager, of premises owners, managers, employees, and any residents on the premises to adhere to all biosecurity protocols as specified in the biosecurity plan.
 - Prepare briefings and reports for the Operations Section.
- Establishing a communication system within the team.

-
- Ensuring that all biosecurity measures involving people, poultry and poultry products, vehicles, equipment, and other materials entering or leaving the premises are implemented and followed.
 - Monitoring the activity of other on-site response groups to prevent breaches in biosecurity.
 - Encouraging premises owners, managers, and employees to assist in implementation of biosecurity protocols when appropriate.
 - Ensuring premises owners, managers, and employees are aware of and comply with established movement restrictions and monitoring that C&D protocols are followed when residents or employees leave the property.
 - Verifying that appropriate signage addressing quarantine and restricted access is posted and highly visible.
 - Ensuring control of movements on and off premises. It may be necessary to:
 - Establish premises security.
 - Allow only essential movements onto and off of the premises. These essential visits may include feed delivery, emergency repair of mechanical equipment, and visits related to care of the livestock. All visits must comply with established biosecurity procedures.
 - Establish a system to identify, monitor, and control individuals entering premises and prevent the entry of unauthorized individuals.
 - Prevent the entry of unauthorized people, animals, equipment, or vehicles onto the premises.
 - Station personnel at the decontamination post to monitor and control disinfection and decontamination of vehicles prior to exiting the contaminated premises.
 - Maintain accurate logs of all personnel, equipment, and vehicles entering and leaving each quarantined premises.
 - Ensure that the movement of poultry and poultry products arriving or leaving the affected premises is in compliance with movement and permit restrictions.
 - Monitoring the disposal or laundering and cleaning of contaminated materials (for example, disposable or reusable coveralls, shovels, and boots).
 - Staying current on information related to disease prevention principles and practices.
 - Reporting all possible biosecurity breaches to the Biosecurity Group Supervisor and immediately notifying the supervisor of any issues, problems, or resource needs.

9.4 Logistics Responsibilities

The Logistics Section is responsible for providing or arranging for services, facilities, and material to support achievement of the incident objectives. During an incident, Logistics is responsible for ensuring the well-being of responders by providing sufficient food, water, and

medical services. Logistics is also responsible for arranging communication equipment, computers, transportation, and anything else needed to support the incident.

Specifically related to biosecurity activities, Logistics personnel are responsible for the following:

- Maintaining an adequate stock of equipment, supplies, and countermeasures needed by the Animal Biosecurity Group. These resources may be housed in a central warehouse or staged at smaller temporary locations.
- Procuring services, equipment, supplies, and countermeasures from appropriate sources, including the local suppliers or the National Veterinary Stockpile. In collaboration with States, State-owned resources may be deployed to the response. Logistics personnel work with the Finance and Administration Section, as appropriate, when purchasing equipment, supplies, and services.
- Fulfilling requests made by the Animal Biosecurity Group for equipment and supplies.
- Clarifying the process to submit restocking requests.
- Tracking and managing resources that are available, in use, deployed, reassigned, and demobilized.
- Filling requests for response personnel, whether from APHIS Dispatch or contracted.
- Providing information technology support and equipment to allow the on-site Biosecurity Teams to communicate with each other and with the Animal Biosecurity Group Supervisor.

9.5 Procedures

9.5.1 Planning—General Concepts in Developing a Biosecurity Plan

During an HPAI response, the site-specific biosecurity plan may be prepared by the Biosecurity Group Supervisor or designee in collaboration with the Operations, Planning, Logistics Sections, as well as with the Safety Officer. The Incident Commander, or his/her designee, approves the plan prior to implementation.

The process of developing a biosecurity plan focused on biocontainment and/or bioexclusion involves similar concepts and considerations. For any disease, an assessment of the existing situation needs to be conducted, evaluating the disease agent(s) and the routes of transmission, the physical facility, and options for mitigation.

To develop a biosecurity plan, consider a three step process.

- **Step 1: Identify and understand the possible routes of transmission and pathways of exposure to HPAI.**

The risk of spread of HPAI may depend on management, type of housing, and potential contact with wild or feral animals. Consideration of potential fomites transferring the HPAI virus off from a contaminated premises, or onto an uninfected premises will be necessary. Live poultry on a quarantined premises may be prohibited from leaving the

premises. However, dead or depopulated poultry may be disposed on site or off site. Both of these disposal options will require effective biosecurity measures.

- Step 2: Conduct an assessment of the facility and ongoing activities.

Identify the pathways and processes that allow the HPAI virus to be moved from one location to another. For infected poultry, identify movements that would allow the pathogen to escape containment or quarantine. In cases of non-infected poultry, identify movements that would allow exposure of susceptible animals to contaminants from outside the facility.

Movements may involve entering or leaving a facility, or movements within a facility that may spread disease between groups of animals. Some studies have shown HPAI virus aerosolization occurs during certain methods of depopulation of infected flocks, potentially contributing to spread of disease. In this step in the planning process, the critical control points are recognized, so that mitigation measures can be implemented.

- Step 3: Implement processes and procedures that eliminate, prevent, or minimize the potential impact of animal disease by preventing movement of entities that may carry disease, or that inadvertently transport the disease agent.

Mitigation steps need to take into consideration the risk of movements of personnel, service crews, visitors, wild and feral animals, and pets/domesticated animals, as well as any vehicles and the drivers of those vehicles. In addition, evaluate the handling and movement of equipment, manure, and animal carcasses. Assess the risk of vehicles that may transport pathogens, either in the product being delivered (feed, bedding)/removed (carcasses) or on the delivery vehicle that may be contaminated from contact with infected animals or premises.

Once the biosecurity procedures have been designed and established, they need to be institutionalized, consistently implemented, and enforced. It is advisable to appoint someone who is responsible for monitoring compliance at all times and has the authority to stop procedural violations and take corrective actions. All employees and responders need to report violations immediately.

For more information on the routes of exposure to disease, consult *FAD PReP/NAHEMS Guidelines: Biosecurity*. In addition, this Guidelines document addresses the development of a biosecurity plan to prevent disease introduction onto a non-infected premises, to be implemented as routine management practice.

9.5.2 Quarantined Premises—Considered Contaminated

9.5.2.1 Outline

The Biosecurity Group Supervisor or designee develops a written plan describing biosecurity activities for each premises under quarantine. The written plan includes the following sections:

1. Biosecurity Risk Assessment—nature of disease, critical control points, biosecurity challenges related to the site, and activities to be explained in a briefing

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2. Map of Premises—satellite images for Work Zones including Line of Separation (also known as the Clean/Dirty line), access points, and locations of all decontamination stations
 3. Quarantine—regulations and conditions imposed on the premises and livestock pertaining to movements and biosecurity
 4. Mitigation Measures for Essential Movements—protocols for movements onto, off of, and within the premises of people, vehicles, equipment, and other fomites conducted at critical control points to minimize the risk of disease transmission
 5. Vector Control—coordination with the Vector Control Group to reduce the risk of wild and feral animals, scavengers, and pets disseminating infectious materials
 6. Biosecurity Equipment/Supplies—items needed to conduct activities in the plan and instructions to submit requests
 7. Disposal—used (contaminated) PPE, disposable supplies, carcasses, and other items
 8. Biosecurity Personnel—number, organizational structure, chain of command, requirements, and training (respirator fit testing and medical clearance, ICS training, Hazardous Waste Operations and Emergency Response [HAZWOPER] training, Pesticide Applicator License)
 9. Security—site security, signage, and authorizations to access premises and log of all those who access the premises
 10. Contingency—biosecurity protocols for emergencies such as necessary medical attention, fires, or threatening weather
 11. Enforcement Procedures—monitoring, corrective actions, modifications, if needed
 12. Regulatory Issues—permits that may be needed for effluent disposal from C&D, or for movements
 13. Safety—personnel and environmental
 14. Virus Elimination on the Premises—ultimate C&D practices conducted to destroy or eliminate all avian influenza (AI) virus on the premises.

9.5.2.2 Operations

Immediately after an HPAI detection, a regulatory Control Area, comprised of an Infected Zone and Buffer Zone, will be designated around the Infected Premises. Premises designations reflect the disease status of the poultry population related to HPAI. See [Attachment 9.B Zones, Areas, and Premises](#) for more detailed descriptions.

In general, Infected Premises (and sometimes Suspect Premises) are placed under quarantine. These premises are contaminated throughout the response operation.

9.5.2.2.1 *Conduct a Biosecurity Briefing*

Prior to starting operations, a rapid assessment of risk evaluates the biosecurity challenges related to the site and the activities. This assessment informs the biosecurity plan. A briefing sets the biosecurity goals and organizes the activities.

- The Biosecurity Group Supervisor conducts a briefing for biosecurity personnel and team members. All aspects of the biosecurity effort based on the site-specific biosecurity plan are addressed. Policies and procedures involving access across the Line of Separation and entering/exiting the Hot Zone-Exclusion Zone are detailed. Mitigation measures at critical control points are explained. A review of the nature of the HPAI virus may occur.
- During the briefing, the team's duties are specified. The chain of command and the person to whom they report are clarified. Safety precautions are covered, as well as any contingency plans.
- At this briefing, team members may report challenges, resource shortages, biosecurity violations, prior progress, or other aspects that the Biosecurity Group Supervisor may need to include in briefings and reports for the Operations Section Chief.

9.5.2.2.2 *Visually Identify Work Zones and Line of Separation*

A map of the quarantined premises will be developed using a satellite image. Based on the site map, the three Work Zones, the Decontamination (Decon) Corridor(s), and all access points should be clearly marked on site with visual cues. The Line of Separation, also known as the Clean/Dirty Line, between the Warm Zone-Contamination Reduction Zone and the Cold Zone-Support Zone needs to be prominently identified. Tape, paint, fencing, cones, flags, or other material may be used. All personnel must comply with biosecurity protocols based on the zone they occupy.

[Attachment 9.D Line of Separation and Perimeter Buffer Area/Work Zones](#) illustrates examples of Work Zones imposed on site maps for three different types of poultry facilities—layers in confined houses, poultry in curtain-sided buildings, and free range poultry. Based on risk assessments, the biosecurity plan may designate much wider zones on site, providing much larger isolation of the Hot Zone-Exclusion Zone. The following is a brief description of the different Work Zones.

- The Hot Zone-Exclusion Zone is the area of greatest HPAI contamination.
 - Considered dirty (contaminated), as opposed to the clean (non-contaminated) Cold Zone-Support Zone.
 - Encompasses the infected poultry, activities such as depopulation involving the infected poultry, and any locations of concentrated contamination such as manure/used litter, carcass storage, or waste collection.
 - High risk of exposure to pathogens or chemicals exists.
 - Full PPE is required, based on the Health and Safety Plan.
 - Risk of heat stress is created due to the non-breathability of the PPE and the high level of physical activity.

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- Workers need to be monitored and rotated out with some frequency. Team Leaders ensure adequate rotation based on local conditions.
 - Personnel and equipment enter and exit via the designated access points across the Line of Separation.
 - No person may exit prior to decontamination in the Decon Corridor before returning to the Cold Zone-Support Zone.
 - Virus elimination in this area will be of particular importance to return the premises to non-infected status.
 - The Warm Zone-Contamination Reduction Zone, in comparison to the Hot Zone-Exclusion Zone, is an area of reduced environmental contamination.
 - Acts as a buffer area placing additional separation between the dirty (contaminated) and clean (non-contaminated) space to reduce the risk of disease transmission.
 - Still considered a high-risk environment with potential exposure to disease pathogens as well as chemical exposure to disinfectants.
 - Boundaries may be adjusted to ensure that the Cold Zone-Support Zone remains uncontaminated.
 - Decontamination of personnel and equipment occurs through the Decon Corridor located between the Hot Zone-Exclusion Zone and the Cold Zone-Support Zone.
 - Workers and equipment exit through designated access points.
 - The Decontamination Corridor is located in the Warm Zone-Contamination Reduction Zone.
 - Everything exits the Hot Zone-Exclusion Zone through the Decon Corridor.
 - Access points are located at either end.
 - C&D of people and things and final doffing of PPE occur here.
 - There may be more than one Decon Corridor, depending on the number of access points, all of which need to be controlled.
 - Limiting the number of controlled access points, ideally, through one Decon Corridor enhances compliance of strategic actions implemented there.
 - All C&D stations are clearly marked on the map.
 - Choose locations with access to water. Contain the run off of spent C&D fluids to prevent it from seeping into open water or around nearby wells.
 - A C&D Team may be stationed to assist personnel decontaminate and/or conduct disinfection of equipment and vehicles leaving the Hot Zone-Exclusion Zone.
 - The Line of Separation is placed between the Warm Zone-Contamination Reduction Zone and the Cold Zone-Support Zone.
 - This Line—imagined or physical—separates clean and dirty.
 - May also be referred to as the Clean/Dirty Line.

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- Biosecurity measures are designed to prevent movement of the HPAI virus across this Line, out of the Hot Zone-Exclusion Zone and into the Cold Zone-Support Zone.
 - The Cold Zone-Support Zone is the “cleanest” work zone with the lowest relative risk of exposure to pathogens.
 - In this zone, personnel are not required to wear PPE; however, facilities for donning PPE before entering other zones are provided.
 - Administrative, clerical, and other support functions are based here.
 - Vehicles that do not need to cross the Line of Separation are parked in the Cold Zone-Support Zone.
 - Facilities for personal needs such as eating, drinking, and bathroom use are provided.
 - Medical support is provided to personnel in this zone.
 - Contaminated articles and equipment are prohibited in this area. Decontamination activities in this zone are prohibited.

9.5.2.2.3 *Review Quarantine Conditions*

In coordination with the Animal Movement and Permits Group, the regulations and conditions imposed on the quarantined premises and livestock must be reviewed, so that all personnel can monitor compliance and enforce the biosecurity protocols. Stipulations may vary, depending on the authority imposing the quarantine. Federal orders may vary from State imposed orders. Specific permits may be required for essential and critical movements from an Infected Premises.

9.5.2.2.4 *Mitigate Risks Related to Movements within the Premises*

Biosecurity protocols on quarantined premises are also intended to prevent the pathogen from any further spread within the premises and subsequently off of the premises. All movements must follow biosecurity measures specified by the site-specific biosecurity plan. Movements between contaminated and non-contaminated areas across the Line of Separation must occur through the Decon Corridor, only at monitored access points. Protocols may include steps taken prior to entry, while on site, and upon leaving the Hot Zone-Exclusion Zone and apply to people and their clothing, supplies and equipment, and vehicles.

9.5.2.2.4.1 People

Protocols for people (response personnel, employees for the production facility, visitors essential for the care of the poultry, etc.) apply to all who enter the Hot Zone-Exclusion Zone. Anyone leaving the Hot Zone-Exclusion Zone may inadvertently cause the virus to escape and expose other birds and poultry populations.

Prior to entering the Hot Zone-Exclusion Zone:

- Prepare to bring all PPE and equipment appropriate for the tasks, such as water and disinfection supplies, sample collection and shipping supplies, if arrangements have not been made for provisions at the premises.

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- Establish a clean compartment in the vehicle to hold the clean equipment, PPE, and supplies. The passenger area or compartment is usually maintained as the clean area.
 - Establish a separate, secure dirty compartment such as a plastic sealable tub to contain contaminated items that may need to be disinfected or disposed. The cargo area of a truck, the trunk of a car, or the back of a station wagon may be suitable as the dirty compartment.
 - Observe all visual demarcations of Work Zones.
 - Park vehicles in the Cold Zone-Support Zone, on a hard surface if possible.
 - Check all PPE items for tears/defects prior to donning. Those entering the Hot Zone-Exclusion Zone are expected to wear full PPE including disposable or washable boots, gloves, coveralls (i.e., Tyvek or similar) taped at the ankles and wrists, and head cover. Incident Command will provide specific instructions.
 - Don PPE prior to exiting the vehicle to avoid contaminating street clothes. Disposable PPE is optimal. See the PPE examples under Supplies below.
 - Don PPE in the appropriate order. The donning process is specific to facilitate the correct order of doffing to avoid inadvertent cross-contamination. See [Attachment 9.E PPE Donning and Doffing Procedures](#) for the step-by-step process as described in the *Foreign Animal Disease (FAD) Investigation Manual* (FAD PReP Manual 4-0).
 - Prepare to contain contaminated disposable items in a biosecure manner to avoid the transfer of pathogens. Some things may be collected and held on site for later biosecure disposal, according to the biosecurity plan.
 - Leave all jewelry and items such as cigarettes, gum, food, and drink in the Cold Zone-Support Zone.
 - Place cell phones and electronics in sealed plastic bags or waterproof cases to allow disinfection in the Decon Corridor upon exiting.
 - If not already established, prepare all C&D supplies in the Decon Corridor for a biosecure exit. See [Attachment 9.F Protocol for Boot Baths](#) for guidance on proper preparation and use.
 - Prepare to take all necessary items across the Line of Separation in one trip. Personnel leaving the Hot Zone-Exclusion Zone to return to the vehicle will require full decontamination.
 - Take only necessary supplies, tools, and equipment into the Hot Zone-Exclusion Zone. A washable tote may be utilized to carry supplies. Extra items such as a respirator and gloves may be included. Note that all supplies and equipment will either be cleaned and disinfected upon exiting, or disposed of. Due to the effort to clean and disinfect vehicles and large equipment, only essential equipment should enter the Hot Zone-Exclusion Zone.
 - Respect all marked Work Zones, and comply with required protocols during on-site activities.

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- Enter the Hot Zone-Exclusion Zone through the proper access point.

While in the Hot Zone-Exclusion Zone:

- Perform required tasks while minimizing unnecessary exposure to the pathogen.
- Avoid movement into other parts of the premises to prevent further spread of environmental contamination.
- Limit exposure and contact time of heavy equipment and vehicles with contaminated areas.
- Conduct all activities and remain within the Hot Zone-Exclusion Zone until departure through the Decon Corridor.
- Wear full PPE while in the Hot Zone-Exclusion Zone and also while in the Warm Zone-Contamination Reduction Zone, until final doffing.

Upon leaving the Hot Zone-Exclusion Zone:

- Exit only through the Decon Corridor. Complete all decontamination and doff PPE before crossing the Line of Separation back into the Cold Zone-Support Zone.
- Clean and disinfect all supplies, tools, equipment, and vehicles leaving the Hot Zone-Exclusion Zone. This includes the outer plastic bags and/or cases holding cell phones and electronic equipment. In addition to the easily visible surfaces, take extra care cleaning the less visible areas, such as wheel wells and under carriage of vehicles. There may be a C&D Team tasked with decontaminating larger items. See the section below for steps in the C&D process.
- Leave items behind that cannot be decontaminated for later disposal.
- Clean and disinfect reusable PPE, such as boots, using a brush and paying extra attention to the soles and treads. Use only fresh disinfectant solutions in boot baths.
- Doff PPE in the proper sequence to avoid inadvertent cross-contamination. Take care to avoid re-contamination. See [Attachment 9.E PPE Donning and Doffing Procedures](#) for the step-by-step process as described in the *Foreign Animal Disease (FAD) Investigation Manual* (FAD PReP Manual 4-0).
- Dispose of PPE in the trash bag and tie off the bag. According to the biosecurity plan, either leave the bag on site, or double bag the trash, tie off the outer bag, and disinfect the outer bag prior to carrying it across the Line of Separation (C&D Line).
- Exit the Decon Corridor, crossing over the Line of Separation into the Cold Zone-Support Zone.
- Securely contain disinfected trash bags of contaminated disposable items in the dirty compartment of the vehicle. Disposal is addressed further in a section below. Consult the site-specific biosecurity plan for disposal protocols.
- Wash hands or use a hand sanitizer.

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- Spray vehicle tires and wheel wells with disinfectant prior to driving away, as an extra precaution.
 - Spray disinfectant on the soles of shoes/boots immediately before feet are placed in the vehicle.
 - Perform additional cleanup measures, such as laundering street clothes and showering once at home. Dispose of any contaminated trash according to the biosecurity plan. Clean outside (commercial car wash) and the inside of the vehicle prior to the next visit to a poultry facility.
 - Avoid contact with other susceptible animal populations as directed by Incident Command.

During an animal health emergency response, some response personnel may be required to visit multiple premises during the course of a work day. These personnel must be aware that these activities increase the risk of disease transmission and must be especially diligent with respect to compliance with biosecurity practices; responders and other farm personnel should never travel between known Infected Premises and non-infected premises or premises with unknown disease status. Follow instructions from Incident Command on any waiting period between visits of different premises.

Biosecurity protocols may be required for residents of quarantined premises who are not involved in the production of poultry. If any member of the household is employed by the production facility, or has direct or indirect contact with the poultry, full biosecurity measures to exit the premises may be required. Based on the risk assessment, if residents' movements are unrelated to the poultry production, a lower level of biosecurity may be allowed. See [Attachment 9.G Example Biosecurity Measures for Residents of Quarantined Premises](#) for protocols that may be modified for specific situations.

9.5.2.2.4.2 Equipment and Vehicles—C&D

All equipment and vehicles leaving the Hot Zone-Exclusion Zone need to be cleaned of organic material and disinfected. Typically, equipment that is permanently installed in a poultry house is cleaned down to the surface and wet disinfectant applied, per unified Incident Command recommendations. Even if the house is undergoing heat treatment rather than traditional C&D procedures: any equipment that can be, must be cleaned and disinfected. Additional downtime for disinfected equipment and vehicles may be prescribed by the unified Incident Command. Please see *HPAI Response: Cleaning & Disinfection Basics (Virus Elimination)* for further information, available at www.aphis.usda.gov/fadprep.

A variety of cleaners and disinfectants may be chosen based on the target organism and the applied surface. Chemicals vary in their toxicity and irritation potential. Read all labels prior to handling or mixing solutions and wear all necessary PPE when handling or mixing disinfectants such as gloves, goggles, and a respirator. All personnel should be aware of the dangers if used improperly. The Material Safety Data Sheets should be made available. Please see the document *Potential Pesticides to Use against the Causative Agents of Selected Foreign Animal Diseases in Farm Settings*, which is available along with other FAD PReP resources at www.aphis.usda.gov/fadprep.

The C&D Group may provide teams to conduct C&D related to biosecurity operations as well as for virus elimination operations on a premises. Personnel conducting C&D activities may need specific certifications, such as:

- Hazardous Waste Operations and Emergency Response certification.
- Pesticide applicator license (if applicable).

9.5.2.2.5 Control Vectors

On a quarantined premises, efforts are made to coordinate with the Vector Control Group to prevent wild animals, scavengers, and pets from having access to and mechanically removing infectious materials.

- Barriers may need to be placed to prevent wildlife and other vectors from gaining access to contaminated areas. Focus on wild birds, rodents, and scavengers.
- Avoid all possible enticements to wildlife. Spilled feed needs to be cleaned. Storage of any carcasses needs to be secured. Composting piles (carcasses and litter) need to be appropriately protected by a cover of carbon source. For more information on the management of some vectors, please see the *FAD PReP/NAHEMS Guidelines: Wildlife Management and Vector Control for a Foreign Animal Disease Response in Domestic Livestock*.

9.5.2.2.6 Deploy Biosecurity Equipment and Supplies

The materials, supplies, and equipment necessary to perform the biosecurity activities specified in the plan and based on the number of personnel on site should be available and deployable. Coordination will be needed with the C&D Group, as they may also be providing supplies. The following equipment and supplies are examples of those needed at a quarantined premises for biosecurity:

- PPE as needed for biosecurity and as specified in the site-specific health and safety plan. For additional information, please see the *FAD PReP Health and Safety & Personal Protective Equipment SOP*.

A list of necessary PPE may include, but is not limited to, the following:

- 2 Tyvek or similar suits per person per day (in wet or muddy conditions, waterproof or nylon coveralls may be necessary)
- Waterproof Tyvek-type rain suits
- Disposable boots
- Disposable gloves (latex or nitrile)
- Safety glasses, goggles, and/or face shield
- Respiratory protection
- Head cover/hood
- High visibility vests

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- Head and hearing protection, if needed
 - Duct tape
 - Hand sprayers
 - Garden sprayers
 - Buckets and scrub brushes for cleaning boots and equipment
 - Boot bath tubs and measuring supplies for proper dilutions
 - Power sprayers and attachments such as nozzles, valves, hoses, and connection lines
 - Garden hoses, 50 foot or more of length
 - Generator and fuel, if power source is unavailable
 - Electrical extension cords
 - Water supply where water is unavailable or possibly contaminated, such as a tanker
 - Sponges, cloth towels, and paper towels
 - Dry cleaning equipment such as brooms, wire brushes, shovels, rakes, and scrapers (short and long handled) for cleaning equipment and vehicles
 - Vacuum, such as a shop vac
 - Hand sanitizer and fingernail brush
 - Ground tarps
 - Plastic garbage/trash bags, 30 gallon size and 8 mil thick
 - Galvanized 30 gallon trash cans
 - Detergents and disinfectants as specified in the plan
 - Material Safety Data Sheets, as appropriate
 - Ladders and/or step stools
 - Portable lights (with generator)
 - Supplies to visibly mark the Work Zones and access points (barrier cones, tape, flags, paint)
 - Signage to restrict access and guide responders to access points
 - Logbook to account for all personnel and vehicles that access the Hot Zone-Exclusion Zone
 - Tent or shelter for deployed responders
 - First aid kit with eye wash
 - Timer for disinfectant contact times.

9.5.2.2.7 *Dispose of All Items Safely*

The biosecurity plan will address the best options for disposal of used equipment and supplies such as PPE. The Disposal Group as part of the Disease Management Branch is tasked with disposal of carcasses and spent litter. Attention is paid to biosecurity precautions for all disposal activities. Careless disposal poses a risk for disease transmission.

- Equipment and supplies intended to be thrown away should be contained in a heavy plastic bag. According to the biosecurity plan, the plastic bag may be left on the contaminated premises for later disposal. If the bag is to be removed from the premises, it is double bagged and sealed, for example using a zip-tie. The outer bag is thoroughly sprayed with disinfectant, just prior to crossing the Line of Separation. The bag is placed in the dirty section of the vehicle for later disposal according to the biosecurity plan.
- A container, such as a roll-off dumpster, to collect and contain all contaminated disposable items, may be placed on site. A waterproof liner, such as a bio-bag, may be necessary to prevent any leakage of contents. Prior to removal from the Hot Zone-Exclusion Zone for transportation to a landfill, the outside of the waste collection container needs to be cleaned and disinfected.
- Carcass disposal by on-site composting may be the best option. Other options may include transportation to a landfill, on-site burial, and incineration. Resources for composting and conducting other methods of disposal which are available on the FAD PReP website include:
 - HPAI Response: Mortality Composting Protocol for AI Infected Flocks
 - HPAI Response: Landfill Disposal Guidance—Recommended Waste Acceptance Practices for Landfills
 - FAD PReP Disposal SOP
 - FAD PReP/NAHEMS Guidelines: Disposal.
- All heavy equipment that may be associated with disposal activities need to be thoroughly decontaminated before leaving the Hot Zone-Exclusion Zone and crossing the Line of Separation.
- Disposable items will be buried, incinerated, or handled in another biosecure manner, according to the site-specific plan.
- Disposal of spent cleaning fluids should be in compliance with environmental regulations and in accordance with label instructions.

9.5.2.2.8 *Deploy Biosecurity Personnel*

The teams responsible for biosecurity on a quarantined premises should be deployed. The number of personnel on the teams needs to be adequate for the assigned tasks. The organizational structure and the chain of command should be identified to enhance efficiency.

Requirements of personnel may include:

- ICS training
- Respirator fit testing and medical clearance
- HAZWOPER training
- Pesticide Applicator License.

9.5.2.2.9 *Establish Site Security*

Site security includes restricting access and egress, maintaining appropriate signage, and monitoring compliance with biosecurity protocols.

- The perimeter of the premises needs to be secure to prevent inadvertent escape of poultry and unauthorized access by people.
 - Work in conjunction with the Animal Movement and Permit Group.
 - Secure all routes of access that are not monitored with gates, cables, or barriers.
 - Check and repair perimeter fencing as necessary.
- Barriers should prevent access by vectors such as wild animals, if possible.
- Authorization of those accessing the premises should be confirmed. Only essential/critical movements are allowed.
- A log of those accessing the premises should be kept.
- Signage warning of restricted access and biosecurity protocols in place needs to be prominently posted at all possible points of access. See [Attachment 9.H Example Biosecurity Signs](#) for images of signs that may be placed at site entrances and other locations.

9.5.2.2.10 *Address Contingencies*

Emergencies occurring on the quarantined premises require special planning to avoid biosecurity breaches.

- In the event of an illness or injury to a responder, medical care should quickly be provided, in accordance with the Health and Safety Plan. If possible, the responder should exit through the Decon Corridor, following C&D and PPE doffing protocols prior to exiting the premises. In an emergency, medical personnel may need to assist the responder on-site and remove the responder for emergency medical care elsewhere. Instructions should be provided to medical personnel on decontamination of the patient and associated articles to be performed as soon as possible. For more information, please refer to the *FAD PReP Health and Safety & Personal Protective Equipment SOP* and *FAD PReP/NAHEMS Guidelines: Health and Safety*.
- In the event of other emergencies such as a fire or dangerous weather, the safety of all people is the primary priority. Attention to biosecurity is resumed when the danger has passed.

9.5.2.2.11 *Institute Enforcement Procedures*

Biosecurity protocols are enforced at all times for all movements. Compliance is improved with active monitoring.

- A team member is assigned the responsibility to monitor compliance of biosecurity protocols. This includes ensuring access to the premises is restricted to authorized individuals, maintenance of a log of those entering the Hot Zone-Exclusion Zone, performance of decontamination for movements out of the Hot Zone-Exclusion Zone, appropriate safe disposal of contaminated items and effluents, and other protocols. All personnel need to be in full PPE compliance.
- In the event of a biosecurity breach, corrective actions should be taken.
- Modifications of protocols may be necessary to prevent future conditions that may allow a breach to occur.

9.5.2.2.12 *Comply with all Regulations*

Permits may be required for certain activities involving biosecurity.

- Acquire any necessary permits for effluent disposal from C&D.
- Confirm authorization for emergency use of any cleaning and/or disinfection solutions.
- Check for Incident Command-issued movement permits before allowing movements such as feed deliveries and carcass removal.

9.5.2.2.13 *Ensure Safety*

Safety issues focus on personnel, property, and the environment.

- Although an on-site safety representative may monitor activities, all personnel are responsible for safe operations and working conditions. Unsafe practices or conditions need to be reported to the supervisor.
- The Safety Officer has the authority to stop operations if deemed unsafe.
- Correct any unsafe working conditions or place barriers to prevent access to specific areas, if possible.
- Follow contingency plans for emergencies, such as retreating to a safe location in dangerous weather.
- Comply with all environmental regulations, especially as pertains to C&D. The Disposal Group in the Operations Section has responsibility for composting. The composting process needs to be monitored to prevent biosecurity breaches and to prevent environmental violations.

9.5.3 Premises Considered Non-Infected

Even without the imminent threat of HPAI, each poultry production premises is expected to have its own written biosecurity plan in place as part of daily routine management. The site-specific biosecurity plan should incorporate the following concepts: 1) a company person with responsibility and authority for the biosecurity plan (possible titles include Biosecurity Officer or

a Biosecurity Manager), 2) a Perimeter Buffer Area, and 3) a Line of Separation. The biosecurity plan should detail biosecurity procedures implemented as routine practice to defend the Line of Separation and prevent HPAI disease introduction. For a detailed discussion of these concepts, and for more information on conceptual, structural, and operational levels of biosecurity for bioexclusion, consult the *FAD PReP/NAHEMS Guidelines: Biosecurity* and other FAD PReP resources.

During an HPAI incident, the Biosecurity Officer for the production site is advised to implement enhanced biosecurity measures. If not already part of the routine biosecurity practices, these may include:

- Allowing only essential movements onto the premises (no visitors).
- Providing freshly laundered or disposable site-specific biosecurity attire to all personnel for use on the premises, such as coveralls, boots, and gloves.
- Extending the Perimeter Buffer Area to further isolate the poultry from possible contamination.
- Implementing more strictly controlled access in crossing the Line of Separation, such as establishing a Danish Entry-type protocol or shower-in/shower-out.
- Implementing a shuttle system to facilitate deliveries of inputs (feed, bedding, supplies) to avoid all outside vehicles entering the Perimeter Buffer Area.
- Investing in equipment dedicated to this premises, so no movement or sharing is necessary.
- Conducting training to reinforce all biosecurity protocols and ensure consistent compliance among employees and all who access the facility.

See the *USDA HPAI Biosecurity Checklist* for guidance and assistance in developing operational procedures for a biosecurity plan; a link is provided in [Attachment 9.I Biosecurity Resources for Poultry Producers for Bioexclusion](#) at the end of this document.

During an HPAI outbreak, response personnel may be deployed to conduct selected, restricted activities on premises presumed to be uninfected. At-Risk Premises and Monitored Premises within the Control Area, and Free Premises in the Surveillance Zone may be visited. For example, personnel, equipment, and vehicles as mobile units may need to cross the Line of Separation to retrieve diagnostic samples from poultry. If possible, it is preferred if responders do not enter uninfected premises and instead the producer or veterinarian collects and submits diagnostic samples; sometimes, it is possible to coordinate so that responders can meet the producer at the end of the driveway with daily mortality or already collected samples. Teams must maintain strict biosecurity standards to avoid introducing HPAI into susceptible flocks, and prevent HPAI escape from an infected, yet undetected, flock. These responders will need a biosecurity plan for their activities. Both biocontainment and bioexclusion steps are imperative for entering and leaving each premises.

The Biosecurity Group Supervisor or designee, most often associated with the Incident Command Post, develops a written plan to detail biosecurity activities for responders accessing premises considered to be non-infected. It is not uncommon that response personnel do not take

action or enter uninfected premises; typically, producers handle all activities on these premises as long as their status remains unchanged. However, if personnel do enter a premises for surveillance, permitting, or other reasons, prior to entering a premises, the biosecurity protocols in effect at that site should be determined, and used as a minimum. In most cases, enhanced biosecurity will be necessary.

9.5.3.1 Outline

The written plan includes the following sections:

1. Biosecurity Risk Assessment—nature of disease, biosecurity challenges related to the site, and activities to be explained in a briefing
2. Map of Premises—satellite images to identify locations of all strategic mitigation steps, such as acceptable parking locations and controlled access points
3. Mitigation Measures for Essential Movements—protocols for movements onto, off of, and within the premises of people, vehicles, equipment, and other fomites conducted at critical control points to minimize the risk of disease transmission
4. Biosecurity Equipment/Supplies—items needed for biosecure entry and exit
5. Disposal—used (contaminated) PPE, disposable supplies, and other items
6. Contingency—where full decontamination may not be possible, such as medical emergencies
7. Enforcement Procedures—emphasizing the team’s self-monitoring and/or modifications to the plan
8. Safety—personnel and environmental
9. Diagnostic Sample Handling—avoiding escape of the HPAI virus on samples collected
10. Biosecurity Information—resources and information to encourage the producer to enhance biosecurity.

9.5.3.2 Operations

9.5.3.2.1 *Institute Enforcement Procedures*

Biosecurity protocols are enforced at all times for all movements. Compliance is improved with active monitoring.

- Each response team member is expected to monitor compliance of biosecurity protocols. This includes ensuring a biosecure entry and exit, restricting access to appropriate personnel, and appropriate safe disposal of contaminated items and effluents. All personnel need to be in full PPE compliance.
- In the event biosecurity is breached, corrective actions should be taken.
- Modifications of protocols may be necessary to prevent future conditions that may allow a breach to occur.

9.5.3.2.2 *Ensure Safety*

Safety issues focus on personnel, property, and the environment.

- All response personnel are responsible for safe operations and working conditions. This should be addressed by the team's supervisor, to whom unsafe practices or conditions are reported.
- Comply with all safety rules and environmental regulations, especially as pertains to C&D.

9.5.3.2.3 *Mitigate Virus Transfer from Diagnostic Samples*

Responders accessing the premises considered non-infected follow the bioexclusion protocols above. For certain activities such as surveillance sampling, consider working in teams, with one member remaining outside the Line of Separation to assist the responder(s) who enters the premises.

- For investigations of FADs and guidance on handling diagnostic samples, consult VS Guidance Document 12001.2—*Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents (FAD/EDI)*. Establish the Line of Separation, across which pathogens are prevented to cross on entering. Defend this same Line upon exiting to prevent the transfer of pathogens off the premises.
- Gather sample supplies before entering the premises across the Line of Separation.
- Complete any documentation on submission forms.
- Prepare sample containers and/or sample bags with labels.
- Have clear zip-lock plastic bags ready to receive sample containers and documents/submission forms.
- Cross the Line to enter the premises, following the bioexclusion steps explained in the prior section.
- Protect samples and all containers during the sampling process to prevent cross contamination, and minimize unintended contamination from the environment.
- Seal the diagnostic samples or containers (properly labeled) in plastic bags. Also seal documentation to submit with the samples in clear plastic bags with pertinent information turned outward to be read through the bag.
- Disinfect the outside of the plastic bags—samples and documentation—by spraying or immersing them in disinfectant just prior to crossing the Line of Separation.
- Double bag all samples, and spray outer bag containing samples with disinfectant. This step and the next steps for the samples may be completed by the assistant who remains outside the Line.
- Place the disinfected bags (samples and documentation) in a location where they will not be re-contaminated, such as directly into the clean cooler (on the clean side) for shipment to the laboratory.

-
- Ensure the necessary cold packs have been placed in the cooler. Place the lid on the cooler for transport.
 - Cross the Line of Separation to exit the premises, following all biocontainment steps.

9.5.3.2.4 Encourage Non-Infected Premises to Enhance Biosecurity

The response team should be prepared to provide information, resources, and recommendations to assist owners in enhancing bioexclusion efforts.

- Communicate with the owner. Answer questions on the nature of the HPAI virus and provide handouts listing biosecurity resources that may help prevent that premises from becoming infected. See [Attachment 9.I Biosecurity Resources for Poultry Producers for Bioexclusion](#) for examples of resources that may be shared with producers.

9.6 Training and More Information

Appropriate training is an important part of responding to an HPAI outbreak. It is also important for responders to have the tools to assist them in taking appropriate action to control the HPAI outbreak while protecting human health and the environment. Further Biosecurity training tools and guidance are available from APHIS and FAD PReP sources.

Titles mentioned throughout this document and additional resources can be accessed from the USDA FAD PReP website at www.aphis.usda.gov/fadprep.

Attachment 9.A Secure Food Supply Plans

The Secure Food Supply Plans are public-private-academic partnerships. The goals of the Secure Food Supply projects are to: 1) avoid interruptions in animal/animal product movement to commercial processing from premises with no evidence of infection in an FAD outbreak, 2) provide a continuous supply of wholesome food to consumers, and 3) maintain business continuity for producers, transporters, and food processors through planning for an FAD response.

Current collaborations and Secure Food Supply projects include the following:

- Secure Poultry Supply Plan: <http://www.securepoultrysupply.com>
 - Secure Egg Supply (SES) Plan: <http://secureeggssupply.com/>
 - Secure Broiler Supply (SBS) Plan: <http://www.securebroilersupply.com>
 - Secure Turkey Supply (STS) Plan: <http://www.secureturkeysupply.com/>
- Secure Pork Supply (SPS) Plan: <http://securepork.org/>
- Secure Milk Supply (SMS) Plan: <http://www.securemilksupply.org/>

Key academic contributors to Continuity of Business projects include the

- Center for Food Security and Public Health (CFSPH), Iowa State University;
- Center for Animal Health and Food Safety (CAHFS), University of Minnesota;
- University of California, Davis, Department of Veterinary Medicine and Epidemiology;
and
- Texas A&M University.

Attachment 9.B Zones, Areas, and Premises

This information on Zones, Areas, and Premises designations in an FAD response is summarized from the *APHIS Foreign Animal Disease Framework: Response Strategies* (FAD PReP Manual 2-0).

In general, an animal disease outbreak response may involve seven types of zones/areas. These zones and areas are: 1) Infected Zone (IZ); 2) Buffer Zone (BZ); 3) Control Area (CA); 4) Surveillance Zone (SZ); 5) Free Area (FA); 6) Containment Vaccination Zone (CVZ); and 7) Protection Vaccination Zone (PVZ).

Table 1 provides a summary describing these zones/areas.

Table 1. Summary of Zone and Area Descriptions

Zone/area	Definition
Infected Zone (IZ)	Zone that immediately surrounds an Infected Premises.
Buffer Zone (BZ)	Zone that immediately surrounds an Infected Zone or a Contact Premises.
Control Area (CA)	Consists of an Infected Zone and a Buffer Zone.
Surveillance Zone (SZ)	Zone outside and along the border of a Control Area. The Surveillance Zone is part of the Free Area.
Free Area (FA)	Area not included in any Control Area. Includes the Surveillance Zone.
Vaccination Zone (VZ)	Emergency Vaccination Zone classified as either a Containment Vaccination Zone (typically inside a Control Area) or a Protection Vaccination Zone (typically outside a Control Area). This may be a secondary zone designation.

An animal disease outbreak may involve six types of premises: 1) Infected Premises (IP); 2) Contact Premises (CP); 3) Suspect Premises (SP); 4) At-Risk Premises (ARP); 5) Monitored Premises (MP); and 6) Free Premises (FP). If emergency vaccination is used, there will be a seventh type, Vaccinated Premises (VP).

Table 2 provides a summary describing premises designations.

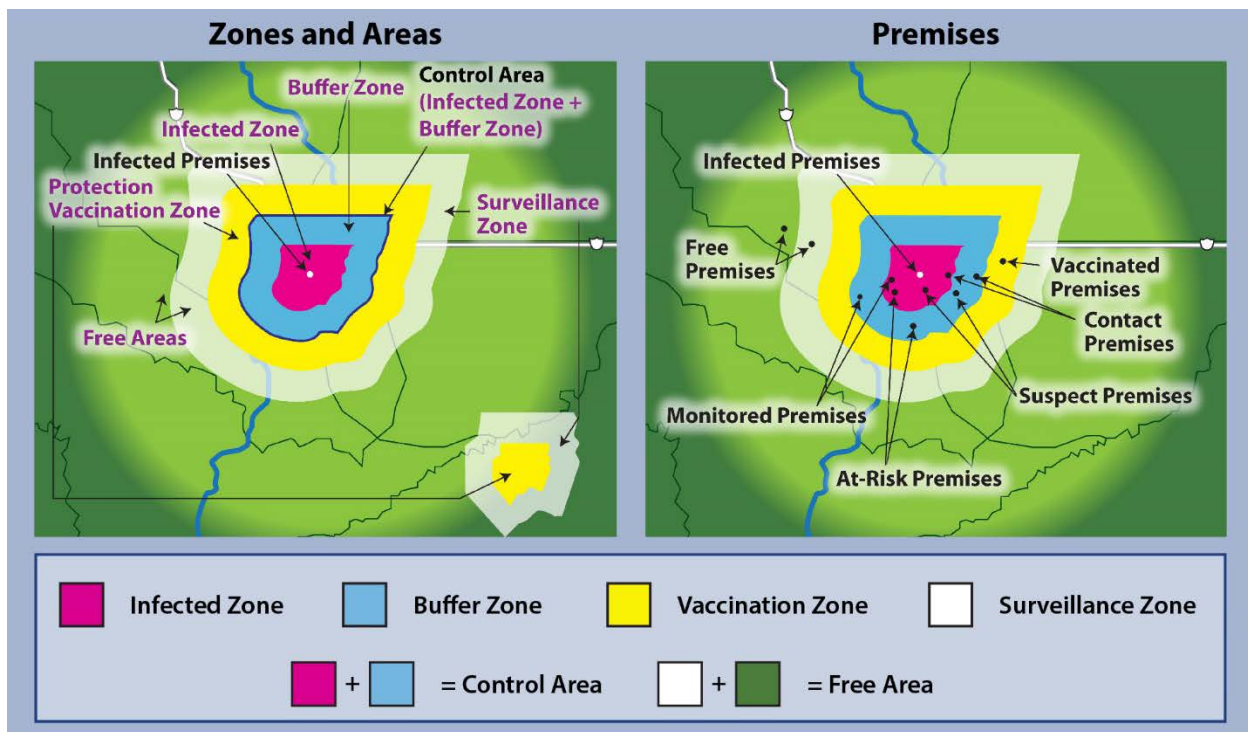
Table 2. Summary of Premises Designations

Infected Premises (IP)	Premises where a presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, case definition, and international standards.	Infected Zone
Contact Premises (CP)	Premises with susceptible animals that may have been exposed to the FAD agent, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from Infected Premises.	Infected Zone, Buffer Zone
Suspect Premises (SP)	Premises under investigation due to the presence of susceptible animals reported to have clinical signs compatible with the FAD. This is intended to be a short-term premises designation.	Infected Zone, Buffer Zone, Surveillance Zone, Vaccination Zone

At-Risk Premises (ARP)	Premises that have susceptible animals, but none of those susceptible animals have clinical signs compatible with the FAD. Premises objectively demonstrates that it is not an Infected Premises, Contact Premises, or Suspect Premises. At-Risk Premises may seek to move susceptible animals or products within the Control Area by permit. Only At-Risk Premises are eligible to become Monitored Premises.	Infected Zone, Buffer Zone
Monitored Premises (MP)	Premises objectively demonstrates that it is not an Infected Premises, Contact Premises, or Suspect Premises. Only At-Risk Premises are eligible to become Monitored Premises. Monitored Premises meet a set of defined criteria in seeking to move susceptible animals or products out of the Control Area by permit.	Infected Zone, Buffer Zone
Free Premises (FP)	Premises outside of a Control Area and not a Contact or Suspect Premises.	Surveillance Zone, Free Area
Vaccinated Premises (VP)	Premises where emergency vaccination has been performed. This may be a secondary premises designation.	Containment Vaccination Zone, Protection Vaccination Zone

Figure 1 provides a visual example of the location of premises within zones and areas.

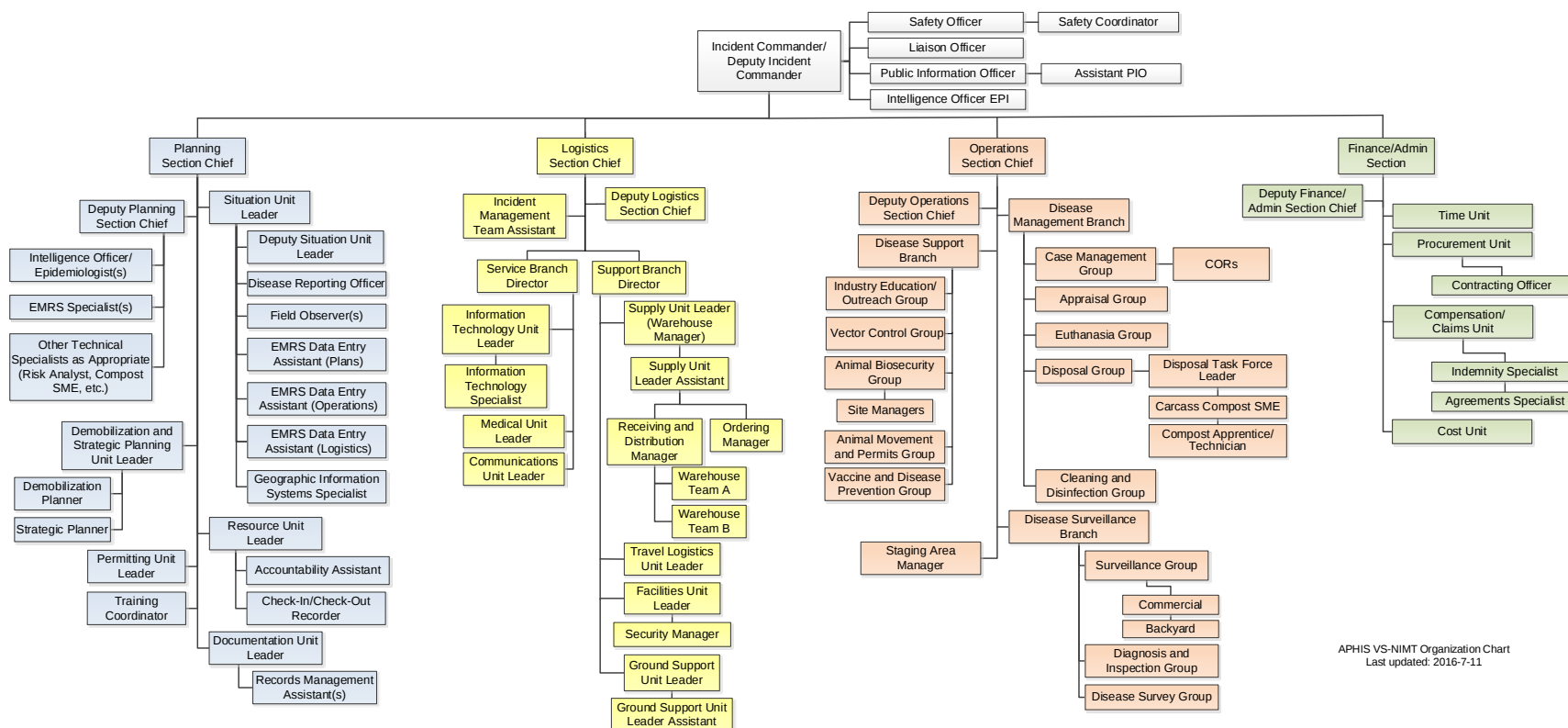
Figure 1. Zones, Areas, and Premises



Note: Figures are not to scale. The Vaccination Zone can be either a Protection Vaccination Zone or Containment Vaccination Zone.

Attachment 9.C Example Incident Management Team

This is an example of an Incident Management Team based on the Incident Command System organizational structure. This organization of responders that may be deployed to an incident is flexible and scalable. Its structure will depend on the size, scope, and nature of the incident.



Note: PIO = Public Information Officers; EPI = epidemiology; SME = Subject Matter Expert; EMRS = Emergency Management Response System 2.0; COR = Contracting Officer's Representative

Attachment 9.D Line of Separation and Perimeter Buffer Area/Work Zones

In this attachment, three examples of poultry facility layouts (site maps) are used to illustrate biosecure areas. These examples are intended to provide broad guidance for creating a separation between the dirty area (potential source of infection) and the clean area (non-infected) of a premises based on the type of housing, and the health status of the resident poultry. Each of the three types of facility layouts are illustrated as uninfected premises and as Infected Premises, showing how the biosecurity areas change. Implementation of these concepts can be adapted to a variety of production facilities.

The three types of facilities (broadly representing types of production) are examples of:

1. Poultry raised indoors in closed, solid-wall buildings (e.g., egg production)
2. Poultry raised in open-sided, curtain-sidewall buildings (e.g., meat production)
3. Poultry raised free range in a fenced area (e.g., meat or egg production).

As an uninfected premises, the producer defines and defends the Line(s) of Separation to isolate the poultry from possible exposure to disease (bioexclusion). Risk mitigation measures, such as C&D, are conducted at the controlled access points across the Line of Separation (LOS).

Depending on the facility layout, the site-specific work paths, and the type and arrangement of buildings, it may be possible for the producer to institute a Perimeter Buffer Area (PBA) as a transition area, prior to crossing the LOS and accessing the animal housing. Producers are encouraged to institute a cleanliness standard for entering a PBA to reduce potential environmental contamination, furthering protecting the healthy birds.

Once the poultry on a premises are infected with HPAI, the premises is quarantined. Usually, an Infected Premises is considered contaminated and an infective risk throughout the whole farm or operation. Work Zones are established to restrict access, isolate the infected poultry and any areas of contamination, and prevent escape of the virus from the premises (biocontainment). Hot, Warm, and Cold Zones are designated. A Decontamination Corridor and controlled access points are created to mitigate movements off the premises. Biosecurity protocols and behavior are conducted as described previously in this SOP. This Line may be repositioned from its location on the uninfected premises in order to accommodate the Work Zones on the contaminated premises.

For additional detail, consult the *FAD PReP/NAHEMS Guidelines: Biosecurity*. A link to the guidelines document is provided in the [For More Information](#) section.

Graphic illustrations by Sydney Heppner, Iowa State University

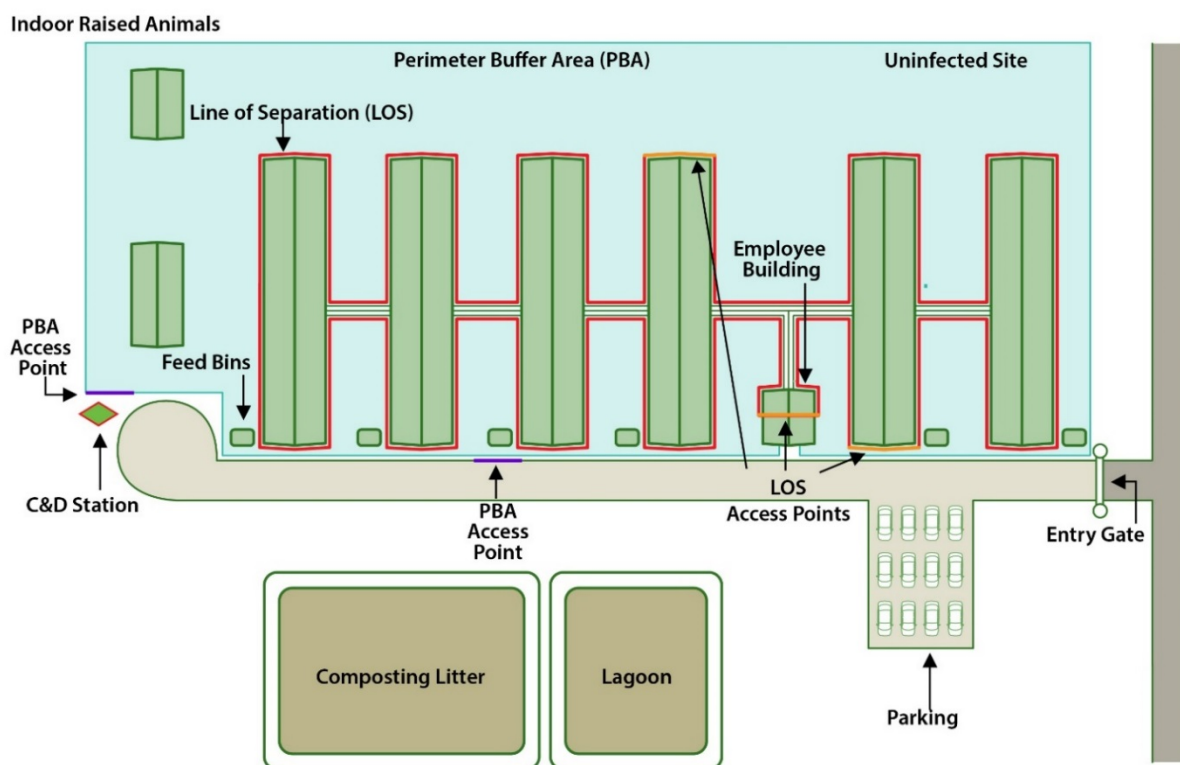
Uninfected Premises—Poultry Raised Indoors

This example illustrates an uninfected poultry production facility raising animals indoors in multiple buildings with solid sides. This illustration includes a connecting conveyer/walkway, as might be found in layer facilities.

The walls of the poultry buildings serve as the LOS, represented as the continuous red line. All connected buildings are treated as one biosecure unit. Stringent biosecurity measures are conducted at the LOS Access Points, represented in orange, prior to entering the animal housing unit. The producer may implement a Danish Entry System at each LOS Access Point to prevent HPAI and other pathogens from crossing the LOS and exposing animals to disease.

A surrounding PBA, represented as the shaded blue area, is established as an outer control boundary to reduce pathogen load in the immediate environment. A C&D Station is located near the PBA Access Points, represented in blue. Essential movements, including vehicles, which need to enter the PBA should be visibly clean before entering this transitional area.

An area of manure/waste management is shown outside the PBA as a reminder to locate these areas away from animals to avoid environmental contamination from service trucks. Composting litter and/or lagoons for breaker plants will not necessarily be found on every poultry premises.

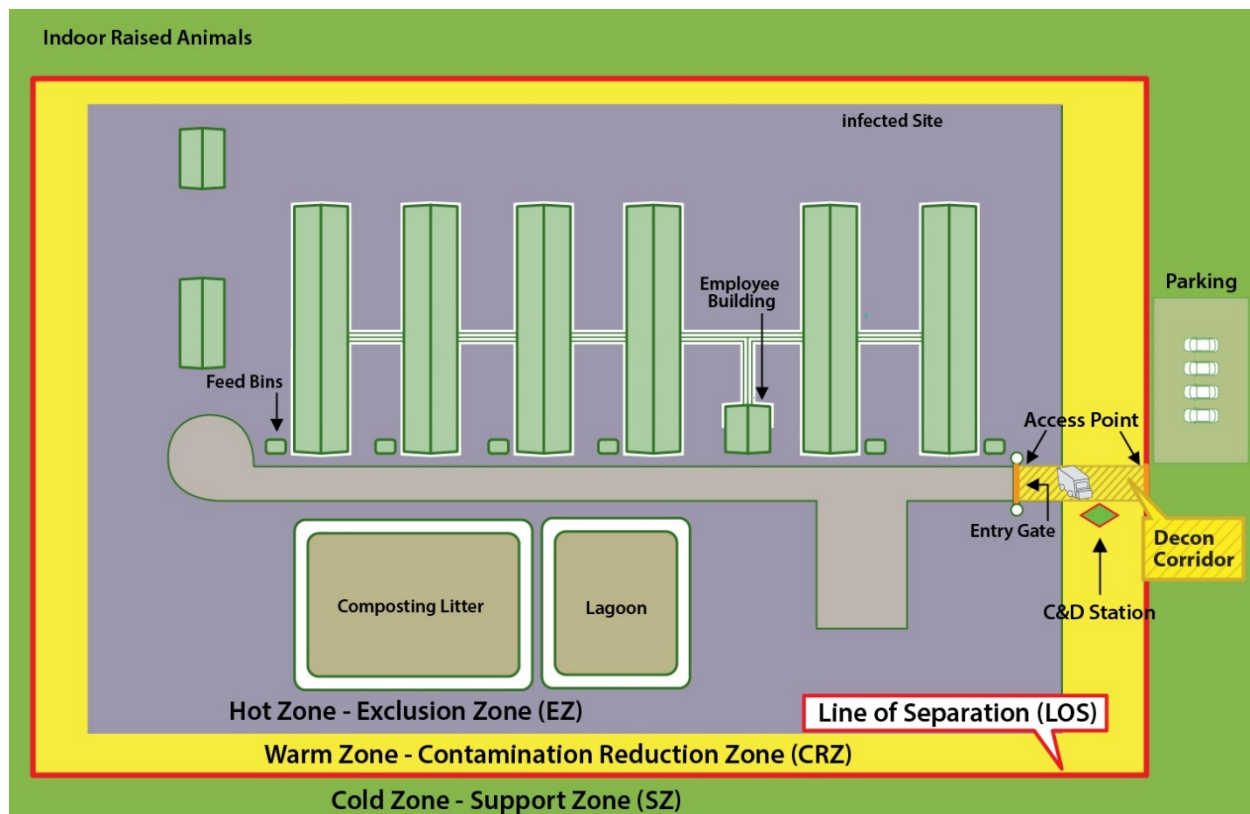


Infected Premises—Poultry Raised Indoors

This example illustrates the same type of premises shown above, but now it has been designated as an HPAI Infected Premises. Containment areas are described as Work Zones, designated as the Hot Zone-Exclusion Zone (EZ), Warm Zone-Contamination Reduction Zone (CRZ), and Cold Zone-Support Zone (SZ). The Decontamination (Decon) Corridor, represented by the hatched area, serves as the point of access on or off the premises. All movements out of the Hot Zone-Exclusion Zone require decontamination.

It is important to note that the LOS, represented as the red line, now encircles the premises and separates the clean Cold Zone-Support Zone from the contaminated areas. This Line has been repositioned from its location on the uninfected premises in order to accommodate the Work Zones on the contaminated premises.

The Hot Zone-Exclusion Zone encompasses the housing of the infected poultry and the highly contaminated areas, including any areas of manure management. The parking area has been relocated to the Cold Zone-Support Zone to minimize movements across the LOS. Biosecurity measures to mitigate the escape of the virus are conducted according to Work Zone and response activities.

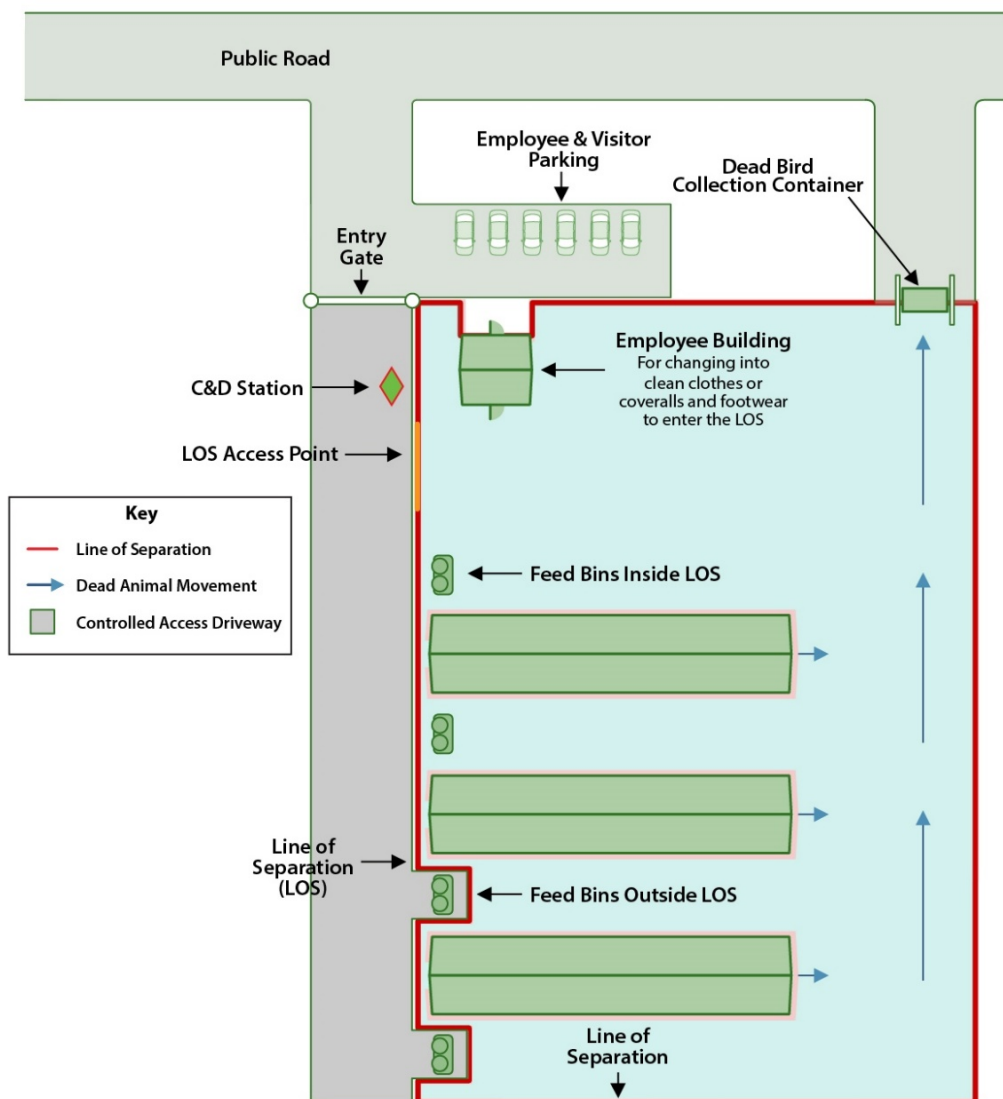


Note: The width of the zones is not necessarily to scale

Uninfected Premises—Poultry Raised in Open-sided Curtain-sidewall Buildings

This example illustrates an uninfected poultry production facility raising animals in open-sided, curtain-sidewall buildings. In this case, where the open sides may expose birds to the outside environment, the walls of the buildings may not be secure enough to form the Lines of Separation. For this farm, the LOS, represented as the red line, encircles the area around all of the buildings housing animals. The employees caring for the poultry access the area and cross the LOS at the Employee Building where biosecurity measures prevent the transfer of pathogens into the area where poultry may be exposed. A producer may locate a Danish Entry System in the Employee Building. This facility in this particular example has no room to accommodate a PBA.

The C&D Station is positioned on the limited access driveway near the wide LOS Access Point to clean any vehicles that must cross the LOS. The dead bird collection container for carcass disposal and some of the feed bins are located so that service trucks do not cross the LOS, avoiding environmental contamination. Employee parking is located outside the LOS.

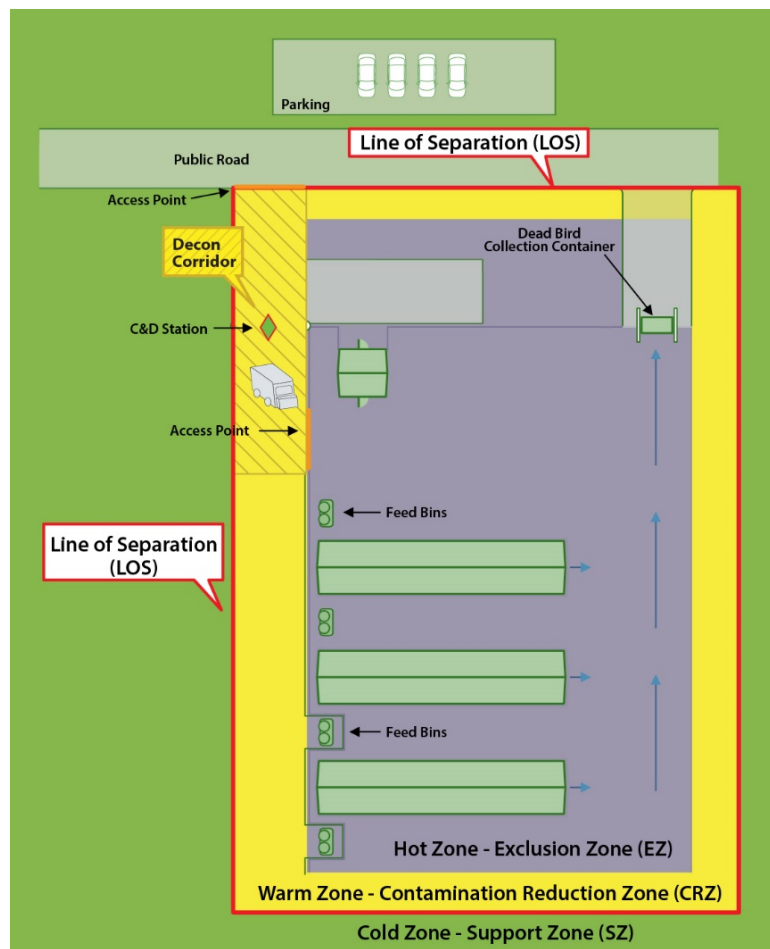


Infected Premises—Poultry Raised in Open-sided Curtain-sidewall Buildings

This example illustrates the same type of premises shown above, but now it has been designated as an HPAI Infected Premises. Containment areas are described as Work Zones, designated as the Hot Zone-Exclusion Zone (EZ), Warm Zone-Contamination Reduction Zone (CRZ), and Cold Zone-Support Zone (SZ). The Decontamination (Decon) Corridor, represented by the hatched area, serves as the point of access on or off the premises. All movements, including containers of contaminated carcasses, must move through the Decon Corridor to be cleaned and disinfected before being removed from the premises.

It is important to note that the LOS, also known as the Clean/Dirty Line and represented as the red line, separates the clean Cold Zone-Support Zone from the contaminated areas. This Line has been repositioned from its location on the uninfected premises in order to accommodate the Work Zones on the contaminated premises.

The Hot Zone-Exclusion Zone encompasses the housing of the infected poultry and the highly contaminated areas. The parking area has been relocated to the Cold Zone-Support Zone to minimize movements across the LOS. Biosecurity measures to mitigate the escape of the virus are conducted according to Work Zone and response activities.

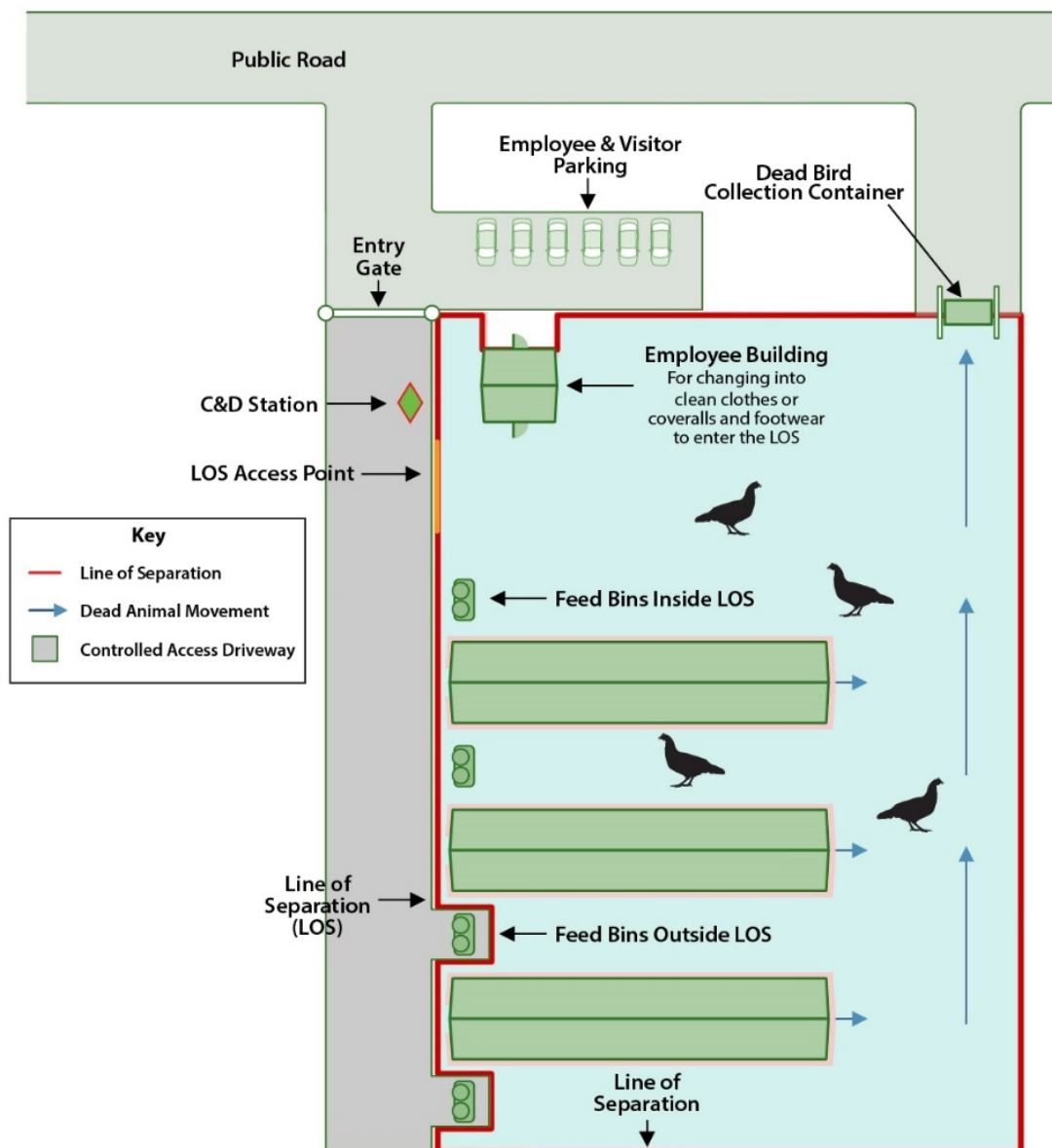


Note: The width of the zones is not necessarily to scale.

Uninfected Premises—Poultry Raised Free Range in a Fenced Area

This example illustrates an uninfected poultry production facility raising free range animals, but confined in a fenced area. In this case, birds have free access to buildings and outdoor space. This situation may be compared to the biosecurity challenges of a cattle feedlot. For this farm, the LOS, represented as the red line, encircles the area around all of the animal enclosure. The employees caring for the poultry access the area and cross the LOS at the Employee Building where, as much as possible, biosecurity measures prevent the transfer of pathogens into the area where poultry may be exposed.

The C&D Station is positioned on the limited access driveway near the wide LOS Access Point to clean any vehicles that must cross the LOS. Employee parking is located outside the LOS. There are efforts to minimize service vehicles from crossing the LOS, but a significant biosecurity challenge is lack of control of exposure to wild birds and their fecal matter.

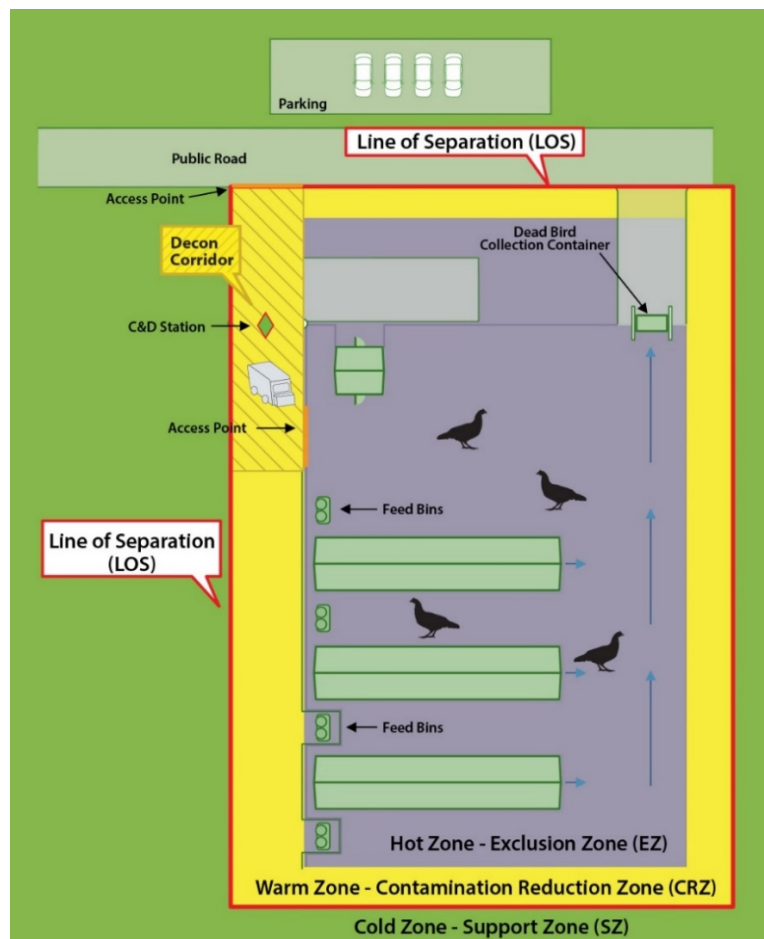


Infected Premises—Poultry Raised Free Range in a Fenced Area

This example illustrates the same type of premises shown above, but now it has been designated as an HPAI Infected Premises. Containment areas are described as Work Zones, designated as the Hot Zone-Exclusion Zone (EZ), Warm Zone-Contamination Reduction Zone (CRZ), and Cold Zone-Support Zone (SZ). The Decontamination (Decon) Corridor, represented by the hatched area, serves as the point of access on or off the premises. All movements, including containers of contaminated carcasses, must move through the Decon Corridor to be cleaned and disinfected before being removed from the premises.

Note that the LOS, also known as the Clean/Dirty Line and represented as the red line, separates the clean Cold Zone-Support Zone from the contaminated areas. This Line has been repositioned from its location on the uninfected premises in order to accommodate the Work Zones on the contaminated premises.

The Hot Zone-Exclusion Zone encompasses the area to which the poultry had access. The parking area has been relocated to the Cold Zone-Support Zone to minimize movements across the LOS. Biosecurity measures to mitigate the escape of the virus are conducted according to Work Zone and response activities.



Note: The width of the zones is not necessarily to scale.

Attachment 9.E PPE Donning and Doffing Procedures

Steps are from the *Foreign Animal Disease (FAD) Investigation Manual* (FAD PReP Manual 4-0).

Donning Procedure

1. Arrive at the farm wearing washable coveralls over your street clothes. Park in a clean zone, away from affected farm premises. Record the GPS coordinates upon arrival to site.
2. Prepare strips of duct tape for boots and gloves and place them on the vehicle door. Fold the bottom of the tape back on itself to create a small tab for easy removal.
3. Remove jewelry and watch.
4. Place disposable boot covers over street shoes or boots.
5. Insert feet into Tyvek™ coveralls.
6. Put on a second set of disposable boot covers.
7. Exit vehicle and finish putting on Tyvek™ coveralls.
8. Place 2 garbage bags, hand sprayer, and hand sanitizer on the driver's seat for later use.
9. Loosely tape outer boots to the Tyvek™, leaving enough room to bend and walk.
10. Put on inner gloves under Tyvek™ sleeves.
11. Pop thumbs through Tyvek™ sleeves.
12. Put on outer gloves over Tyvek™ sleeves.
13. Tape outer gloves to the sleeves at the wrists, leaving tabs to help with removal.
14. Put on facemask or respirator and adjust for secure comfort. Test to ensure a proper seal.
15. Don appropriate eye protection such as glasses, goggles, or face shield.
16. Put on head cover or raise the Tyvek™ hood.
17. Open the back of the vehicle and remove your supplies.
18. Set up a ground tarp if necessary to create a "clean/dirty" line.
19. Prepare the decontamination supplies, including a bucket, boot brush and tub, garden sprayer, and hand spray bottle. Fill all with disinfectant solution.
20. Spray ground tarp down with disinfectant to serve as your clean/dirty line.
21. Tape a garbage bag to the back of your vehicle.
22. Place another garbage bag in a bucket for later disposal of used materials.
23. Set out shipping box.
24. Fill a tote with the FAD kit supplies that you will take into the investigation. Put an extra mask and extra gloves in the FAD kit.

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25. Pre-label zipper-lock plastic bags and other sample containers with farm name, date, and other pertinent information.
 26. Pick up the FAD kit and enter the facility.

Doffing Procedure

1. Exit the facility and spray down the PPE with water, if available. Pay attention to the bottom of your boots.
2. Proceed to the tarp and dunk the bagged samples in the disinfectant bucket.
3. Without stepping over the “clean” line, place the samples on the tarp or the back of your vehicle.
4. Dunk or spray equipment with disinfectant.
5. Place used equipment and supplies, such as the tote, into a garbage bag for further cleaning at a later time.
6. Spray the outside of the garbage bag with disinfectant, place in a second garbage bag, seal, and place in the back of the vehicle.
7. Use hand sprayer to disinfect your gloves, Tyvek™, and outer boot covers.
8. Scrub bottom of boot covers with boot brush and disinfectant.
9. Remove tape from outer gloves and boots and place in a garbage bag.
10. Unzip coveralls and begin rolling them downward, turning them inside-out.
11. The outer gloves are removed by turning the sleeves of the coveralls inside-out.
12. As you step out of the coveralls and outer boot covers, spray the bottoms of the inner boot covers with disinfectant.
13. Without letting your foot touch the ground on the “dirty” side, step onto the “clean” side of the tarp.
14. Place used coveralls, boot covers, etc. in the garbage bag.
15. Remove head cover and respirator and place in the garbage bag.
16. Dunk non-disposable equipment such as safety glasses/goggles in the disinfectant bucket and place in a garbage bag for later cleaning.
17. Use hand sprayer to disinfect inner gloves and inner boot covers.
18. Spray bagged diagnostic samples.
19. Double bag the diagnostic samples and disinfect the outer bag. Prior to sending, inform the receiving lab that the inner and outer bags were disinfected and left wet, so they do not presume the samples leaked.
20. Place the samples into the shipping box or cooler. Many prefer to do their packaging and paperwork off the farm, but it is critical that perishable samples be placed on ice as soon as possible.
21. Spray garbage bags, double bag, and spray outer bags.

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22. Place all bags in back of your vehicle.
 23. Scrub boot tub, pour out disinfectant, and place back in the vehicle.
 24. Disinfect any remaining equipment and storage containers.
 25. Using the garden sprayer, disinfect the tarp.
 26. Place the tarp in a garbage bag, spray outside of bag, double bag, and respray. Place bag in back of the vehicle.
 27. Spray the vehicle tires with the garden sprayer.
 28. Place the garden sprayer back in the vehicle and use the hand sprayer to disinfect the outside of it.
 29. At the driver's side of your vehicle, spray the inner boot covers with disinfectant.
 30. Remove inner boot covers.
 31. Place boot covers in the small garbage bag located inside the vehicle.
 32. Remove cloth coveralls and place in garbage bag.
 33. Spray your street shoes as you enter the vehicle.
 34. Remove inner gloves and place them in the garbage bag.
 35. Use hand sanitizer to disinfect your hands and arms.

Attachment 9.F Protocol for Boot Baths

During an HPAI response, boot baths are used in a variety of protocols to reduce the amount of HPAI virus carried on footwear. Their purpose is to disinfect, but not necessarily clean, reusable boots. The efficacy of the disinfectant in the boot bath is directly related to its dilution, the cleanliness of the solution and container (absence of organic material), and the amount of contact time the disinfectant has on an object. Therefore, boots must first be cleaned before stepping into the boot bath. The disinfectant needs to be changed at least daily or when visibly contaminated, whichever comes first. All who access the area guarded by a boot bath must properly follow instructions for disinfecting boots every time.

Equipment and Supplies Needed

1. Tubs/trays large enough to hold at least one gallon of water, and of sufficient depth to fully immerse the boot, yet prevent overflow when two feet are placed inside
2. Disinfectant for influenza viruses, as directed by Incident Command
3. Containers to measure water and disinfectant to complete the dilution
4. Water
5. Soap and long handled scrub brush to clean boots prior to stepping into boot bath.

Set Up, Maintenance, and Use of a Boot Bath

1. Biosecurity personnel are responsible for setting up and maintaining boot baths to prevent the spread of HPAI.
2. Boot baths are located in the Decontamination Corridor, and in the front of entrances to building doors.
3. Dilute the disinfectant with water according to label instructions.
4. Wear gloves and goggles or face shield when mixing solution. Do not get into eyes, on skin, or on clothing.
5. Fill the tub/tray with the appropriate volume of diluted disinfectant solution.
6. First clean the boots with soap and water using a scrub brush to remove all organic materials such as manure, bedding, and soil before stepping into the boot bath.
7. Step into the boot bath, fully immerse the boots for the adequate contact time.
8. Boot baths are emptied, cleaned, and refilled with fresh disinfectant at least daily.
9. Discard used disinfectant according to the biosecurity plan. Avoid streams, open water, wells, and locations that would create a muddy path.

It is a violation of federal law to use a disinfectant in a manner inconsistent with its labeling.

Attachment 9.G Example Biosecurity Measures for Residents of Quarantined Premises

Biosecurity protocols are still necessary when a residence is located on, but separate from, a poultry production facility under HPAI quarantine. If the Biosecurity Risk Assessment determines that the location of the residence and/or the activities of those who live there meet the criteria to be included in the Hot Zone-Exclusion Zone of contamination, than full biosecurity protocols are enforced to exit the premises.

If the Biosecurity Risk Assessment determines that the location of the residence and/or the activities of those who live there do not meet the criteria to be included in the Hot Zone-Exclusion Zone of contamination, precautionary measures below may be sufficient to allow the family to move on and off the property. These can be modified to meet the situation.

1. Residents may not have contact with any birds that remain on the premises.
2. Residents may not enter the Hot Zone-Exclusion Zone or any area holding poultry on the premises.
3. Before leaving the premises, the residents must
 - a. shower,
 - b. blow their nose,
 - c. expectorate deeply,
 - d. wear freshly laundered clothing,
 - e. disinfect footwear as they leave the premises using an approved disinfectant, and
 - f. disinfect footwear with an approved disinfectant again as they enter their vehicle.
4. All vehicles must be parked in the site-specific Cold Zone-Support Zone as determined by the Biosecurity Group, so that disinfection after the initial C&D will not be necessary. It is expected that vehicles be washed on a regular basis (at least weekly).
5. If a vehicle is parked in the Warm Zone-Contamination Reduction Zone or where possible HPAI viral contamination could occur, full C&D will be necessary before leaving the premises. Particular attention is focused on the undercarriage, tires and wheel wells, and any visible organic matter.
6. No pets are allowed to have contact with the birds or with any potentially contaminated area.
7. Non-residents are discouraged from visiting the residence. Possible non-compliance with biosecurity protocols by visitors on the quarantined premises poses the risk of virus spread.
8. Residents should not have contact with any poultry elsewhere.

Attachment 9.H Example Biosecurity Signs

These sample signs to post at the farm entrance are from the CFSPH, Iowa State University, *General Prevention Practices for Poultry Producers*. They are available at the following site: http://www.cfsph.iastate.edu/Animal_Response/English/pdf/Prevention%20Practices%20Poultry.pdf.



Attachment 9.I Biosecurity Resources for Poultry Producers for Bioexclusion

Canadian Food Inspection Agency

Annex B—Sample SOP—Procedures for Barn Entry and Exit

<http://www.inspection.gc.ca/animals/terrestrial-animals/biosecurity/standards-and-principles/general-producer-guide/eng/1398640321596/1398640379048?chap=9>.

Canadian Swine Health Board

The Danish Entry Principle—video

https://www.youtube.com/watch?v=N4NNkd_Kfqw

Ontario Pork Industry Council

Danish Entry System Poster—Keep Disease Out!

(Accessed from the U.S. Poultry and Egg Association website)

http://www.uspoultry.org/animal_husbandry/files/Danish%20Entry%20System%20Poster.pdf.

Danish Entry Principle—The Hog Barn’s Physical Line of Defense

(Accessed from the U.S. Poultry and Egg Association website)

http://www.uspoultry.org/animal_husbandry/files/Danish%20Entry%20Principle.pdf.

United States Department of Agriculture (USDA) Resources

Biosecurity for the Birds

<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian-influenza-disease/birdbiosecurity>.

FAD PReP/NAHEMS Guidelines: Biosecurity

https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_nahems_em_guidelines.

USDA HPAI Biosecurity Checklist

https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/HPAIChecklist.pdf.

U.S. Poultry and Egg Association

Poultry Biosecurity, Poultry Biosecurity Training Materials

Including *Poultry Biosecurity Officer Information Manual*, Perimeter Buffer Area, Line of Separation, and signage

<http://www.poultrybiosecurity.org/>.

Attachment 9.J Abbreviations

AI	avian influenza
APHIS	Animal and Plant Health Inspection Service
ARP	At-Risk Premises
BZ	Buffer Zone
C&D	cleaning and disinfection
CA	Control Area
CAHFS	Center for Animal Health and Food Safety
CFSPH	Center for Food Security and Public Health
COR	Contracting Officer's Representative
CP	Contact Premises
CRZ	Contamination Reduction Zone
EDI	Emerging Disease Incidents
EMRS2	Emergency Response Management System 2.0
EPA	Environmental Protection Agency
EPI	epidemiology
EZ	Exclusion Zone
FA	Free Area
FAD	foreign animal disease
FAD PReP	Foreign Animal Disease Preparedness and Response Plan
FADD	foreign animal disease diagnostician
FP	Free Premises
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
HPAI	highly pathogenic avian influenza
ICS	Incident Command System
IIAD	Institute for Infectious Animal Diseases
IMT	Incident Management Team
IP	Infected Premises
IZ	Infected Zone
LOS	Line of Separation
MP	Monitored Premises
NAHEMS	National Animal Health Emergency Management System
PBA	Perimeter Buffer Area
PIO	Public Information Officer
PPE	personal protective equipment

PVZ	Protection Vaccination Zone
SBS	Secure Beef Supply or Secure Broiler Supply
SES	Secure Egg Supply
SME	subject matter expert
SMS	Secure Milk Supply
SOP	standard operating procedures
SP	Suspect Premises
SPS	Secure Pork Supply or Secure Poultry Supply
STS	Secure Turkey Supply
SZ	Support Zone
USDA	United States Department of Agriculture
VP	Vaccinated Premises
VS	Veterinary Services
VZ	Vaccination Zone