

**CLASSICAL SWINE FEVER
RESPONSE PLAN**
THE RED BOOK

FAD PReP

**Foreign Animal Disease
Preparedness & Response Plan**

**National Center for Animal
Health Emergency Management**



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

MAY 2013



May 15, 2013
USDA APHIS, Veterinary Services
Preparedness and Incident Coordination Staff

This version of the *USDA APHIS CSF Response Plan: The Red Book (May 2013)* has been updated according to comments received on the prior version and revisions to the current Foreign Animal Disease Preparedness and Response Plan (FAD PReP) materials that are referenced here. The following list summarizes the important changes that were made in 2013.

- Reflects 2012 OIE Terrestrial Animal Health Code.
- Revisions in Chapter 4 to improve understanding of the differences between vaccination strategies.
- Revisions to ensure consistency with other existing response plans and strategic documents.
- Corrections and clarifications made in response to comments throughout the plan.

This plan will continue to be reviewed as needed. We realize that preparing for and responding to a CSF outbreak will be a complex effort, requiring collaboration for multiple stakeholders. As such, we will continue to accept comments on the *CSF Response Plan* for incorporation into future versions.



The Foreign Animal Disease Preparedness and Response Plan (FAD PReP) mission is to raise awareness, define expectations, and improve capabilities for FAD preparedness and response.

For more information, please go to:

<http://www.aphis.usda.gov/fadprep>

<http://inside.aphis.usda.gov/vs/em/fadprep.shtml> (APHIS employees)

or e-mail FAD.PReP.Comments@aphis.usda.gov

Executive Summary

This *Classical Swine Fever (CSF) Response Plan: The Red Book (2013)* incorporates comments received on the *CSF Response Plan: The Red Book (2012)* as well as updates to other current Foreign Animal Disease Preparedness and Response Plan (FAD PReP) materials. The objectives of this plan are to identify (1) the capabilities needed to respond to a CSF outbreak and (2) the critical activities that will be involved in responding to that outbreak, and time-frames for these activities. These critical activities are the responsibility of Incident Command in an outbreak situation.

This plan promotes agricultural security, secures the food supply, guards animal health, and protects public health and the environment by providing strategic guidance on responding to a CSF outbreak. Developed by the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS), the plan gives direction to emergency responders at the local, State, Tribal, and Federal levels to facilitate CSF control and eradication efforts in swine in the United States. This plan complements, not replaces, existing regional, State, Tribal, local, and industry plans.

CSF is a highly contagious viral disease of swine, including wild (feral) pigs. The United States eradicated CSF in 1978, but it continues to be prevalent throughout most of the world. CSF is easily spread through direct contact between infected and susceptible swine, contaminated fomites, as well as swine consuming insufficiently cooked swill. A CSF outbreak in the United States would have a significant economic impact and lasting trade repercussions to swine and pork industries. CSF is not a threat to public health.

The goals of a CSF response are to (1) detect, control, and contain CSF in domestic swine as quickly as possible; (2) eradicate CSF using strategies that seek to stabilize animal agriculture, the food supply, the economy, and protect public health and the environment; and (3) provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected swine and non-contaminated pork products.

Achieving these three goals will allow individual swine facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain CSF-free status without the response effort causing more disruption and damage than the disease outbreak itself.

Four key outbreak response strategies, which are not mutually exclusive, are detailed in this plan. These strategies are stamping-out, stamping-out modified with emergency vaccination to kill, stamping-out modified with emergency

vaccination to slaughter, and stamping-out modified with emergency vaccination to live.

During a CSF outbreak response effort, many activities—such as epidemiology, surveillance, biosecurity, quarantine and movement control, and depopulation—must occur in a deliberate, coordinated fashion. In addition to providing strategic direction on these various activities, this plan explains the underlying Incident Command System structure, applying National Response Framework (NRF) and National Incident Management System (NIMS) principles and systems to control and eradicate an outbreak of CSF in domestic swine.

Incorporating current scientific knowledge and policy guidance on CSF, this plan does the following:

- ◆ Identifies the audience for and purpose of the document.
- ◆ Provides technical information on CSF and the impact a CSF outbreak could have in the United States.
- ◆ Explains the integration of the NRF, NIMS, and other FAD PReP documents.
- ◆ Describes USDA preparedness and response activities, both domestic and international, including the APHIS Incident Management Structure.
- ◆ Presents 23 critical activities and tools, such as case definitions, surveillance, diagnostics, cleaning and disinfection, health and safety and personal protective equipment, and depopulation.
- ◆ Details the World Organization for Animal Health standards for CSF surveillance, virus inactivation, and disease freedom.
- ◆ Supplies information on proof-of-freedom procedures and restocking after a CSF outbreak.

This response plan is carefully integrated with other FAD PReP documents, including the CSF Standard Operating Procedures, and National Animal Health Emergency Management System Guidelines. Together, these documents provide a comprehensive preparedness and response framework for a CSF outbreak.

This plan is a dynamic document that will be updated and revised on the basis of future knowledge and stakeholder input. Your comments and recommendations on this document are invited. Please send them to the following e-mail address: FAD.PReP.Comments@aphis.usda.gov.

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Preface

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP)—*Classical Swine Fever (CSF) Response Plan: The Red Book* provides strategic guidance for responding to an animal health emergency caused by CSF in the United States. The *CSF Response Plan (2013)* replaces previous CSF summary response plans. Information in this plan may require further discussion and development with stakeholders.

This *CSF Response Plan* is under ongoing review. This document was last updated in **May 2013**. Please send questions or comments to the following:

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Chapter 1

Introduction and CSF Information

1.1 INTRODUCTION TO RESPONSE PLAN

This *Classical Swine Fever (CSF) Response Plan: The Red Book (May 2013)* incorporates comments on the *CSF Response Plan: The Red Book (draft June 2012)* and has been updated significantly from prior CSF response documents. The objectives of this plan are to identify the (1) capabilities needed to respond to a CSF outbreak and (2) critical activities that will be involved in responding to that outbreak and time-frames for these activities. These critical activities will be the responsibility of the Incident Command (IC) in an outbreak situation.

To achieve these objectives, this plan provides current information on CSF and its relevance to the United States, and presents the organizational strategy for an effective CSF response. In addition, it offers guidance on four key, but not mutually exclusive, outbreak response strategies. This plan also contains updated strategic guidance on 23 critical response activities and tools, such as disposal, appraisal and compensation, and quarantine and movement control. As indicated by links throughout the document, this plan is integrated and coordinated with other new and forthcoming Foreign Animal Disease Preparedness and Response Plan (FAD PRoP) documents such as standard operating procedures (SOPs), National Animal Health Emergency Management System (NAHEMS) Guidelines, and existing Animal and Plant Health Inspection Service (APHIS) Guidance. ([Appendix A](#) provides a list of documents related to CSF outbreak response and an overview of FAD PRoP.)

This plan does not replace existing regional, State, Tribal, local, or industry preparedness and response plans relating to CSF. Regional, State, Tribal, local, and industry plans should be aimed at more specific issues in CSF response. In particular, States should develop response plans focused on the specific characteristics of the State and its swine industry.

CSF is a highly contagious viral disease of swine, including wild (feral) swine. There are different forms of CSF: acute, subacute, and chronic. High fever, depression, and gastrointestinal signs are the most common symptoms of CSF infection. Skin hemorrhages can occur, particularly toward the end of the disease. CSF is not a public health risk. CSF is a high priority concern for the U.S. Department of Agriculture (USDA) APHIS.

The United States eradicated CSF in 1978. However, the disease is still prevalent worldwide. The United States has approximately 66 million swine that would be susceptible to CSF, as well as feral swine.

An outbreak of CSF in the United States would have a significant economic impact, considering the loss of international trade, as well as costs directly associated with depopulation, disposal, and disinfection. There would be significant costs related to lost production.

1.2 PURPOSE OF DOCUMENT

This plan provides strategic guidance for USDA APHIS and responders at all levels to follow in the event of a CSF outbreak. It provides current policy information and a strategic framework for the control and eradication of CSF, should an outbreak occur in the United States.

1.3 AUDIENCE

This document is intended for animal health emergency responders at all levels of government, as well as industry partners. It provides strategic guidance and offers additional resources for tactical information for responders and other individuals who will act during a CSF outbreak.

1.4 CSF INFORMATION

These sections provide an overview of CSF and cover the following subjects:

- ◆ Etiology
- ◆ History and global distribution
- ◆ Impact of a CSF outbreak
- ◆ Ecology
- ◆ Diagnosis
- ◆ Immunity.

Further information on CSF can be found in the CSF Overview of Etiology and Ecology SOP. [Chapter 5](#) of this plan includes the current case and laboratory definitions for CSF.

1.4.1 Etiology

The classical swine fever virus (CSFV) is a *Pestivirus* in the family Flaviviridae. CSFV is the etiologic agent of a highly contagious viral disease of domestic pigs¹

¹ The World Organization for Animal Health (OIE) defines CSF, for purposes of international trade, “as an infection of domestic pigs.” OIE, Article 15.2.1. “General Provisions.” *Terrestrial Animal Health Code, 2012*, www.oie.int.

and wild boar. CSF is also known as hog cholera, peste du porc, cólera porcina, and virusschweinepest.

1.4.2 History and Global Distribution

CSF was first recognized in the United States in 1833. During the last two decades, more than 60 countries have experienced CSF outbreaks. APHIS maintains a [list](#) of countries/regions considered “Free or Low Risk of CSF.” The United States eradicated CSF in 1978; Canada last reported a case in 1963.

In the last 2 years, the OIE reports that CSFV has been present in Bhutan, Bolivia, Cambodia, China, Cuba, Ecuador, Guatemala, Haiti, Hungary, India, Indonesia, Latvia, Lithuania, Madagascar, Mongolia, Nepal, Peru, Philippines, Russia, Serbia, Thailand, and Vietnam.

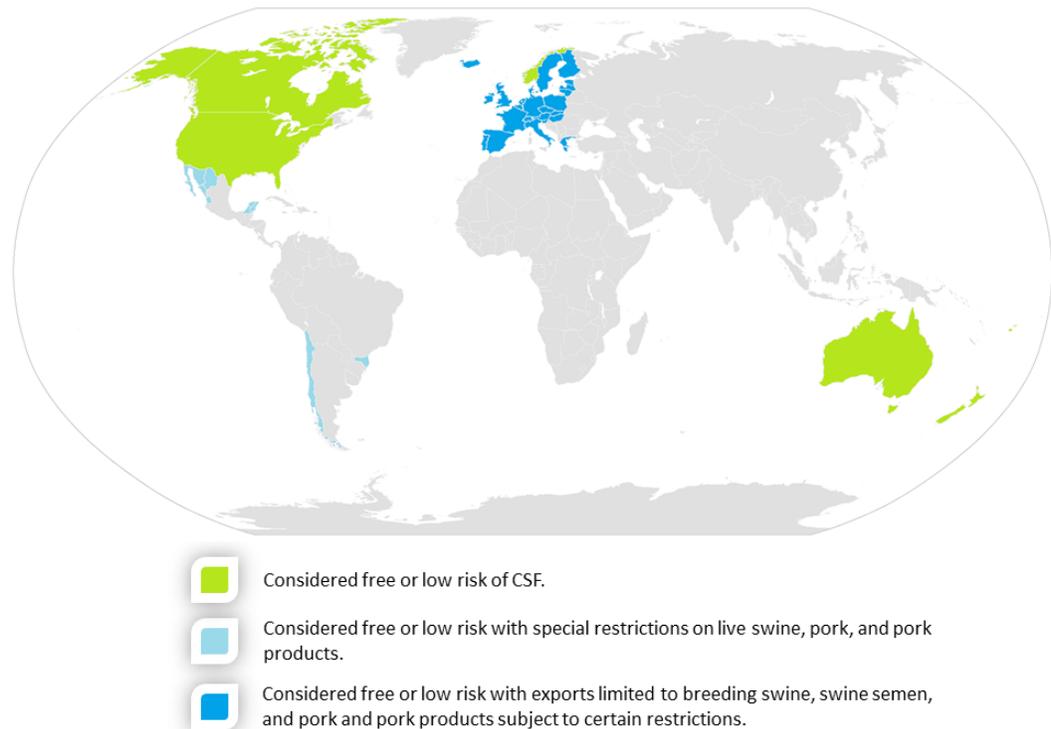
Although the United States has been CSF-free since 1978, there is a risk of CSF introduction into the United States through international travel and trade. With millions of swine, and a significant production industry, CSF is a critical threat to the United States. CSF can be transmitted over long distances by contaminated fomites and people. Feeding swine insufficiently cooked swill is one of the most common ways CSF is introduced to healthy swine populations. CSFV is also considered a potential agent for agricultural terrorism.

1.4.3 International Trade

The USDA maintains a [list](#) of countries and regions that are considered free or low risk of CSF in 9 Code of Federal Regulations (CFR) 94.9 and 94.10 (Figure 1-1). In addition, the United States places special restrictions under 9 CFR 94.25 for live swine, pork, and pork products from certain countries and regions that are free from CSF, but which one or more of the following conditions occur:

1. They supplement their pork supplies with fresh (chilled or frozen) pork imported from regions designated in §§94.9 and 94.10 as being affected by CSF; or
2. They supplement their pork supplies with pork from CSF-affected regions that is not processed in accordance with the requirements of part 94; or
3. They share a common land border with CSF-affected regions; or
4. They import live swine from CSF-affected regions under conditions less restrictive than would be acceptable for importation into the United States.

Figure 1-1. Countries/Regions that the United States Considers as Free or Low Risk of Classical Swine Fever (CSF)



1.4.4 Impact of a CSF Outbreak

1.4.4.1 ECONOMIC

A 1997–1998 outbreak in the Netherlands cost an estimated \$2 billion and 11 million swine were euthanized.^{2,3} A U.S. outbreak would have a significant economic impact on the pork export market, with many exports of pork and pork products being halted for a significant period of time. In addition, a CSF response effort would involve direct costs for depopulation, indemnity payments, animal disposal, disinfection, and movement control measures. Additional indirect costs would be incurred by consumers and related sectors of the economy, such as feed producers and suppliers. Any CSF outbreak in the United States would have a sizeable and lingering economic impact.

1.4.4.2 PUBLIC HEALTH IMPLICATIONS

CSF is *not* considered a public health problem. Humans do not contract CSFV. A CSF outbreak *may* have public health implications from the mental health effects

² Stegeman, A., Elbers, A., de Smit H., Moser, H., Smak, J., Pluimers, F. 2000. The 1997–1998 epidemic of classical swine fever in the Netherlands. *Veterinary Microbiology*. 73, 183–196.

³ Terpstra, C. and de Smit, AJ. 2000. The 1997/1998 epizootic of swine fever in the Netherlands: control strategies under a non-vaccination regimen. *Veterinary Microbiology*. 77, 3–15.

on personnel and individuals associated with the response effort, particularly depopulation and disposal. The effects of a CSF outbreak on mental health may include post-traumatic stress disorder and depression. Support should be made available to those involved, particularly responders and owners of affected livestock.

1.4.5 Ecology

The CSFV infects domestic and wild swine (*Sus domestica* and *Sus scrofa domestica*, respectively). European wild boars, Peccaries (also known as javelinas), and feral swine in general are also susceptible, but it is unclear what epidemiological role these animals play in CSF transmission.

1.4.5.1 RESERVOIRS

The only natural reservoir of CSFV is swine and wild boars, though wild boars may not be a significant reservoir in many cases. Swine can become chronically infected and shed virus for several months. Carrier swine may not show signs of disease. If sows are infected with a mild CSFV strain, they may shed the virus when giving birth. This results in “carrier-sows,” in which their offspring may be carriers of the disease.⁴

1.4.5.2 INTRODUCTION AND TRANSMISSION OF CSF

CSFV is primarily introduced through direct contact with infected animals, contaminated fomites, and feeding on contaminated swill. Wild swine may infect domestic animals. CSFV is highly contagious, and shed in oronasal and lachrymal discharges, semen, blood, urine, feces, and other secretions of infected pigs. CSF can be shed prior to the onset of clinical symptoms.

Feeding contaminated and/or improperly cooked waste food (swill) to swine is one of the most common ways to introduce CSFV (both domestically and internationally) from infected to health swine populations.

CSFV is easily spread through the movement of contaminated fomites, including conveyances (for example, trucks), and personnel. Insects and birds may mechanically introduce CSFV to healthy populations. Short distance airborne transmission has occurred from small areas containing large numbers of infected swine.

1.4.5.3 PERSISTENCE IN ENVIRONMENT AND ANIMAL PRODUCTS

CSFV does not persist in natural environments for long periods of time, as it is adversely affected and easily inactivated by both low and high temperatures. In

⁴ Merck Veterinary Manual, 2008. “Classical swine fever.”
<http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/53400.htm&word=classical%2cswine%2cfever>.

processed meat, CSFV can survive for months in refrigerated meat, and years in frozen meat. It can also survive for approximately 2–6 weeks in salt-cured and smoked meats. The CSFV is susceptible to both acid and alkaline pH, and is quickly inactivated by pH < 3.0 and pH > 11.0.⁵ CSF is susceptible to chlorine-based disinfectants, as well as ether and chloroform.

The OIE recommends that countries importing fresh meat of domestic swine from countries, zones, or compartments free of CSF, that the animals have been kept in a CSF-free zone or compartment and slaughtered in an approved abattoir, where ante- and post-mortem inspections have not indicated CSF.⁶ Meat can be heat treated to kill the virus by heating the meat to a minimum temperature of 70°C or heat treatment in a hermetically sealed container with a F₀ value of 3.00 or more.⁷

CSFV can also persist in products of swine origin, bristles, and skins. Please refer to the CSF Overview of Etiology and Ecology SOP for further information, as well as the OIE *Terrestrial Animal Health Code (2012)* (www.oie.int).

1.4.6 Diagnosis

Producers as well as veterinarians should be familiar with signs of the disease, as they may be the initial detectors of a CSF outbreak. The incubation period is typically 2–14 days, as defined in the OIE *Terrestrial Animal Health Code (2012)*, though experimental data provides evidence that the incubation period will depend on the dose of the virus and the route of infection.

Clinical presentation and pathological findings vary depending on the form of the CSF infection. The three clinical presentations—acute, chronic, and congenital—are dependent on factors including the strain of the virus (and its virulence), previous exposure to the virus, and host factors such as age and health status.

1.4.6.1 ACUTE FORM OF DISEASE

1.4.6.1.1 Clinical Signs

Common clinical signs of infection with an acute form of CSF include the following:

- ◆ Pyrexia
- ◆ Anorexia

⁵ OIE, *Classical swine fever*, Technical Disease Card, 2009, www.oie.int.

⁶ OIE, Article 15.2.12. “Recommendations for importation from countries, zones or compartments free of CSF.” *Terrestrial Animal Health Code, 2012*, www.oie.int.

⁷ F₀ is a measure of heat treatment; it is equivalent to heating for one minute at 121.1°C. OIE, Article 15.2.21. “Procedures for the inactivation of CSF virus in meat,” *Terrestrial Animal Health Code, 2012*. www.oie.int.

- ◆ Severe leucopenia
- ◆ Multifocal hyperemia and/or hemorrhagic lesions of the skin
- ◆ Conjunctivitis
- ◆ Cyanosis of extremities
- ◆ Ataxia, paresis, and convulsions
- ◆ Huddling together of swine.

Death typically occurs 5–25 days after onset of illness. Mortality in young swine can reach 100 percent.

1.4.6.1.2 Pathological Findings

Some common pathological findings observed in acute forms of CSF disease in necropsy include the following:

- ◆ Severe tonsillitis
- ◆ Hemorrhagic lymph nodes
- ◆ Petechia
- ◆ Multifocal infarction of the margin of the spleen.

1.4.6.2 CHRONIC FORM OF DISEASE

1.4.6.2.1 Clinical Signs

Possible clinical signs of infection with the chronic form of CSF include the following:

- ◆ Pyrexia
- ◆ Weight loss
- ◆ Periods of constipation or diarrhea
- ◆ Stunted growth.

Animals typically appear to recover and then relapse, typically dying within 1–3 months. The death rate varies, but can be low.

1.4.6.2.2 Pathological Findings

Some common pathological findings in chronic CSF cases include the following:

- ◆ Button ulcers
- ◆ Depletion of lymphoid tissue
- ◆ Possible bone lesions in growing swine.

Pathological lesions are more severe in the acute form of the disease. For pictures of CSF lesions, see <http://www.cfsph.iastate.edu/DiseaseInfo/disease-images.php?name=classical-swine-fever&lang=en>.

1.4.6.3 CONGENITAL

1.4.6.3.1 Clinical Signs

Possible signs of congenital infection include the following:

- ◆ Reduced reproductive performance
- ◆ Abortions
- ◆ Congenital tremors
- ◆ Stillbirths
- ◆ Resorption
- ◆ Mummification
- ◆ Weak piglets.

1.4.6.4 DIFFERENTIAL DIAGNOSES

Among other diseases, African swine fever, salmonellosis, erysipelas, acute pasteurellosis, streptococcosis, leptospirosis, and coumarin poisoning all are clinically indistinguishable from CSF, depending on the stage of the disease.

Other viruses that may be considered in a differential diagnosis include pseudorabies, parvovirus, porcine dermatitis and nephropathy syndrome, porcine circovirus-associated disease, post-weaning multisystemic wasting syndrome, and thrombocytopenic purpura.

1.4.7 Immunity

1.4.7.1 NATURAL INFECTION

Uninfected swine are totally susceptible to CSF. CSFV significantly compromises the immune system. As a consequence, immune response is delayed and virus neutralizing antibodies usually do not develop until after the third week of illness. Swine that have recovered from CSF may become carriers of the virus for a sustained period of time. Sows that are seropositive do transmit antibodies to their offspring. While this passive immunity does protect piglets against mortality, offspring sometimes become carriers and shed CSFV.

1.4.7.2 VACCINATION

Live-attenuated vaccines are the most widely-used vaccines for the control of CSF in countries where the disease is endemic. Bait versions have also been developed for wild swine. Problematically, these vaccines result in immunized swine that produce the same antibodies as CSF field-infected animals, making it not possible to differentiate infected and vaccinated animals (also known as DIVA). Subsequently, marker vaccines have been developed; these vaccines permit the diagnostic DIVA. However, marker vaccines are not as effective at preventing CSF transmission, and more than one injection is necessary for sufficient immunity. However, this diagnostic DIVA capability is critical for an effective emergency vaccination campaign and maintaining continuity of business.

Emergency vaccination and DIVA are further discussed later in this document and also in the *NAHEMS Guidelines: Vaccination for Contagious Diseases*, including *Appendix B: Vaccination for Classical Swine Fever*.

Chapter 2

Framework for CSF Preparedness and Response

2.1 NATIONAL RESPONSE FRAMEWORK, NATIONAL INCIDENT MANAGEMENT SYSTEM, AND NATIONAL ANIMAL HEALTH EMERGENCY MANAGEMENT SYSTEM INTEGRATION

Successful emergency preparedness for and response to CSF requires integration between the National Response Framework (NRF), National Incident Management System (NIMS), and NAHEMS. This CSF-specific plan fits into this hierarchy to provide more detailed information and specific direction on response requirements in the event of a CSF outbreak in the United States.

2.1.1 National Response Framework

The NRF is a guide to how the Nation conducts all-hazards response. It describes specific authorities and establishes a comprehensive approach for responding to domestic incidents that range from serious but purely local events to large-scale terrorist attacks or catastrophic natural disasters. It builds on NIMS, which provides a consistent template for managing incidents. The NRF is available from <http://www.fema.gov/emergency/nrf/>.

2.1.2 National Incident Management System

NIMS, a companion document to the NRF, provides a systematic, nationwide, proactive approach guiding departments and agencies at all levels of government, the private sector, and non-governmental organizations. Its goal is to help these organizations work seamlessly to prepare for, prevent, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, to reduce the loss of life, liberty, property, and harm to the environment. NIMS provides a core set of concepts, principles, procedures, organizational processes, terminology, and standard requirements. NIMS information is available at <http://www.fema.gov/emergency/nims/>.

NIMS consists of five key components:

1. A set of preparedness concepts and principles for all hazards;

-
2. Essential principles for a common operating picture and interoperability of communications and information management;
 3. Standardized resource management procedures that enable coordination among different jurisdictions or organizations;
 4. Scalability, for use in all incidents (ranging from day to day to large scale); and
 5. A dynamic system that promotes ongoing management and maintenance.

2.1.3 National Animal Health Emergency Management System

APHIS and its stakeholders established NAHEMS to provide a functional framework for responding to foreign animal disease (FAD) emergencies through NAHEMS Guidelines, disease response plans (such as this CSF-specific plan), SOPs, and other associated documents. The purpose of the NAHEMS Guidelines is to ensure a successful response commensurate with the severity of the outbreak. Federal, State, and local agencies; Tribal nations; and other groups involved in animal health emergency management activities should integrate the information provided in NAHEMS Guidelines into their preparedness plans.

NAHEMS Guidelines (and other FAD PReP documents) offer

- ◆ competent veterinary guidance on cleaning and disinfection, disposal, mass depopulation, and other activities;
- ◆ information on disease control and eradication strategies and principles;
- ◆ guidance on health, safety, and personal protective equipment (PPE) issues;
- ◆ biosecurity information and site-specific management strategies; and
- ◆ training and educational resources.

In particular, NAHEMS Guidelines provide a foundation for coordinated national, regional, State, Tribal, and local activities in an emergency situation. These guidelines serve as a practical guide and complement non-Federal preparedness activities.

These NAHEMS Guidelines can be found at <http://inside.aphis.usda.gov/vs/em/fadprep.shtml> for APHIS employees, and here for the public: <http://www.aphis.usda.gov/fadprep>.

2.1.4 Coordination and Collaboration

This *CSF Response Plan* is coordinated with the other FAD PReP documents, which follow NRF and NIMS. This document provides strategic guidance for responding to a CSF outbreak. Other FAD PReP documents provide information on general veterinary activities and include industry or facility manuals for industry stakeholders as well as SOPs for planners and responders. Together, these documents provide strategic and tactical details for Federal, State, Tribal, and local officials that are useful for CSF preparedness and response.

Building on existing planning and response relationships, raising awareness on critical issues, and collaborating to address significant problems are key goals of FAD PReP efforts. Exercises and real events can improve CSF preparedness and response planning and collaboration.

2.2 FEDERAL ROLES, RESPONSIBILITIES, AND PLANNING ASSUMPTIONS

2.2.1 Overview

Understanding the roles and responsibilities of Federal departments or agencies involved in responding to a domestic incident of an FAD promotes an effective, coordinated emergency response. The subsection that follows describes the roles, responsibilities, and authority of USDA in a CSF response. The functions described are consistent with the roles and responsibilities outlined in the NRF.

Federal response to the detection of an FAD such as CSF is based on the response structure of NIMS as outlined in the NRF. The NRF defines Federal departmental responsibilities for sector-specific responses. During the course of a CSF outbreak response, the USDA may request Federal-to-Federal support (FFS) from other Federal departments and agencies. FFS refers to the circumstance in which a Federal department or agency requests Federal resource support under the NRF that is not addressed by the Stafford Act or another mechanism.

2.2.2 USDA Roles and Responsibilities Overview

As the primary Federal agency for incident management during an FAD event of livestock, like a CSF outbreak, USDA coordinates Incident Management Teams (IMTs), manages incident response, manages public messages, and takes measures to control and eradicate CSF. Measures used to control and eradicate CSF include quarantine and movement control, epidemiologic investigation, appraisal and compensation, depopulation (euthanasia) of affected livestock, carcass disposal, cleaning and disinfection, active surveillance for additional cases, diagnostics, and potentially, emergency vaccination.

The USDA performs the coordination role in Emergency Support Function (ESF) #11—Agriculture and Natural Resources—under the NRF. Under ESF #11, APHIS is responsible for detecting “animal disease anomalies” and providing “technical assistance as requested on pet/animal and agricultural issues.” As stated in ESF #11, USDA “responds to animal and agricultural health emergencies under USDA statutory authority.”

USDA (not including the additional ESF responsibilities carried by the U.S. Forest Service, which is part of USDA) also plays supporting roles in the following ESFs:

- ◆ ESF #3—Public Works and Engineering
- ◆ ESF #5—Information and Planning
- ◆ ESF #6—Mass Care, Emergency Assistance, Temporary Housing, and Human Services
- ◆ ESF #7—Logistics
- ◆ ESF #8—Public Health and Medical Services
- ◆ ESF #10—Oil and Hazardous Materials Response
- ◆ ESF #12—Energy
- ◆ ESF #15—External Affairs.

During the course of a CSF outbreak response, USDA may request support as necessary from other Federal agencies. If the President declares an emergency or major disaster, or if the Secretary of Agriculture requests the Department of Homeland Security (DHS) lead coordination, the Secretary of Homeland Security and DHS assume the lead for coordinating Federal resources. USDA maintains the lead of overall incident management.

For more information on the roles of other Federal agencies, such as the Departments of Health and Human Services (HHS) and the Interior (DOI), in the event of a CSF outbreak, see the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0) and *APHIS Foreign Animal Disease Framework: Response Strategies* (FAD PReP Manual 2-0). [[Appendix B](#) of this plan contains an organizational chart showing the coordination between DHS/Federal Emergency Management Agency (FEMA) and USDA in the event of a major CSF outbreak.]

2.3 AUTHORITY

The Animal Health Protection Act (AHPA), 7 *U.S. Code* 8301 et seq., authorizes the Secretary of Agriculture to restrict the importation, entry, or further movement in the United States or order the destruction or removal of animals and related conveyances and facilities to prevent the introduction or dissemination of livestock pests or diseases. It authorizes related activities with respect to exportation, interstate movement, cooperative agreements, enforcement and penalties, seizure, quarantine, and disease and pest eradication. The Act also authorizes the Secretary to establish a veterinary accreditation program and enter into reimbursable fee agreements for pre-clearance abroad of animals or articles for movement into the United States.

Section 421 of the Homeland Security Act, 6 *U.S. Code* 231 transfers to the Secretary of Homeland Security certain agricultural import and entry inspection functions under the AHPA, including the authority to enforce the prohibitions or restrictions imposed by USDA.

The Secretary of Agriculture has the authority to cooperate with other Federal agencies, States, or political subdivisions of States, national or local governments of foreign governments, domestic or international organizations or associations, Tribal nations, and other persons to prevent, detect, control, or eradicate CSF. If measures taken by a State or Indian Tribe to control or eradicate a pest or disease of livestock are inadequate, the AHPA authorizes the Secretary, after notice to and review and consultation with certain State or Tribal officials, to declare that an extraordinary emergency exists because of the presence in the United States of a pest or disease of livestock that threatens the livestock of the United States (7 *U.S. Code* 8306).

For further information on USDA APHIS authorities, see the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0) at <http://www.aphis.usda.gov/fadprep>.

Chapter 3

USDA CSF Preparedness and Response

3.1 USDA

USDA APHIS is the Federal agency with primary responsibility and authority for animal disease control and will interface with Federal, State, Tribal, and local partners in CSF eradication and control efforts. If the President declares an emergency or major disaster, or if the Secretary of Agriculture requests that DHS lead coordination, the Secretary of Homeland Security and DHS leads the coordination of FFS and Federal resources for the incident while USDA maintains the lead of overall incident management.

USDA is the primary Federal liaison to the U.S. animal industry. In addition, it operates the National Veterinary Services Laboratories (NVSL), including the Foreign Animal Disease Diagnostic Laboratory (FADDL).

The following subsections detail USDA activities to prepare for a CSF outbreak.

3.1.1 Preparedness Exercises

Preparedness and response exercises help ensure our Nation is able to respond quickly and effectively to a CSF outbreak. They are an ideal, no-fault learning environment to discuss, practice, and implement plans, procedures, and processes in advance of an actual event. APHIS exercises are conducted in accordance with Homeland Security Exercise and Evaluation Program guidance.

Multiple preparedness exercises have been conducted to simulate an FAD outbreak and response effort in the United States. These exercises allow responders to discuss and practice activities relating to this highly contagious animal disease, such as movement control, and to consider the social and economic implications of an FAD outbreak. They help prepare the United States and responders for the difficult decisions that will be made regarding animal depopulation and business continuity.

The NVS has also conducted multiple exercises to assess and test its ability to deliver supplies (including vaccine) and services and State and Tribal ability to receive and stage these items in the event of a FAD outbreak. These exercises have incorporated multiple States, various State agencies, as well as industry and academia to simulate a response effort.

Multi-state exercises have enhanced coordination and collaboration between States and between States and the Federal government. Valuable logistics lessons

have been learned and important recommendations have resulted from the evaluation of these exercises.

3.1.2 Domestic Activities

USDA has a variety of ongoing preparedness and response activities with respect to CSF. Domestically, the USDA prevents the introduction of CSF into the country, conducts proactive surveillance for CSF, and also performs FAD investigations as needed for suspected cases. The following list details a selection of USDA activities:

- ◆ *Smuggling Interdiction and Trade Compliance (SITC)*. SITC conducts risk management and anti-smuggling activities to prevent unlawful entry and distribution of prohibited agricultural commodities. It looks at domestic markets likely to have illegal imported animal products to establish baseline estimates on how much product is bypassing ports of entry.
- ◆ *National Center for Import and Export (NCIE)*. NCIE facilitates international trade, monitoring the health of animals presented at the border as well as regulating the import and export of animals and animal products. Swine typically cannot be imported into the United States from countries where CSF is known to exist (9 CFR 94.10).
- ◆ *CSF surveillance*. USDA, in cooperation with the National Animal Health Laboratory Network (NAHLN), conducts enhanced surveillance for the rapid detection of CSFV. In addition to passive surveillance through FAD investigations of suspected CSF cases, USDA conducts surveillance in high risk swine populations with targeted specimen testing. For example, waste feeding operations and swine condemned by the USDA Food Safety Inspection Service (FSIS) are high risk populations targeted for surveillance.
- ◆ *Other preparedness and disease models*. USDA uses various models to develop computer-generated scenarios for CSF. This allows it to evaluate the potential consequences of CSF in the United States, as well as the countermeasures, materials, and supplies needed for control and eradication.
- ◆ *Emergency veterinary assistance*. USDA will work to assist States in training and maintaining State Incident Management Teams and veterinary reserve corps, such as the National Animal Health Emergency Response Corps, (NAHERC) ([Subsection 3.5](#)). State groups will serve as early response teams for a CSF incident and can educate groups on the signs, symptoms, and reporting procedures.

3.1.3 International Activities

USDA also conducts international activities in support of CSF eradication and to bolster preparedness planning and response capabilities. The following list details a selection of USDA activities:

- ◆ *International coordination.* USDA APHIS collaborates with interagency and international partners to mitigate animal health threats outside the United States through the sharing of information and development of infrastructure. APHIS International Services also collaborates to sponsor CSF eradication programs in other countries.
- ◆ *Emergency veterinary assistance.* USDA APHIS works to provide technical assistance and expertise at a country's request, in the event of an animal health emergency.

3.1.4 International Trade

USDA, in collaboration with the Department of State and the United States Trade Representative, will promptly address foreign governments that impose unjustifiable U.S. swine and pork product trade restrictions because of a CSF outbreak.

USDA overseas embassy offices also have guidance on how to rapidly report trade disruptions to Washington, DC, headquarters and how to help foreign officials respond to such events. Multiple USDA agencies, led by the Foreign Agricultural Service, will coordinate a response to any such trade disruption and communicate with industry in the United States. USDA would also quickly fulfill any official requests for additional scientific information, including case surveillance, movement control measures, and laboratory diagnostics.

These efforts focus on cases where bans are inconsistent with OIE standards. OIE member countries, like the United States, are to “immediately” notify the OIE in any confirmed CSF case, as defined in the OIE *Terrestrial Animal Health Code (2012)*. International standards for CSF *do* allow countries to impose bans on imports from CSF-infected countries and zones.

Countries that the United States considers free or low risk of CSF are listed on the [APHIS Import Export website](#).

3.1.5 Compartmentalization

Another tool that may mitigate the economic consequences of a disease outbreak is compartmentalization. Compartmentalization defines subpopulations of distinct health status by management and husbandry practices, as related to biosecurity. Compartmentalization is best implemented, as suggested by the OIE in the *Terrestrial Animal Health Code (2012)*, by trading partners through the

Terrestrial Animal Health Code (2012), by trading partners through the establishment of parameters and agreement on necessary measures *before a disease outbreak*.

Implementation of compartmentalization will rely on producers, industry, and State and Federal animal health authorities. The importing country must be satisfied that its animal health status is appropriately protected by the biosecurity measures undertaken by the exporting country.

Because of the nature of the CSFV, compartmentalization may be difficult to achieve. Currently, no CSF compartmentalization plans have been internationally accepted or implemented.

Chapters 4.3 and 4.4 of the OIE *Terrestrial Animal Health Code (2012)* explain the concept and application of compartmentalization. More information on compartmentalization can be found in the *NAHEMS Guidelines: Regionalization for International Trade for a U.S. FAD Response*.

3.2 USDA ORGANIZATIONAL STRATEGY

In the event of a CSF outbreak, effective and efficient management of the situation and clear communication pathways will be critical. A synchronized management and organizational structure will help to support the control and eradication actions. Accordingly, APHIS has adopted NIMS and Incident Command System (ICS) organizational structures to manage the response to a CSF outbreak. The ICS is designed to enable efficient and effective domestic incident management by integrating facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. The next section discusses the APHIS incident management organizational structure.

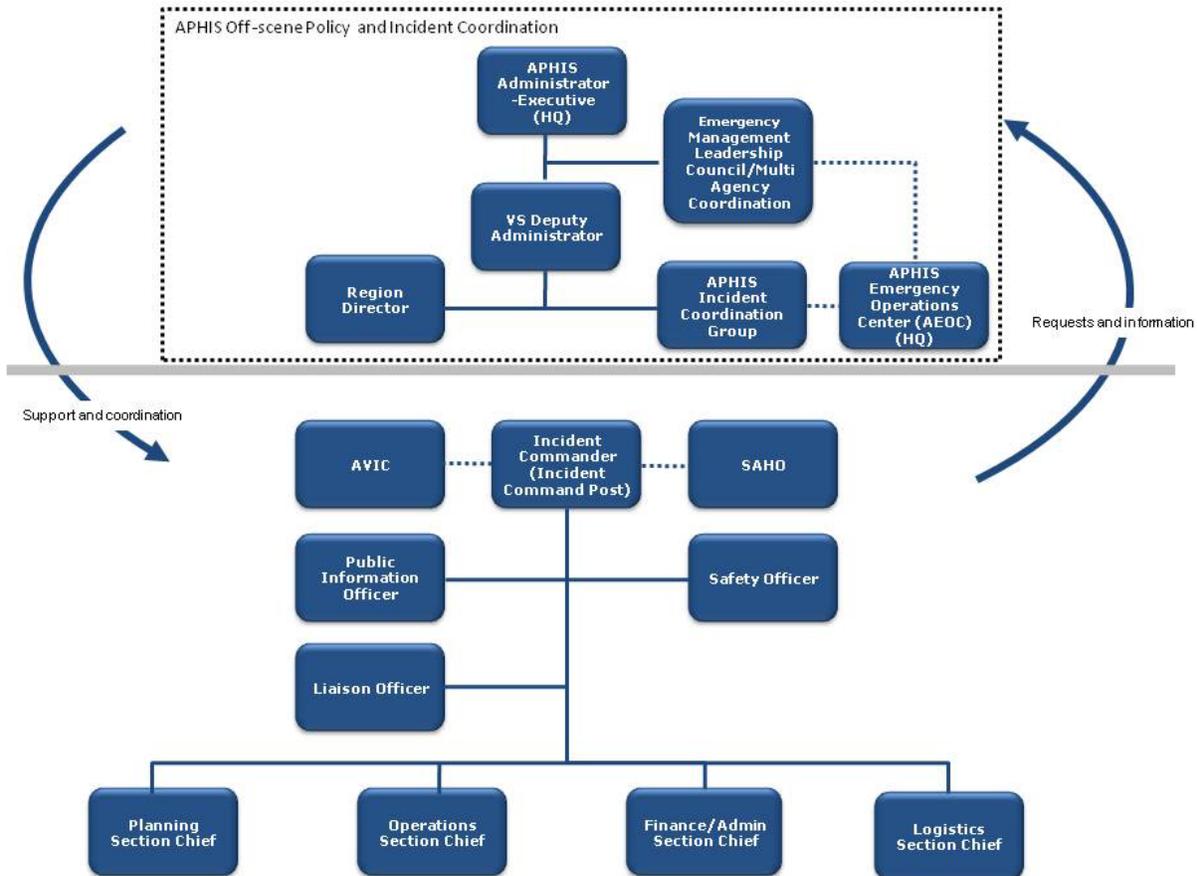
3.3 APHIS INCIDENT MANAGEMENT STRUCTURE

The APHIS Administrator is the Federal executive responsible for implementing APHIS policy during a CSF outbreak. The APHIS Administrator will delegate much of the actual multiagency coordination (MAC) functions to the Veterinary Services (VS) Deputy Administrator, who is the Chief Veterinary Officer (CVO) of the United States, and the APHIS Emergency Management Leadership Council (EMLC).

The VS Deputy Administrator and EMLC will establish an APHIS Incident Coordination Group (ICG) to oversee the staff functions associated with the incident at the APHIS headquarters level. The APHIS ICG will work closely with the personnel in charge of establishing operations for the incident response at the Area Command (AC) or Incident Command Post (ICP) in the field and coordinate with the APHIS MAC Group.

Figure 3-1 displays the APHIS FAD incident management organizational structure, starting with the APHIS Administrator.

Figure 3-1. APHIS Multiagency Coordination Structures and APHIS Emergency Operations Center: Relationship to Incident Management Team (Assuming Single Incident)



Note: AVIC = Area Veterinarian in Charge; SAHO = State Animal Health Official.

The following subsections describe the MAC Group and APHIS ICG, as well as the APHIS organization for single and multiple events. (Appendix B contains further information and organizational diagrams describing APHIS’s Incident Management Structure.) Also, see the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0) and *NCAHEM Incident Coordination Group Plan*.

3.3.1 Multiagency Coordination Group

The APHIS *Emergency Mobilization Guide* defines coordination for CSF responses at the APHIS level. In the event of a CSF outbreak, the EMLC typically serves as the APHIS MAC Group, unless the members decide to transfer responsibility for a specific incident (please see Appendix B for a list of EMLC members). The APHIS MAC Group structure is adaptable and easily expands and contracts to provide flexibility. The MAC Group—formed if the CSF response

needs more support—establishes supportive relationships among the agencies preparing for and responding to a CSF outbreak.

The APHIS MAC Group offers guidance on the most efficient way to allocate resources during a CSF outbreak. General functions of the group include

- ◆ incident prioritization,
- ◆ resource allocation and acquisition, and
- ◆ identification and resolution of issues common to all parties.

If additional support is needed, particularly in the event there are significant threats or consequences to public health and welfare, the natural environment, or the economy, the USDA may also stand up other MAC Groups, which may be composed of representatives from other programs and agencies.

3.3.2 APHIS Incident Coordination Group

The APHIS ICG is responsible for acquiring resources, formulating policy options, and assisting in implementing response and recovery strategies for a CSF outbreak. For additional information, see the *NCAHEM Incident Coordination Group Plan*. APHIS ICG responsibilities in a CSF outbreak include

- ◆ providing guidance to ensure responder and public health and safety,
- ◆ supporting ICP(s) and AC(s),
- ◆ assisting in coordinating resources and integrating response organizations into the ICS, and
- ◆ providing information to the Joint Information Center (JIC) for use in media and stakeholder briefings.

3.3.3 Organization for a Single Incident

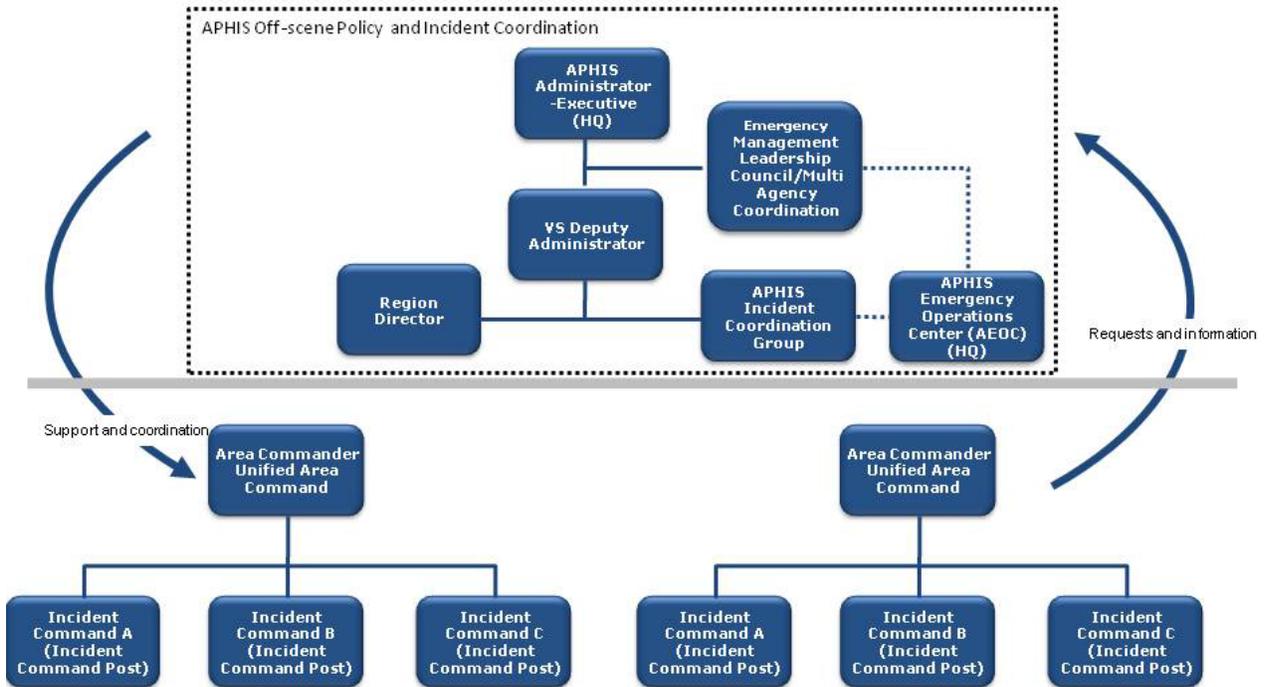
In the event of a single CSF incident, the SAHO or designee, and AVIC or designee, will initially serve as the Co-Incident Commanders for the Unified IC. The AVIC and SAHO may be relieved by a VS Incident Management Team if there is a delegation of authority.

3.3.4 Organization for Multiple Incidents

When more than one CSF incident happens simultaneously, more than one ICP may be established. An AC may also be established. The VS Region Director will establish a Unified AC, and the Area Commander will be responsible for managing the multiple incidents. The AVIC and SAHO for each incident (or the

Incident Management Team) will report to the AC. Figure 3-2 shows the organization for multiple incidents.

Figure 3-2. APHIS Multiagency Coordination Structures and APHIS Emergency Operations Center: Relationship to Multiple Incident Management Team Structures (Assuming Multiple Incidents and Unified Area Command)



If the emergency response becomes too complex for a single APHIS MAC Group to handle efficiently—for example, a large multistate CSF incident with numerous response activities—cooperation with other agencies or committees will be implemented. As stated previously, this is referred to as MAC. Other MAC Groups would likely be stood up. These groups, comprised of representatives from across USDA sub-agencies or other government agencies, would make decisions regarding the prioritizing of incidents and the sharing and use of critical resources. However, these groups are not part of the on-scene IC.

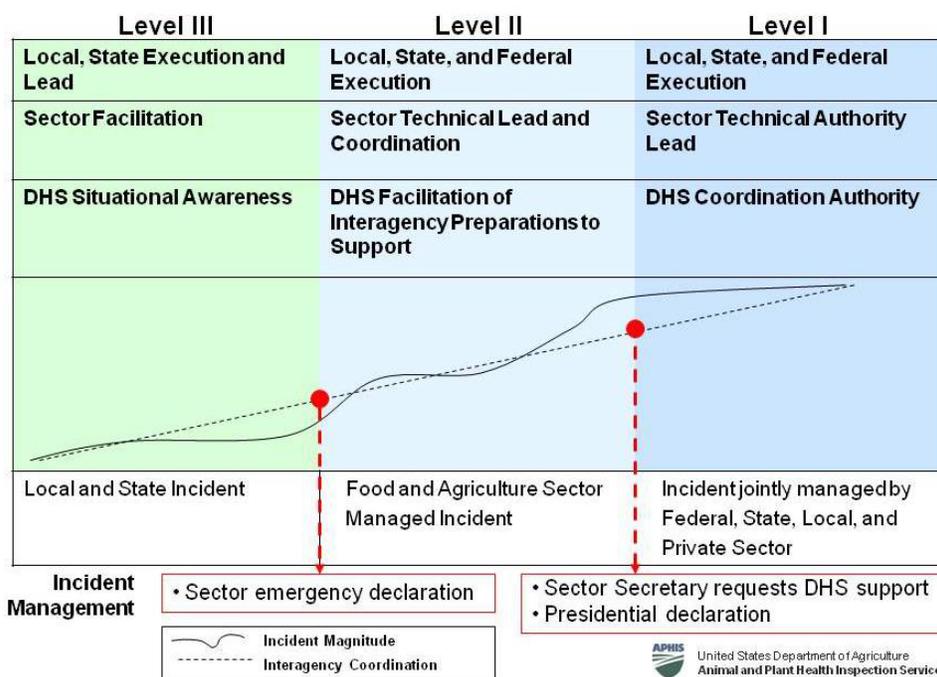
3.3.5 Guidance on Incident Management and Organizational Strategy

See [Appendix B](#) for further information on incident management and organizational structure .

3.4 APHIS INCIDENT MANAGEMENT LEVELS

APHIS uses a three-level system of emergency response types. The levels range from Level III, which has the lowest significance, to Level I, which is an event of national significance. The levels are used both within APHIS and externally to communicate the resource requirements for an event or incident. Figure 3-3 illustrates these three incident management levels. In Figure 3-3, sector refers to the agriculture sector and USDA. Additional information can be found in the *APHIS Emergency Mobilization Guide* and in the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0).

Figure 3-3. Incident Management Levels



These levels are as follows:

- ◆ *Level III.* A response to an event or incident, the scope or severity of which the lead program unit is evaluating or that requires a limited response. In either case, enough resources (Federal, State, or local personnel) are available in the area or State to staff the evaluation or initial response effort. An equine piroplasmiasis outbreak would be a Level III incident.
- ◆ *Level II.* A response to an event or incident that requires resources beyond an area or State's resource capacity but which is within the lead program unit's ability to provide resources to support the response. Requests for additional resources outside the lead program unit are not necessary for a Level II response. However, volunteers will be considered for assignment

from outside the unit if they wish to be considered for the assignment, have supervisory approval, and are qualified for the position requested. Typically, a CSF outbreak in domestic swine would be a Level II event.

- ◆ *Level I.* A response that requires resources or expertise beyond the lead program unit's capacity to respond. In many cases, these emergencies will be of national significance. If the lead program unit lacks qualified resources to meet the response needs, it will make a request through the EMLC to the APHIS Administrator to declare a total mobilization. If qualified volunteers are insufficient, direct assignments will be made. A multistate foot-and-mouth disease outbreak would be a Level I event.

3.5 NATIONAL ANIMAL HEALTH EMERGENCY RESPONSE CORPS (NAHERC)

In addition to the activities just discussed, NAHERC assists and augments Federal and State response to domestic and international animal disease outbreaks, threats, or natural disasters. NAHERC is composed of veterinarians and veterinary technicians who volunteer to become temporary Federal employees in the event of a national animal health emergency. For further information on NAHERC and NAHERC deployment, see the *NAHEMS Guidelines: NAHERC Deployment Guide*.

3.6 DIAGNOSTIC RESOURCES AND LABORATORY SUPPORT

USDA also has critical diagnostic resources and laboratory support that will be leveraged in a CSF outbreak.

3.6.1 National Veterinary Services Laboratories

The NVSL is the official reference laboratory for FAD diagnostic testing and study in the United States. The NVSL performs animal disease testing in support of USDA-APHIS programs designed to protect the health of the Nation's livestock. The NVSL provides *all* confirmatory testing for CSF on all specimens found presumptively positive at a NAHLN laboratory or other USDA-approved laboratory. The NVSL has two locations for FAD diagnostic testing: Ames, IA (NVSL Ames), and FADDL at Plum Island, NY (NVSL FADDL).

NVSL FADDL is where CSFV would be isolated. FADDL also assists in validating diagnostic procedures for CSF.

3.6.2 National Animal Health Laboratory Network

As of the date of publication, the NAHLN consists of approximately 60 laboratories and coordinates the veterinary diagnostic laboratory capacity of State animal health laboratories and their extensive infrastructure, including facilities, equipment, and professional expertise. Of these laboratories, approximately 40—including NVSL Ames and NVSL FADDL—are approved to conduct CSF testing diagnostics ([Appendix C](#)).

The NAHLN provides a means for early detection of CSF, rapid response through surge capacity to test outbreak samples, and recovery by the capability to test large numbers of samples to show freedom from CSF. The confirmation of a CSF outbreak will be made at NVSL FADDL. After positive confirmation of CSF, subsequent samples from premises inside the established Control Area (CA) may be sent to laboratories that are part of NAHLN. Please see [Subsection 5.4](#) for more information.

3.6.3 Center for Veterinary Biologics

APHIS's Center for Veterinary Biologics is responsible for licensing new products, including new diagnostic test kits and vaccines for CSF. This work—centered on enforcement of the Virus Serum Toxin Act—ensures that pure, safe, potent, and effective veterinary biologics are available for the diagnosis, prevention, and treatment of animal diseases.

Chapter 4

CSF Outbreak Response Goals and Strategy

This chapter covers a wide range of information about how USDA APHIS, States, Tribal Nations, localities, and stakeholders would respond to a CSF outbreak in the United States. In particular, this chapter

- ◆ identifies USDA APHIS goals for responding to a CSF outbreak;
- ◆ identifies tools and critical activities required to achieve the response goals;
- ◆ discusses the epidemiological principles for any CSF response strategy;
- ◆ defines and describes the four key response strategies;
- ◆ reviews factors that may influence the response strategies;
- ◆ illustrates the implementation of response strategies in a CSF outbreak in the United States; and
- ◆ reviews the international standards from the OIE for CSF-free status.

4.1 RESPONSE GOALS

The goals of a CSF response are to (1) detect, control, and contain CSF in domestic swine as quickly as possible; (2) eradicate CSF using strategies that seek to stabilize animal agriculture, the food supply, the economy, and protect public health and the environment; and (3) provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected swine and non-contaminated pork products.

Achieving these three goals will allow individual swine facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain CSF-free status without the response effort causing more disruption and damage than the disease outbreak itself.

4.2 PRINCIPLES AND CRITICAL ACTIVITIES OF A CSF RESPONSE

4.2.1 Critical Activities

In order to achieve the goals of a CSF response, critical activities, and tools, must be implemented to execute the response strategy. Box 4-1 lists these critical activities and tools. A science- and risk-based approach that protects public and animal health and stabilizes animal agriculture, the food supply, and the economy will be employed at all times. Please see [Chapter 5](#) for more information on these critical activities and tools (i.e., movement control, disposal, and epidemiological investigation and tracing).

Box 4-1. Critical Activities and Tools for a CSF Response

Critical Activities and Tools for Containment, Control, and Eradication

- Public awareness campaign
- Swift imposition of effective quarantine and movement controls
- Rapid diagnosis and reporting
- Epidemiological investigation and tracing
- Increased surveillance
- Continuity of business measures for non-infected premises and non-contaminated animal products
- Biosecurity measures
- Cleaning and disinfection measures
- Effective and appropriate disposal procedures
- Mass depopulation and euthanasia (as response strategy indicates)
- Emergency vaccination (as response strategy indicates)

4.2.2 Epidemiological Principles

Three basic epidemiological principles form the foundation of any response strategy to contain, control, and eradicate CSF in the U.S. domestic swine population:

1. *Prevent contact between CSFV and susceptible swine.*
 - a. This is accomplished through quarantine of infected animals, movement controls in the Infected Zone(s) and Buffer Zone(s) (the CAs), and biosecurity procedures to protect non-infected animals.
 - b. Certain circumstances may warrant accelerating the depopulation of animals at risk for exposure to CSF to decrease the population density of susceptible animals.

- c. There is a serious but lesser transmission risk posed by other people, material, conveyances, and animals that may have been in contact with CSF and serve as mechanical vectors. Contact with susceptible swine should be prevented and transmission risk mitigated through biosecurity and cleaning and disinfection measures.
2. *Stop the production of CSFV in infected or exposed swine.* This is accomplished by timely slaughter (and processing) or mass depopulation (and disposal) of infected and potentially infected animals.
3. *Increase the disease resistance of susceptible swine to the CSFV or reduce the shedding of CSFV in infected or exposed swine.* This can be accomplished by emergency vaccination if a suitable vaccine is available and can be administered in a timely manner.

4.2.3 Coordinated Public Awareness Campaign

One of the most important critical activities is a public awareness campaign. Box 4-2 details the importance of a coordinated public awareness campaign in an effective response strategy.

Box 4-2. Coordinated Public Awareness Campaign

Coordinated Public Awareness Campaign

Regardless of the response strategy or strategies selected, a public awareness campaign must be effectively coordinated. This will support the response strategy by

- engaging and leveraging Federal, State, Tribal, local, and stakeholder relationships to provide unified public messages for local, national, and international audiences;
- addressing the issues and concerns relating to food safety, public health, the environment, and animal welfare;
- addressing issues and concerns related to interstate commerce, continuity of business, and international trade; and
- widely disseminating key communication messages to consumers and producers.

It is also important to convey how critical biosecurity measures are for preventing the incursion of CSF into the United States. For more information on preventing the introduction of CSF, please see [Section 5.9](#) and the *NAHEMS Guidelines: Biosecurity*.

4.2.4 Timeline in any CSF Response for the First 72 Hours

In the first 72 hours after the detection of CSF in the United States, specific actions will occur, regardless of outbreak characteristics. These critical tasks are fundamental to the rapid control and containment of CSF. Figure 4-1 highlights these tasks.

Figure 4-1. Critical Activities in the First 72 Hours of a U.S. CSF Outbreak



4.3 RESPONSE STRATEGIES FOR CONTROL AND ERADICATION OF CSF IN DOMESTIC SWINE

There are four strategies for the control and eradication of CSF in domestic swine following an outbreak.

- ◆ Stamping-out
- ◆ Stamping-out modified with emergency vaccination to kill
- ◆ Stamping-out modified with emergency vaccination to slaughter
- ◆ Stamping-out modified with emergency vaccination to live.

This section defines and describes each of these strategies in turn. Depending upon the circumstances and scale of the outbreak, a combination of one or more of these strategies can be applied. In some cases, the intended disposition of vaccinated animals (kill, slaughter, live) may be affected by epidemiological, logistical, and other considerations during the outbreak. As mentioned, a coordinated public awareness campaign will support any response strategy or strategies. Analogous strategies are recognized in the OIE *Terrestrial Animal Health Code (2012)*, Article 15.2.4.

4.3.1 Stamping-Out

4.3.1.1 DEFINING STAMPING-OUT AS A RESPONSE STRATEGY

Box 4-3 defines stamping-out.

Box 4-3. Stamping-Out

Stamping-Out

Depopulation of clinically affected and in-contact susceptible animals.

4.3.1.2 DESCRIBING STAMPING-OUT AS A RESPONSE STRATEGY

Stamping-out has been a common approach in past CSF outbreaks in countries that were previously CSF-free. This strategy is most appropriate if the outbreak is contained to a jurisdictional area or a region in which CSF can be readily contained and further dissemination of the virus is unlikely. Stamping-out is currently defined in the OIE *Terrestrial Animal Health Code (2012)*, as

carrying out under the authority of the Veterinary Authority, on confirmation of a disease, the killing of the animals which are affected and those suspected of being affected in the herd and, where appropriate, those in other herds which have been exposed to infection by direct animal to animal contact, or by indirect contact of a kind likely to cause the transmission of the causal pathogen. All susceptible animals, vaccinated or unvaccinated, on an infected premises should be killed and their carcasses destroyed by burning or burial, or by any other method which will eliminate the spread of infection through the carcasses or products of the animals killed.

This policy should be accompanied by the cleansing and disinfection procedures defined in the Terrestrial Code.

The term modified stamping-out policy should be used in communications to the OIE whenever the above animal health measures are not implemented in full and details of the modifications should be given.

Box 4-4 lists the critical elements of stamping-out. The OIE recognizes that if outbreaks cannot be confined to a Containment Zone (equivalent to a CA), response strategies other than just stamping-out may be necessary.

Box 4-4. Critical Elements of Stamping-Out CSF

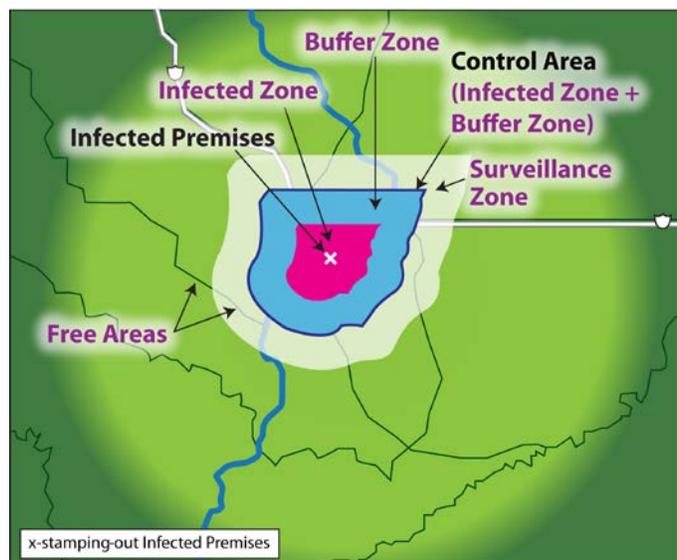
Stamping-Out: Critical Goals

- Within 24 hours, or as soon as possible, after classification of premises as Infected Premises (IP), the infected and susceptible swine will be euthanized or depopulated. In many cases, susceptible swine on Contact Premises (CP) may also be depopulated as soon as possible.
- Where resources are limited, premises will be prioritized so that those with the highest potential for active CSF spread are “stamped-out” first.
- Based on an epidemiological assessment, animals with clinical signs may be prioritized for depopulation to reduce virus excretion.
- Public concerns about stamping-out will require a well-planned and proactive public relations and liaison campaign. Stakeholders, the public, and the international community must be involved.
- Care should be taken to consider mental health implications for owners and responders in the event a stamping-out strategy is implemented.

4.3.1.3 ZONES AND AREAS IN RELATION TO STAMPING-OUT

Figure 4-2 shows an example of a stamping-out response strategy, where IP are depopulated. See [Subsection 5.5](#) in [Chapter 5](#) for more information on zones, areas, and premises for CSF outbreak response.

Figure 4-2. Example of Zones and Areas in Relation to Stamping-Out (Infected Premises would be Depopulated)



Note: Figure is not to scale.

4.3.2 Stamping-Out Modified with Emergency Vaccination to Kill

4.3.2.1 DEFINING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO KILL AS A RESPONSE STRATEGY

Box 4-5 defines stamping-out modified with emergency vaccination to kill.

Box 4-5. Stamping-Out Modified with Emergency Vaccination to Kill

Stamping-Out Modified with Emergency Vaccination to Kill

Depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, with subsequent depopulation and disposal of vaccinated animals. Depopulation and disposal of vaccinated animals may be delayed until logistically feasible, as determined by IC and the VS Deputy Administrator (U.S. CVO).

4.3.2.2 DESCRIBING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO KILL AS A RESPONSE STRATEGY

This strategy involves the depopulation of clinically affected and in-contact susceptible swine and vaccination of at-risk swine, *with* subsequent depopulation and disposal of vaccinated swine. This strategy involves the following:

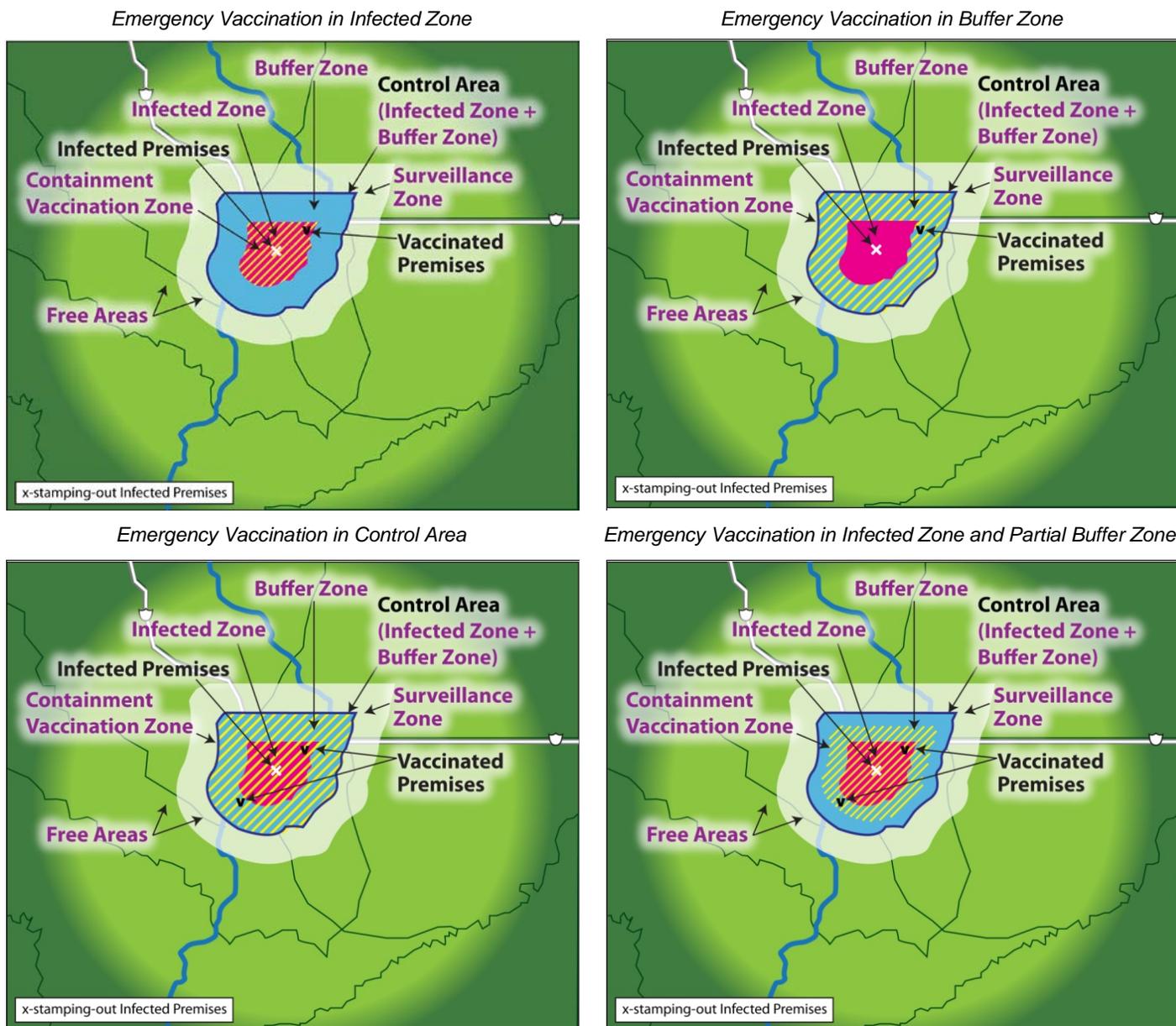
- ◆ A suppressive emergency vaccination strategy.
- ◆ The goal is to suppress virus replication in high-risk susceptible animals by using emergency vaccination and then depopulate vaccinates at a later date as determined by IC and the VS Deputy Administrator (U.S. CVO).
- ◆ The targeted vaccination of high-risk susceptible animals in an Infected Zone (IZ), Buffer Zone (BZ), or Vaccination Zone (VZ). Ring or regional vaccination around an IP or IZ is a frequently cited example for this strategy.
- ◆ Vaccinated animal identification, movement controls, traceability, and an effective, scalable permitting system may be necessary.

4.3.2.3 ZONES AND AREAS IN RELATION TO STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO KILL

Figure 4-3 shows four examples of how a stamping-out modified with emergency vaccination to kill response strategy might be implemented. Animals on IP would be depopulated, while other animals in a Containment Vaccination Zone (CVZ) may be vaccinated. Stamping-out modified with emergency vaccination to kill is

the depopulation of clinically affected and in-contact animals and vaccination of at-risk animals, with the subsequent depopulation and disposal of vaccinated animals.

Figure 4-3. Examples of Zones and Areas in Relation to Stamping-Out Modified with Emergency Vaccination to Kill (Infected Premises would be Depopulated)



Note: Figures are not to scale.

4.3.3 Stamping-Out Modified with Emergency Vaccination to Slaughter

4.3.3.1 DEFINING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO SLAUGHTER AS A RESPONSE STRATEGY

Box 4-6 defines stamping-out modified with emergency vaccination to slaughter.

Box 4-6. Stamping-Out Modified with Emergency Vaccination to Slaughter

Stamping-Out Modified with Emergency Vaccination to Slaughter

Depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, with slaughter and processing of vaccinated animals, if animals are eligible for slaughter under USDA FSIS authority and rules and/or State and Tribal authority and rules.

4.3.3.2 DESCRIBING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO SLAUGHTER AS A RESPONSE STRATEGY

This strategy involves the depopulation of clinically affected and in-contact susceptible swine and vaccination of at-risk animals, *with* subsequent slaughter of vaccinated animals. Stamping-out modified with emergency vaccination to slaughter is the slaughter and processing of vaccinated animals, if animals are eligible for slaughter under USDA FSIS authority and rules and/or State and Tribal authority and rules. This strategy involves the following:

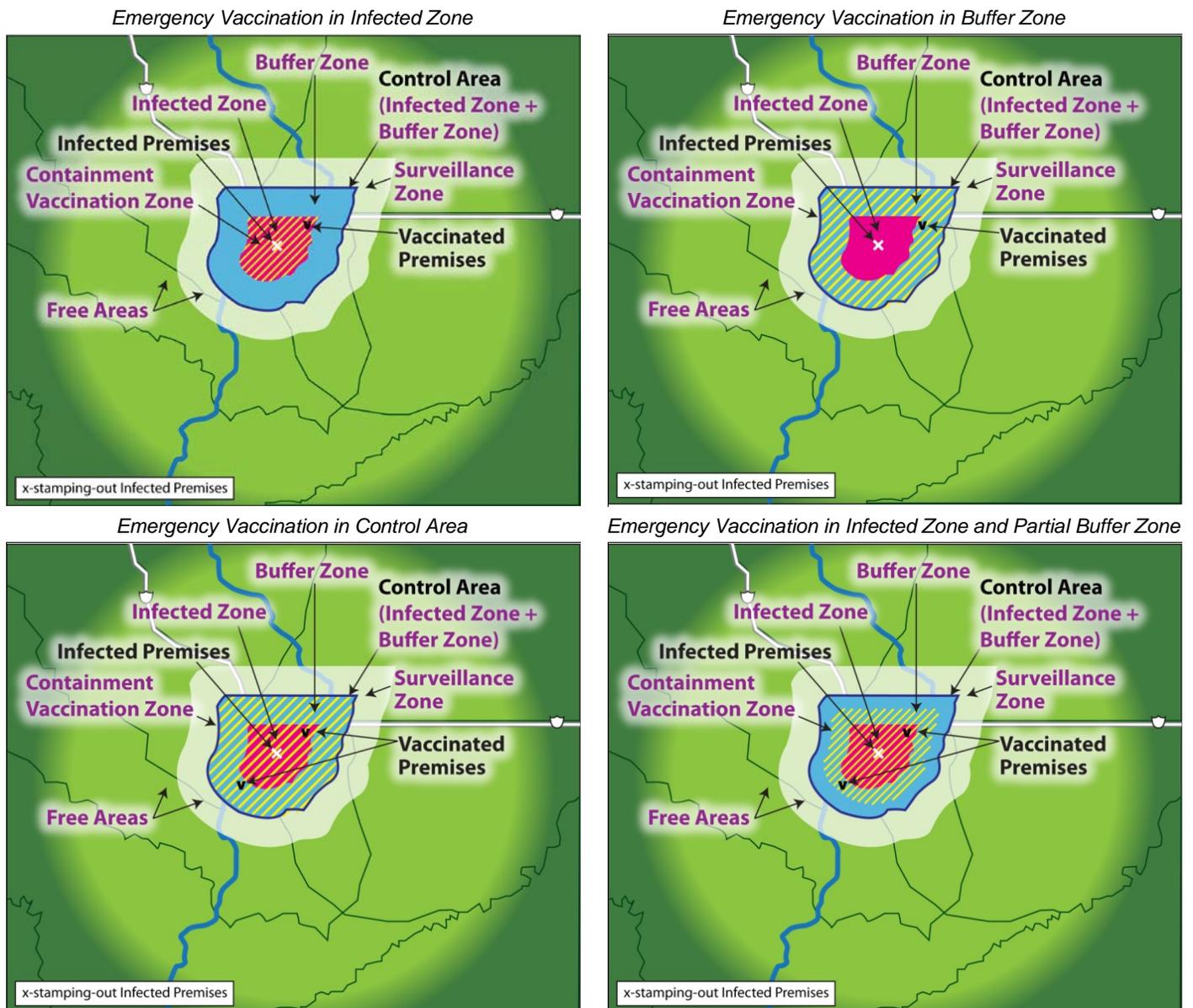
- ◆ A suppressive emergency vaccination strategy.
- ◆ The goal is to suppress virus replication in high-risk susceptible animals by using emergency vaccination and then slaughtering vaccinates at a later date as determined by IC and the VS Deputy Administrator (U.S. CVO).
- ◆ The targeted vaccination of high-risk susceptible animals in an IZ, BZ, or VZ. Ring or regional vaccination around an IP or IZ is a frequently cited example for this strategy.
- ◆ DIVA testing may be necessary for movement between zones, interstate commerce, and international trade.¹
- ◆ Vaccinated animal identification, movement controls, traceability, and an effective, scalable permitting system may be necessary.

¹ See [Chapters 1](#) and [5](#) for more on DIVA.

4.3.3.3 ZONES AND AREAS IN RELATION TO STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO SLAUGHTER

Figure 4-4 shows four examples of how a stamping-out modified with emergency vaccination to slaughter response strategy might be implemented. Animals on IP would be depopulated, while other animals in a CVZ may be vaccinated. Stamping-out modified with emergency vaccination to slaughter is the slaughter and processing of vaccinated animals, if animals are eligible for slaughter under USDA FSIS authority and rules and/or State and Tribal authority and rules.

Figure 4-4. Examples of Zones and Areas in Relation to Stamping-Out Modified with Emergency Vaccination to Slaughter (Infected Premises would be Depopulated)



Note: Figures are not to scale.

4.3.4 Stamping-Out Modified with Emergency Vaccination to Live

4.3.4.1 DEFINING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO LIVE AS A RESPONSE STRATEGY

Box 4-7 defines stamping-out modified with emergency vaccination to live.

Box 4-7. Stamping-Out Modified with Emergency Vaccination to Live

Stamping-Out Modified with Emergency Vaccination to Live

Depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, without subsequent depopulation of vaccinated animals. Vaccinated animals intended for breeding, slaughter, or other purposes live out their useful lives.

4.3.4.2 DESCRIBING STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO LIVE AS A RESPONSE STRATEGY

This strategy involves the depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, *without* subsequent slaughter or depopulation of vaccinated animals because of their vaccination status. Stamping out- modified with emergency vaccination to live is when vaccinated animals intended for breeding, slaughter, or other purposes live out their useful lives. This strategy involves the following:

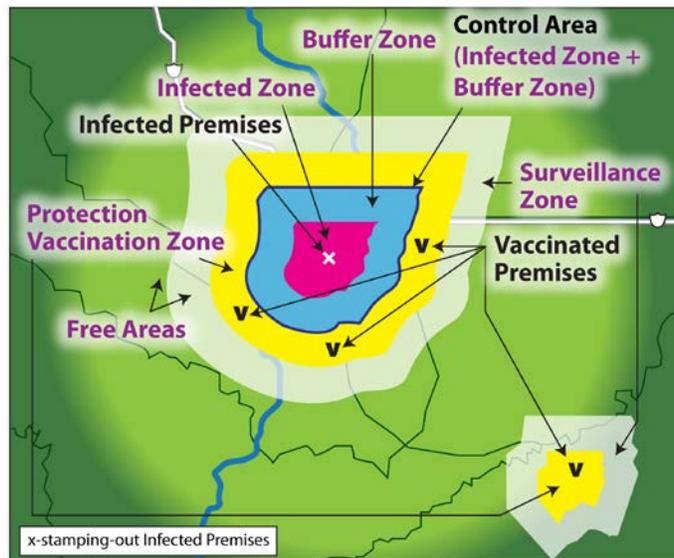
- ◆ A protective emergency vaccination strategy.
- ◆ The goal is to protect susceptible animals from infection using emergency vaccination with the deliberate intent to maintain vaccinates for the duration of their usefulness.
- ◆ The targeted vaccination of non-infected swine. This may include valuable genetic stock, long-lived production swine, or areas with a high-density population of susceptible swine at high risk of becoming infected.
- ◆ Requires the establishment of one or more VZs free of CSF, the establishment of one or more CAs for infected swine, and movement controls to keep infected swine out of VZs free of CSF.

- ◆ DIVA testing may be necessary for movement between zones, interstate commerce, and international trade.²
- ◆ Vaccinated animal identification, movement controls, traceability, and an effective, scalable permitting system may be necessary.

4.3.4.3 ZONES AND AREAS IN RELATION TO STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO LIVE STRATEGY

Figure 4-5 shows how a stamping-out modified with emergency vaccination to live response strategy might be implemented. Animals on IP would be depopulated, while other animals in a Protection Vaccination Zone (PVZ) would be vaccinated. Any animals vaccinated would not be subsequently depopulated or slaughtered solely on the basis of vaccination status.

Figure 4-5. Examples of Zones and Areas in Relation to Stamping-Out Modified with Emergency Vaccination to Live (Infected Premises would be Depopulated)



Note: Figure is not to scale.

4.3.5 Control and Eradication Strategy for Other Animals

Feral swine are an important risk factor in the dissemination or persistence of CSF. Biosecurity measures, particularly around known or suspected infected premises, must include strict measures to prevent contact with feral swine populations. The preferred strategy for CSF in feral swine is stamping-out, though vaccination is a possibility. Please see the OIE *Terrestrial Animal Health Code (2012)* Chapter 15.2 for more information on wild swine and surveillance. Any

² See [Chapters 1](#) and [5](#) and for more on vaccination and DIVA.

attempt to control CSF in wildlife must be balanced against the risk of disease dispersal. (See [Subsection 5.18](#) for information on wildlife management.)

4.3.6 Summary of CSF Vaccination

Box 4-8 provides a summary of CSF vaccination in relation to a CSF response effort.

Box 4-8. CSF Response and Vaccination Strategies

CSF Response and Vaccination Strategies

The use of emergency vaccination strategies may be considered in a CSF outbreak. An emergency vaccination strategy can help to achieve the goals of a CSF response effort, and is founded upon the three epidemiological principles of response. There are many challenges to using emergency vaccination in a CSF response, but also many benefits. A CSF response may use one strategy or a variety of strategies in order to detect, control, contain, and ultimately eradicate CSF in domestic swine. The use of emergency vaccination will be determined by the Unified IC, the SAHOs, and the VS Deputy Administrator (U.S. CVO).

4.3.7 Authorization for Response and Associated Activities

When the criteria for a presumptive CSFV case have been met (see [Chapter 5](#) for case definitions), the APHIS Administrator or VS Deputy Administrator (U.S. CVO) can authorize APHIS personnel—in conjunction with State, Tribal, and IC personnel—to initiate activities such as the depopulation and cleaning and disinfection of the index case and the epidemiological investigations of CP.

When CSF is detected, SAHOs and Tribal officials issue a quarantine or hold order for the relevant zones and regions within 24 hours. A Federal quarantine may be issued when requested by SAHOs or as directed by the Secretary of Agriculture. The Incident Commander works with the Operations Section and Situation Unit in the Planning Section to determine zone, area, and premises designations during a CSF outbreak.

4.3.8 Management of Incident

The outbreak response effort should be implemented through a Unified Command (ICS) with an appropriate span of control and delegation of authority. Responses will be as local as possible. Good communication within the chain of command is imperative.

An Incident Commander should be identified and an ICP established. In-State resources (whether State, Federal, Tribal, or privately owned) should be used to

manage a local response. Out-of-State resources may be used to support the State impacted by the outbreak.

Incident management will include quarantine and movement control, tracing, and activation of response plans to communicate these actions to all stakeholders, the public, and the international community. Cooperative Federal, State, Tribal, local, and industry response measures will be carried out with extreme urgency using the broadest geographic scope possible. ([Appendix B](#) contains organizational charts and further information on organizational structure in an incident.)

4.4 FACTORS INFLUENCING THE SELECTION OF RESPONSE STRATEGY OR STRATEGIES

The previous sections have identified and described the response strategies. However choosing one strategy, multiple strategies, or modifying strategies as an outbreak unfolds is an important, but very complex decision process. Depending upon the circumstances and scale of the outbreak, a combination of one or more of the response strategies can be applied.

If it becomes apparent at any point in the response that stamping-out will not achieve control, containment, and ultimately eradication of CSF, alternative strategies will immediately be considered. Currently, it is not possible to delineate *a priori* the specific factors that might signal the need to modify the response to a CSF outbreak.

This section identifies the wide range of factors which may impact the choice of response strategy in a CSF outbreak.

4.4.1 General Factors that Influence the Response Strategy

The scope of regulatory intervention and the selection of a response strategy or strategies in a CSF outbreak will depend on the following:

- ◆ *Consequences of the outbreak.* The consequences of the CSF outbreak, and the impact of the response, in terms of disruptions to interstate commerce and international trade, national security, food security, animal health, the environment, the economy, and regulatory issues.
- ◆ *Acceptance.* Acceptance of response policy (social and political) by different communities, from local to international.
- ◆ *Scale of the outbreak.* The number of swine infected, number of premises affected, and susceptible swine population density for infected areas or areas at high-risk of becoming infected with CSFV.

- ◆ *Rate of outbreak spread.* The rate of spread of infection in terms of number of premises, types of premises, number of animals; rate at which each IP leads to infection of one or more additional IP.
- ◆ *Veterinary countermeasures available.* The availability and efficacy of veterinary countermeasures such as CSF vaccines.
- ◆ *Resources available to implement response strategies.* The capabilities and resources available to eradicate CSF in domestic animals and to control and eradicate CSF in potential wildlife reservoirs.

4.4.2 Determining an Appropriate CSF Response Strategy

Table 4-1 highlights key factors to be considered when determining whether a particular response strategy would be appropriate and advantageous for responding to a CSF outbreak. This table simply lists important factors that will be considered in determining the initial response strategy or modifying this strategy. No single factor listed below will *independently* dictate a response strategy, or a decision of whether to employ an emergency vaccination strategy.

Table 4-1. Factors Influencing a Response Strategy or Strategies for U.S. CSF Outbreak

Factor or criterion supporting the response strategy...	Strategy			
	Stamping-out	Stamping-out modified with emergency vaccination to kill	Stamping-out modified with emergency vaccination to slaughter	Stamping-out modified with emergency vaccination to live
Suitable vaccine for CSF outbreak strain	Not available/feasible	Available	Available	Available
Resources for stamping-out (such as disposal)	Adequate	Adequate	Adequate	Limited
Resources for vaccination (such as diagnostic testing, tracing efforts, and permitting activities)	Limited	Adequate	Adequate	Adequate
Population density of susceptible swine at high risk of becoming infected	Low	Medium	High	High
Movement of infected animals, products, or fomites out of Control Area	No evidence of extensive movement	Evidence of movement	Evidence of extensive movement	Evidence of extensive movement
Source of outbreak	Known	Known	Unknown	Unknown
Location of initial outbreak	Isolated premises	Swine producing area	Swine producing area	Swine producing area
Spread of outbreak	Slow	Moderate	Rapid	Rapid
Distribution of outbreak	Limited or restricted	Small	Widespread	Widespread

Table 4-1. Factors Influencing a Response Strategy or Strategies for U.S. CSF Outbreak

Factor or criterion supporting the response strategy...	Strategy			
	Stamping-out	Stamping-out modified with emergency vaccination to kill	Stamping-out modified with emergency vaccination to slaughter	Stamping-out modified with emergency vaccination to live
Risk of infection in valuable, rare, endangered, or high value genetic swine	High	High	High	Moderate
Likelihood that CSF could become prevalent in feral swine	High	High	High	Moderate
Public acceptance of stamping-out strategy	Neutral reaction or weak opposition	Neutral reaction or weak opposition	Weak opposition	Strong opposition
Surveillance, diagnostic, and laboratory resources for serosurveillance after vaccination	Limited	Limited	Limited	Available
Domestic stakeholders' acceptance of regionalization with vaccination to live or vaccination to slaughter	No	No	Yes	Yes
Third-country acceptance of regionalization with vaccination to slaughter	N/A	N/A	Accepted	N/A
Third-country acceptance of regionalization with vaccination to live	N/A	N/A	Not Accepted	Accepted
Assessments and economic analysis of competing control strategies (particularly for producers)	It is likely that a control strategy without stamping-out will lead to significantly higher economic losses, or longer duration of the outbreak.	It is likely that a control strategy without stamping-out modified with emergency vaccination to kill will lead to significantly higher economic losses or longer duration of the outbreak.	It is likely that a control strategy without stamping-out modified with emergency vaccination to slaughter will lead to significantly higher economic losses or longer duration of the outbreak.	It is likely that a control strategy without stamping-out modified with vaccination to live will lead to significantly higher economic losses or longer duration of the outbreak.

4.4.3 Desired CSF-Status Post-Outbreak (World Animal Health Organization Standards for CSF Disease-Freedom)

As a member of the OIE, the United States has agreed to abide by standards drafted and approved by member countries. The OIE does not grant official recognition for CSF-freedom, but OIE members can self-declare a compartment, zone, or country free from certain OIE-listed diseases such as CSF.

After any CSF outbreak in the United States, the goal is to return the United States to a CSF-free status. The response strategy or strategies selected may affect the length of time it takes to return the United States to a CSF-free status. This OIE CSF-free status applies only to domestic swine ([see Article 15.2.3 and 15.2.4 of the OIE Terrestrial Animal Health Code 2012](#)).

In cases of self-declaration, delegates are advised to consult the OIE *Terrestrial Animal Health Code* for specific requirements for self-declaration of freedom from CSF. By providing the relevant epidemiological evidence, the OIE member can prove to a potential importing country that the entire country, zone, or compartment under discussion meets the provisions of the specific disease chapter. Any submitted self-declaration should contain evidence demonstrating that the requirements for the disease status have been met in accordance with OIE standards. This self-declaration must be signed by the official OIE delegate of the OIE member concerned.

4.4.3.1 CSF-FREE DESIGNATION

The OIE defines a CSF-free country, zone or compartment as follows:

A country, zone or compartment may be considered free from CSF when surveillance in accordance with Articles 15.2.23 to 15.2.28 has been in place for at least 12 months, and when:

1. there has been no outbreak of CSF in domestic pigs during the past 12 months;
2. no evidence of CSFV infection has been found in domestic pigs during the past 12 months;
3. no vaccination against CSF has been carried out in domestic pigs during the past 12 months unless there are means, validated to OIE standards (Chapter 2.8.3 of the *Terrestrial Manual*),³ of distinguishing between vaccinated and infected pigs;
4. imported domestic pigs comply with the requirements in Article 15.2.5 or Article 15.2.6.

The OIE does not provide an official list of CSF-free countries. The United States considers 10 countries and 3 zones as free or low risk of CSF (October 2013). This includes the APHIS-defined European Union region. This list, and special restrictions to countries/regions on this list, is provided [here](#).

³ The OIE DIVA validation requirements are in [Chapter 5, Subsection 5.4](#).

4.4.3.2 RECOVERY OF FREE STATUS

As stated in the OIE *Terrestrial Animal Health Code (2012)*, in a country, zone, or compartment which is previously free of CSF, and an outbreak occurs, CSF-free status may be regained as follows ([Article 15.2.4](#)).

Should a CSF outbreak occur in a free country, zone or compartment, the free status may be restored where surveillance in accordance with Articles 15.2.23 to 15.2.28 has been carried out with negative results either:

1. three months after the last case where a stamping-out policy without vaccination is practiced;

OR

2. where a stamping-out policy with emergency vaccination is practiced:
 - a. three months after the last case and slaughter of all vaccinated animals, or
 - b. three months after the last case without the slaughter of vaccinated animals where there are means, validated to OIE standards (Chapter 2.8.3 of the *Terrestrial Manual*), of distinguishing between vaccinated and infected pigs;

OR

3. where a stamping-out policy is not practiced, the provisions of Article 15.2.3 should be followed.

4.5 IMPLEMENTING A RESPONSE STRATEGY OR STRATEGIES IN THE EVENT OF A CSF OUTBREAK IN THE UNITED STATES

In order to achieve the goals of a CSF response—to (1) detect, control, and eradicate CSF in domestic swine as quickly as possible, (2) eradicate CSF using strategies that seek to stabilize animal agriculture, the food supply, the economy, and protect public health and the environment; and (3) provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected swine and non-contaminated pork products—one or more response strategies may need to be employed at any time during the outbreak. The strategies employed may vary by region or other defining characteristic. In each case, the decision and application of a specific response strategy or strategies will be based on weighing many criteria, such as those listed in Table 4-1. Any response strategy or strategies with emergency vaccination need to be approved

by the U.S. CVO prior to implementation, with agreement from the SAHO and the Unified Command Incident Commander.

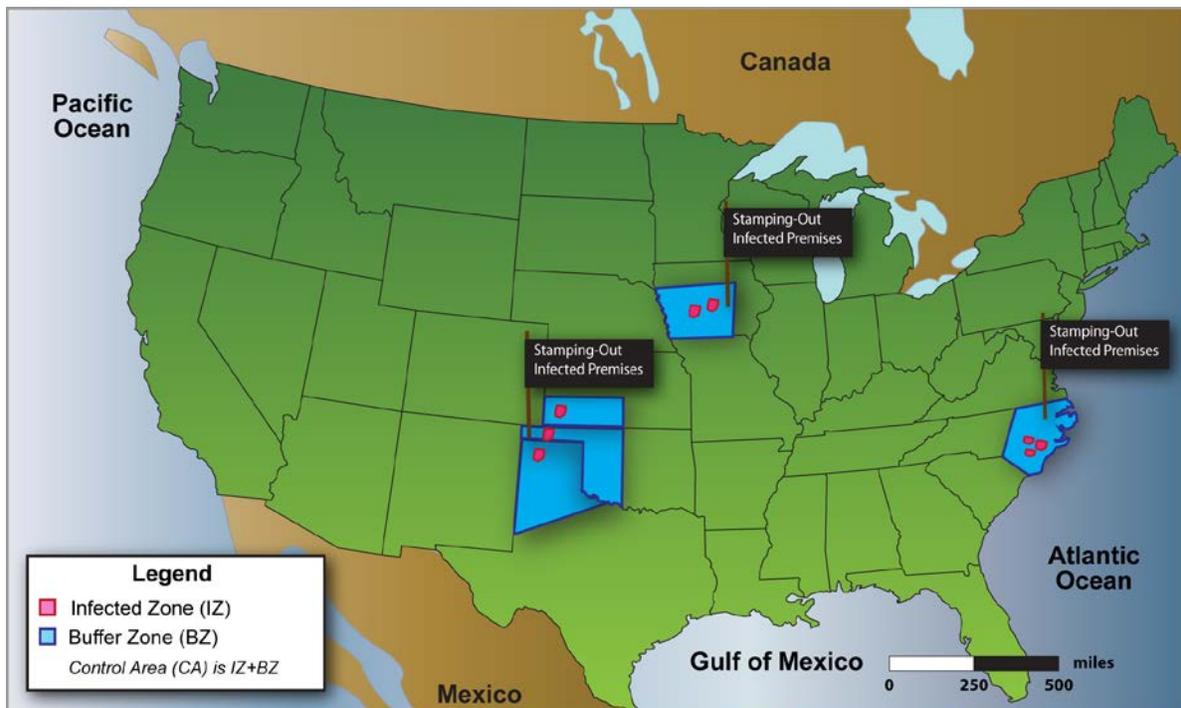
In the event of CSF detection, USDA and the affected States and Tribal nations will work together in a Unified Command, per NIMS, to detect, control, and contain CSF as expeditiously as possible. Detection of CSF in the United States will result in emergency intervention by State, Tribal, and Federal authorities.

4.5.1 Examples of Strategies for a CSF Response, including Emergency Vaccination

4.5.1.1 STAMPING-OUT

Figure 4-6 illustrates a stamping-out strategy for controlling, containing, and eradicating CSF in the United States. This map is not prescriptive—it is only an illustration. In this example, the IP would be stamped-out, and there would be no emergency vaccination strategies employed.

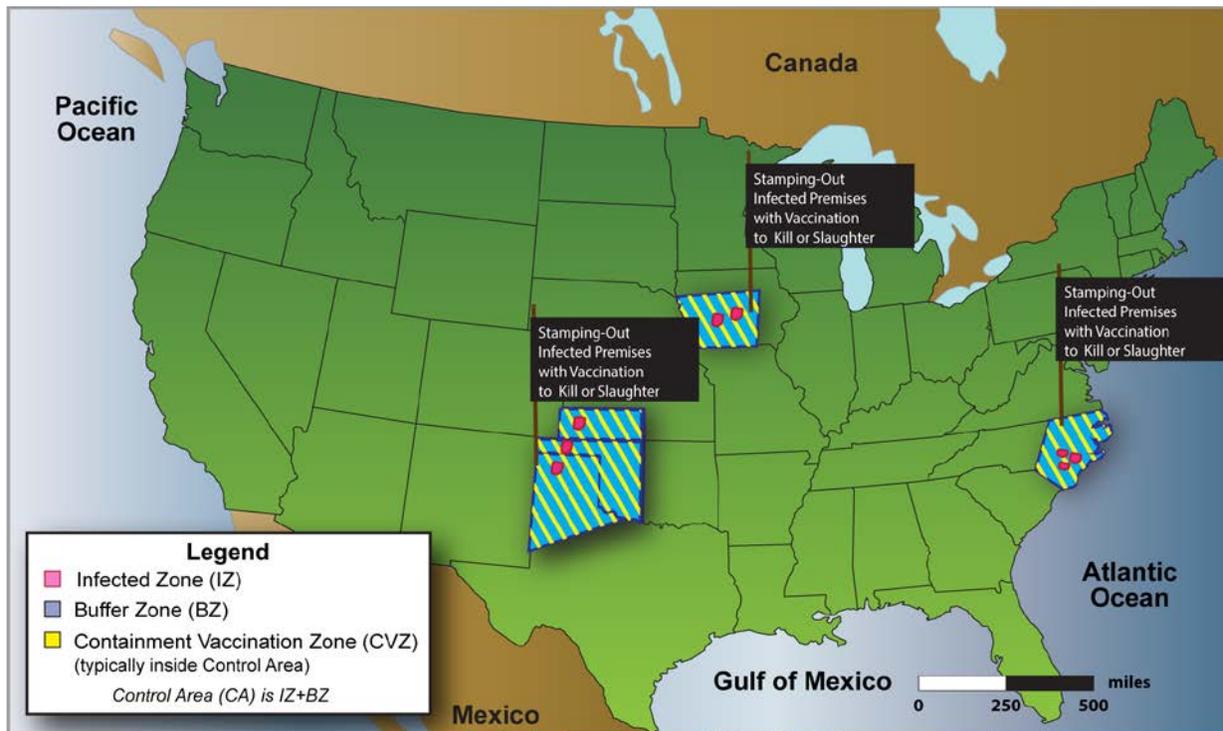
Figure 4-6. Example of Stamping-Out



4.5.1.2 EXAMPLE OF STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO KILL OR SLAUGHTER

Figure 4-7 illustrates a stamping-out strategy modified with emergency vaccination to kill or emergency vaccination to slaughter, for controlling, containing, and eradicating CSF in the United States. This map is not prescriptive—it is only an illustration. In this example, the IP would be stamped-out, and there would be emergency vaccination to kill or emergency vaccination to slaughter within the CAs in CVZs.

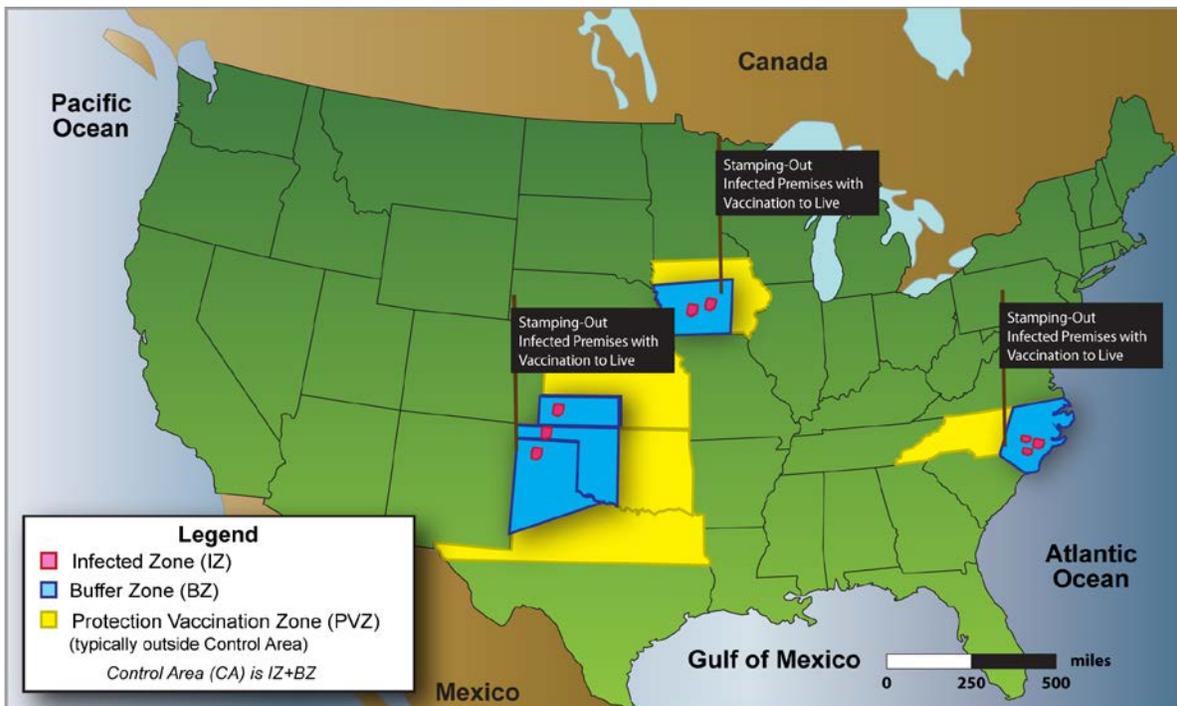
Figure 4-7. Example of Stamping-Out Modified with Emergency Vaccination to Kill or Emergency Vaccination to Slaughter



4.5.1.3 EXAMPLE OF STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO LIVE

Figure 4-8 illustrates a stamping-out strategy modified with emergency vaccination to live, for controlling, containing, and eradicating CSF. This map is not prescriptive—it is only an illustration. In this example, the IP would be stamped-out, and there would be emergency vaccination to live outside of the CAs in PVZs.

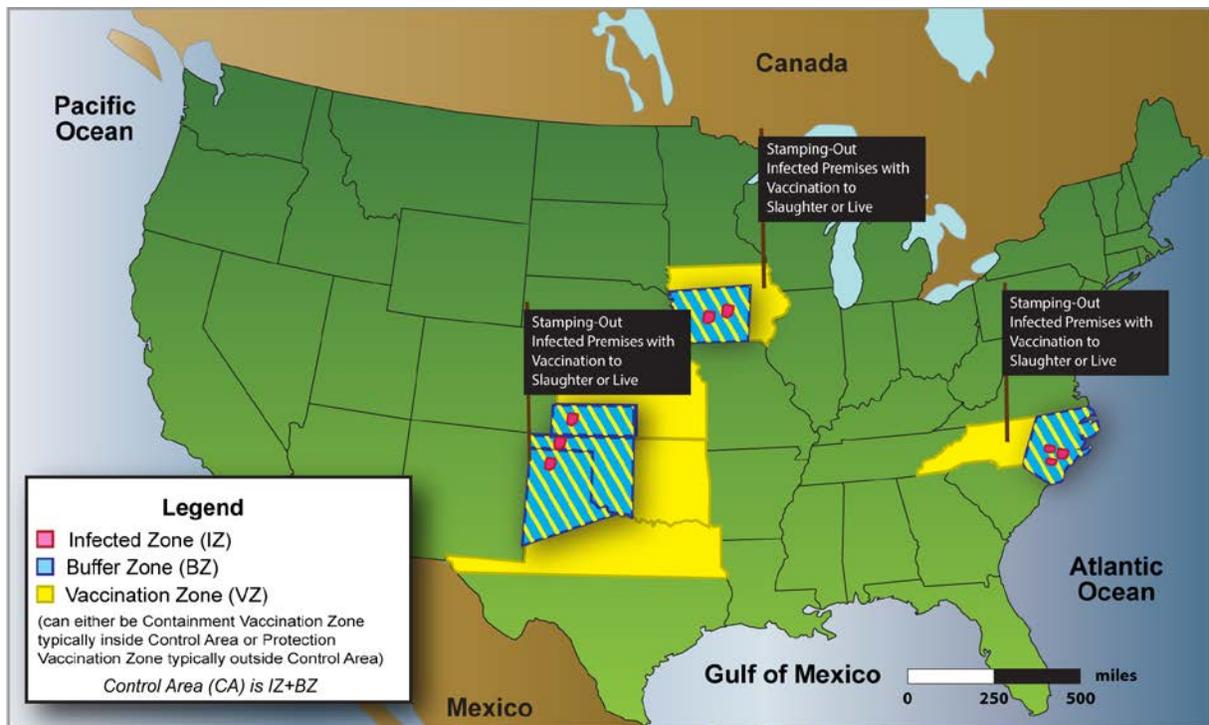
Figure 4-8. Example of Stamping-Out Modified with Emergency Vaccination to Live



4.5.1.4 EXAMPLE OF STAMPING-OUT MODIFIED WITH EMERGENCY VACCINATION TO SLAUGHTER AND EMERGENCY VACCINATION TO LIVE

Figure 4-9 illustrates a stamping-out strategy, modified with emergency vaccination to slaughter and vaccination to live. This map is not prescriptive—it is only an illustration demonstrating the possibility of employing multiple vaccination strategies during an outbreak. In this example, the IP would be stamped-out, and there would be emergency vaccination both inside (in CVZs) and outside (in PVZs) the CAs. Emergency vaccinated animals intended for breeding, slaughter, or other purposes can live out their useful lives.

Figure 4-9. Example of Stamping-Out Modified with Emergency Vaccination to Slaughter and Emergency Vaccination to Live



Chapter 5

Specific CSF Response Critical Activities and Tools

FAD PReP documents identify critical activities and tools to be employed in the event of a CSF outbreak. These critical activities and response tools will assist in controlling, containing, and eradicating CSF while facilitating continuity of business in an outbreak. This chapter describes key parts of these critical activities and tools.

Documents referenced in this chapter can be found, for APHIS employees, at <http://inside.aphis.usda.gov/vs/em/fadprep.shtml>, or, for others, at <http://www.aphis.usda.gov/fadprep>.

5.1 ETIOLOGY AND ECOLOGY

Information on the etiology and ecology of CSF promotes a common understanding of the disease agent among responders and other stakeholders (see [Chapter 1](#) for CSF information). The CSF Overview of Etiology and Ecology SOP contains further information.

5.2 LABORATORY DEFINITIONS AND CASE DEFINITIONS

Laboratory and case definitions provide a common point of reference for all responders. Case definitions and laboratory criteria are developed according to the Case Definition Development Process SOP (see [Subsection 5.2.3](#)). These definitions are available here for APHIS employees: http://inside.aphis.usda.gov/vs/ceah/nsu/case_definitions.shtml.

5.2.1 Laboratory Definitions

The following subsections are the APHIS-VS Centers for Epidemiology and Animal Health (CEAH) National Surveillance Unit (NSU) draft definitions for CSF from February 2011, which are undergoing review. For further information on the diagnostic tests conducted by NVSL-FADDL in the event of a CSF outbreak, please see [Subsection 5.4](#).

5.2.1.1 LABORATORY CRITERIA

OIE *Manual of Standards for Diagnostic Tests and Vaccines for Terrestrial Animals* (2008), Chapter 2.8.3.

1. *Agent identification*: Tonsils, spleen, kidney, lymph nodes, or distal ileum should be transported without preservatives under cool conditions (not frozen). Whole blood (heparin or EDTA [ethylenediaminetetraacetic acid]) from clinically ill pigs is also a suitable sample. Methods of detection include immunohistochemistry using CSF-specific monoclonal antibody (ABC [Avidin-Biotin complex] staining) on tissue samples, real-time and conventional reverse-transcriptase polymerase chain reaction (rRT-PCR and RT-PCR), and virus isolation followed by ABC staining and/or rRT-PCR or RT-PCR. Sequencing can also be performed if the RT-PCR assays are positive to allow for genotyping of the virus. An antigen-capture enzyme-linked immunosorbent assay (AgELISA) exists, but is not preferred (or performed at FADDL) because of low sensitivity.
2. *Serological tests*: Serological tests include the neutralizing peroxidase-linked assay (also called immunoperoxidase virus neutralization test, IP-VN), immunoperoxidase test (IP), and E2 antibody enzyme-linked immunosorbent assay (ELISA). Due to immunosuppression with virulent strains, antibodies are not detectable before 18 days post infection and last at least several years. With chronic infections, antibodies are potentially briefly detectable at the end of the first month but if present, quickly disappear. Congenitally infected pigs are persistently viremic and seldom produce specific antibodies.

5.2.2 Case Definitions

The following subsections are the APHIS-VS CEAH NSU draft definitions for CSF from February 2011, which are undergoing review.

5.2.2.1 SUSPECT CASE

A pig or herd that has:

- ◆ Clinical signs consistent with CSF; OR
- ◆ Inconclusive or positive RT-PCR/rRT-PCR performed on a sample taken during routine surveillance, without the presence of clinical criteria, for which either additional laboratory diagnostics (sequencing information or confirmatory testing) or epidemiological investigation results are pending; OR
- ◆ A positive antibody ELISA with subsequent positive results to IP and IP-VN tests with neither epidemiological information nor known clinical signs consistent with CSF.

5.2.2.2 PRESUMPTIVE POSITIVE CASE

- ◆ A suspect case with positive RT-PCR/rRT-PCR or genomic sequencing consistent with CSFV conducted at FADDL after an initial positive RT-PCR/rRT-PCR on a sample from a pig with or without clinical signs and/or epidemiological evidence of CSF conducted; OR
- ◆ A pig or herd with epidemiological information and/or clinical criteria consistent with CSF; AND
 - Positive rRT-PCR or RT-PCR; OR
 - Positive ABC test on tissue samples; OR
 - Positive IP-VN test.

5.2.2.3 CONFIRMED POSITIVE CASE

A pig from which CSFV has been *isolated* with *sequence confirmation* at the NVSL, FADDL, or a laboratory designated by the Secretary of Agriculture.

5.2.2.4 EVOLVING DEFINITIONS

The above presumptive positive and confirmed positive case definitions are for the index case and may change as an outbreak progresses. For example, the positive predictive value of clinical signs will increase if CSF prevalence increases.

5.2.3 Case Definition Development Process

The Case Definition Development Process SOP describes the general process for developing and approving animal disease case definitions for use in animal health surveillance and reporting. Case definitions are developed by NSU, in cooperation with the National Center for Animal Health Emergency Management (NCAHEM). NSU coordinates review with SAHOs, subject matter experts, stakeholders, and VS units. Case definitions are approved by the VS Deputy Administrator (the U.S. CVO) and VS Leadership Team. Case definitions enhance the usefulness of animal disease data by providing uniform criteria for reporting purposes.

In a CSF outbreak, case definitions may be edited within 24 hours of the first presumptive positive or confirmed positive case (index case). The case definition will be reviewed throughout the outbreak and modified on the basis of additional information or the changing needs of the eradication effort.

5.3 SURVEILLANCE

CSF surveillance is proactively conducted in the United States through the Classical Swine Fever Surveillance Program. This program conducts surveillance in five swine populations through tissue and serology samples:

- ◆ Sick animals submitted to diagnostic laboratories,
- ◆ Swine condemned at slaughter by USDA FSIS,
- ◆ High-risk swine populations, including waste-feeding operations and high-risk swine herds,
- ◆ Feral swine, and
- ◆ Swine FAD investigations submitted to FADDL as suspicious for CSF.

In the event of a CSF outbreak, additional, targeted surveillance would occur with the objective of not only detecting CSF-infected swine, but to determine the extent of the outbreak.

The following are response goals in a CSF outbreak:

- ◆ To implement surveillance plans within 48 hours of the confirmation of an outbreak.
- ◆ To implement a surveillance plan that will (1) define the present extent of CSF and (2) detect unknown IP quickly.
- ◆ To have the surveillance plan consider the susceptible wildlife population in the area, and to coordinate with APHIS Wildlife Services (WS), DOI, State wildlife agencies, and State agriculture departments to perform appropriate CSF surveillance in these populations.
- ◆ To provide complete surveillance data summaries and analysis at intervals as specified by IC.
- ◆ To develop effective surveillance plans that can achieve desired outcomes by leveraging available resources, satisfying jurisdictional requirements, and implementing continuity of business measures.

At the APHIS level, NSU is responsible for surveillance activities. Box 5-1 lists the key objectives of surveillance activities during and immediately after a CSF outbreak.

Box 5-1. Surveillance Objectives in a CSF Outbreak

Objectives of Surveillance

- Detect CSF IP during an outbreak.
- Determine the size and extent of a CSF outbreak.
- Supply information to evaluate outbreak control activities.
- Provide information for animal and product movement within the CA.
- Provide information for animal and product movement out of the CA.
- Prove disease freedom (DF) and regain disease-free status after eradication of the outbreak.

5.3.1 Surveillance Planning for CSF Outbreak

5.3.1.1 GENERAL CONSIDERATIONS

A surveillance plan will indicate the frequency, number, and distribution of animals and premises to be sampled. This requires tradeoffs be made among six surveillance parameters or tools, listed below. These tradeoffs are made employing initial information collected about the outbreak, and best estimates. During an outbreak, surveillance plans will change as new information becomes available. ([Appendix D](#) contains more detailed surveillance information.) The six surveillance parameters are as follows:

1. *Design (threshold) prevalence.* The goal is to determine the lowest feasible prevalence that can be used to detect infected herds on premises. The chosen proportion of animals or premises infected that, if exceeded, will indicate the disease has been detected for a given confidence level and population size (1 percent vs. 5 percent vs. 15 percent).
2. *Confidence level.* The selected level (90 percent confident vs. 95 percent confident) that the disease can be detected for the chosen design threshold, given the population size.
3. *Types of tests.* Test choices—clinical inspection, polymerase chain reaction testing (PCR), serology testing, etc.—and the test cutoff values can influence the design prevalence choice. Each test has a sensitivity and specificity that varies with the cutoff values.
4. *Sampling frequency.* Previous negative test results can augment information gained from negative test results if the time period between sampling is short—ideally daily, but definitely less than the incubation period. The value of the previous negative test results decreases as the interval between sampling increases (daily vs. every other day).

-
5. *Risk-based sampling.* Selecting populations with a higher proportion of infected animals (1 percent vs. 10 percent) reduces the number of samples needed for a given confidence level and population size.
 6. *Sampling scheme.* Within the selected population (risk-based or total population), a random, convenience, or other scheme may be used, and the choice will influence the number of animals and premises sampled.

5.3.1.2 SURVEILLANCE OBJECTIVES BY TIME PERIOD

There are three key segments of surveillance activity in an outbreak. These segments have distinct goals to aid in the control, containment, and eradication of CSF from domestic swine. For more information on the zone, area, and premises designations referred to in this section, please refer to [Subsection 5.5](#) in this chapter.

1. *The initial 72 hours post CSF outbreak declaration.* The objective is to detect existing infected animals and premises as quickly as possible. During this period, there are three goals of IC:
 - a. Create the initial BZ designation and the boundary of the CA.
 - b. Create a list of premises with susceptible herds in the CA.
 - c. Determine the boundary of the Surveillance Zone (SZ) and start developing a surveillance plan to be used in the SZ.
2. *The control and eradication period (from initial 72-hour period until last case is detected and eradicated).* Four key surveillance objectives need to be accomplished simultaneously in this period.
 - a. Detect IP, new and existing, so that control measures can be put in place.
 - b. Provide evidence that premises are free of CSF, thereby permitting swine and pork product movements in the CA.
 - c. Evaluate the outbreak management control activities.
 - d. Provide evidence that the Free Area (FA) is free of disease, thereby enabling unrestricted animal and animal product movement.
3. *Post eradication.* The objective is to prove that the CA and FA are free of disease (using OIE recommendations and requirements on surveillance).
 - a. Prove DF on depopulated premises.

- b. Prove DF on At-Risk Premises (ARP) in the CA by random sampling or targeted sampling (choosing populations based on risk) on selected premises and selected herds.
- c. Prove DF in the FA, following OIE guidelines, using multiple methods including serological slaughter sampling and passive surveillance by veterinarians and the public.

5.3.2 Surveillance Sampling

The goal of surveillance sampling is to detect CSF as soon as possible. Currently, there are no validated mass population sampling techniques such as water trough sampling or saliva sampling from ropes for swine. Without mass population sampling, the only method for early detection of the acute form of CSF is by individual sampling of clinically ill swine using rRT-PCR tests. Serological testing will be used on convalescent or asymptomatic swine that were exposed to the CSFV. Serological test sensitivity is highest on swine exposed to the CSFV at least three weeks prior to sampling.

It is a priority to get these mass population tests validated, particularly for swine, so that additional diagnostics can supplement and amplify visual observation and individual animal sampling for early detection. Additionally, mass population sampling will aid in the serological testing of swine with mild or subclinical signs, because positive serological tests demonstrate the presence of CSFV, or document the exposure to CSFV, thereby showing evidence of CSF on the premises.

Given that no validated mass population sampling techniques are available, the following questions provide guidance to develop a surveillance sampling scheme after declaration of a CSF outbreak in a location or area.

5.3.2.1 ACUTE FORM (CLINICALLY ILL ANIMALS ON PREMISES)

1. Are resources available to intensively survey premises (for example, collect tissue and whole blood samples from the needed number of clinically ill animals)?

If “yes,” then

2. Does evidence suggest the introduction of the virus (the start of the outbreak) on the premises or in the zone began at least 5 days ago but less than 21 days ago?
3. Is there evidence that the CSF serotype is highly pathogenic (a high proportion of the infected animals will show clinical signs and/or severe clinical signs)?

If “yes” to Questions 2 and 3, then

4. Is it likely that the outbreak can be contained locally (for example, on a farm or within a small geographic area)?
5. Are there limited movements of animals, vehicles, products, and personnel on and off premises (in other words, it is unlikely that the virus will be introduced to, or spread from, this premises or zone)?
6. Are the swine operations in the zone managed for low-risks of exposure (for example, biosecurity practices in place, little opportunity for fomite transmission)?
7. Are there few noncommercial swine operations or feral swine in the zone?
8. Are there large swine operations in the zone?

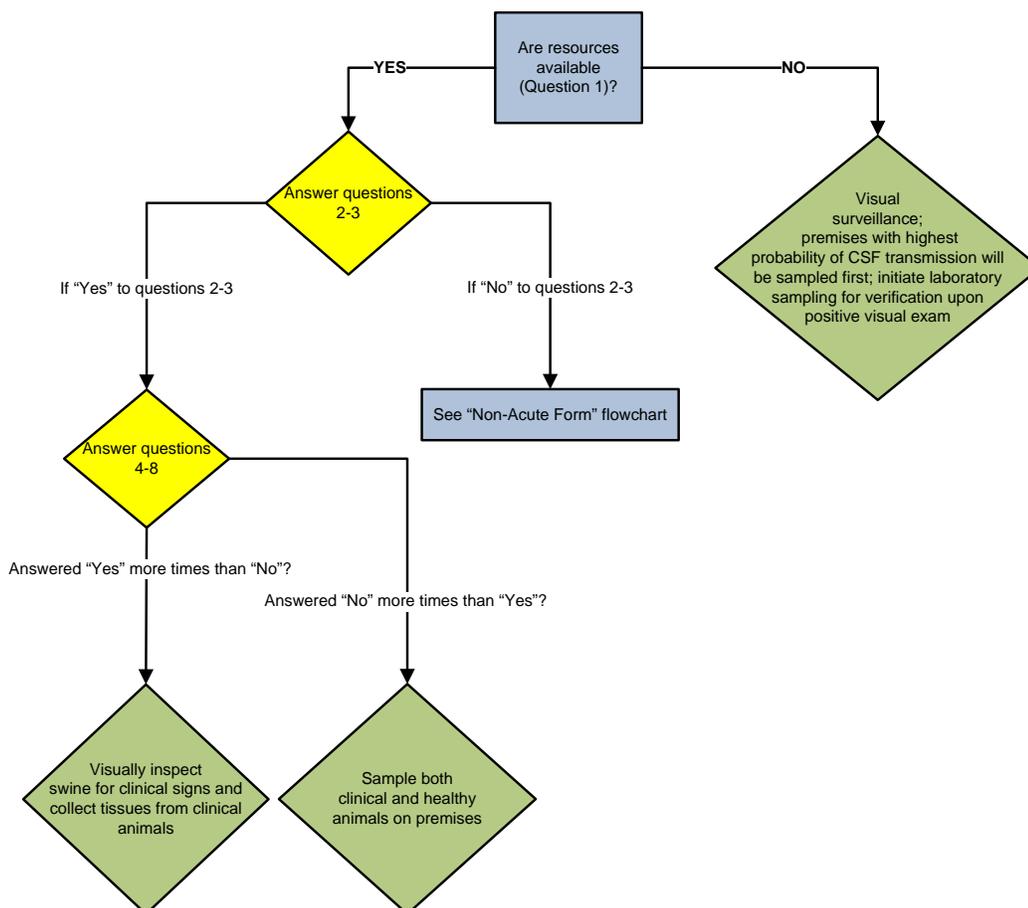
If all or most of the answers to Questions 4–8 are “yes,” the minimum surveillance sampling to detect CSFV is observational surveillance with routine visual inspection of swine for clinical signs, and targeted tissue sampling of individual animals with clinical signs.

If all or most of the answers to Questions 4–8 are “no,” both animals with clinical signs and those appearing healthy should be sampled.

If the answer to Question 1 is “no,” then visual surveillance should be conducted. Laboratory sampling/testing should be initiated upon positive visual exam for verification. Premises must be sampled based on the probability of transmitting CSF (the highest probability premises will be sampled first), whether rRT-PCR or serologic tests are used.

Figure 5-1 demonstrates how these questions should be used to inform a surveillance sampling scheme.

Figure 5-1. Developing a CSF Outbreak Surveillance Sample Scheme: Acute Form



5.3.2.2 NON-ACUTE FORMS (CONVALESCENT, ASYMPTOMATIC, OR ANIMALS WITH MILD CLINICAL SIGNS)

1. Are resources available to intensively survey premises (for example, collect tissue and whole blood samples from the needed number of clinically ill animals)?

If “yes,” then:

2. Does evidence suggest that the introduction of virus (the start of the outbreak) on the premises or in the zone began at least 21 days ago?
3. Is there evidence that the CSF serotype is not highly pathogenic (a high proportion of infected animals will show clinical signs and/or severe clinical signs)?

If the answer is “yes” to either Question 2 or 3, then sampling and serological testing of both ill and healthy animals on the premises is necessary.

IP, the distinction between commercial and noncommercial premises surveillance, equipment checklists, and surveillance for proof of DF.

The Outbreak Surveillance Toolbox, available to people with access to the Inside APHIS webpage (<http://inside.aphis.usda.gov/vs/ceah/nsu/toolbox/>), or to those outside APHIS by emailing (national.surveillance.unit@aphis.usda.gov), provides additional surveillance resources.

5.4 DIAGNOSTICS

Effective and appropriate sample collection, diagnostic testing, surge capacity, and reporting are critical in an effective CSF response. These activities will require additional resources in the event of a CSF outbreak. In particular, sample collection will require additional personnel. Surge capacity may also be required for diagnostic laboratory testing. Surveillance plan requirements must be fully integrated with current diagnostic sample collection, sample testing, surge capacity, and reporting capabilities.

During a suspected or actual CSF outbreak, the key goals of response are to (1) meet the surge requirements for diagnostic testing at specific intervals, starting at time zero and at 24-hour intervals as the response escalates and (2) report all diagnostic test results to appropriate personnel and information management systems within 12 hours of diagnostic test completion.

The *FAD Investigation Manual* offers detailed information on sample collection, diagnostic testing, surge capacity, and reporting. In particular, this document provides additional guidance on who is responsible for diagnostic testing, sample collection and processing, and analyzing diagnostic test results. ([Appendix E](#), references VS Guidance Document 12001.1, which contains more information on submitting diagnostic samples. Procedures outlined in this document should be followed regarding the submission of diagnostic samples in an FAD investigation. More information on packaging and labeling submissions is available on the [APHIS Laboratory Information Services](#) site.

5.4.1 Sample Collection and Diagnostic Testing

Trained personnel and field collection kits are required to effectively collect samples from swine. Specific diagnostic tests are used for antigen detection, virus identification, and antibody detection. For antigen detection, rRT-PCRs are used simultaneously with other tests selected on the basis of the type and priority of sample. Virus isolation is used to confirm a CSF diagnosis, but this can take up to 7 days.

Confirmation of a CSF outbreak will be made by NVSL-FADDL; confirmation of CSF on any premises not currently in a CSF CA will also be done by NVSL-FADDL. After NVSL confirmation of CSF on a premises (index case), subsequent samples for rRT-PCR may be sent to USDA-approved laboratories

which are part of the NAHLN. ([Appendix C](#) lists NAHLN laboratories approved for CSF testing).

The IC will provide specific instructions regarding the direction and collection of samples, which is likely to change as the outbreak evolves. In all cases (1) NVSL will confirm the index case, (2) presumptive positive samples (on a rRT-PCR) from outside an established CA will be tested and confirmed by NVSL, and (3) NVSL will receive samples routinely from *inside* the CA to monitor the virus.

5.4.1.1 DIAGNOSTICS FOR INVESTIGATION OF CSF

Table 5-1 and Figure 5-3 displays diagnostics for a suspected case of CSF. In the figure, Priority 1 or Priority 2 refer to categorizations explained in VS Guidance Document 12001.1. ([Appendix E](#) provides the link to this document.)

Table 5-1. Legend to the CSF Diagnostics Chart

Abbreviation	Definition
ABC	Avidin-Biotin complex
BVD	bovine viral diarrhea
ELISA	enzyme-linked immunosorbent assay
IP	Immunoperoxidase
PCR	polymerase chain reaction
rRT-PCR	real-time reverse-transcriptase polymerase chain reaction
SK-6	swine kidney cells
VI	virus isolation
VN	virus neutralization

5.4.2 OIE Requirements for Differentiation of Infected from Vaccinated Animals Testing for CSF-Free Status

In particular reference to the DIVA diagnostics for marker vaccines, the OIE states the following on the “companion discriminatory test” for the marker vaccine in the OIE *Terrestrial Manual* (2008), Chapter 2.8.3.

The companion discriminatory serological test should be very sensitive because vaccination will reduce the prevalence of the disease. It should ideally provide discrimination within the same time-frame as for development of antibody to the immunizing protein and should be used primarily as a herd test. If a high sensitivity reduces the specificity of the test, already compromised by the presence of antibodies to other pestiviruses, good and fast confirmatory assays should be available to discriminate positive from false-positive results.

The existing accompanying DIVA tests for E2 subunit vaccines are ELISAs that rely on the detection of antibody to the E_{ms} protein. Such tests have recently been approved by the European Commission for use in determining whether herds vaccinated with an E2 subunit vaccine may also have been exposed to field virus. An assessment of their performance has revealed that neither discriminatory ELISA consistently detected individual marker-vaccinated, CSF-challenged weaner pigs, hence the recommendation only to employ such a strategy at the herd level.

5.4.3 Surge Capacity

Surge capacity may be needed in a CSF outbreak. Additional resources, such as personnel and materials, will be needed for sample collection. Additional capacity may also be required for laboratory sample testing. Surge capacity can help facilitate a rapid response and continuity of business for non-infected premises. In the event that the State NAHLN laboratory and NVSL-FADDL are overwhelmed by the diagnostic testing requirements, NAHLN labs from across the country will provide surge capacity for diagnostic testing. For more information on surge capacity, please see the NAHLN Activation Guide. Individual laboratories have independent protocols on how to manage personnel if a surge is required. [Appendix C](#) contains a list of the NAHLN labs approved to conduct CSF diagnostics.

NAHLN labs currently have the capability to conduct rRT-PCR tests as shown in Figure 5-3. Ideally, NAHLN labs will also have the capability to conduct 3ABC ELISA tests to detect CSFV in herds. It is a priority to ensure that NAHLN labs have sufficient diagnostic capacity to test samples in the event of a CSF outbreak, particularly for recovering and proving DF.

5.4.4 Reporting

Box 5-2 clarifies reporting and notification of presumptive positive CSF cases. See VS Guidance Document 12001.1 (regarding FAD investigations) for further information on CSF investigations and notifications. This document is available here: <http://inside.aphis.usda.gov/vs/em/fadprep.shtml>.

Box 5-2. Reporting and Notification

Reporting and Notification

- Cases of clinical illness that are found to be presumptive positive, based on the current case definition, for CSF at NVSL-FADDL will be reported to the affected States, other States, Tribal nations, industry, other Federal agencies, trading partners, and the OIE.
- Appropriate Federal-State-Tribal-industry response and containment measures will be initiated during CSF investigations.

5.5 EPIDEMIOLOGICAL INVESTIGATION AND TRACING

5.5.1 Summary of Zones, Areas, and Premises Designations

A critical component of CSF response is the designation of zones, areas, and premises. The Incident Commander will work with the Operations Section and Situation Unit (in the Planning Section) to (1) determine appropriate zones, areas, and premises designations in the event of a CSF outbreak, and (2) reevaluate these designations as needed throughout the outbreak based on the epidemiological situation (see [Appendix B](#) for organizational charts). These zones, areas, and premises designations are used in quarantine and movement control efforts. For details on the zones, areas, and premises, please see the *APHIS Foreign Animal Disease Framework: Response Strategies* (FAD PReP Manual 2-0).

Table 5-2 summarizes the premises designations that would be employed in a CSF outbreak response. Table 5-3 summarizes the zone and area designations that would be used in a CSF outbreak response. Figure 5-4 illustrates these premises, zone, and area designations.

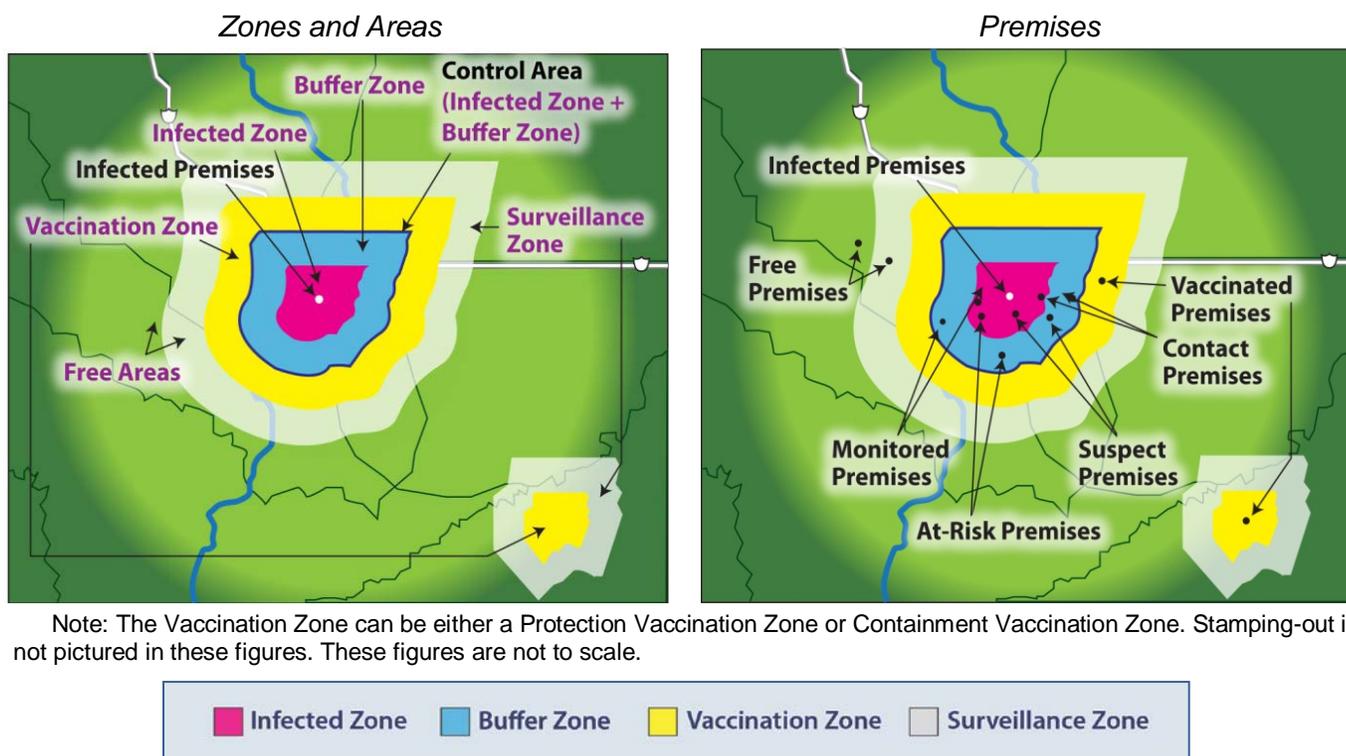
Table 5-2. Summary of Premises

Premises	Definition	Zone
Infected Premises (IP)	Premises where presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, CSF case definition and international standards.	Infected Zone
Contact Premises (CP)	Premises with susceptible animals that may have been exposed to CSF, 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 CSF. 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 CSF. Premises objectively demonstrates that it is not an Infected Premises, Contact Premises, or Suspect Premises. At-Risk Premises 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

Table 5-3. Summary of Zones and Areas

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.
Free Area (FA)	Area not included in any Control Area.
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.

Figure 5-4. Example of Zones, Areas, and Premises in CSF Outbreak Response



5.5.2 Epidemiological Investigation

Epidemiological investigation and movement tracing during an outbreak are critical in controlling and eradicating CSF. In a CSF outbreak, the goals are

- ◆ within 96 hours of identifying the index case, characterize the nature of the CSF outbreak, identify the risk factors for transmission, and develop mitigation strategies;
- ◆ within 6 hours of identifying potential IP or CP through tracing activities, assign a premises classification and a priority of investigation; and
- ◆ within 24 hours of identifying the IP or initial CP, identify all additional CP.

These measures will aid in the control of CSF and lessen the impact of the outbreak during the response effort. [Appendix F](#) contains a sample epidemiological questionnaire. Please note that this questionnaire is only an example. In an outbreak, other factors may be considered; the scope of such a questionnaire should be assessed based on the epidemiological situation, and is at the discretion of IC. The CSF Epidemiological Investigation and Tracing SOP as well as the *NAHEMS Guidelines: Surveillance, Epidemiology, and Tracing* both provide more information.

5.5.3 Tracing

Box 5-3 explains the fundamental importance of movement tracing in a CSF response effort.

Box 5-3. Importance of Movement Tracing in CSF Outbreak

Tracing

One of the single most important and urgent veterinary activities during a CSF outbreak is to rapidly and diligently trace-back and trace-forward movements from an IP. This tracing will aid in the control of the spread of CSFV and limit the impact of the outbreak. Tracing should cover all movements from the premises, including susceptible swine, non-susceptible species, animal products, vehicles, crops and grains, and people. Tracing will also include consideration of all potential modes of transmission and possible contact with feral swine.

Trace-back and trace-forward information should ideally be collected for at least 28 days prior to the appearance of clinical signs in animals infected with CSF. Additional tracing information will be collected for movements up to the time quarantine was imposed.

Tracing information will be obtained from many sources (such as reports from field veterinarians, producers, industry, farm service providers, or the public). The Emergency Management Response System (EMRS) will be used to collect and report epidemiological data, including movement tracing information, locally and nationally.

5.5.4 Considerations for Size of Control Area and Minimum Sizes of Other Zones

The perimeter of the CA should be at least 10 km (~6.21 miles) beyond the perimeter of the closest IP. The size of the CA depends on the circumstances of the outbreak, including the IP transmission pathways and estimates of transmission risk, livestock movement patterns and concentrations, distribution of susceptible wildlife in proximity, natural terrain, jurisdictional boundaries, and other factors. The boundaries of the CA can be modified or redefined when tracing and other epidemiological information becomes available.

Table 5-4 provides a description of the minimum sizes of areas and zones. Table 5-5 reviews the factors used to determine the size of the CA.

Table 5-4. Minimum Sizes of Areas and Zones

Zone or Area	Minimum size and details
Infected Zone (IZ)	Perimeter should be at least 3 km (~1.86 miles) beyond perimeters of presumptive or confirmed Infected Premises. Will depend on disease agent and epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 7 km (~4.35 miles) beyond the perimeter of the Infected Zone. Width is generally not less than the minimum radius of the associated Infected Zone, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 10 km (~6.21 miles) beyond the perimeter of the closest Infected Premises. Please see Table 5-5 for factors that influence the size of the Control Area. This area may be redefined as the outbreak continues.
Surveillance Zone (SZ)	Width should be at least 10 km (~6.21 miles), but may be much larger.

Table 5-5. Factors to Consider in Determining Control Area Size for CSF

Factors	Additional details
Jurisdictional areas	<ul style="list-style-type: none"> ◆ Effectiveness and efficiency of administration ◆ Multi-jurisdictional considerations: local, State, Tribal, and multistate
Physical boundaries	<ul style="list-style-type: none"> ◆ Areas defined by geography ◆ Areas defined by distance between premises
CSF epidemiology	<ul style="list-style-type: none"> ◆ Reproductive rate ◆ Incubation period ◆ Ease of transmission ◆ Infectious dose ◆ Modes of transmission (fecal-oral, droplet, aerosol, vectors) ◆ Survivability in the environment ◆ Ease of diagnosis (for example, no pathognomonic signs; requires diagnostic laboratory testing) ◆ Age of lesions
Infected Premises characteristics	<ul style="list-style-type: none"> ◆ Number of contacts ◆ Transmission pathways and transmission risk <ul style="list-style-type: none"> ▪ Extent of animal movement ▪ Number of animals ▪ Age of animals ▪ Movement of traffic and personnel to and from premises (fomite spread) ▪ Biosecurity measures in place at time of outbreak
Contact Premises characteristics	<ul style="list-style-type: none"> ◆ Number and types of premises ◆ Susceptible swine populations and population density ◆ Animal movements ◆ Movement of traffic (fomites) and personnel to and from premises (fomite spread) ◆ Biosecurity measures in place prior to outbreak

Table 5-5. Factors to Consider in Determining Control Area Size for CSF

Factors	Additional details
Environment	<ul style="list-style-type: none"> ◆ Types of premises in area or region ◆ Land use in area or region ◆ Susceptible feral swine and population density ◆ Wildlife as biological or mechanical vectors
Climate (for aerosol spread diseases)	<ul style="list-style-type: none"> ◆ Prevailing winds ◆ Humidity
General area, region, or agricultural sector biosecurity	<ul style="list-style-type: none"> ◆ Biosecurity practices in place prior to outbreak ◆ Biosecurity practices implemented once outbreak detected
Number of non-commercial or transitional premises	<ul style="list-style-type: none"> ◆ Types of premises, animal movements, and network of animal and fomite movements
Continuity of business	<ul style="list-style-type: none"> ◆ Continuity of business plans and processes in place or activated at beginning of outbreak (such as surveillance, negative diagnostic tests, premises biosecurity, and risk-assessments) ◆ Permit processes, memorandums of understanding, and information management systems in place or activated at beginning of outbreak

5.6 INFORMATION MANAGEMENT

Local, State, Tribal, and Federal information management systems need to be compatible for information and data sharing. In a CSF outbreak, the response goal is to have EMRS information downloads or data entry processes performed in 24-hour or shorter intervals. Field personnel should be provided with access to the mobile technology devices necessary for collecting, monitoring, and sharing information. Rapidly functional, robust, and scalable information technology infrastructure will be needed in a CSF outbreak.

The Overview of Information Management SOP provides information on key selected systems (covered in the SOP in the following order):

- ◆ CoreOne (Surveillance Collaboration Services)
- ◆ Animal Health and Surveillance Management
- ◆ Veterinary Services Process Streamlining
- ◆ Animal Disease Traceability Information System
- ◆ NAHLN
- ◆ EMRS
- ◆ National Veterinary Logistics System
- ◆ LabWare Laboratory Information Management System

- ◆ Licensing, Serial Release, and Testing Information System
- ◆ Mobile Information Management.

It also covers the following APHIS information technology systems:

- ◆ APHIS Emergency Qualifications System
- ◆ Resource Ordering and Status System.

5.7 COMMUNICATION

The CSF Communications SOP provides guidance on communications activities during a CSF outbreak, covering the responsibilities of personnel and internal and external communication procedures. APHIS Legislative and Public Affairs (LPA) will serve as the primary liaison with the news media in the event of a CSF outbreak. Under the ICS, a JIC will be established. During a CSF outbreak, APHIS LPA and the USDA Office of Communications will operate from the JIC.

Effective communication during a CSF outbreak should be carried out and maintained by

- ◆ establishing a network of stakeholders and systems for communication prior to an incident or outbreak;
- ◆ briefing the media, public, industry, Congress, trading partners, and others on the CSF outbreak status and the actions being taken to control and eradicate the disease;
- ◆ coordinating with Federal, State, and local agencies, Tribal entities, producer groups, and Land Grant University based Cooperative Extension Services to ensure consistent messaging regarding animal health, public health, and food safety; and
- ◆ assuring consumers that USDA is working on animal health issues, in an informed and timely manner.

In addition, all communications should highlight the importance of sound biosecurity measures and steps that producers and owners can take to protect against CSF infection in their own swine herds.

5.7.1 Objectives

All CSF communications must

- ◆ furnish accurate, timely, and consistent information;
- ◆ maintain credibility and instill public confidence in the government's ability to respond to an outbreak;
- ◆ minimize public panic and fear; and
- ◆ address rumors, inaccuracies, and misperceptions as quickly as possible.

5.7.2 Key Messages

Five key messages will be conveyed in a CSF outbreak (Box 5-4).

Box 5-4. CSF Communication Messages

Key Communication Messages

For consumers:

1. CSF does not cause disease in humans.
2. Pork and pork products are safe to eat.
3. We are responding quickly and decisively to eradicate the virus.

For producers:

1. Protect your swine with good biosecurity practices.
2. Be vigilant about reporting signs of illness.

5.7.3 Further Communications Guidance

In addition to the CSF Communications SOP, the following resources provide guidance on communication and information about various stakeholder groups:

- ◆ APHIS Animal Health [website](#)
- ◆ CSF information in English and Spanish (<http://www.classicalswinefever.org/>)
- ◆ FAD PReP Stakeholder Coordination and Collaboration Resource Guide.

5.8 HEALTH AND SAFETY AND PERSONAL PROTECTIVE EQUIPMENT

During a CSF outbreak, responders are exposed to many hazards, particularly in working with heavy equipment and large animals. Taking precautions to prevent adverse human health events related to emergency response efforts is important. PPE is crucial in protecting health and safety during a CSF outbreak response effort. PPE also helps ensure response personnel are taking care to avoid transmitting CSFV to naïve premises.

PPE is fundamental in ensuring personnel are protected in the CSF response effort. All workers involved in the handling, culling, transport, or disposal of items or animals infected with CSFV must be provided with appropriate PPE. All visitors and employees, regardless of their exposure, should be provided with disposable coveralls, boots, hats, and gloves before entering a premises. Disposal of this PPE is required after leaving.

For further information on health and safety and PPE, see the CSF Health and Safety and Personal Protective Equipment SOP. It provides information on best practices to ensure the well-being and safety of all individuals involved in the response effort. Specific topics covered include the following:

- ◆ Procedures to create a site-specific health and safety plan
- ◆ Details of hazard analysis, necessary training, and medical surveillance requirements
- ◆ PPE, including Occupational Safety and Health Administration respirator fit testing
- ◆ Pre-deployment information and guidance
- ◆ A protocol for staff field safety in a CSF response.

5.8.1 Mental Health Concerns

The health and safety of all personnel is affected by the mental state of those involved in the CSF response effort. The toll a CSF outbreak may take on mental and physical health must be considered to protect the health and safety of all personnel.

CSF depopulation efforts can significantly affect the health of responders, swine owners, and others impacted by the outbreak and response efforts. The HHS has developed resources specifically for emergency and disaster responders, States and local planners, health professionals, and the general public (www.bt.cdc.gov/mentalhealth/). The Mass Depopulation and Euthanasia SOP

provides further information on how personnel can effectively deal with euthanasia-related stress.

5.8.2 Further Information on Health, Safety, and Personal Protective Equipment

In addition to the resources already listed, the following documents contain information and guidance:

- ◆ *APHIS Health and Safety Manual*. Available to APHIS employees at http://inside.aphis.usda.gov/mrpbs/publications/safety_health_wellness_manual/index.shtml
- ◆ *NAHEMS Guidelines: Health and Safety*
- ◆ *NAHEMS Guidelines: Personal Protective Equipment*.

5.9 BIOSECURITY

A CSF outbreak would seriously impact the agricultural industry; strict biosecurity measures need to be implemented to prevent or slow the spread of CSF. Biosecurity procedures should be implemented within 24 hours of the identification of an index CSF case. Accordingly, veterinarians, owners, and anyone else in contact with enterprises that have susceptible animals need to observe biosecurity measures.

Proper biosecurity measures have two functions: (1) containing the virus on IP (biocontainment), and (2) preventing the introduction of the virus via movement of personnel and material to naïve swine and premises (bioexclusion). During a CSF outbreak, a careful balance must be maintained between facilitating response activities and ensuring personnel do not expose naïve animals and premises to CSFV.

Further information on biosecurity is provided in the CSF Biosecurity SOP, which offers guidance on how to draft a site-specific biosecurity plan and

- ◆ identifies the roles and responsibilities of key personnel,
- ◆ explains biosecurity training and briefing requirements,
- ◆ addresses site security and safety,
- ◆ discusses biosecurity practices for shipping and transportation, and
- ◆ provides a biosecurity checklist.

In addition, more information on appropriate biosecurity measures can be found in the *NAHEMS Guidelines: Biosecurity*.

5.9.1 Biosecurity Hazards and Mitigating Measures

Box 5-5 shows biosecurity hazards and biosecurity measures to mitigate these risks during a CSF outbreak.

Box 5-5. CSF Biosecurity Hazards and Appropriate Biosecurity Measures

Biosecurity Hazards	Biosecurity Measures to Mitigate Risk
<ul style="list-style-type: none"> • Movement of swine, vehicles, equipment, and people. • Contaminated feed and water. • Contact with infected swine and other non-susceptible animals that can act as mechanical vectors (other livestock, cats, or foxes). • Contact with contaminated people, clothes, footwear, or hands. 	<ul style="list-style-type: none"> • Clean and disinfect premises, vehicles, and equipment and dispose of materials that cannot be disinfected in an appropriate manner. • Account for the movement of all swine, other animals, and equipment for accurate records. • Provide a location for all individuals to carry out appropriate cleaning and disinfection procedures and insist that these procedures are followed. • Prevent close or direct contact between herds (over a single fence line).

5.9.2 Closed Herds

In the event of a CSF outbreak, an important biosecurity measure is closing herds to new swine. Box 5-6 provides guidance on employing closed herds as a critical biosecurity measure.

Box 5-6. Biosecurity Measure—Closed Herds

Biosecurity: Closed Herds
<ul style="list-style-type: none"> • To the fullest extent possible, close the herd to the introduction of new swine (with population increases occurring only from offspring). • If a closed herd is not possible, isolate newly purchased swine (from the healthiest possible sources) and those returning from existing herds for 30 days or more. • Do not introduce vaccinated animals to naïve herds.

5.9.3 Waiting Period

Another important biosecurity measure is to ensure personnel are not travelling between IP and unknown or non-infected premises. During a CSF outbreak, it is important that personnel wait the allotted time between premises visits in addition to following appropriate biosecurity and cleaning and disinfection protocols (see

[Section 5.15](#)). *Actual waiting periods will be recommended by IC on the basis of the outbreak circumstances, and need for personnel.* Typical waiting times vary between 24 and 72 hours. Team members should not travel from IP or SP to unknown or non-infected premises. However, they may travel *between* IP, if proper mitigating procedures are followed.

Extended avoidance periods for personnel may be unnecessary with stringent biosecurity practices and effective cleaning and disinfection protocols. However, until further information is available, veterinarians and other responders should adhere to the guidance provided by the local IC.

5.10 QUARANTINE AND MOVEMENT CONTROL

By restricting the movement of infected swine, pork products, and contaminated fomites, quarantine and movement control can be a powerful tool in controlling and containing a CSF outbreak. Movement control is accomplished through a permit system that allows entities to make necessary movements without creating an unacceptable risk of disease spread. Operational staff members need to strictly adhere to movement control procedures, which are based on the best scientific information available at the time.

The Incident Commander, Disease Surveillance Branch (Operations Section), and Situation Unit (Planning Section), will coordinate to establish an IZ and a BZ within 12 hours of the identification of an index case. Controlled movement orders and 24-hour standstill notices are likely to be implemented upon detection of CSF in the United States in relevant regions or zones. ([Appendix H](#) contains examples of movement control notices.) Once the CA (IZ plus BZ) is established, quarantine and movement controls will be implemented.

Each State's animal health emergency response plan should describe the implementation of quarantine and movement controls, including a permit system. USDA will impose a Federal quarantine and restrict interstate commerce from the infected States, asking the States (or adjoining countries) to provide resources to maintain and enforce the quarantine. Reimbursement formulas will be established between the States and USDA in a cooperative agreement.

5.10.1 Zones, Areas, and Premises Designations

The Incident Commander will work with the Disease Surveillance Branch (Operations Section) and the Situation Unit (Planning Section) to determine appropriate premises designations in the event of a CSF outbreak (see [Appendix B](#) for an organizational chart). These zone, area, and premises designations will be used for quarantine and movement control efforts. Again, refer to Tables 5-2 and 5-3 and Figure 5-4 for the designations used here.

5.10.2 Permit Guidance to Move into a Control Area, within a Control Area, and out of a Control Area

During a CSF outbreak, the following guidance in Table 5-6 (movement into a CA), Table 5-7 (movement within a CA), and Table 5-8 (movement out of a CA) will be used to issue permits in movement control efforts. For permit guidance for pork and pork products, see the *Secure Pork Supply (SPS) Plan*, discussed in [Appendix G](#). See [Subsection 5.16](#) for additional guidance for movement control of vaccinates.

Table 5-6. Movement into Control Area from Outside Control Area to Specific Premises^a

Item Moving into a Control Area to a/an...	→ Infected Premises	Suspect Premises [^]	Contact Premises [^]	At-Risk Premises	Monitored Premises
Susceptible animals	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Permit for movement must be approved by the IC with appropriate biosecurity measures.	Permit for movement must be approved by the IC with appropriate biosecurity measures.
Susceptible animal products	See continuity of business plans for information on susceptible pork products, or guidance and processes as determined by the IC. Please see Subsection 5.10.5 which contains OIE CSF-specific guidance for inactivating CSF. In addition, Appendix G contains information on the SPS Plan for pork and pork product movement during a CSF outbreak.				
Other animals (non-susceptible swine) from premises with susceptible swine	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon CSF epidemiology and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon CSF epidemiology and characteristics of destination premises.
Other animals (non-susceptible swine) from premises without susceptible swine	IC will determine movement restrictions based on CSF epidemiology and characteristics of destination premises.	IC will determine movement restrictions based on CSF epidemiology and characteristics of destination premises.	IC will determine movement restrictions based on CSF epidemiology and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon CSF epidemiology and characteristics of destination premises.	Allowed with appropriate biosecurity measures. IC may require a permit for movement depending upon CSF epidemiology and characteristics of destination premises.
Equipment, vehicles, and other fomites from premises with susceptible swine	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.
Semen, embryos from susceptible swine	Prohibited.	Prohibited.	Prohibited.	Allowed with appropriate biosecurity measures.	Allowed with appropriate biosecurity measures.

^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

[^] Contact Premises and Suspect Premises are intended to be short-term premises designations. Ideally these Premises should be re-designated before movements occur.

Table 5-7. Movement within a Control Area^a

Item Moving within a Control Area from a/an....	→ Infected Premises	Suspect Premises [^]	Contact Premises [^]	At-Risk Premises	Monitored Premises
Susceptible animals	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Prohibited, except under certain circumstances as determined by the IC, such as slaughter.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Susceptible animal products	See continuity of business plans for information on susceptible animal products, or guidance and processes as determined by the IC. Please see Subsection 5.10.5 which contains OIE CSF-specific guidance for inactivating CSF. In addition, Appendix G contains information on the SPS Plan for pork and pork product movement during a CSF outbreak.				
Other animals (non-susceptible swine) from premises with susceptible swine	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.	Allowed to move by permit approved by the IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Other animals (non-susceptible swine) from premises without susceptible swine	n/a (Infected Premises have susceptible species.)	n/a (Suspect Premises have susceptible species.)	n/a (Contact Premises have susceptible species.)	n/a (At-Risk Premises have susceptible species.)	n/a (Monitored Premises have susceptible species.)
Equipment, vehicles, and other fomites from premises with susceptible swine	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Prohibited unless specific permit granted by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.
Semen, embryos from susceptible animals	Prohibited.	Prohibited.	Prohibited.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.

^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

[^] Contact Premises and Suspect Premises are intended to be short-term premises designations. Ideally these Premises should be re-designated before movements occur.

Table 5-8. Movement from Inside a Control Area to Outside a Control Area from Specific Premises^a

Item Moving out of a Control Area from a/an...	→ Infected Premises	Suspect Premises [^]	Contact Premises [^]	At-Risk Premises	Monitored Premises [*]
Susceptible animals	Prohibited, except under certain circumstances as determined by the IC.	Prohibited, except under certain circumstances as determined by the IC.	Prohibited, except under certain circumstances as determined by the IC.	At-Risk Premises must become Monitored Premises to move susceptible livestock out of a Control Area.	Allowed to move by permit approved by IC; surveillance, negative diagnostic tests, premises biosecurity, and risk-assessment may be required for permit.
Susceptible animal products	See continuity of business plans for information on susceptible animal products, or guidance and processes as determined by the IC. Please see Subsection 5.10.5 which contains OIE CSF-specific guidance for inactivating CSF. In addition, Appendix G contains information on the SPS Plan for pork and pork product movement during a CSF outbreak.				
Other animals (non-susceptible swine) from premises with susceptible swine	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Prohibited unless specific permit approved by IC and appropriate biosecurity measures and risk-assessment.	Allowed to move by permit approved by IC; surveillance and negative diagnostic tests for susceptible animals on premises, premises biosecurity, and risk-assessment may be required for permit.	Allowed to move by permit approved by IC; surveillance and negative diagnostic tests for susceptible animals on premises, premises biosecurity, and risk-assessment may be required for permit.
Other animals (non-susceptible swine) from premises without susceptible swine	n/a (Infected Premises have susceptible species.)	n/a (Suspect Premises have susceptible species.)	n/a (Contact Premises have susceptible species.)	n/a (At-Risk Premises have susceptible species.)	n/a (Monitored Premises have susceptible species.)
Equipment, vehicles, and other fomites from premises with susceptible swine	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Prohibited unless permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.	Allowed by permit approved by IC and appropriate biosecurity measures.
Semen, embryos from susceptible animals	Prohibited.	Prohibited.	Prohibited.	At-Risk Premises must become Monitored Premises to move semen, embryos from susceptible livestock out of a Control Area.	Monitored Premises only allowed by permit approved by IC and appropriate biosecurity measures.

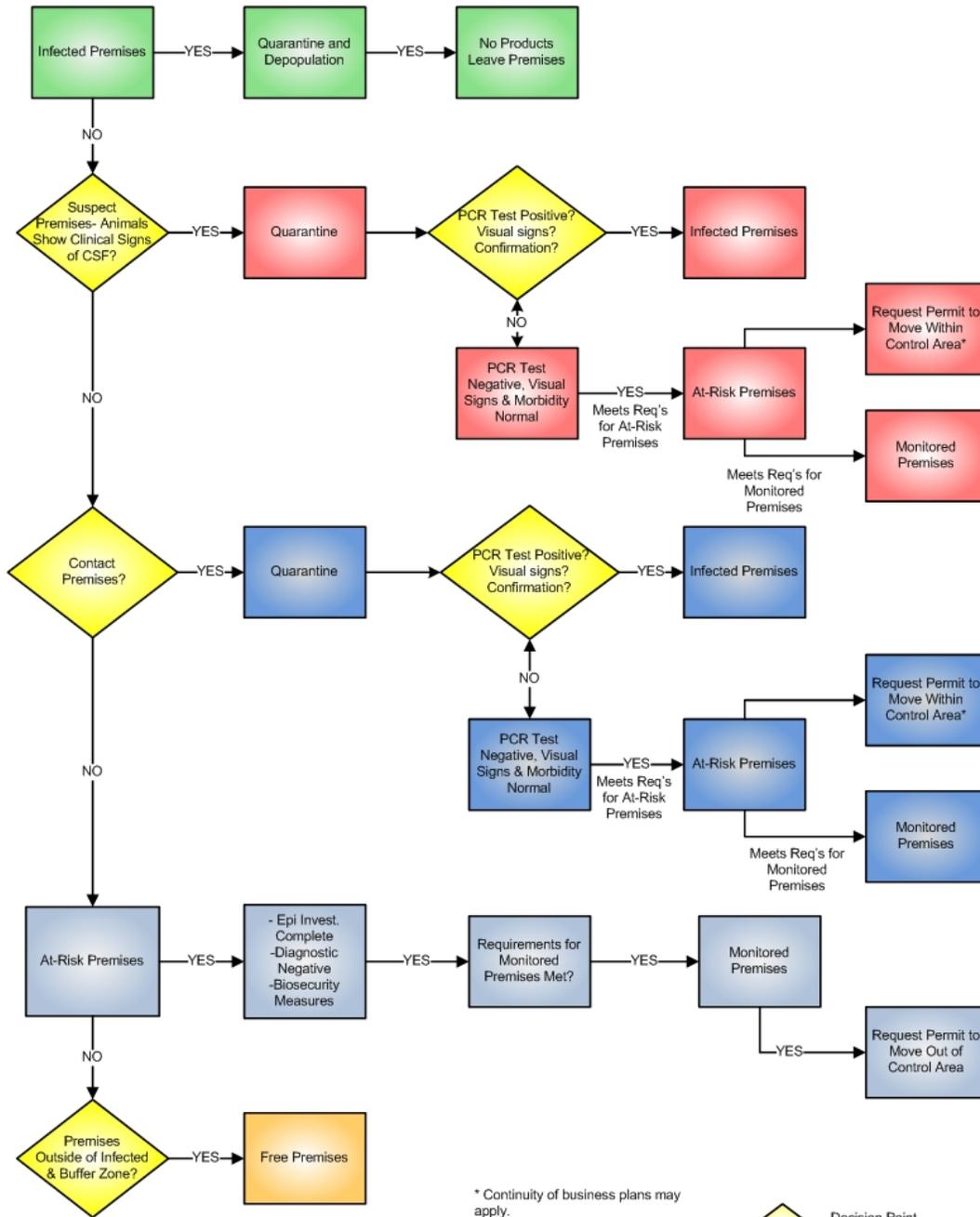
^a Movement control and permit processes will change over time depending on situational awareness and operational capabilities.

[^] Contact Premises and Suspect Premises are intended to be short-term premises designations. Ideally these Premises should be re-designated before movements occur.

^{*} Continuity of business plans may apply.

For movement of swine and pork products out of the CA to a FA, the permit process must consider national standards, any OIE standards, and conditions for such movement such as biosecurity procedures and risk assessment recommendations. In addition, commodity-specific proactive risk assessments, continuity of business plans, movement and marketability plans, and compartmentalization plans will also be considered. Figure 5-5 illustrates movement control and permitting in relation to premises designation.

Figure 5-5. Premises Designations in Relation to Permitting and Movement Control



5.10.3 Moving Commodities, Animals, and Conveyances in CSF Outbreak

Any movement of commodities, animals, and conveyances brings some level of risk of CSFV transmission from a known IP or an unknown IP to non-infected premises. The risk of moving commodities, animals, and conveyances depends on the nature of the item being moved and its ability to transmit or be contaminated with CSFV. CSFV can be transmitted via items that contain biological material (such as manure), through infected swine, or via a contaminated fomite or person.

5.10.4 Guidance for All Premises

Because of the variation in the risk of the commodities, animals, and conveyances, it is possible that premises—particularly MP and ARP—may be permitted to move one commodity or conveyance but not another. In making the decision whether movement will be allowed, substantial consideration will be given to critical movements (for example, the movement of animal feed onto premises).

See [Subsection 5.16](#) for additional guidance for movement control of vaccinates.

5.10.5 OIE Treatment Guidelines for CSF

The OIE *Terrestrial Animal Health Code (2012)* provides guidance for the importation of animals, products, and commodities from CSF infected countries or zones, as well as processes for inactivating CSFV. The guidance for the inactivation of CSF in swill, meat, skins and trophies is provided below and can also be found in Article 15.2.20 to Article 15.2.22 of the OIE *Terrestrial Animal Health Code (2012)*.

5.10.5.1 PROCEDURES FOR THE INACTIVATION OF CSF VIRUS IN SWILL

For the inactivation of CSF viruses likely to be present in swill, one of the following procedures should be used:

1. The swill should be maintained at a temperature of at least 90°C for at least 60 minutes, with continuous stirring; or
2. The swill should be maintained at a temperature of at least 121°C for at least 10 minutes at an absolute pressure of 3 bar.

5.10.5.2 PROCEDURES FOR THE INACTIVATION OF THE CSF VIRUS IN MEAT

1. Heat treatment

Meat, shall be subjected to one of the following treatments:

- a) heat treatment in a hermetically sealed container with a F_0 value of 3.00 or more;¹
- b) heat treatment at a minimum temperature of 70°C, which should be reached throughout the meat.

2. Natural fermentation and maturation

The meat should be subjected to a treatment consisting of natural fermentation and maturation having the following characteristics:

- a) an aw value of not more than 0.93, or²
- b) a pH value of not more than 6.0.

Hams should be subjected to a natural fermentation and maturation process for at least 190 days and loins for 140 days.

3. Dry cured pork meat

- a) Italian style hams with bone-in should be cured with salt and dried for a minimum of 313 days.
- b) Spanish style pork meat with bone-in should be cured with salt and dried for a minimum of 252 days for Iberian hams, 140 days for Iberian shoulders, 126 days for Iberian loin, and 140 days for Serrano hams.

5.10.5.3 PROCEDURES FOR THE INACTIVATION OF CSF VIRUS IN SKINS AND TROPHIES

For the inactivation of CSF viruses likely to be present in skins and trophies, one of the following procedures should be used

1. boiling in water for an appropriate time so as to ensure that any matter other than bone, tusks or teeth is removed;
2. gamma irradiation at a dose of at least 20 kilogray at room temperature (20°C or higher);
3. soaking, with agitation, in a 4 percent (w/v) solution of washing soda (sodium carbonate - Na_2CO_3) maintained at pH 11.5 or above for at least 48 hours;

¹ F_0 value is the time in minutes to provide the appropriate spore destruction.

² aw is the measure of water reactivity in food.

-
4. soaking, with agitation, in a formic acid solution (100 kg salt [NaCl] and 12 kg formic acid per 1,000 liters water) maintained at below pH 3.0 for at least 48 hours; wetting and dressing agents may be added; and
 5. in the case of raw hides, salting for at least 28 days with sea salt containing 2% washing soda (sodium carbonate Na₂CO₃).

5.10.6 Surveillance Required for Swine and Product Movement

Surveillance measures are required for movement of swine and pork products for premises located in the CA (IZ and BZ). These steps include visual surveillance along with diagnostic testing prior to movement. ([Appendix D](#) contains more information on surveillance measures for movement of swine and pork products.)

5.11 CONTINUITY OF BUSINESS

Continuity of business is the management of non-infected premises and non-contaminated pork products in the event of a CSF outbreak. Continuity of business provides science- and risk-based approaches and systems as a critical activity in a CSF response. This helps to facilitate agriculture and food industries maintain typical business, or return to business during a disease response, while the risk of disease spread is effectively managed. Continuity of business planning can help to minimize unintended consequences on producers and consumers impacted by CSF. During a CSF outbreak, permitting, movement control, and prioritized disruptions—all based on science and risk-based approaches—are critical measures to ensure continuity of business. The *NAHEMS Guidelines: Continuity of Business* covers topics such as

- ◆ key roles and responsibilities in continuity of business planning,
- ◆ details of developing continuity of business plans,
- ◆ potential components required for continuity of business planning, and
- ◆ preparedness and response goals.

The *SPS Plan* offers additional continuity of business information, particularly applicable to interstate trade. ([Appendix G](#) contains information on the *SPS Plan*.)

5.12 REGIONALIZATION FOR INTERNATIONAL TRADE (FOR A U.S. CSF RESPONSE)

In the event of a CSF outbreak in the United States, international trade of swine and pork products may be adversely affected for a significant period of time. This would have serious economic implications for the affected industries and the

United States. Therefore, it is important to identify, prior to an outbreak, potential procedures and plans that may mitigate the consequences and reestablish international trade as rapidly as possible.

As defined by the OIE, regionalization, also known as zoning, is the concept of separating subpopulations of animals in order to maintain a specific health status in one or more disease-free regions or zones. Disease-free regions can be created to facilitate continuity of business and reestablish international trade from the regions demonstrated to be disease-free. Regionalization recognizes that risk may be tied to factors that are not reflected by political boundaries of the nation or individual states, especially when the outbreak has been confined to specific areas within an individual state, or group of states. Providing information to the OIE, its member countries and our trading partners, that clearly identifies the boundaries of the disease-free areas, can be used to inform our trading partners' decisions whether to receive or reject our exports. This risk-based process, based on sound science, can mitigate the adverse economic effects of a CSF outbreak.

5.12.1 Compartmentalization

Another tool that may potentially mitigate the economic consequences of a disease outbreak is compartmentalization. Compartmentalization, which defines an animal subpopulation by management and husbandry practices related to biosecurity, could be used by the veterinary authorities to demonstrate and maintain disease freedom in certain commercial establishments whose practices have prevented the introduction of the disease. The disease-free status of these compartments could enable trade movement of animal products.

Compartmentalization has not been fully implemented by the United States for any disease agent to-date, and will depend on the recognition of the status of these compartments by international trading partners. Implementation of compartmentalization will rely on producers, industry, and State and Federal animal health authorities. By working closely together to develop and strengthen relationships and implementing the agreed upon procedures preceding an FAD outbreak, compartmentalization may be a useful tool.

5.12.2 Further Guidance

The OIE *Terrestrial Animal Health Code (2012)* (www.oie.int) also offers guidance on regionalization and compartmentalization in Chapters 4.3 and 4.4. The *NAHEMS Guidelines: Regionalization for International Trade for a U.S. FAD Response* contains information on regionalization as an FAD response tool.

Specific guidelines for a CSF-free compartment are found in Chapter 15.2.3 of the OIE *Code*. Currently there are no internationally accepted or fully implemented CSF-free compartments in the United States.

5.13 MASS DEPOPULATION AND EUTHANASIA

Depending on the CSF strategy or strategies selected, animals on an IP will be depopulated as soon as possible after declaration of a CSF outbreak. Susceptible swine on CP may also be depopulated as soon as possible after the premises are classified as CP. The Mass Depopulation and Euthanasia SOP provides instructions for personnel following the declaration of a CSF outbreak and the classification of IP and CP. This SOP offers CSF-specific information on mass depopulation and euthanasia, including evaluation of various euthanasia methods, such as

- ◆ gunshot,
- ◆ penetrating captive bolt,
- ◆ electrocution,
- ◆ injectable euthanasia, and
- ◆ carbon dioxide and other gas.

In a CSF outbreak, euthanasia or mass depopulation should be provided to the affected animals as safely, quickly, efficiently, and humanely as possible. In addition, the emotional and psychological impact on animal owners, caretakers, their families, and other personnel should be minimized.

Mass depopulation and euthanasia are not synonymous and APHIS recognizes a clear distinction. Euthanasia involves transitioning an animal to death as painlessly and stress-free as possible. Mass depopulation is a method by which large numbers of animals must be destroyed quickly and efficiently with as much consideration given to the welfare of animals as practicable, given extenuating circumstances. Mass depopulation is employed in a CSF response to prevent or mitigate the spread of CSF through eliminating infected or potentially infected animals. Best practice guidance issued in 2007 from the American Veterinary Medical Association (AVMA) states that “Under unusual conditions, such as disease eradication and natural disasters, euthanasia options may be limited. In these situations, the most appropriate technique that minimizes human and animal health concerns must be used.” Qualified personnel should perform mass depopulation in the event of a CSF outbreak using the safest, quickest, and most humane procedures in accordance with AVMA guidance.

If personnel or materials are insufficient, the Incident Commander or other official should request emergency depopulation, disposal, and decontamination (3D) contractor support for CSF depopulation efforts from the NVS.

NAHEMS Guidelines: Mass Depopulation and Euthanasia contains additional information on euthanasia and mass depopulation.

5.14 DISPOSAL

Appropriate disposal of animal carcasses and materials is a critical component of a successful CSF response. CSF can survive for long periods on both organic and inorganic materials. The Disposal SOP discusses how to dispose of carcasses, animal products, other materials, and items that cannot be properly cleaned and disinfected (such as manure, litter, and bedding), products of the response effort (such as PPE), and products of vaccination response. Disposal will occur as soon as possible after the depopulation of animals on premises.

Disposal must be done in a manner that does not allow CSFV to spread, minimizes negative environmental effects, and conserves meat or animal protein if logistically supportable from a biosecurity standpoint. In some cases, moving clinically normal animals to a slaughter facility within the CA may be possible, though they may have been exposed to the CSFV on IP or CP. IC must permit any movement required for disposal. Local and State regulations must be observed or memorandums of understanding must be obtained to ensure disposal capability. Cost effectiveness and stakeholder acceptance must also be considered.

On-site burial may be an inexpensive and biosecure method of disposal that minimizes the transportation of infected materials. However, on-site methods may be limited by several factors such as topography, soil type, soil depth to bedrock, seasonal high-water table, and environmental regulations. Off-site burial may be needed when on-site burial is not possible or when a number of IP must be depopulated and a common burial site would be more efficient. Other disposal methods such as composting, incineration, digestion, and rendering may also be employed, as indicated by the circumstances of the outbreak and disposal requirements.

In addition, in any CSF outbreak, multiple methods of disposal may be required, due to the large quantity of materials in need of disposal. Rendering, incineration, and composting are considered viable alternatives for both large and small ruminants. For the disposal of syringes and unused but opened vaccine vials, on-site incineration is highly recommended.

Disposal methods should always be assessed and applied appropriately, given the facility location, type of housing, premises characteristics, and other situational factors. IC will coordinate closely with local authorities in deciding how to dispose of carcasses and other items.

In the event that available personnel are insufficient for disposal requirements in a CSF outbreak, the Incident Commander can request emergency 3D contractor support from the NVS. The *NAHEMS Guidelines: Disposal* contains further guidance on disposal activities.

5.15 CLEANING AND DISINFECTION

Because of CSF's high survival rate on both organic and inorganic materials, aggressive cleaning and disinfection practices are required for control and eradication. Cleaning and disinfection are to be conducted within 48 hours of the disposal of depopulated animals. The Cleaning and Disinfection SOP provides information on

- ◆ the CSF cleaning and disinfection effort,
- ◆ optimal cleaning and disinfection methods for CSF,
- ◆ processes used to inactivate CSFV from organic materials,
- ◆ how to clean and disinfect equipment and premises after CSF detection, and
- ◆ Environmental Protection Agency (EPA)-approved [disinfectants](#) for CSF virus.

Because the aerosol transmission of CSF is a concern, care should be taken to reduce the generation and dispersal of potentially infective dust and aerosolized materials during cleaning and disinfection procedures. If items cannot be cleaned and disinfected adequately, they will be disposed of using burial, incineration, or other appropriate means. All disinfectants must be EPA-approved for CSF; off-label use of disinfectants is illegal.

If available personnel or materials are insufficient for cleaning and disinfection in a CSF outbreak, the Incident Commander can request emergency 3D contractor support from NVS.

The *NAHEMS Guidelines: Cleaning and Disinfection* contains additional information.

5.16 VACCINATION

The use of emergency vaccination in the event of a CSF outbreak has been discussed in [Chapter 4](#). This section provides an overview of: (1) DIVA testing, (2) the zones and premises employed in the event an emergency vaccination strategy is used, and (3) movement controls for vaccinates. The *NAHEMS Guidelines: Vaccination for Contagious Diseases*, including *Appendix B: Classical Swine Fever* contains additional information.

5.16.1 Vaccination and Differentiation of Infected from Vaccinated Animals Testing

There are two types of CSF vaccine. The NVS has access to both types of vaccine. The first type, the CSFV Vaccine, with a modified live virus (MLV), has been successfully used in countries where CSF is endemic, successfully preventing the transmission of CSF from animal to animal. The MLV vaccine may be administered parenterally or orally (i.e., in bait vaccines to immunize feral swine) and confers immunity in 4–5 days. However, swine immunized with the live attenuated vaccine cannot be differentiated from CSF field-infected swine. The immunized swine and the field-infected swine produce the same antibodies.

Because of this lack of DIVA capability, marker vaccines were developed. Animals vaccinated with the DIVA-compatible E2 antigen-based CSFV, killed baculovirus vector vaccine can be differentiated from field-infected animals through an ELISA test for a specific glycoprotein. These marker vaccines permit the use of DIVA diagnostic tests, so that field-infected and vaccinated swine can be distinguished. This is critical in any emergency vaccination strategy. The DIVA-compatible vaccine requires two doses for maximum immunity, and an effective onset of immunity may not occur until 14–21 days after the first dose is administered. The vaccine is only effective when given parenterally.

This DIVA capability is a critical benefit, particularly for continuity of business. Should DIVA vaccine be used, APHIS will acquire DIVA diagnostics.

In a focal CSF outbreak, the MLV vaccine might be used in an inner ring vaccination program, where vaccinates will be depopulated in a “vaccinate-to-kill” program, while the DIVA vaccine was used in an outer “vaccinate-to-live” Protection Vaccination Zone. In a wide-spread CSF outbreak, the MLV vaccine might be used in terminal market swine, while the DIVA vaccine was used in breeding stocks.

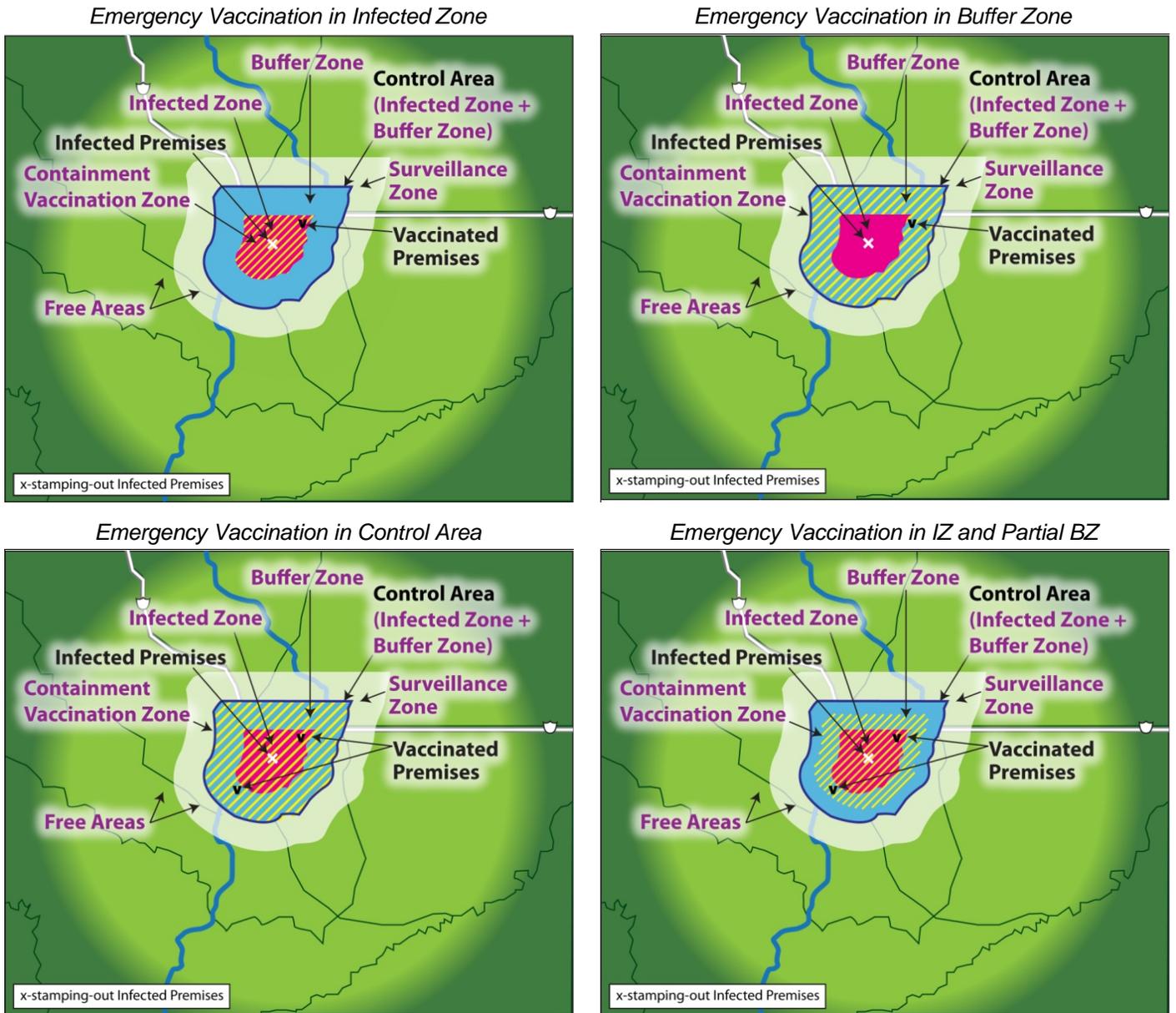
5.16.2 Zone, Area, and Premises Designations

Also provided in [Chapter 4](#) of this document, this subsection provides figures to illustrate the use of emergency vaccination in a CSF outbreak.

5.16.2.1 CONTAINMENT VACCINATION ZONE

The CVZ is an emergency vaccination zone typically within the CA, and may include the IZ and/or the BZ. A CVZ is typically observed in stamping-out modified with emergency vaccination to kill or to slaughter. Figure 5-6 shows examples of a CVZ.

Figure 5-6. Examples of Containment Vaccination Zones



Note: Figures are not to scale.

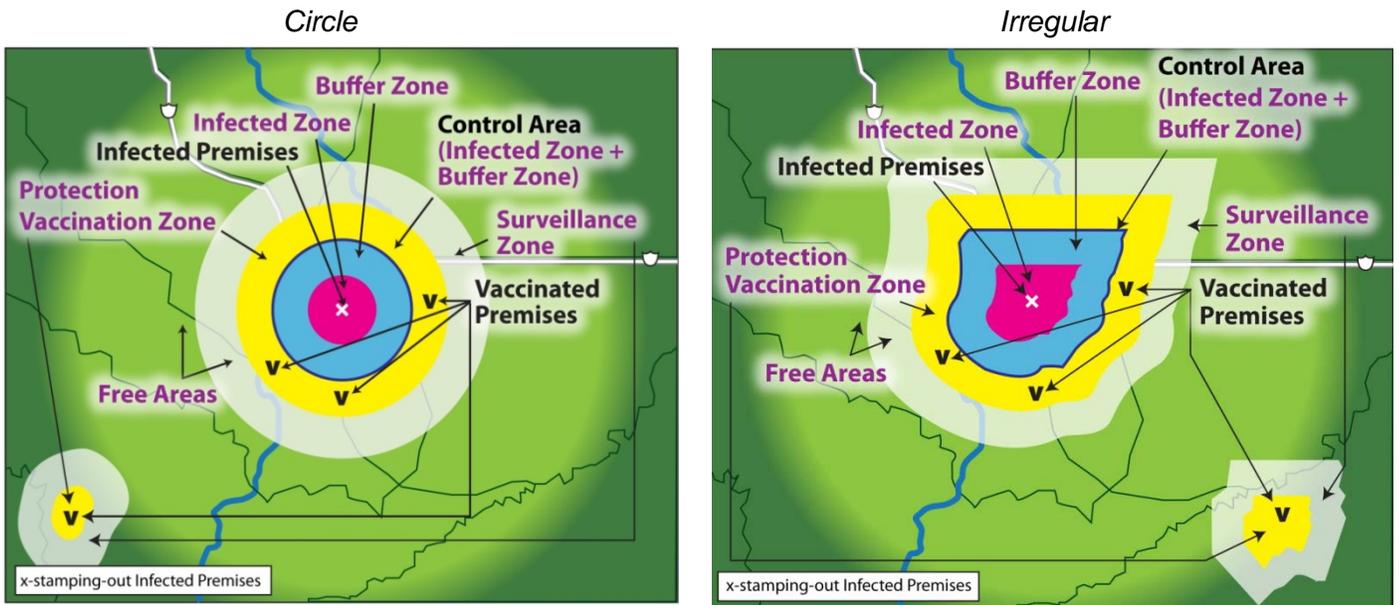
5.16.2.2 PROTECTION VACCINATION ZONE

The PVZ is an emergency vaccination zone in the FA. It is consistent with the OIE *Terrestrial Animal Health Code (2012)* definition for a Protection Zone:

A zone established to protect the health status of animals in a free country or free zone, from those in a country or zone of a different animal health status, using measures based on the epidemiology of the disease under consideration to prevent spread of the causative pathogenic agent into a free country or free zone. These measures may include, but are not limited to, vaccination, movement control and an intensified degree of surveillance.

Typically, a PVZ would be observed with stamping-out modified with emergency vaccination to live. Figure 5-7 shows examples of a PVZ.

Figure 5-7. Examples of Protection Vaccination Zones

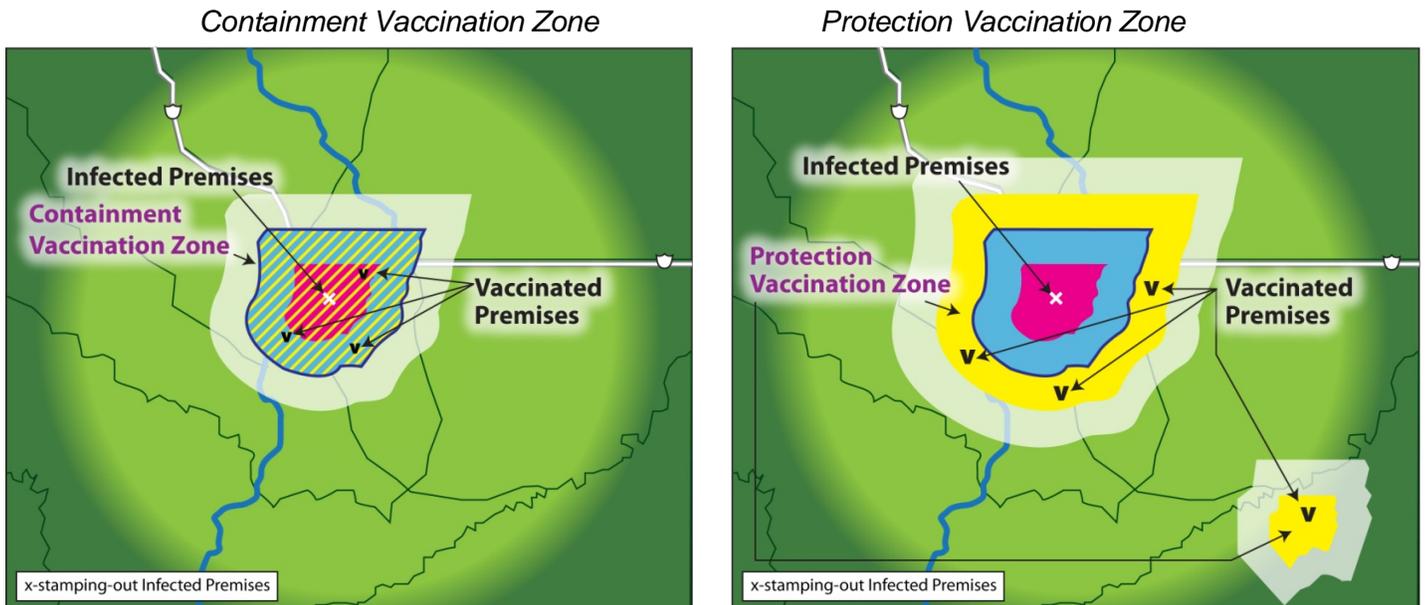


Note: Figures are not to scale.

5.16.2.3 VACCINATED PREMISES

VP may be a secondary designation to another premises designation and is only used if emergency vaccination is employed in an outbreak. A VP may be located in a CVZ within the CA (IZ or BZ) or in a PVZ in the FA. Figure 5-8 shows VP in a CVZ (left) and in a PVZ (right).

Figure 5-8. Vaccinated Premises



Note: Figures are not to scale.

5.16.3 Movement Restrictions for Vaccinates

If emergency vaccination is used, a vaccination plan will define procedures to prevent the spread of CSF by vaccination teams. Emergency vaccination occurs within a CVZ or a PVZ. All vaccinated animals may be identified with specific and permanent (tamper-proof) identification. When vaccine is used, surveillance must continue to assess vaccination effectiveness and detect any antigenic change. Movement restrictions for vaccinates are as follows:

- ◆ VP may be subject to movement restrictions for their primary premises designation.
- ◆ Animals receiving emergency vaccination on the VP may be subject to vaccinated animal identification, vaccinated animal traceability, and DIVA testing.
- ◆ For movement of emergency vaccinated animals, consideration must be given to any national or international standards or conditions for such movement.

5.16.4 Cessation of Vaccination

CSF emergency vaccination should cease as soon as possible to allow the region or State to return quickly to a favorable trade status. No new vaccinations will be given more than 28 days after the last known new case of CSF is detected.

NAHEMS Guidelines: Vaccination for Contagious Diseases and Appendix B: Classical Swine Fever contain further guidance.

5.17 NATIONAL VETERINARY STOCKPILE

The Overview of the NVS SOP provides information on NVS capabilities and lays out the required steps to request countermeasures from the NVS. It also provides a direct link to the NVS website, where State preparedness officials and responders can download important publications to help them understand the NVS. This website provides

- ◆ a planning guide for Federal, State, and local authorities;
- ◆ a template for a State NVS plan; and
- ◆ outreach and exercise programs.

The NVS also has contractor support for 3D activities, which can be requested through IC. The surge response capacity of 3D commercial responders is a response to the site within 24 hours, 500–600 people within 72 hours, and 1,000 people within a week.

5.18 WILDLIFE MANAGEMENT AND VECTOR CONTROL

USDA APHIS will work in close collaboration, communication, and coordination with DOI and other Federal, State, Tribal, and local wildlife agencies that have primary jurisdictional authority and subject matter expertise for wildlife. This collaboration, communication, and coordination will occur in both the Unified Command and in MAC Groups.

The Overview of Wildlife Management and Vector Control SOP also discusses personnel and equipment required for wildlife management, quarantine and movement control for wildlife, wildlife risk assessment, wildlife surveillance, and related activities. Further information can also be found in the *NAHEMS Guidelines: Wildlife Management and Vector Control*.

Importantly, as stated in the OIE *Terrestrial Animal Health Code (2012)*, “for the purposes of international trade, classical swine fever (CSF) is defined as an infection of domestic pigs.”

5.18.1 Wildlife Management

A wildlife management plan that addresses feral swine will be developed as soon as possible after identification of the index case in domestic swine. An assessment of the risk that feral swine pose for the transmission of CSFV to susceptible

domestic swine will be conducted within 7 days of confirmation of the index case. Assessment of the risks posed by wildlife will require information on

- ◆ density and distribution,
- ◆ social organization,
- ◆ habitat,
- ◆ contact with domestic swine, and
- ◆ length of time feral swine could have been exposed to the virus.

If feral swine are determined to be infected with CSFV or otherwise pose a biological risk for transmission, appropriate wildlife management principles will be applied as needed to reduce exposure of wildlife to domestic swine. If wildlife populations are determined not to be infected or be a biological risk for transmission of CSFV to domestic swine, wildlife management tools will be implemented to keep wildlife populations from acting as mechanical vectors.

5.18.2 Vector Control

CSF may be transmitted mechanically by mice, vultures, and other vectors. To-date, there is no evidence that insects can biologically transmit the CSFV to susceptible animals. Appropriate biosecurity measures should be in place during a CSF outbreak to ensure that mechanical vectors do not have contact with infected swine herds or other infected material.

5.19 ANIMAL WELFARE

During a CSF outbreak, humane treatment must be provided to animals given the specific circumstances of the outbreak, particularly from the time they are identified for destruction or vaccination activities until they are depopulated, euthanized, or slaughtered, as prescribed by veterinary authorities of the affected States or Tribal nations. The Overview of Animal Welfare SOP contains additional information.

5.20 MODELING AND ASSESSMENT TOOLS

The development of models and risk assessments are critical in a successful CSF response. These tools give decision makers valuable insight. During an outbreak, one or more multidisciplinary teams (consisting of epidemiologists, disease agent experts, economists, affected commodity experts, and others) will be established to perform risk assessments as needed. An appropriate, scientific risk assessment on an issue of concern will be provided within 72 hours after a request from the Incident Commander.

For CSFV, the Tool for the Assessment of Intervention Options (TAIO) may be used prior to an outbreak to inform strategy decisions. TAIO provides decision makers with additional information on the most efficacious, feasible, and cost-effective approach to manage the response effort. More information about modeling is available from [CEAH](#).

The Overview of Modeling and Assessment Tools SOP provides information on modeling and risk assessment, covering the following:

- ◆ Key roles and responsibilities in modeling and risk analysis
- ◆ Uses of epidemiological models
- ◆ Proactive risk assessments
- ◆ Risk assessment during and after an outbreak
- ◆ Examples of current models and assessment tools.

5.21 APPRAISAL AND COMPENSATION

Indemnity payments are to encourage disease reporting, reduce the spread of animal disease, and compensate owners on the basis of fair market value. Fair market value appraisals are provided to owners of destroyed animals and materials. The Appraisal and Compensation SOP focuses on specifying personnel responsibilities, appraisal procedures, assessment of compensation eligibility, payment of indemnity, and required forms and reports during a CSF outbreak.

The AHPA gives APHIS authority to establish and implement an indemnification program to prevent or eradicate a CSF outbreak. Indemnity is a key component of APHIS's disease control programs in that the promise of fair compensation for losses helps to ensure cooperation from the owners of affected swine. Such cooperation is important for rapid disease control and eradication.

The best practices for containment and eradication of CSF will in many instances require depopulation, disposal, and decontamination that are faster than can be achieved with slow appraisal processes. In some circumstances, appraisals will not be required to be signed prior to destruction if APHIS and the cooperating State agree that the swine must be destroyed immediately to mitigate the potential spread or amplification of CSFV during a response to a confirmed or presumptive CSF incident. Data required to determine fair market value will be collected prior to depopulation, including a complete inventory of swine being destroyed and any relevant value information.

The following resources offer additional guidance on appraisal and compensation: APHIS's [Livestock Appraisal, Indemnity, and Compensation Website](#).

5.22 FINANCE

During a CSF outbreak, funding will be rapidly required. For responding to specific emergency situations, VS has access to a variety of sources for funding. The two most common sources are the Commodity Credit Corporation (CCC) and the APHIS Contingency Fund (CF).

During an emergency, the Secretary is authorized to transfer funds from the CCC. The funds are provided to APHIS as no-year funds. Before APHIS can ask the Secretary to transfer funds, however, it must consider whether it can redirect funds from a budget line item or if other funding sources are available. APHIS will consider the total estimated amount of funding needed to address the issue and whether the program has political support prior to deciding whether or not to seek a CCC transfer.

The APHIS CF takes care of unforeseen, unpredictable program activities. The following four conditions must exist to qualify for the release of agency contingency funds:

1. The outbreak must pose an economic threat.
2. Eradication technology must be feasible and cost-effective.
3. No program or no effective program must currently exist.
4. The proposed program must have industry support.

The Overview of Finance SOP contains additional guidance on

- ◆ key roles and responsibilities in finance,
- ◆ emergency funding processes for foreign animal disease outbreaks, and
- ◆ triggering events for APHIS emergency funding.

5.23 NATIONAL RESPONSE FRAMEWORK AND NATIONAL INCIDENT MANAGEMENT SYSTEM

In any CSF outbreak, the capability to rapidly scale up the size of an IC and integrate veterinary functions and countermeasures is critical for an effective response. NRF and NIMS, already discussed in this plan, allow such scalability. The Overview of NRF and NIMS SOP provides additional information on the relation of NRF and NIMS to APHIS and lists the responsibilities of Federal, State, Tribal, and local governments in a CSF outbreak.

The documents referenced in this chapter can be found for APHIS employees, at <http://inside.aphis.usda.gov/vs/em/fadprep.shtml>, or for others, at <http://www.aphis.usda.gov/fadprep>.

Chapter 6

Recovery after CSF Outbreak

6.1 PROOF OF FREEDOM

6.1.1 Recognition of Disease-Free Status

As a member of the OIE, the United States has agreed to abide by standards drafted and approved by member countries. The OIE does not grant official recognition for CSF-freedom, but OIE members can self-declare a compartment, zone, or country free from certain OIE-listed diseases such as CSF.

In cases of self-declaration, delegates are advised to consult the OIE *Terrestrial Animal Health Code* for specific requirements for self-declaration of freedom from CSF. By providing the relevant epidemiological evidence, the OIE member can prove to a potential importing country that the entire country, zone, or compartment under discussion meets the provisions of the specific disease chapter. Any submitted self-declaration should contain evidence demonstrating that the requirements for the disease status have been met in accordance with OIE standards. This self-declaration must be signed by the official OIE delegate of the OIE member concerned.

6.1.2 Criteria Needed for CSF-Free Status

The OIE defines a CSF-free country, zone or compartment as follows (OIE *Terrestrial Animal Health Code (2012)*, Article 15.2.3):

A country, zone or compartment may be considered free from CSF when surveillance in accordance with Articles 15.2.23 to 15.2.28 has been in place for at least 12 months, and when:

1. there has been no outbreak of CSF in domestic pigs during the past 12 months;
2. no evidence of CSFV infection has been found in domestic pigs during the past 12 months;
3. no vaccination against CSF has been carried out in domestic pigs during the past 12 months unless there are means, validated to OIE standards (Chapter 2.8.3 of the *Terrestrial Manual*), of distinguishing between vaccinated and infected pigs;
4. imported domestic pigs comply with the requirements in Article 15.2.5 or Article 15.2.6.

6.1.2.1 RECOVERY OF FREE STATUS

There are separate requirements for the recovery of free status in previously CSF-free countries. These requirements, listed below, are taken from Article 15.2.4 of the OIE *Terrestrial Animal Health Code (2012)*.

Should a CSF outbreak occur in a free country, zone or compartment, the free status may be restored where surveillance in accordance with Articles 15.2.23 to 15.2.28 has been carried out with negative results either:

1. three months after the last case where a stamping-out policy without vaccination is practiced;

OR

2. where a stamping-out policy with emergency vaccination is practiced:
 - a. three months after the last case and the slaughter of all vaccinated animals, or
 - b. three months after the last case without the slaughter of vaccinated animals where there are means, validated to OIE standards (Chapter 2.8.3 of the *Terrestrial Manual*), of distinguishing between vaccinated and infected pigs;

OR

3. where a stamping-out policy is not practiced, the provisions of Article 15.2.3 should be followed.

6.1.2.1.1 CSF-Free Compartments

There are no OIE-recognized CSF-free compartments in the world. At this time, a CSF compartment is unlikely to be established in a CSF outbreak in the United States.

6.1.3 Surveillance for Recognition of Disease Freedom

Surveillance is fundamental in proving DF to regain disease-free status after a CSF outbreak. The OIE *Terrestrial Animal Health Code (2012)* specifies surveillance procedures for members re-applying for recognition of freedom from CSF for the whole country, zone, or compartment.

The introduction to and general conditions for CSF surveillance is provided in Article 15.2.23 and Article 15.2.24. Article 15.2.25 explains surveillance strategies for CSF.

6.1.3.1 ADDITIONAL SURVEILLANCE PROCEDURES FOR COUNTRIES, ZONES, OR COMPARTMENTS DECLARING FREEDOM FROM CSF

Article 15.2.26 contains additional surveillance procedures for countries, zones, or compartments declaring CSF-freedom. This section is reproduced here.

1. Country or zone free of CSF

In addition to the general conditions described above, a Member seeking recognition of CSF freedom for the country or a zone, whether or not vaccination has been practiced, should provide evidence for the existence of an effective surveillance program. The strategy and design of the surveillance program will depend on the prevailing epidemiological circumstances in and around the country or zone and will be planned and implemented according to the general conditions and methods described in this chapter, to demonstrate the absence of CSFV infection in domestic and wild pig populations. This requires the support of a national or other laboratory able to undertake identification of CSFV infection through virus detection and serological tests described in the *Terrestrial Manual*.

2. Compartment free of CSF

The objective of surveillance is to demonstrate the absence of CSFV infection in the compartment. The provisions of Chapter 4.3 should be followed. The effective separation of the two subpopulations should be demonstrated. To this end, a biosecurity plan that includes but is not limited to the following provisions should be implemented:

- a. proper containment of domestic pigs;
- b. control of movement of vehicles with cleaning and disinfection as appropriate;
- c. control of personnel entering into the establishments and awareness of risk of fomite spread;
- d. prohibition of introduction to the establishments of wild caught animals and their products;
- e. record of animal movements into and out of establishments;
- f. information and training programs for farmers, processors, veterinarians, etc.

The biosecurity plan implemented also requires internal and external monitoring by the Veterinary Authority. This monitoring should include:

- g. periodic clinical and serological monitoring of herds in the country or zone, and adjacent wild pig populations following these recommendations;

-
- h. herd registration;
 - i. official accreditation of biosecurity plans;
 - j. periodic monitoring and review.

Monitoring the CSF status of wild and domestic pig populations outside the compartment will be of value in assessing the degree of risk they pose to the CSF free compartment. The design of a monitoring system is dependent on several factors such as the size and distribution of the population, the organization of the Veterinary Services and resources available. The occurrence of CSF in wild and domestic pigs may vary considerably among countries. Surveillance design should be epidemiologically based, and the Member should justify its choice of design prevalence and level of confidence based on Chapter 1.4.

The geographic distribution and approximate size of wild pig populations need to be assessed as a prerequisite for designing a monitoring system. Sources of information may include government wildlife authorities, wildlife conservation organizations, hunter associations and other available sources. The objectives of a surveillance program when the disease is already known to exist should be to determine the geographic distribution and the extent of the infection.

6.1.3.2 RECOVERY OF FREE STATUS: ADDITIONAL SURVEILLANCE PROCEDURES

For countries that were CSF-free and experienced an outbreak, the OIE has additional surveillance procedures for recovering CSF-free status in Article 15.2.27.

In addition to the general conditions described in the above-mentioned articles, a Member seeking reestablishment of country or zone freedom from CSF should show evidence of an active surveillance program to demonstrate the absence of CSFV infection.

Populations under this surveillance program should include:

1. establishments in the proximity of the outbreak;
2. establishments epidemiologically linked to the outbreak;
3. animals used to re-populate affected establishments and any establishments where contiguous culling is carried out;
4. wild pig populations in the area of the outbreak.

In all circumstances, a Member seeking reestablishment of country or zone freedom from CSF with vaccination or without vaccination should report the results of an active and a passive surveillance program in which the pig population undergoes regular clinical, pathological, virological, and/or serological examination, planned and implemented according to the general conditions and methods described in these recommendations. The surveillance should be based on a statistically representative sample of the populations at risk.

6.1.4 Release of Control Area Restrictions

Quarantine and movement control restrictions will be maintained until at least 28 days have elapsed since the decontamination of all confirmed IP and negative results of surveillance activities. IC and animal health officials need to plan for a release of quarantine prior to or during the issuance of quarantine and movement controls. Such a plan would specify procedures by which quarantined premises will be evaluated for CSF freedom and how the quarantine will be released (by sections, by risk, or in its entirety).

6.1.5 Disposition of Vaccinates

If vaccination was used in the outbreak, CSF vaccinates will still be subject to movement control and monitoring measures.

6.1.6 Country Freedom Declaration

The United States will apply to the OIE after meeting OIE requirements. CSF-free status will require a formal submission detailing CSF policy, eradication procedures, surveillance, monitoring and tracing of vaccinates, and veterinary infrastructure. Acceptance of the claim for country freedom may also involve an inspection by an international panel to review the eradication program and all available information.

6.2 REPOPULATION

6.2.1 Restocking Guidance

Following appropriate cleaning and disinfection procedures, IP will remain vacant for a period of time before restocking susceptible animals onto premises. The minimum recommendation is 28 days (two OIE incubation periods for postnatally exposed swine). If it is not possible to carry out full cleaning and disinfection procedures, the premises must remain vacant for a longer period of time to be determined by the IC. It is critically important that in restocking, the IC consider the likelihood of CSFV survival based on environmental conditions, the execution of cleaning and disinfection procedures, and specific circumstances of the

outbreak. In some cases, previously IP may need to remain vacant for significantly longer than 28 days.

The producer should provide a restocking plan, including details of the susceptible animals, number of animals and locations of sentinel animals. Once introduced to the previously IP, no animals may leave until all locations on that premises have been restocked and serological diagnostics are negative.

Non-susceptible species also must be restocked a minimum of 28 days after full cleaning and disinfection procedures, as non-susceptible species can act as mechanical vectors for CSFV. The IC has the discretion to consider the risk of non-susceptible animals and make appropriate considerations for these species.

6.2.2 Testing Requirements for Restocking

During restocking, animals will be subject to clinical inspection every 3 days for the first 14 days (one OIE incubation period for postnatally exposed swine), and once per week thereafter up to 28 days (two OIE incubation periods for postnatally exposed swine). At 28 days *after the last* animals are introduced, each animal must be clinically examined by a veterinary inspector and samples tested for the presence of CSFV antibodies.

6.2.3 Approved Sources of Swine

Introduced swine must be derived from areas not subject to quarantine and movement control measures. All swine must test negative before introduction. A 24-hour pre-movement clinical inspection is also required. Animals must originate on and come from premises on which there has not been a confirmed case of CSF within 6.2 miles (10 kilometers) for at least 30 days.

Appendix A

FAD PReP Materials to Support CSF Response

This appendix lists the Foreign Animal Disease Preparedness and Response Plan (FAD PReP) documents that directly support this *Classical Swine Fever (CSF) Response Plan (2013)*. The new and revised documents listed below will be useful in preparedness and response efforts related to CSF. Many of these documents have been released; others are forthcoming. These resources are found online for Animal and Plant Health Inspection Service (APHIS) employees at <http://inside.aphis.usda.gov/vs/em/fadprep.shtml>. Select documents are also available here: <http://www.aphis.usda.gov/fadprep>.

CSF CONTINUITY OF BUSINESS PLANNING

Secure Pork Supply Plan (in progress)

CSF STANDARD OPERATING PROCEDURES (SOPs)—CRITICAL ACTIVITIES

These documents are templates to provide a common picture or set of procedures for the following tools and strategies used in CSF response:

1. Overview of Etiology and Ecology
2. Case Definition Development Process
3. Surveillance
4. Diagnostics (Sample Collection, Surge Capacity and Reporting)
5. Epidemiological Investigation and Tracing
6. Overview of Information Management
7. Communications
8. Health and Safety and Personal Protective Equipment
9. Biosecurity
10. Quarantine and Movement Control
11. Continuity of Business

-
11. Continuity of Business
 12. Overview of Regionalization for International Trade
 13. Mass Depopulation and Euthanasia
 14. Disposal
 15. Cleaning and Disinfection
 16. Vaccination
 17. Overview of the National Veterinary Stockpile
 18. Overview of Wildlife Management and Vector Control
 19. Overview of Animal Welfare
 20. Overview of Modeling and Assessment Tools
 21. Appraisal and Compensation
 22. Overview of Finance
 23. Overview of the National Response Framework and National Incident Management System

INDUSTRY MANUAL

- ◆ Swine

NATIONAL ANIMAL HEALTH EMERGENCY MANAGEMENT SYSTEM GUIDELINES

- ◆ Health and Safety
- ◆ Personal Protective Equipment
- ◆ Biosecurity
- ◆ Quarantine and Movement Control
- ◆ Mass Depopulation and Euthanasia
- ◆ Disposal
- ◆ Cleaning and Disinfection

- ◆ Vaccination for Contagious Diseases
- ◆ Wildlife Management and Vector Control for a Foreign Animal Disease (FAD) Response in Domestic Livestock
- ◆ National Animal Health Emergency Response Corp (NAHERC) Deployment Guide
- ◆ Surveillance, Epidemiology, and Tracing
- ◆ Regionalization for International Trade for a U.S. FAD Response
- ◆ Continuity of Business.

STRATEGIC PLANS—CONCEPT OF OPERATIONS

- ◆ APHIS Foreign Animal Disease Framework: Roles and Coordination (FAD PReP Manual 1-0)
- ◆ APHIS Foreign Animal Disease Framework: Response Strategies (FAD PReP Manual 2-0)
- ◆ APHIS Foreign Animal Disease Investigation Manual (FAD PReP Manual 4-0)
- ◆ NCAHEM (National Center for Animal Health Emergency Management) Stakeholder Coordination and Collaboration Resource Guide
- ◆ NCAHEM Incident Coordination Group Plan.

OVERVIEW OF FAD PReP

FAD PReP Mission and Goals

The significant threat and potential consequences of FADs and the challenges and lessons-learned of effective and rapid FAD response have led to the development of the Foreign Animal Disease Preparedness and Response Plan, also known as “FAD PReP.” The mission of FAD PReP is to raise awareness, expectations, and develop capabilities surrounding FAD preparedness and response. The goal of FAD PReP is to integrate, synchronize, and de-conflict preparedness and response capabilities as much as possible before an outbreak, by providing goals, guidelines, strategies, and procedures that are clear, comprehensive, easily readable, easily updated, and that comply with the National Incident Management System.

In the event of an FAD outbreak, the three key response goals are to: (1) *detect, control, and contain the FAD in animals as quickly as possible*; (2) *eradicate the FAD using strategies that seek to stabilize animal agriculture, the food supply, the economy, and protect public health and the environment*; and (3) *provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products*.

Achieving these three goals will allow individual livestock facilities, States, Tribes, regions, and industries to resume normal production as quickly as possible. They will also allow the United States to regain CSF-free status without the response effort causing more disruption and damage than the disease outbreak itself.

FAD PReP Documents and Materials

FAD PReP is a comprehensive U.S. preparedness and response strategy for FAD threats. This strategy is provided and explained in a series of different types of integrated documents, as illustrated below in Figure A-1.

Figure A-1. FAD PReP Suite of Documents and Materials



Lessons Learned from Past Outbreaks

Past outbreaks both in the United States and other countries offer important lessons that can be applied to preparedness and response efforts. To achieve successful outcomes in future FAD response, it is vital to identify, understand, and apply these lessons learned:

- ◆ Provide a unified State-Federal-Tribal-industry planning process that respects local knowledge.
- ◆ Ensure the Unified Command sets clearly defined, obtainable, and unified goals.
- ◆ Have a Unified Command with a clear and proper delegation of authority that acts with speed and certainty to achieve united goals.

- ◆ Employ science-based and risk-management approaches that protect public health, animal health, and the environment, and protect animal agriculture, and stabilize the food supply and the U.S. economy.
- ◆ Ensure guidelines, strategies, and procedures are communicated to and understood by responders and stakeholders.
- ◆ Acknowledge that high expectations for timely and successful outcomes require the
 - rapid scale-up of resources and trained personnel for veterinary activities and countermeasures, and
 - capability to quickly address competing interests before or during an outbreak.
- ◆ Ensure rapid detection and effective FAD tracing, essential for timely control of FAD outbreaks.

Appendix B

Incident Management

This appendix contains Chapter 4 from the *APHIS [Animal and Plant Health Inspection Service] Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0) document. This chapter explains incident management in the event of a foot-and-mouth disease outbreak. Please refer to the *APHIS Foreign Animal Disease Framework: Roles and Coordination* (FAD PReP Manual 1-0) and the *Incident Coordination Group Plan* for more information (available at <http://www.aphis.usda.gov/fadprep>).

Homeland Security Presidential Directive-5, Management of Domestic Incidents, directed the development and administration of the National Incident Management System (NIMS). NIMS, in conjunction with the National Response Framework, provides the template for managing incidents and provides the structure and mechanisms for National-level policy for incident management. NIMS provides a systematic, proactive approach to guide departments and agencies at all levels of government, non-governmental organizations (NGOs), and the private sector to prevent, mitigate, respond to, and recover from the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment.

A basic premise of NIMS is that all incidents begin and end locally. NIMS does not take command away from State and local authorities. NIMS simply provides the framework to enhance the ability of responders, including the private sector and NGOs, to work together more effectively. The Federal government supports State and local authorities when their resources are overwhelmed or anticipated to be overwhelmed.

The Incident Command System (ICS) is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communication within a common organizational structure. The Animal and Plant Health Inspection Service (APHIS) has adopted NIMS and ICS organizational structures and processes to manage animal health incidents. Additional information on NIMS can be found at: <http://www.fema.gov/emergency/nims/>. Additional information on ICS can be found at: <http://training.fema.gov/EMIWeb/IS/ICSResource/index.htm>.

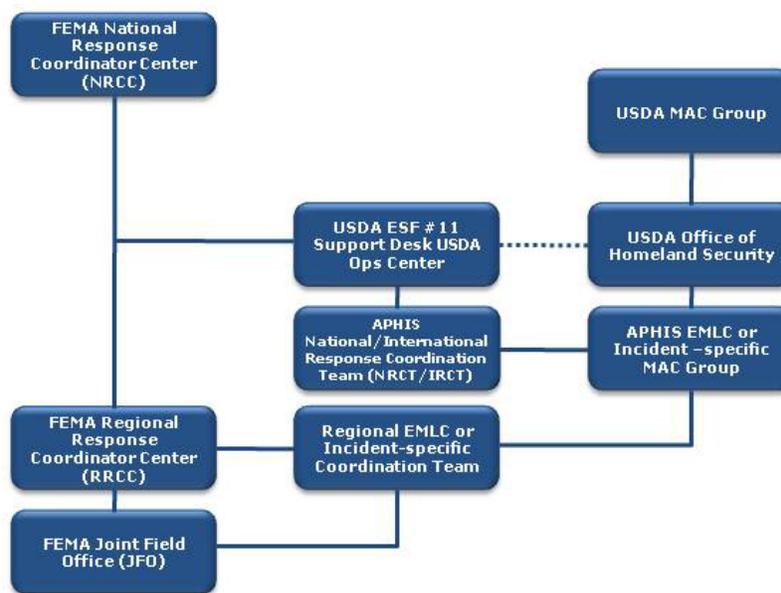
APHIS policy and procedures for APHIS Emergency Responder positions and APHIS Specialized Emergency Responder positions are described in the *APHIS*

*Emergency Response Qualification Process and APHIS Emergency Responder Position Catalog.*¹ APHIS employees can find these documents at: http://inside.aphis.usda.gov/emergency_info/organization/resp_cat.shtml.

MULTIAGENCY COORDINATION

Multiagency coordination (MAC) is a process that allows all levels of government and all disciplines to work together more efficiently and effectively. MAC occurs across the different disciplines involved in incident management, across jurisdictional lines, or across levels of government. The *APHIS Emergency Mobilization Guide* defines APHIS coordination for major agricultural disasters and agro-terrorism responses (see Figure B-1). In the event of an animal emergency an APHIS MAC Group will be formed if the incident response needs more support. Fundamentally, the APHIS MAC Group will provide support, coordination, and assistance with policy-level decisions to the ICS structure managing an incident.

Figure B-1. Coordination Structures: U.S. Department of Agriculture and Department of Homeland Security/Federal Emergency Management Agency²



Note: EMLC = Emergency Management Leadership Council, ESF = Emergency Support Function.

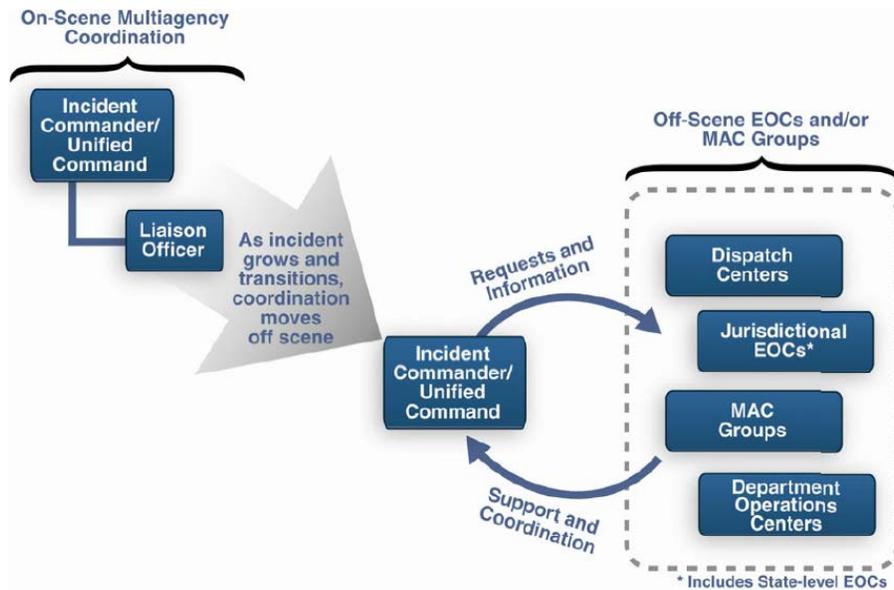
Figure B-2 illustrates an overview of a MAC system according to NIMS. The figure shows the transition over the course of an incident. The incident begins with an on-scene single Incident Command (IC); as the incident expands in size

¹ Information on USDA policies and procedures can be found in Departmental Manual #1800-001. Incident Preparedness, Response, and Recovery. November 2011; and Departmental Regulation #1800-001. Incident Preparedness, Response, and Recovery. November 2011.

² USDA APHIS, 2009, *Emergency Mobilization Guide*.

or complexity developing into a Unified Command, the incident may require off-scene coordination and support, which is when MAC Groups are activated.

Figure B-2. Multiagency Coordination System³



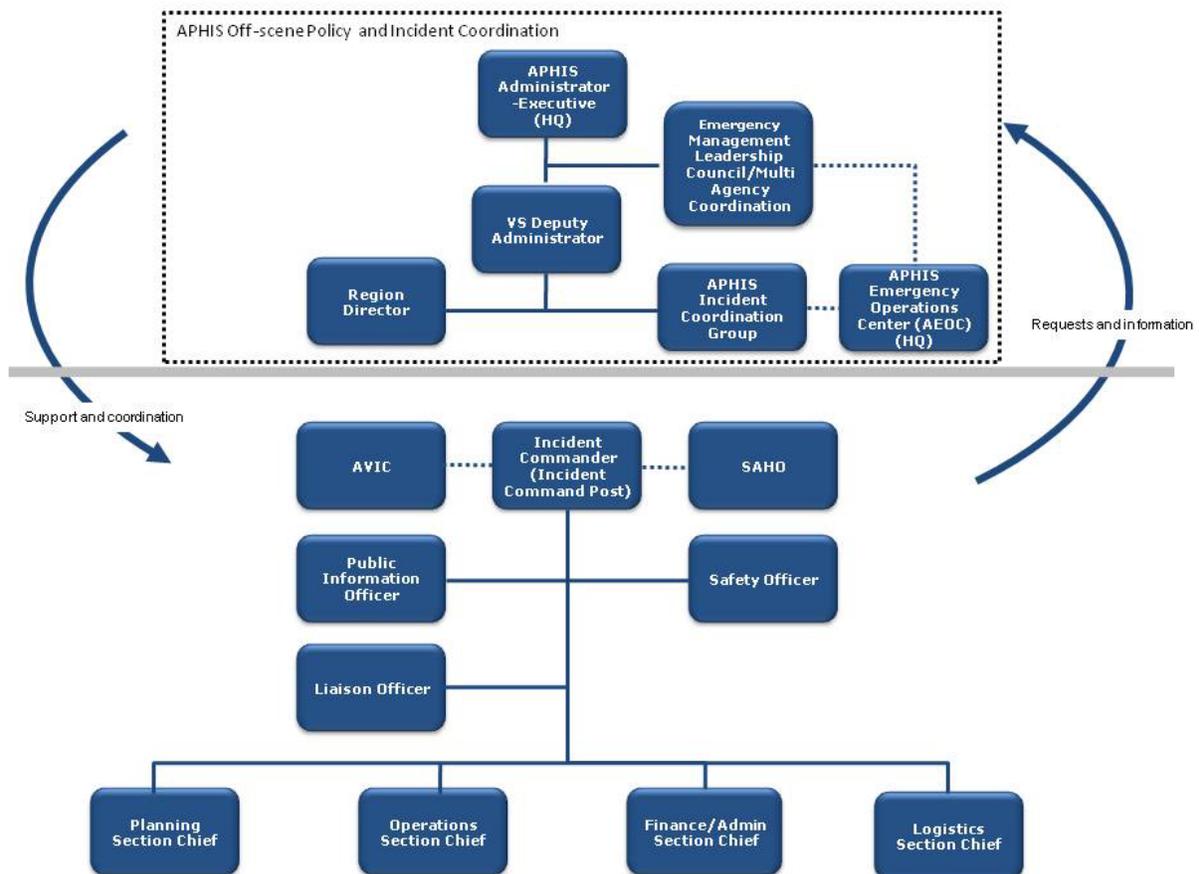
Note: EOC = Emergency Operations Center.

APHIS INCIDENT MANAGEMENT STRUCTURE

Figure B-3 displays the APHIS foreign animal disease (FAD) incident management organizational structure, starting with the APHIS Administrator.

³ Federal Emergency Management Agency (FEMA), 2008. *National Incident Management System*. http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf.

Figure B-3. APHIS Multiagency Coordination Structures and APHIS Emergency Operations Center: Relationship to Incident Management Team (Assuming a Single Incident)



Note: SAHO = State Animal Health Official, AVIC = Area Veterinarian in Charge.

The APHIS Administrator is the primary Federal executive responsible for implementing APHIS policy during an FAD outbreak. The APHIS Administrator will delegate many of the actual MAC functions to the Veterinary Services (VS) Deputy Administrator (Chief Veterinary Officer of the United States) and the APHIS Emergency Management Leadership Council (EMLC).

The VS Deputy Administrator and the EMLC will establish an APHIS Incident Coordination Group (ICG) to oversee the staff functions associated with the incident at the APHIS headquarters level. The APHIS ICG will work closely with the personnel in charge of establishing operations for the incident response at the Area Command (AC) or Incident Command Post (ICP) in the field and coordinate with the APHIS MAC Group.

APHIS MULTIAGENCY COORDINATION GROUP

In the event of a significant FAD emergency, the EMLC typically serves as the APHIS MAC Group, unless it transfers responsibility for a specific incident. The EMLC is co-chaired by Plant Protection and Quarantine's Associate Director, Emergency and Domestic Programs and VS' Associate Deputy Administrator, Emergency Management and Diagnostics. The EMLC is comprised of the following headquarters and regional members:

- ◆ Plant Protection and Quarantine,
- ◆ VS,
- ◆ Animal Care,
- ◆ Wildlife Services,
- ◆ International Services,
- ◆ Biotechnology Regulatory Services,
- ◆ Marketing and Regulatory Programs Business Services,
- ◆ Legislative and Public Affairs,
- ◆ Policy and Program Development,
- ◆ Investigative Enforcement Services,
- ◆ Emergency Management and Safety and Security Division, and
- ◆ APHIS Chief Information Officer.

The APHIS MAC Group may include additional members if the response requires them and may be activated if one or more of the following conditions take place:

- ◆ complex incidents that overwhelm local and regional assets;
- ◆ overlapping USDA agency jurisdictions;
- ◆ an incident that crosses international borders; or
- ◆ the existence of or potential for a high level of National political and media interest.

The APHIS MAC Group provides a forum to discuss actions that need to be taken to ensure that an adequate number of resources are available to meet anticipated

needs. The APHIS MAC Group strategically coordinates the incident response, but does not typically direct the APHIS ICG.

The APHIS MAC Group offers guidance on the most efficient way to allocate resources during an animal health event. Specific responsibilities vary from disease to disease, but the general functions of the APHIS MAC Group include

- ◆ incident prioritization,
- ◆ resource allocation and acquisition, and
- ◆ identification and resolution of issues common to all parties.

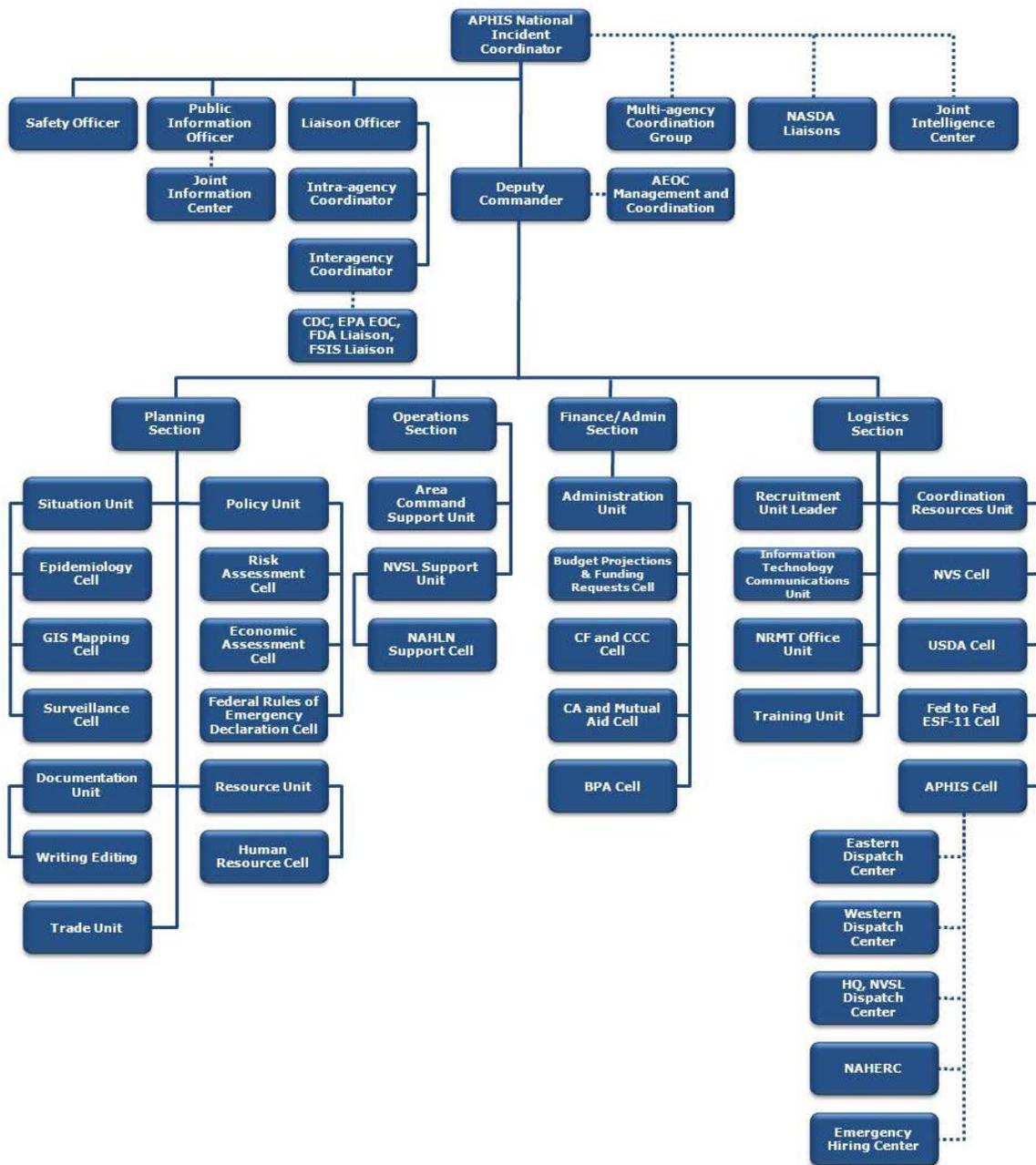
APHIS INCIDENT COORDINATION GROUP

The APHIS ICG is responsible for supporting an IC and AC in acquiring resources, formulating policy options, and assisting in developing and implementing response and recovery strategies for FAD outbreaks. For additional information and details, see the *National Center for Animal Health Emergency Management (NCAHEM) Incident Coordination Group Plan*. Figure B-4 illustrates an example organizational chart for an APHIS ICG. The group has the following responsibilities:

- ◆ providing guidelines to ensure responder and public health and safety;
- ◆ supporting IC(s) and AC(s);
- ◆ assisting in developing response policy as needed;
- ◆ coordinating effective communication;
- ◆ coordinating resources;
- ◆ assisting in establishing epidemiological priorities;
- ◆ assisting in developing incident objectives and approving response strategies for emergency vaccination as needed;
- ◆ assisting in integrating response organizations into the ICS;
- ◆ assisting in developing protocols as needed;
- ◆ providing information to the Joint Information Center for use in media and stakeholder briefings;
- ◆ providing budget requests and projections as needed; and

- ◆ assessing response progress, response strategies, and providing economic analyses as needed.

Figure B-4. Example APHIS Incident Coordination Group—Organizational Structure (for Foreign Animal Disease Outbreak)



Note: SAHO = State Animal Health Official, CDC = Centers for Disease Control and Prevention, EPA = Environmental Protection Agency, EOC = Emergency Operations Center, FDA = Food and Drug Administration, FSIS = Food Safety Inspection Service, AEOC = APHIS Emergency Operations Center, NASDA = National Association of State Departments of Agriculture, GIS = Geographic Information System, NVSL = National Veterinary Services Laboratories, NAHLN = National Animal Health Laboratory Network, CF = Contingency Fund, CA = Cooperative Agreement, CCC = Commodity Credit Corporation, BPA = Blanket Purchase Agreement, ESF = Emergency Support Function, NVS = National Veterinary Stockpile, NRMT = National Response Management Team.

APHIS ORGANIZATION FOR A SINGLE INCIDENT

The ICP is a physical location that administers the on-scene IC and the other major incident management functions. An Emergency Operations Center (EOC) is a physical location that is located separately from the on-scene ICP and supports the on-scene response by providing external coordination and securing of additional resources. A MAC Group does not have any direct IC involvement and will often be located some distance from the incident site(s). EOC/MAC Groups do not command the on-scene level of the incident, but rather supports the ICP's command and management efforts.

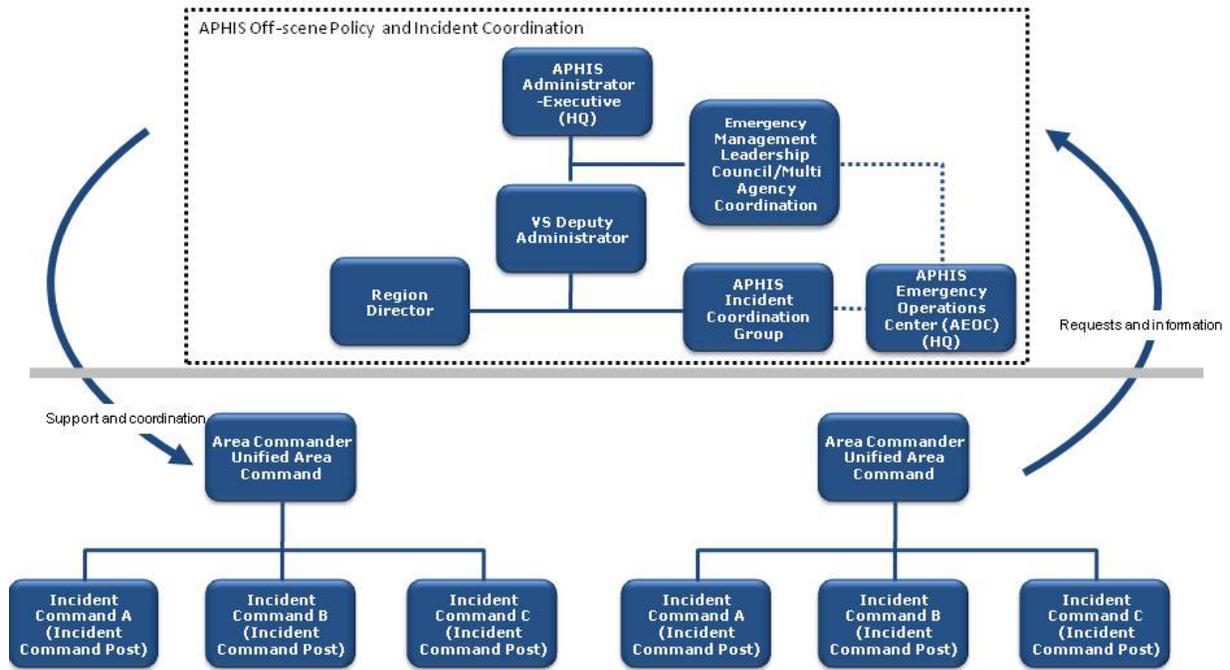
At the start of any FAD outbreak, the State Animal Health Official (SAHO), or designee, and Area Veterinarian in Charge (AVIC), or designee, will initially serve as the co-Incident Commanders for the Unified Command. The AVIC and SAHO may be relieved by an Incident Management Team (IMT) if there is a delegation of authority to the IMT. Figure B-3 is an example of an APHIS organization chart for a single incident.

APHIS ORGANIZATION FOR MULTIPLE INCIDENTS

When more than one incident is occurring at the same time, more than one IC may be established. An AC may also be established. An AC is an organization that oversees the management of multiple incidents handled individually by separate IC organizations or to oversee the management of a very large or evolving incident engaging multiple IMTs. An AC should not be confused with the functions performed by MAC as AC oversees management coordination of the incident(s), while a MAC element (such as a communications/dispatch center, EOC, or MAC Group) coordinates support.

In terms of MAC Group structures, if the emergency response becomes too large for an APHIS MAC Group to handle efficiently—for example, a large multistate incident with numerous response activities—cooperation from other agencies or committees will be implemented. MAC Groups will coordinate additional resources and make decisions regarding the prioritization of incidents and the sharing and use of critical resources, but are not a part of the on-scene IC. Figure B-5 is an example of the command structure when multiple incidents are involved.

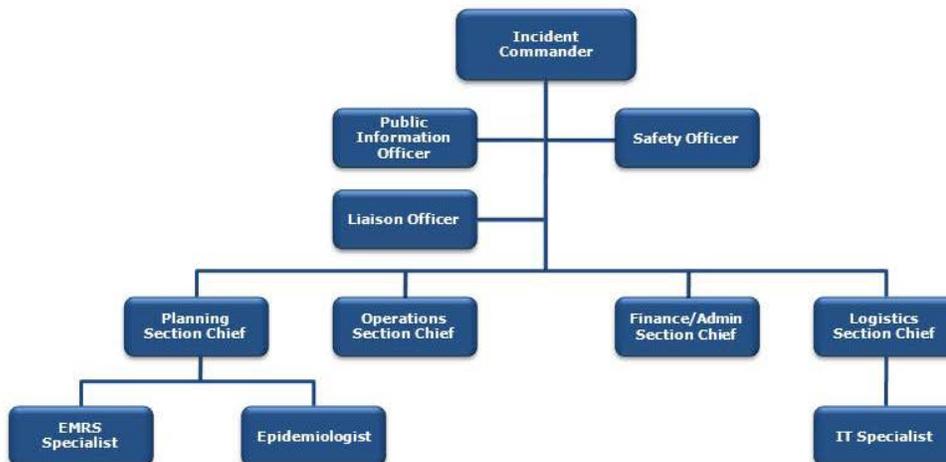
Figure B-5. APHIS Multiagency Coordination Structures and APHIS Emergency Operations Center: Relationship to Multiple Incident Management Team Structures (Assuming Multiple Incidents and a Unified Area Command)



APHIS INCIDENT MANAGEMENT TEAMS

Upon detection and confirmation of an FAD incident, the SAHO or AVIC establishes an ICP with an IMT, headed by an Incident Commander. Figure B-6 depicts the organization of the APHIS VS IMT for managing an incident.

Figure B-6. Current APHIS VS Incident Management Team—Short Team Configuration



The IMT includes an Incident Commander and staff for various types of communication, safety, and liaison purposes. This staff and the heads of the Incident Commander’s line organization sections are considered the Incident Commander’s general staff. The IMT also includes four line organizations to perform all of the efforts required to identify, contain, eradicate, recover, and return the situation to normal business practices. These line organizations include sections for operations, planning, logistics, and finance and administration. Within each of these sections is the capability to accomplish all of the tasks necessary to ensure a successful outcome to an FAD incident.

For single-incident outbreaks where the potential for spread is low, a short team configuration as depicted in Table B-1 will suffice.

Table B-1. List of Short Team Configuration Positions

APHIS VS IMT Short Team	APHIS Emergency Responder Position Catalog
Incident Commander	A800 Incident Commander
Deputy Incident Commander	A800 Incident Commander
Operations Section Chief	A810 Operations Section Chief
Deputy Operations Section	A810 Operations Section Chief
Planning Section Chief	A820 Planning Section Chief
Deputy Planning Section	A820 Planning Section Chief
Logistics Section Chief	A830 Logistics Section Chief
Deputy Logistics Section	A830 Logistics Section Chief
Finance Section Chief	A840 Finance Section Chief
Deputy Finance Section	A840 Finance Section Chief
Safety Officer	A805 Safety Officer (or A001)
Assistant Safety Officer	A805 Safety Officer
Public Information Officer	A803 Public Information Officer
Liaison Officer	A807 Liaison Officer
Assistant Liaison Officer	A807 Liaison Officer
Information Technology (IT) Specialist	A122 IT Specialist
Assistant IT Specialist	A122 IT Specialist
EMRS Specialist	A813 Group Supervisor (or Specialist)
Assistant EMRS Specialist	A813 Group Supervisor (or Specialist)
Epidemiologist	A813 Group Supervisor (or Specialist)
Assistant Epidemiologist	A813 Group Supervisor (or Specialist)

Note: EMRS = Emergency Management Response System.

When an outbreak occurs that is complex or large scale, a long team configuration, as listed in Table B-2, will be established. The long team consists of additional team members beyond those in the initial short team configuration.

Figure B-7 shows an example long team configuration; however, the exact makeup of the long teams will depend on the type of disease and magnitude of spread.

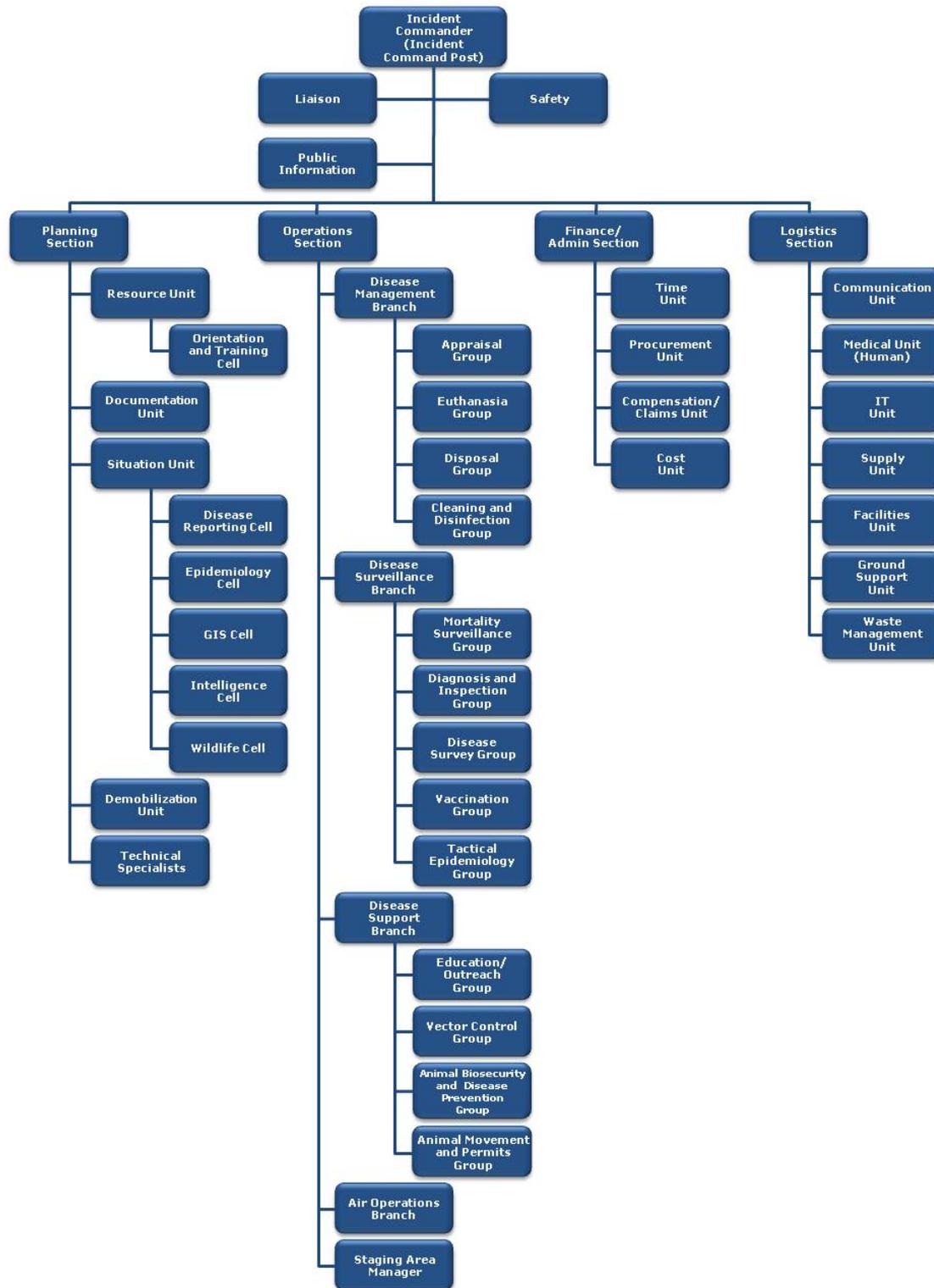
Table B-2. Typical Positions—Long Team Configuration

APHIS VS Long IMT Configuration	APHIS Emergency Responder Position Catalog
Deputy Operations Section Chief	A810 Operations Section Chief
Deputy Planning Section Chief	A820 Planning Section Chief
Deputy Logistics Section Chief	A830 Logistics Section Chief
Deputy Finance Section Chief	A840 Finance Section Chief
Disease Management Branch Director ◆ Appraisal Group Supervisor ◆ Euthanasia Group Supervisor ◆ Disposal Group Supervisor ◆ Cleaning and Disinfection Group Supervisor	A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor
Disease Surveillance Branch Director ◆ Mortality Surveillance Group Supervisor ◆ Diagnosis and Inspection Group Supervisor ◆ Disease Survey Group Supervisor ◆ Vaccination Group Supervisor ◆ Tactical Epidemiology Group Supervisor	A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor
Disease Support Branch Director ◆ Education/Outreach Group Supervisor ◆ Vector Control Group Supervisor ◆ Biosecurity and Disease Prevention Group Supervisor ◆ Movement and Permits Group Supervisor	A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor
Air Operations Branch	—
Staging Area Manager (Operations)	—
Resources Unit Leader ◆ Orientation and Training Group Supervisor	A821 Resources Unit Leader A813 Group Supervisor
Documentation Unit Leader	A823 Documentation Unit Leader
Situation Unit Leader ◆ Disease Reporting Cell Supervisor ◆ Epidemiology Cell Supervisor ◆ Geographic Information System (GIS) Cell Supervisor ◆ Intelligence Cell Supervisor ◆ Wildlife Cell Supervisor	A813 Group Supervisor (or A822) A813 Group Supervisor A813 Group Supervisor A813 Group Supervisor (or A825) A813 Group Supervisor A813 Group Supervisor (or A045)
Demobilization Unit Leader	A824 Demobilization Unit Leader

Table B-2. Typical Positions—Long Team Configuration

APHIS VS Long IMT Configuration	APHIS Emergency Responder Position Catalog
<ul style="list-style-type: none"> ◆ Communications Unit Leader ◆ Medical Unit Leader ◆ Information Technology Specialist ◆ Supply Unit Leader ◆ Facilities Unit Leader ◆ Ground Support Unit Leader ◆ Waste Management Unit Leader 	<ul style="list-style-type: none"> A831 Communications Unit Leader A815 Team Leader (or A001 or A057) A122 IT Specialist A833 Supply Unit Leader A834 Facilities Unit Leader A832 Ground Support Unit Leader A003 Environmental Protection Specialist
<ul style="list-style-type: none"> ◆ Time Unit Leader ◆ Procurement Unit Leader ◆ Compensation/Claims Unit Leader ◆ Cost Unit Leader 	<ul style="list-style-type: none"> A842 Time Unit Leader A841 Procurement Unit Leader A844 Compensation/Claims Unit Leader A843 Cost Unit Leader

Figure B-7. Example APHIS VS Incident Management Team—Long Team Configuration



RESPONSE RESOURCES

The IMT, ICG, and APHIS MAC Group can use a number of systems to aid in staffing and resourcing during an event such as the Emergency Qualification System (EQS) and the Resource Ordering and Status System (ROSS), which are discussed below. The *APHIS Emergency Mobilization Guide* and the *NCAHEM Incident Coordination Group Plan* are two planning documents that are used as response resources.

APHIS Emergency Mobilization Guide

The *APHIS Emergency Mobilization Guide* provides information and policy for mobilizing APHIS personnel for emergency events. The *APHIS Emergency Mobilization Guide* is available at: http://www.aphis.usda.gov/emergency_response/.

NCAHEM Incident Coordination Group Plan

The *NCAHEM Incident Coordination Group Plan* provides details on how the VS program unit will provide incident coordination support during FAD outbreaks.

APHIS Emergency Qualification System

The APHIS EQS is used to store the skills and qualifications of emergency response personnel and other data imported from the National Finance Center and AgLearn and to feed certification data to ROSS. It is customizable to APHIS program needs and can house training documents. Training documentation flows into EQS from AgLearn for APHIS employees. If the National Animal Health Emergency Response Corps (NAHERC) volunteers do not have access to AgLearn, their training documentation can be manually entered or imported through an Excel spreadsheet.

APHIS Resource Ordering and Status System

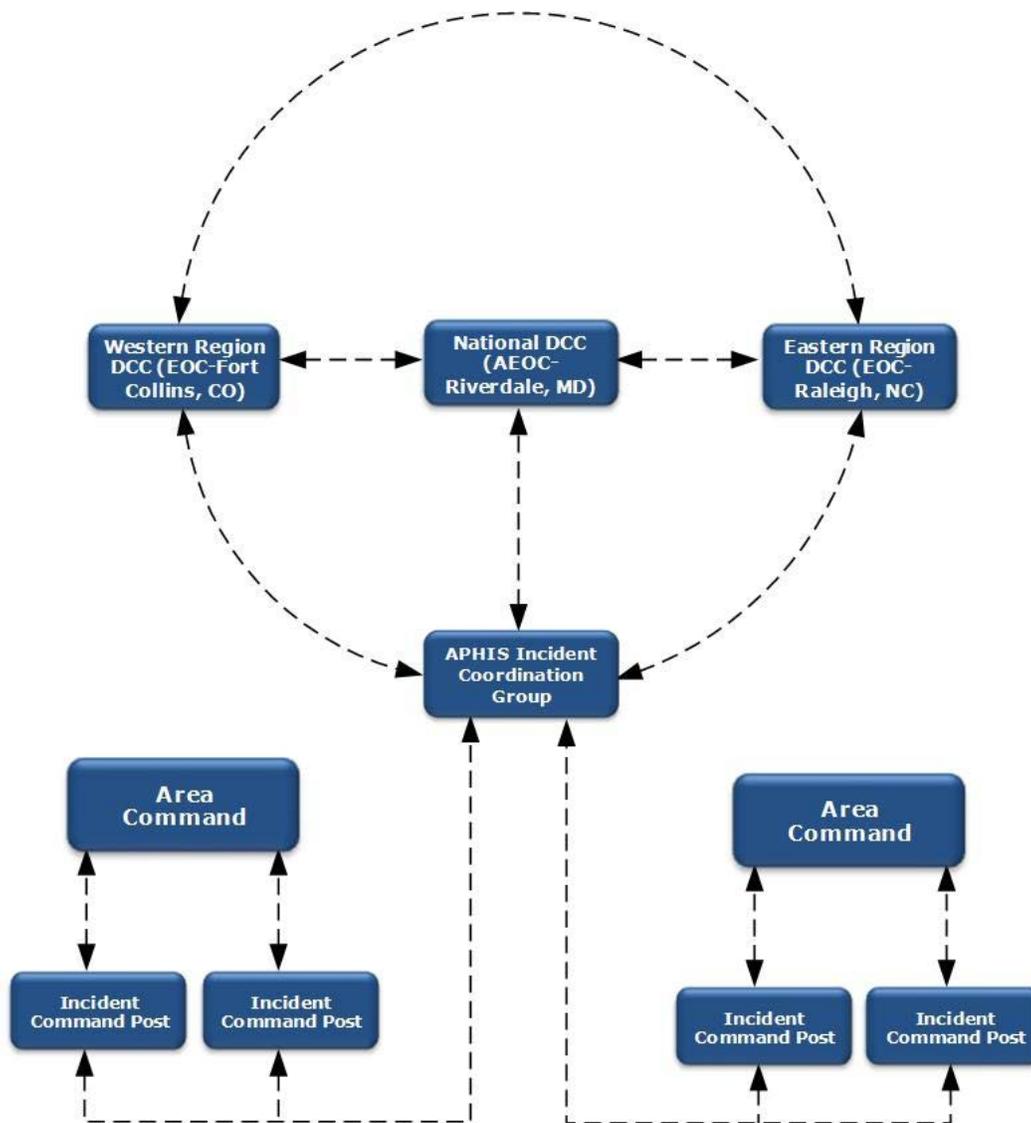
The APHIS ROSS allows APHIS to identify, track, and mobilize the resources needed to support emergency response. It provides a database of qualified emergency response personnel. The database can be searched according to personnel training levels and subject of expertise, such as procurement, epidemiology, or public information. Being able to quickly identify and dispatch appropriate personnel and supplies is a key component of emergency response, and ROSS facilitates that process. ROSS initiatives include the following:

- ◆ developing the *APHIS Emergency Responder Position Catalog*

- ◆ integrating ROSS into APHIS emergency management practices
- ◆ training and sustaining an APHIS dispatch community.

Figure B-8 illustrates the relationships among the APHIS ICG, Dispatch Coordination Centers, ACs, and ICPs.

Figure B-8. Resource Ordering Coordination⁴



Note: AEOC = APHIS Emergency Operations Center, DCC = Dispatch Coordinating Center.

⁴ USDA APHIS, 2009. *Emergency Mobilization Guide*.

Appendix C

Laboratory Network List for Classical Swine Fever

The list of laboratories in the National Animal Health Laboratory Network (NAHLN) is found [here](#). The following laboratories can currently perform testing for classical swine fever (CSF) after National Veterinary Services Laboratory (NVSL) confirmation of CSF.

Table C-1. CSF NAHLN Laboratories

#	State	Laboratory	Phone numbers
1	Arizona	Arizona Veterinary Diagnostic Laboratory 2831 N. Freeway Tucson, AZ 85705	520-621-2356 Fax 520-626-8696
2	Arkansas	Arkansas Livestock & Poultry Commission Laboratory One Natural Resources Dr. Little Rock, AR 72205	501-907-2430 Fax 501-907-2410
3	California	California Animal Health & Food Safety Laboratory University of California, School of Vet Med West Health Sciences Drive Davis, CA 95616	530-752-8709 Fax 530-752-5680
4	Colorado	Colorado State University Veterinary Diag. Lab 300 West Drake Rd, Bldg C Fort Collins, CO 80523-1644	970-297-1281 Fax 970-297-0320
5	Colorado	Colorado State University Veterinary Diagnostic Lab-Rocky Ford 27847 County Road 21 Rocky Ford, CO 81067	719-254-6382 Fax 719-254-6055
6	Connecticut	Connecticut Veterinary Medical Diagnostic Laboratory University of Connecticut Unit 3089, 61 N. Eagleville Rd. Storrs, CT 06269-3089	860-486-3738 Fax 860-486-2737
7	Florida	Bronson Animal Disease Diagnostic Laboratory Florida Dept. of Ag. and Consumer Services 2700 N. John Young Parkway Kissimmee, FL 34741	321-697-1400 Fax 321-697-1467
8	Georgia	University of Georgia Tifton Veterinary Diag. Laboratory 43 Brighton Road, PO Box 1389 Tifton, GA 31793-3000	229-386-3340 Fax 229-386-3399
9	Georgia	Athens Veterinary Diagnostic Laboratory 501 DW Brooks Drive University of Georgia College of Vet Med, Athens, GA 30602	706-542-5568 Fax 706-542-5977

Table C-1. CSF NAHLN Laboratories

#	State	Laboratory	Phone numbers
10	Illinois	Illinois Department of Agriculture, Animal Disease Laboratory Galesburg Animal Disease Lab 2100 S. Lake Storey Rd. Galesburg, IL 61401	309-344-2451 Fax 309-344-7358
11	Illinois	University of Illinois Veterinary Diagnostic Laboratory 2001 S. Lincoln Avenue Urbana, IL 61802-6199	217-333-1620 Fax 217-244-2439
12	Indiana	Indiana Animal Disease Diagnostic Laboratory at Purdue University 406 South University St. West Lafayette, IN 47907	765-494-7440 Fax 765-494-9181
13	Iowa	Iowa State University Veterinary Diagnostic Laboratory 1600 S. 16th St. Ames, IA 50011	515-294-1950 Fax 515-294-3564
14	Iowa	USDA, APHIS, VS, NVSL, Diagnostic Virology Laboratory 1920 Dayton Ave Ames, IA 50010	515-337-7551 Fax 515-337-7527
15	Kansas	Kansas State Veterinary Diagnostic Laboratory Kansas State University, CVM L232 Mosier Hall, 1800 Dennison Ave Manhattan, KS 66506	785-532-5650 Fax 785-532-4039
16	Kentucky	Breathitt Veterinary Center Murray State University 715 North Drive Hopkinsville, KY 42240	270-886-3959 Fax 270-886-4295
17	Kentucky	University of Kentucky, Veterinary Diagnostic Laboratory 1490 Bull Lea Road Lexington, KY 40511	859-257-8283 Fax 859-255-1624
18	Louisiana	Louisiana Animal Disease Diagnostic Laboratory Veterinary Med Diag. Laboratory, LSU 1909 Skip Bertman Drive Baton Rouge, LA 70803	225-578-9777 Fax 225-578-9784
19	Michigan	Diagnostic Center for Population and Animal Health Michigan State University 4125 Beaumont Rd, Ste 201H Lansing, MI 48910	517-353-1683 Fax 517-432-5836
20	Minnesota	University of Minnesota Veterinary Diagnostic Lab 1333 Gortner Ave, 244 Vet DL, St. Paul, MN 55108	612-625-8787 Fax 612-624-8707
21	Mississippi	Mississippi Veterinary Research & Diagnostic Laboratory 3137 Hwy 468 West Pearl, MS 39208	601-420-4700 Fax 601-420-4719
22	Missouri	Veterinary Medical Diagnostic Laboratory University of Missouri 1600 East Rollins Columbia, MO 65211	573-882-6811 Fax 573-882-1411

Table C-1. CSF NAHLN Laboratories

#	State	Laboratory	Phone numbers
23	Montana	Montana Veterinary Diagnostic Laboratory PO Box 997 Marsh Laboratory, 19th and Lincoln Bozeman, MT 59771	406-994-4885 Fax 406-994-6344
24	Nebraska	Veterinary Diagnostic Center University of Nebraska East Campus Loop and Fair Street Lincoln, NE 68583-0907	402-472-1434 Fax 402-472-3094
25	New Jersey	New Jersey Department of Agriculture, Division of Animal Health Animal Health Diagnostic Laboratory, NJPHEAL 3 Schwarzkopf Drive Ewing, NJ 08628	609-406-6999 Fax 609-671-6414
26	New York	Animal Health Diagnostic Center Upper Tower Road, College of Vet Med, Cornell University Ithaca, NY 14853	607-253-3900
27	New York	USDA, APHIS, VS, Foreign Animal Disease Diagnostic Laboratory PO Box 848 40550 Route 25 Greenport, NY 11857	631-323-3256 Fax 631-323-3366
28	North Carolina	Rollins Diagnostic Laboratory North Carolina Department of Agriculture 2101 Blue Ridge Rd. Raleigh, NC 27607	919-733-3986 Fax 919-733-0454
29	North Dakota	Veterinary Diagnostic Laboratory North Dakota State University NDSU Dept. 7691, PO Box 6050 Fargo, ND 58108-6050	701-231-8307 Fax 701-231-7514
30	Ohio	Ohio Department of Agriculture Animal Disease Diagnostic Laboratory 8995 E. Main Street, Building 6 Reynoldsburg, OH 43068	614-728-6220 Fax 614-728-6310
31	Oklahoma	Oklahoma Animal Disease Diagnostic Laboratory Oklahoma State University, College of Veterinary Medicine Farm & Ridge Road Stillwater, OK 74078	405-744-6623 Fax 405-744-8612
32	Oregon	Oregon State University Veterinary Diagnostic Lab Magruder Hall 134 Corvallis, OR 97331	541-737-3261 Fax 541-737-6817
33	Pennsylvania	Pennsylvania Veterinary Laboratory Pennsylvania Department of Agriculture 2305 N. Cameron Street Harrisburg, PA 17110	717-787-8808 Fax 717-772-3895
34	South Carolina	Clemson Veterinary Diagnostic Center PO Box 102406 500 Clemson Road Brookings, SC 29229	803-788-2260 Fax 803-788-8058

Table C-1. CSF NAHLN Laboratories

#	State	Laboratory	Phone numbers
35	South Dakota	Animal Disease Research & Diagnostic Laboratory South Dakota State University Box 2175, N. Campus Dr. Brookings, SD 57007	605-688-5171 Fax 605-688-6003
36	Tennessee	CE Kord Animal Disease Diagnostic Laboratory Ellington Agricultural Center 440 Hogan Rd. Nashville, TN 37220	615-837-5125 Fax 615-837-5250
37	Texas	Texas Veterinary Medical Diagnostic Laboratory 1 Sippel Road, Drawer 3040 College Station, TX 77843	979-845-3414 Fax 979-845-1794
38	Texas	Texas Veterinary Medical Diagnostic Laboratory - Amarillo 6610 Amarillo Blvd West Amarillo, TX 79106	806-353-7478 Fax 806-359-0636
39	Utah	Utah Veterinary Diagnostic Laboratory 950 E. 1400 North Logan, UT 84341	435-797-1895 Fax 435-797-2805
40	Washington	Washington Animal Disease Diagnostic Laboratory PO Box 647034 Bustad Hall, Room 155-N Pullman, WA 99164-7034	509-335-9696/ 509-335-6190 Fax 509-335-7424
41	Wisconsin	Wisconsin Veterinary Diagnostic Laboratory University of Wisconsin-Madison 445 Easterday Lane Madison, WI 53706-1253	608-262-5432 Fax 847-574-8085
42	Wyoming	Wyoming State Veterinary Laboratory 1174 Snowy Range Road Laramie, WY 82070	307-766-9925 Fax 307-721-2051

Appendix D

Updated CSF Outbreak Surveillance Guidance and Rationale

CSF OUTBREAK SURVEILLANCE GUIDELINES

These are updated recommendations for classical swine fever (CSF) outbreak surveillance, prepared by the National Surveillance Unit (NSU) of the Centers for Epidemiology and Animal Health, Veterinary Services (VS), Animal and Plant Health Inspection Service (APHIS). These guidelines may be updated periodically.

Purpose

The purpose of these guidelines is to provide recommendations for surveillance activities in domestic swine for this *CSF Response Plan*. These are sample guidelines.

These are strategies regarding sampling sizes and sampling frequencies for premises in the Infected Zone (IZ), Buffer Zone (BZ), Surveillance Zone (SZ), and proof of disease freedom (DF) that do not require daily product movement. Surveillance will be conducted at intervals as specified by the Incident Command (IC) using the most current scientific information and best practice guidance available.

Objectives

The objectives of CSF outbreak surveillance are to

- ◆ detect CSF Infected Premises (IP) during an outbreak;
- ◆ determine the size and extent of a CSF outbreak;
- ◆ supply information to evaluate outbreak control activities;
- ◆ provide information for animal and product movement within the Control Area (CA);
- ◆ provide information for animal and product movement out of the CA;
- ◆ prove DF to regain CSF-free status after eradication of the outbreak.

Definitions

There are two key definitions that are important in outbreak surveillance.

- ◆ *Clinically ill animals.* Animals with clinical signs of illness compatible with CSF.
- ◆ *Detection probability.* Likelihood that the sampling scheme will detect at least one infected animal in each premises or epidemiological unit with 95 percent confidence at the selected design prevalence, population size, and sensitivity of the chosen validated test.

Rationale for Selecting a Design Prevalence

It is difficult to recommend a single surveillance sampling scheme for a CSF outbreak because many factors impact the nature and characteristics of the outbreak. Each outbreak is different; surveillance plans will need to be tailored to individual outbreaks.

GENERAL CONSIDERATIONS FOR SELECTING A DESIGN PREVALENCE

There are a number of general factors that impact the selection of a design prevalence to be used in a CSF surveillance plan. Some of these factors are related to the nature of the CSF outbreak itself, while others are related to the surveillance plan.

- ◆ Outbreak or disease related factors:
 - *Prevalence.* (1) proportion of infected animals on the premises, or (2) proportion of IP in the area at a specific time period.
 - *Incubation period.* Length of the period that elapses between the introduction of the pathogen into the animal and the occurrence of the first clinical signs.
 - *Transmission and generation.* Length of time between when one animal is infected, becomes infectious, and infects another animal.
 - *Ease of recognition.* The ease of recognition of clinical signs of CSF in affected species.
 - *Time.* The length of time which has passed since the disease was introduced to the premises or area.
 - *Herd size.* Number of animals on a given premises.
 - *Density of premises.* Number of IP in a given area.

- ◆ Surveillance plan factors:
 - *Resources.* Resources that are available for sample collection or visual observation, including personnel.
 - *Diagnostics.* Tests that are available, including how many animals must be tested, and what type of sample (tissue, serum) is needed.
 - *Detection time.* How long it takes before a test can detect the presence of CSF virus (CSFV) in an animal. For example, does the test require the animal to be clinically ill or can it detect prior to visual signs.
 - *Test sensitivity.* The estimated proportion of true diseased or infected animals that will test positive.
 - *Test specificity.* The estimated proportion of true non-diseased or non-infected animals that will test negative.
 - *Frequency.* How often samples must be collected and diagnostic tests must be conducted for effective surveillance.
 - *Goal of surveillance.* A surveillance scheme will depend on whether the goal is to prove DF or detect disease in a vaccinated or unvaccinated population.
 - *Confidence level.* The probability of accepting the null hypothesis when it is true; choosing a confidence level (for example, 90 percent, 95 percent, or 99 percent) for the surveillance plan.

All of the factors listed above are interrelated. Table D-1 lists the factors and general surveillance design in an outbreak response effort. It is important to consider all factors together, rather than independently, when developing a surveillance plan.

Table D-1. Interaction of Disease/Outbreak and Surveillance Factors, with Suggested Adaptations in Surveillance Scheme

Disease/Outbreak Factor	Surveillance Factors						
	Design prevalence	Sampling frequency	Visual/observational exam (lower sensitivity test)	Animal handling	Test sensitivity	Early detection	Tissue testing (higher sensitivity test)
Shorter incubation period	Increase	Increase	Use, depending on strength of clinical signs	Decrease	Less important	Increased likelihood	Less important
Strong clinical signs	Increase	Depends	Use	Decrease	Less important	Increased likelihood	Less important
Size of epidemiological unit	Decrease	Frequent	Depends	Depends	More important	Depends	More important
Increased prevalence	Decrease	Less frequent	Depends	Depends	Less important	Depends	Less important

REASONS TO SELECT A LOW DESIGN PREVALENCE

It is impossible to select one disease factor and one surveillance factor from Table D-1 and to understand how the surveillance factor should change based on that one disease factor independently of the other factors. However, if possible, it is always desired to (1) select the test that detects CSFV as early as possible, and (2) use the lowest design prevalence. A low design prevalence is consistent with surveillance schemes used for disease detection, business continuity, and proof of DF.

The reasons for selecting the low design prevalence are as follows.

- ◆ CSFV is highly contagious. In a naïve population, the virus multiplies rapidly in multiple animals and spreads quickly throughout the population via direct contact, indirect contact (fomites), and possible aerosol transmission.
- ◆ Animals infected with CSFV may become infectious and transmit the virus early in the infectious process (1 to 14 days after exposure, depending on the specific virus and susceptibility of the infected pigs); this may be before clinical signs are apparent.
 - Clinical infection varies from very mild to severe; animals with mild clinical signs may not be detected.
- ◆ Low design prevalence will be exceeded rapidly, as CSF spreads quickly through an epidemiological unit, which fosters early disease detection in comparison to a high design prevalence.
- ◆ Early detection reduces the time that premises are infectious.

- ◆ The CSFV is detectable in lymphoidal and reticuloendothelial tissues (for example, spleen, lymph nodes, and tonsils [preferred]) before animals display clinical signs.
- ◆ Collection of samples required for approved and validated diagnostic tests—such as tissue, whole blood, or serum—requires direct contact with the animal.
- ◆ There are no approved and validated mass population or pooled sampling procedures.
- ◆ Monitoring feed intake in large swine herds may require more than a few infected animals before signs trigger additional diagnostics.
- ◆ It is not likely that the index premises is the first IP; CSFV may be widely dispersed.
 - All IP may be a source for transmission of CSFV.
 - More undetected IP (without movement controls) increases the probability that the CSF outbreak will be widespread.
 - Personnel may unknowingly transmit CSF from clinically normal but infected animals to uninfected animals.
- ◆ Following appropriate biosecurity and cleaning and disinfection requirements, surveillance teams can sample approximately 2 premises per day if taking individual animal samples.

Surveillance Scheme Sampling Considerations

Surveillance on susceptible premises should detect the presence of CSFV at the earliest possible moment after viral introduction. This occurs when the virus is detectable, using the lowest possible design prevalence, in tissues or serum.

The choice of the design prevalence depends on (1) the surveillance methodology, (2) the diagnostic test sensitivity, and (3) the chosen confidence level.

At present, there are no validated mass population sampling techniques, as explained in [Chapter 5](#) of this *CSF Response Plan*. It is a priority to validate mass population or pooled sample testing.

Currently, as explained in [Chapter 5](#), the following diagnostic tests will be used in a CSF outbreak to detect and characterize CSFV.

- ◆ Virus isolation
- ◆ Avidin-Biotin Complex stain (known as ABC stain)

-
- ◆ Immunoperoxidase
 - ◆ Ab enzyme-linked immunosorbent assay (Ab ELISA)
 - ◆ Virus neutralization (VNT)
 - ◆ Real-time reverse transcriptase polymerase chain reaction (rRT-PCR)
 - ◆ Nested PCR.

The rRT-PCR test will be used in an outbreak to detect infected, unvaccinated animals because of its rapid turnaround time (approximately 4 hours).

Given that no mass population sampling techniques are available at this time, the following questions provide guidance to develop a surveillance sampling scheme after declaration of a CSF outbreak in a location or area.

ACUTE FORM (CLINICALLY ILL ANIMALS ON PREMISES)

1. Are resources available to intensively survey premises (for example, collect tissue and whole blood samples from the needed number of clinically ill animals)?

If “yes,” then

2. Does evidence suggest the introduction of the virus (the start of the outbreak) on the premises or in the zone began at least 5 days ago but less than 21 days ago?
3. Is there evidence that the CSF serotype is highly pathogenic (a high proportion of the infected animals will show clinical signs and/or severe clinical signs)?

If “yes” to Questions 2 and 3, then

4. Is it likely that the outbreak can be contained locally (for example, on a farm or within a small geographic area)?
5. Are there limited movements of animals, vehicles, products, and personnel on and off premises (in other words, it is unlikely that the virus will be introduced to, or spread from, this premises or zone)?
6. Are the swine operations in the zone managed for low-risks of exposure (for example, biosecurity practices in place, little opportunity for fomite transmission)?
7. Are there few noncommercial swine operations or feral swine in the zone?
8. Are there large swine operations in the zone?

If all or most of the answers to Questions 4–8 are “yes,” the minimum surveillance sampling to detect CSFV is observational surveillance with routine visual inspection of swine for clinical signs, and targeted tissue sampling of individual animals with clinical signs.

If all or most of the answers to Questions 4–8 are “no,” both animals with clinical signs and those appearing healthy should be sampled.

If the answer to Question 1 is “no,” then visual surveillance should be conducted. Laboratory sampling/testing should be initiated upon positive visual exam for verification. Premises must be sampled based on the probability of transmitting CSF (the highest probability premises will be sampled first), whether rRT-PCR or serologic tests are used.

Please see these questions illustrated in Figure D-1.

NON-ACUTE FORMS (CONVALESCENT, ASYMPTOMATIC, OR ANIMALS WITH MILD CLINICAL SIGNS)

1. Are resources available to intensively survey premises (for example, collect tissue, serum, or whole blood samples from the needed number of clinically ill animals)?

If “yes,” then

2. Does evidence suggest that the introduction of virus (the start of the outbreak) on the premises or in the zone began at least 21 days ago?
3. Is there evidence that the CSF serotype is not highly pathogenic (a high proportion of infected animals will show clinical signs and/or severe clinical signs)?

If the answer is “yes” to either Question 2 or 3, then sampling and serological testing of both ill and healthy animals on the premises is necessary.

If the answer to Questions 2 and 3 is “no,” then please see the Acute Form flowchart.

Questions 4–8 in the previous section will help design the specific surveillance scheme, but do not influence the test choice or sampling targets.

If the answer to Question 1 is “no,” then visual surveillance should be conducted. Laboratory sampling/testing should be initiated upon positive visual exam for verification. Because there may be few or no clinical signs, premises must be sampled based on the probability of transmitting CSF (the highest probability premises will be sampled first), whether rRT-PCR or serologic tests are used.

Please see these questions illustrated in Figure D-2.

Figure D-1. Surveillance Scheme Sampling Considerations: Acute Form

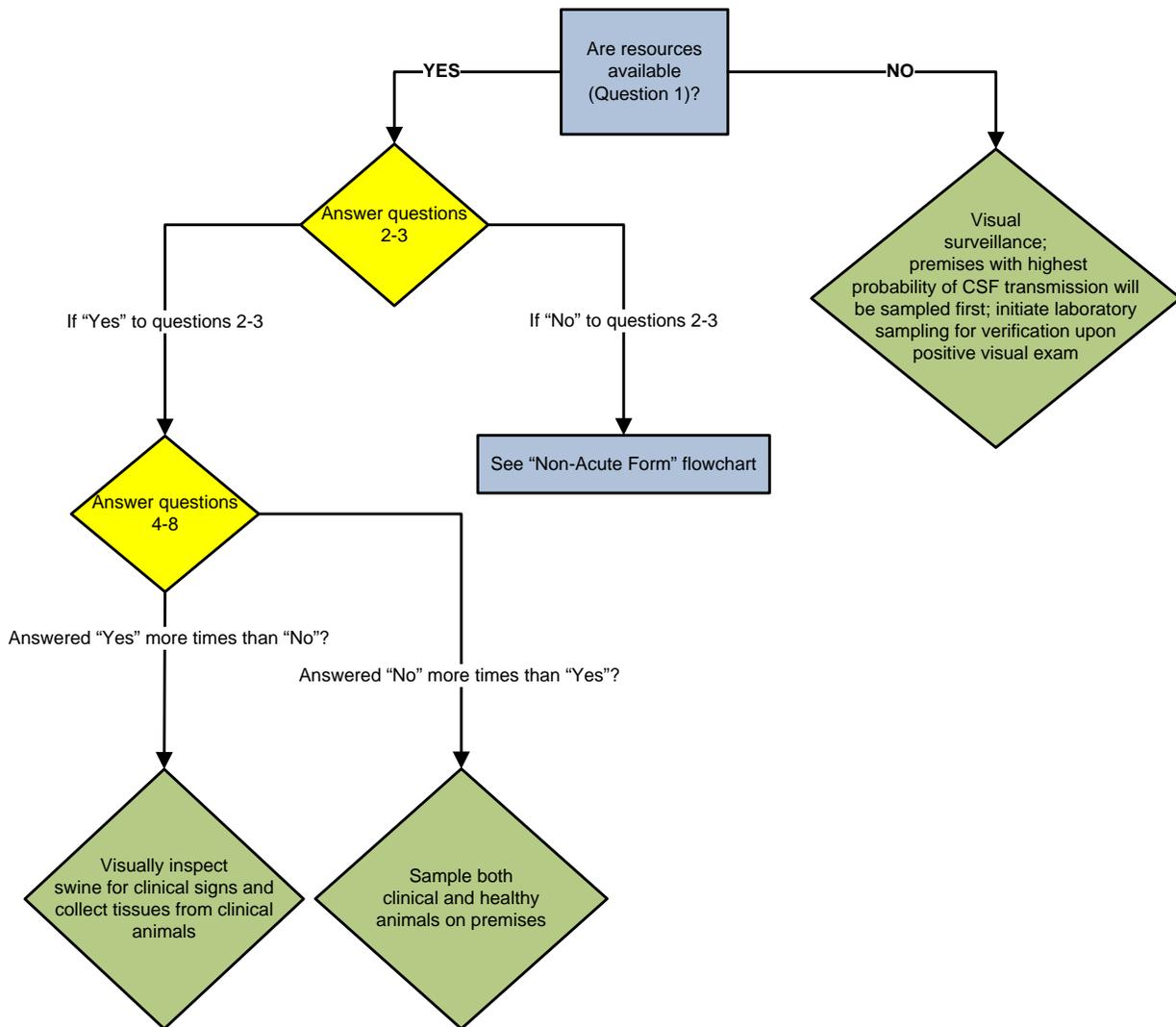
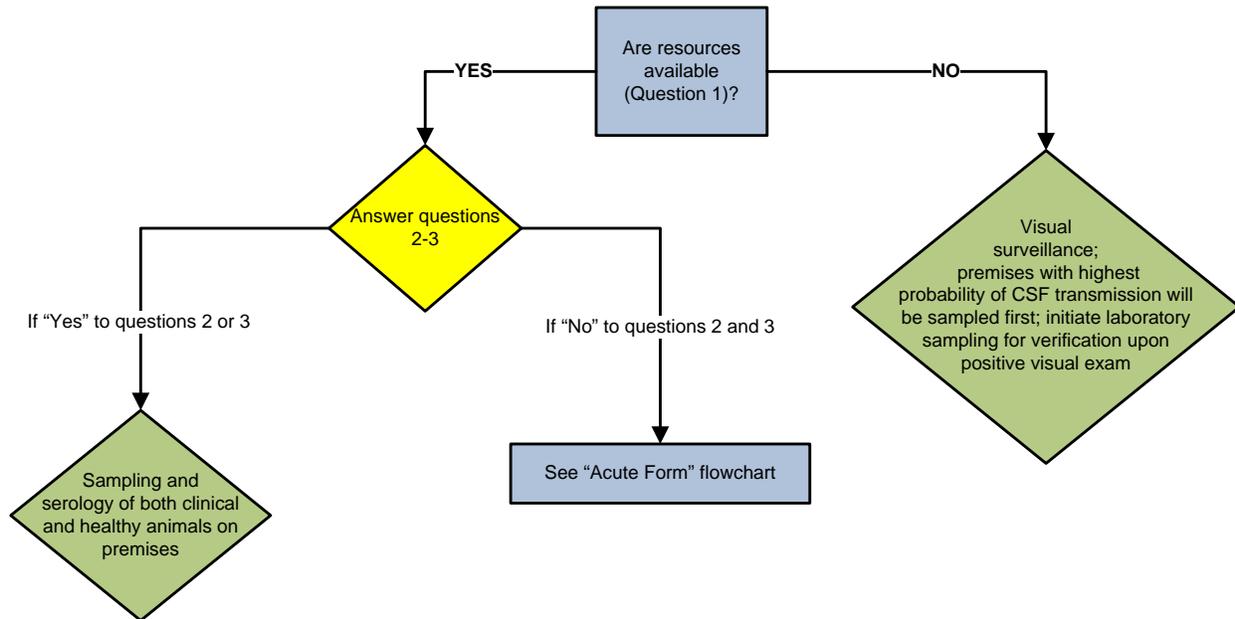


Figure D-2. Surveillance Scheme Sampling Considerations: Non-Acute Form



Surveillance Test Choices

The positive predictive value (PPV) of a diagnostic test depends, foremost, on the disease prevalence in the population. The PPV also depends on test specificity and sensitivity. The PPV of any test is poor if the prevalence in the population is less than 5 percent. Early in the disease outbreak, it can be difficult to estimate the prevalence of IP in a given area, or the prevalence of infected animals on a given premises. The goal is always to detect viral presence with the least number of infectious animals. Subsequently, it is important to use the lowest design prevalence possible.

The negative predictive value of a test is best used when the disease is not prevalent (less than 1 percent), the specificity of the test is high, and there is little disease clustering. These conditions, coupled with low design prevalence and negative diagnostic test results, facilitate proving DF in a given population.

As CSF viral prevalence increases, the PPV increases and the specificity of the test plays a minor role in disease detection. With CSF, the rRT-PCR has the ability to detect viral presence earlier than visual examination.

FACTORS THAT INFLUENCE DIAGNOSTIC TEST CHOICE

The choice of a diagnostic test or tests is influenced by a number of choices, including the following:

- ◆ *Resources available.*

-
- ◆ *CSF prevalence in the population.* The following factors increase prevalence:
 - Highly contagious animals.
 - Short incubation period (2 days vs. 2 weeks).
 - Number of contacts between infectious and susceptible animals.
 - Animals infected with CSFV may become infectious and transmit the virus early in the infectious process (1 to 14 days after exposure, depending on viral virulence and pig susceptibility); this is before clinical signs are apparent.
 - Pathogenicity of the virus.
 - ◆ *Test characteristics.*
 - Prevalence at which the test can detect disease.
 - For example, visual inspection may require approximately 50–75 percent of the herd to be infected before morbidity is likely to appear abnormally high.
 - Speed of test results.
 - Sensitivity.
 - Sampling frequency.
 - Level of animal contact required.

SAMPLING ALTERNATIVES

If resources are not significantly limited, (1) use the lowest intra-premises and inter-premises design threshold, and (2) sample at least three times per incubation period.

If mass population sampling tests become available, substitute these tests for individual animal sampling, and sample frequently.

The following are sampling scheme alternatives to individual sampling using a 1 percent design prevalence.

- ◆ Increase the design intra-premises prevalence from 1 to 2 percent, or 5 to 10 percent. With each percent increase, fewer animals will be sampled.
- ◆ With a highly contagious CSF viral strain, there will be less time lost between infection and detection when using higher design prevalence.

This is because the number of ill animals increases exponentially. If $R_0=2$, each animal infects 2 others, so then the number of infected animals will increase in the exposed group from 1, 2, 4, 8 etc. If $R_0=5$, every animal infected will infect five other animals, so the number of infected animals will increase from 1, 5, 25, 125, etc.¹

- Visual detection of CSF infected animals will become easier.
- ◆ If the CSFV strain has a short incubation period, there will be less time lost between infection and detection using a higher design prevalence because the animals become infectious and display clinical signs rapidly.
 - The reverse is true with a CSFV that has a longer incubation period.

SAMPLING EXAMPLES

1. *rRT-PCR*. The rRT-PCR test would be used to sample all clinically ill swine. The remainder of the samples (from the calculated total needed) would be from swine selected from the population without clinical signs. In this population of swine that do not have clinical signs, the prevalence of infected swine is expected to be *less than* in the sub-population of animals with clinical signs.
2. *Visual examination*. Visual examination will occur in the sub-population of animals with clinical signs.

For example, 5 pyretic pigs may be expected each day in a group of 250 pigs (pneumonia, etc.). Visual observation would detect the 5 additional CSF clinically ill pigs (the prevalence of CSF in the group may vary from 10 to 80 percent). The prevalence of CSF infected animals would be 50 percent in the group of 10 clinically ill animals.

MINIMUM SAMPLE SIZES

Tissue or whole blood collection from apparently healthy animals/herds is performed to detect subclinical animals as quickly as possible, reducing the risk of virus spread. The selection of an appropriate prevalence level in a CSF outbreak should be based on known or estimated epidemiological findings. Table D-2 presents sample sizes based on prevalence levels. Five percent and 10 percent prevalence rates are also provided.

¹ R_0 is the basic reproduction number, or the expected number of cases produced by a single case in a susceptible population.

Table D-2. Minimum Sample Sizes with Various Design Prevalence Levels Needed to Detect CSF in Apparently Healthy Herds/Animals

Herd Size or Number of Premises	Prevalence			
	1%	2%	5%	10%
<=50	ALL	ALL	37	23
51–100	ALL	82	47	27
101–200	164	111	54	28
201–300	199	124	56	29
301–400	222	131	58	29
401–500	237	136	59	30
501–600	248	139	62	30
601–700	256	141	62	30
701–800	262	143	62	30
801–900	268	144	62	30
901–1,000	272	146	62	30
1,001–2,000	292	157	62	30
>2,000	314	157	62	30

Note: These sample sizes are based on an rRT-PCR sensitivity of 95 percent for detecting CSFV in appropriately collected samples from infected pigs. The sizes provide 95 percent confidence that the premises or area has a CSF prevalence less than the design prevalence given that the virus is there and all animals test negative.

Prevalence in this table indicates:

1. If determining the number of animals in a herd, then the within herd prevalence is the level chosen.
2. If determining the number of herds in a zone to test, then the herd level prevalence is the level chosen.

Table D-3 presents sample sizes, based on prevalence level expected in the group of clinically ill swine on premises. This shows fewer samples are required to detect CSF with clinically ill animals because of the high prevalence of CSF infected animals in the clinically ill animal population. The provided sample sizes in the table are based on within-herd prevalence of CSF infection by the time animals develop clinical illness.

Table D-3. Minimum Sample Sizes with Various Prevalence Levels Needed to Detect CSFV Using Visual Observation with Clinically Ill Animals

Herd Size or Number of Premises	Prevalence		
	40%	60%	80%
<=15	6	4	3
16–75	7	4	3
>75	8	4	3

Note: These sample sizes are based on an rRT-PCR sensitivity of 95 percent for detecting CSFV in appropriately collected samples from infected animals with clinical signs of infection. The sizes provide 95 percent confidence of detecting infection in a herd or zone, given that it is there at the given prevalence.

Prevalence in this table indicates:

1. If determining the number of animals to test in a herd, then the within herd prevalence is the level chosen. Thus using rRT-PCR for detection, we have 95 percent confidence of detecting an infected animal in the herd if the prevalence in the herd is 40 to 80 percent.
2. If determining the number of herds in a zone to test, then the herd level prevalence is the level chosen. Thus using rRT-PCR for detection, we have 95 percent confidence of detecting an infected herd in the zone if the prevalence in the herd is 40 to 80 percent.

Sampling Schemes for Commercial and Noncommercial Premises

The following definitions apply to both commercial and noncommercial premises.

1. *Sampling Unit.* Premises or epidemiological units on premises (pens, barns, or air management units in swine operations, etc.).
2. *Sample.* (1) Visual observation of sick or dead animals followed by rRT-PCR confirmation if suspicion of CSF, (2) Collection of individual animal tissue or whole blood from calculated number of animals or premises and then test with rRT-PCR.

Frequency recommendations are based on the following.

- ◆ Short incubation period of CSF (2–14 days).
- ◆ Sufficient personnel available for surveillance activities.
- ◆ High probability of spreading CSF with frequent inspection/sampling.
- ◆ Recommendations for changing frequency of premises inspection/sampling are listed in Table D-4 (later in this Appendix).

To calculate sample sizes, the Outbreak Toolbox can be used.²

This information is summarized in Tables D-5a, b, and c.

CSF SAMPLING SCHEMES FOR BOTH COMMERCIAL AND NONCOMMERCIAL PREMISES

CSF surveillance sampling recommendations are based on virus/host behavior during the outbreak and the approved tests available. The virus/host behavior is divided into three classes and each viral/host class has general surveillance scheme recommendations.

1. Outbreak where the virus is highly pathogenic and transmissible, with acutely ill animals.
2. Outbreak where the virus is mildly or slightly pathogenic, with ill animals that have few or mild clinical signs.
3. Established disease with convalescent, asymptomatic or mildly ill animals.

Box D-1. Important Note on Observational Sampling for Commercial and Noncommercial Premises

Individual animal sampling is recommended for commercial and noncommercial premises. However, if resources are limited, and in the event it is an acute clinical signs outbreak, observational surveillance may be used in noncommercial premises.

ACUTE HIGHLY PATHOGENIC VIRUS

Infected Zone and Buffer Zone

- ◆ Number of premises to be sampled:
 - Census of premises within zone; sample premises as prioritized by results of epidemiological investigation and continuity of business requirements.

² For the Outbreak Surveillance Toolbox, mentioned throughout this document, please go to <http://inside.aphis.usda.gov/vs/ceah/nsu/toolbox/>, or e-mail National.Surveillance.Unit@aphis.usda.gov.

- ◆ Contact Premises (CP), Suspect Premises (SP), and Monitored Premises (MP):
 - Number of animals to be sampled:
 - Observe the herd for CSF compatible signs.
 - If CSF compatible signs are observed, collect samples from the calculated number of animals (Tables D-2 and D-3) or calculated using the Outbreak Toolbox using a 15 percent design prevalence.
 - A PCR or other acceptable rapid test will be used.
 - Sampling frequency:
 - Collect samples on each premises every 5th day for the duration of the area quarantine or a minimum of 28 days.
 - MP may be sampled more frequently depending on the need to move products, but must be sampled at the minimum listed above. For example, a swine operation needing to ship pigs daily will be evaluated daily. For a finishing premises, the premises will be evaluated on each of the 3 days prior to shipping the animals.
- ◆ At-Risk Premises (ARP):
 - Number of animals to be sampled:
 - Observe/collect samples from the calculated number of animals (Tables D-2 and D-3), or calculate using the Outbreak Toolbox, using a 10 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used.
 - Sampling frequency:
 - Collect samples on each premises every 5th day for the duration of the area quarantine.

Surveillance Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.

-
- Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 1 percent of all premises with susceptible animals, or
 - a census, if the number of premises in the zone is small, and
 - in order as prioritized by results of epidemiological investigation and continuity of business requirements.
 - ◆ Number of animals to be sampled:
 - Collect samples on the premises using a 5 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - ◆ Sampling frequency:
 - Randomly select the calculated number of premises to be sampled (as determined above, such as 60), and collect the appropriate samples on each of the selected premises once during the first 21 day period of the area quarantine. Then,
 - Randomly select (include in the sampling list frame the premises sampled in the first 21 day period) and sample an equal number of premises (as calculated above) once during each additional 21 day period of the area quarantine.
 - For example, select and sample 60 premises once during the first 21 day period, then reselect (with replacement) another 60 premises to be sampled in the second 21 day period.

MILDLY PATHOGENIC VIRUS

Infected Zone and Buffer Zone

- ◆ Number of premises to be sampled:
 - Census of premises within zone; sample premises as prioritized by results of epidemiological investigation and continuity of business requirements.

- ◆ CP, SP, and MP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Tables D-2 and D-3), or calculate using the Outbreak Toolbox, using a 5 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on each premises every 5th day for the duration of area quarantine or a minimum of 28 days.
 - MP may be sampled more frequently depending on the need to move products, but must be sampled at the minimum listed above. For example, a swine operation needing to ship pigs daily will be evaluated daily. For a finishing premises, the premises will be evaluated on each of the 3 days prior to shipping the animals.
- ◆ ARP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Table D-2 and D-3), or calculate using the Outbreak Toolbox, using a 5 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on premises every 5th day for duration of area quarantine.

Surveillance Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.

-
- Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 1 percent of all premises with susceptible animals, or
 - a census, if the number of premises in the zone is small, and
 - in order as prioritized by results of epidemiological investigation and continuity of business requirements.
 - ◆ Number of animals to be sampled:
 - Collect samples on the premises using a 1 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - ◆ Sampling frequency:
 - Randomly select the calculated number of premises to be sampled (as determined above, such as 60), and collect the appropriate samples on each of the selected premises once during the first 21 day period of the area quarantine. Then,
 - Randomly select (include in the sampling list frame the premises sampled in the first 21 day period) and sample an equal number of premises (as calculated above) once during each additional 21 day period of the area quarantine.
 - For example, select and sample 60 premises once during the first 21 day period, then reselect (with replacement) another 60 premises to be sampled in the second 21 day period.

ESTABLISHED MILDLY PATHOGENIC VIRUS

Infected Zone

- ◆ Number of premises to be sampled:
 - Census of premises within zone; sample premises as prioritized by results of epidemiological investigation and continuity of business requirements.

- ◆ CP, SP, and MP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Tables D-2 and D-3), or calculate using the Outbreak Toolbox, using a census of animals within the zone.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on each premises every 7th day for the duration of area quarantine or a minimum of 28 days.
- ◆ ARP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Tables D-2 and D-3), or calculated using the Outbreak Toolbox, using a census of animals within the zone.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on each premises every 14th day for the duration of area quarantine.

Buffer Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.
 - Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 2 percent of all premises with susceptible animals, or

-
- a census, if the number of premises in the zone is small, and
 - in order as prioritized by results of epidemiological investigation and continuity of business requirements.
- ◆ CP, SP, and MP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Tables D-2 and D-3), or calculate using the Outbreak Toolbox, using a 2 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on each premises every 14th day for the duration of area quarantine or a minimum of 28 days.
 - ◆ ARP:
 - Number of animals to be sampled:
 - Collect samples from the calculated number of animals (Tables D-2 and D-3), or calculate using the Outbreak Toolbox, using a 2 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
 - Sampling frequency:
 - Collect samples on each premises every 14th day for the duration of area quarantine.

Surveillance Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.

- Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 1 percent of all premises with susceptible animals, or
 - a census, if the number of premises in the zone is small, and
 - in order as prioritized by results of epidemiological investigation and continuity of business requirements.
- ◆ Number of animals to be sampled:
 - Collect samples on the premises using a 1 percent design prevalence.
 - Add randomly selected animals to pool if necessary to achieve calculated sample size.
 - A PCR or other acceptable rapid test will be used on clinical animals; an Ab ELISA will be used on blood samples.
- ◆ Sampling frequency:
 - Randomly select the calculated number of premises to be sampled (as determined above, such as 60), and collect the appropriate samples on each of the selected premises once during the first 21 day period of the area quarantine. Then,
 - Randomly select (include in the sampling list frame the premises sampled in the first 21 day period) and sample an equal number of premises (as calculated above) once during each additional 21 day period of the area quarantine.
 - For example, select and sample 60 premises once during the first 21 day period, then reselect (with replacement) another 60 premises to be sampled in the second 21 day period.

Proof of Disease Freedom Surveillance

This information is summarized in Table D-6.

1. Surveillance samples will be tested using the Ab ELISA that demonstrates exposure to the virus, thus, adding a time element into the surveillance scheme. Additionally, there will be enhanced passive clinical surveillance with accepted testing protocols of suspect cases, surveillance in slaughter plants, and enhanced surveillance in markets and shows. Surveillance for proof of DF starts 21 days (World Organization for Animal Health [OIE] recommendation) after depopulation of the last IP.

-
2. The goal is to demonstrate that all premises are disease free at the design prevalence level because diagnostic tests are negative. OIE recommends intensifying surveillance schemes in conjunction with (1) active investigation of herds with suspicious clinical signs, and (2) increased slaughter serosurveillance.

COMMERCIAL PREMISES (DISEASE FREEDOM)

Infected Zone, Buffer Zone, and Surveillance Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.
 - Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - the IP prevalence equals or exceeds 1 percent of all premises with susceptible animals in the IZ.
- ◆ Number of animals to be sampled per herd:
 - Calculate using the Outbreak Toolbox or Cannon formulae.
 - Number of animals to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 5 percent where the maximum animals sampled doesn't exceed 60 animals per herd.
- ◆ Sampling frequency:
 - Sample the number of premises calculated above (for example, 60 premises one time each) during a 3-month period after the outbreak has been eradicated.

NONCOMMERCIAL PREMISES (DISEASE FREEDOM)

Infected Zone, Buffer Zone, and Surveillance Zone

- ◆ Number of premises to be sampled:
 - Calculate using the Outbreak Toolbox or Cannon formulae.
 - Premises to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - the IP prevalence equals or exceeds 1 percent of all premises with susceptible animals in the IZ.

- ◆ Number of animals to be sampled per herd:
 - Calculate using the Outbreak Toolbox or Cannon formulae.
 - Number of animals to be sampled is based on detecting at least one IP with 95 percent confidence, where
 - IP prevalence equals or exceeds 1 percent where the maximum number of animals sampled doesn't exceed 60 animals per herd.
- ◆ Sampling frequency:
 - Sample the number of premises calculated above (for example, 60 premises one time each) during a 3-month period after the outbreak has been eradicated.

FURTHER SURVEILLANCE INFORMATION

Table D-4 shows the incubation periods and sampling frequency.

Table D-4. Incubation Period and Sampling Frequency

Estimated Incubation Period Based on Field Information		
Incubation Period	Frequency of Sampling (days between sampling)	
	Minimum (Days)	Maximum (Days)
1 to 2 Days	1	1
3 to 4 Days	2	3
5 to 7 Days	4	6
8 to 14 Days	5	10
> 14 Days	10	

Table D-5a summarizes the outbreak surveillance scheme for disease detection in commercial and noncommercial operations for the highly pathogenic viral strain.

Table D-5b summarizes the outbreak surveillance scheme for disease detection in commercial and noncommercial operations for the mildly pathogenic virus.

Table D-5c summarizes the outbreak surveillance scheme for disease detection in commercial and noncommercial operations for the established mildly pathogenic virus.

Table D-5a. Outbreak Surveillance for Disease Detection-Highly Pathogenic Viral Strain

Disease Detection in Commercial and Noncommercial Operations			
CSF Outbreak Response			
14 Day Incubation Period	Epidemic (Early; < than 1 Month Duration)		
	Highly Pathogenic Viral Strain (Overt Clinical Signs)		
Sampling	Infected Zone and Buffer Zone		Surveillance Zone ^a
Number of Premises	Census		1% Design Prevalence*
Free Premises			
Unit	-	-	Individual Animal Sample
Target	-	-	Clinically Sick Pigs & Randomly Selected Animals [^]
Number of Animals	-	-	5% Design Prevalence*
Test [#]	-	-	PCR/other acceptable rapid test on ill animals (tonsil preferred) and Ab ELISA
Frequency	-	-	Reselect sampling every 21 days
Duration	-	-	
Contact, Suspect, or Monitored Premises ^a			
Unit	Observation/Individual Animal		-
Target	Clinically Sick Pigs		-
Number of Animals	15% Design Prevalence*		-
Test [#]	PCR/other acceptable rapid test		-
Frequency	5 days		-
Duration	Duration of Area Quarantine or 28 day minimum		
At-Risk Premises			
Unit	Observation/Individual Animal		-
Target	Clinically Sick Pigs & Randomly Selected Animals [^]		-
Number of Animals	10% Design Prevalence*		-
Test [#]	PCR/other acceptable rapid test		-
Frequency	5 days		-
Duration	Duration of Area Quarantine		
Product Movement	Daily sampling and testing is required for moving products or animals each day. For non-daily animal or product movement, sample and test 3 consecutive days prior to animal or product movement.		

Table D-5b. Outbreak Surveillance for Disease Detection-Mildly Pathogenic Strain

Disease Detection in Commercial and Noncommercial Operations		
CSF Outbreak Response		
14 Day Incubation Period	Epidemic (Early; < than 1 Month Duration)	
	Mildly Pathogenic Viral Strain (Mild Clinical Signs or Asymptomatic Animals)	
Sampling	Infected Zone and Buffer Zone	Surveillance Zone ^a
Number of Premises	Census	1% Design Prevalence*
Free Premises		
Unit	-	-
Target	-	-
Number of Animals	-	-
Test [#]	-	-
Frequency	-	-
Duration	-	-
		Individual Animal Sample
		Clinically Sick Pigs & Randomly Selected Animals [^]
		1% Design Prevalence*
		PCR/other acceptable rapid test on ill animals (tonsil preferred) and Ab ELISA
		Reselect sampling every 21 days
Contact, Suspect, or Monitored Premises ^a		
Unit	Individual Animal Sample	-
Target	Clinically Sick Pigs & Randomly Selected Animals [^]	-
Number of Animals	5% Design Prevalence*	-
Test [#]	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	-
Frequency	5 days	-
Duration	Duration of Area Quarantine or 28 day minimum	-
At-Risk Premises		
Unit	Individual Animal Sample	-
Target	Clinically Sick Pigs & Randomly Selected Animals [^]	-
Number of Animals	5% Design Prevalence*	-
Test [#]	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	-
Frequency	5 days	-
Duration	Duration of Area Quarantine	-
Product Movement	Daily sampling and testing is required for moving products or animals each day. For non-daily animal or product movement, sample and test 3 consecutive days prior to animal or product movement.	

Table D-5c. Outbreak Surveillance for Disease Detection-Established Mildly Pathogenic Strain

Disease Detection in Commercial and Noncommercial Operations			
CSF Outbreak Response			
14 Day Incubation Period	Established (Duration of CSF in Control Area>1 Month Duration)		
	Established Mildly Pathogenic Viral Strain (Convalescent, Asymptomatic, or Mildly Ill Animals)		
Sampling	Infected Zone	Buffer Zone	Surveillance Zone ^a
Number of Premises	Census	2% Design Prevalence*	1% Design Prevalence*
Free Premises			
Unit	-	-	Individual Animal Sample
Target	-	-	Clinically Sick Pigs & Randomly Selected Animals [^]
Number of Animals	-	-	1% Design Prevalence*
Test [#]	-	-	PCR/other acceptable rapid test on ill animals (tonsil preferred) and Ab ELISA
Frequency	-	-	Reselect sampling every 21 days
Duration	-	-	
Contact, Suspect, or Monitored Premises ^a			
Unit	Individual Animal Sample	Individual Animal Sample	-
Target	Clinically Sick Pigs & Randomly Selected Animals [^]	Clinically Sick Pigs & Randomly Selected Animals [^]	-
Number of Animals	Census	2% Design Prevalence*	-
Test [#]	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	-
Frequency	7 days	14 days	-
Duration	Duration of Area Quarantine or 28 day minimum	Duration of Area Quarantine or 28 day minimum	
At-Risk Premises			
Unit	Individual Animal Sample	Individual Animal Sample	-
Target	Clinically Sick Pigs & Randomly Selected Animals [^]	Clinically Sick Pigs & Randomly Selected Animals [^]	-
Number of Animals	Census	2% Design Prevalence*	-
Test [#]	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	PCR/other acceptable rapid test on ill animals and Ab ELISA on blood	-
Frequency	14 days	14 days	-
Duration	Duration of Area Quarantine	Duration of Area Quarantine	
Product Movement	Daily sampling and testing is required for moving products or animals each day. For non-daily animal or product movement, sample and test 3 consecutive days prior to animal or product movement.		

Notes to Tables D-5a, D-5b, and D-5c.

* Design prevalence is the predetermined proportion of IP (for example, 5 percent) used to calculate the number of premises to be sampled at a specific confidence level (for example, 95 percent) in a population of a given size (for example, 1,000 premises) based on detecting at least one IP.

[^] Add randomly selected animals to pool to achieve calculated sample size.

[#] Sample types (whole blood, tissue, etc.) depends on the requirements of the available tests.

^a Suspect Premises in a Surveillance Zone will be subject to surveillance procedures and diagnostic testing as indicated by relevant authorities.

Table D-6 shows surveillance requirements to prove CSF-freedom.

Table D-6. Surveillance for Proof of Disease Freedom

Proof of Disease Freedom [#]						
CSF Outbreak Response						
	Commercial			Noncommercial		
Sampling*	Infected Zone [§]	Buffer Zone [§]	Surveillance Zone [§]	Infected Zone [§]	Buffer Zone [§]	Surveillance Zone [§]
Number of Premises	1% Prevalence Threshold [°]	1% Prevalence Threshold [°]	1% Prevalence Threshold [°]	1% Prevalence Threshold [°]	1% Prevalence Threshold [°]	1% Prevalence Threshold [°]
Number of Animals to be Sampled per Herd	5% Prevalence Threshold ^{&}	5% Prevalence Threshold ^{&}	5% Prevalence Threshold ^{&}	1% Prevalence Threshold ^{&}	1% Prevalence Threshold ^{&}	1% Prevalence Threshold ^{&}
Frequency	Sample each premises of the calculated number of premises once during a 3-month period					

[#] Serosurveillance conducted in the area to be proved disease free in addition to any other animal sampling.

[§] Infected, Buffer, and Surveillance Zones combine as one unit for proof of disease freedom.

[&] Number of animals sero-sampled based on 5 percent prevalence in herd at the 95 percent confidence level where the maximum number of animals sampled per epidemiological unit does not exceed 60 animals.

[°] Prevalence threshold is a predetermined proportion of Infected Premises (for example, 5 percent) used to calculate the number of premises to be sampled at a specific confidence level (for example, 95 percent) in a population of a given size (for example, 1,000 premises) based on detecting at least one IP. A census of the premises in a zone will be sampled if there are few premises. Sample premises in order as by epidemiological investigation and continuity of business requirements.

*Sampling Unit used in all Surveillance Schemes: Individual animal observation, appropriate individual animal sample or, if available, mass population sampling techniques.

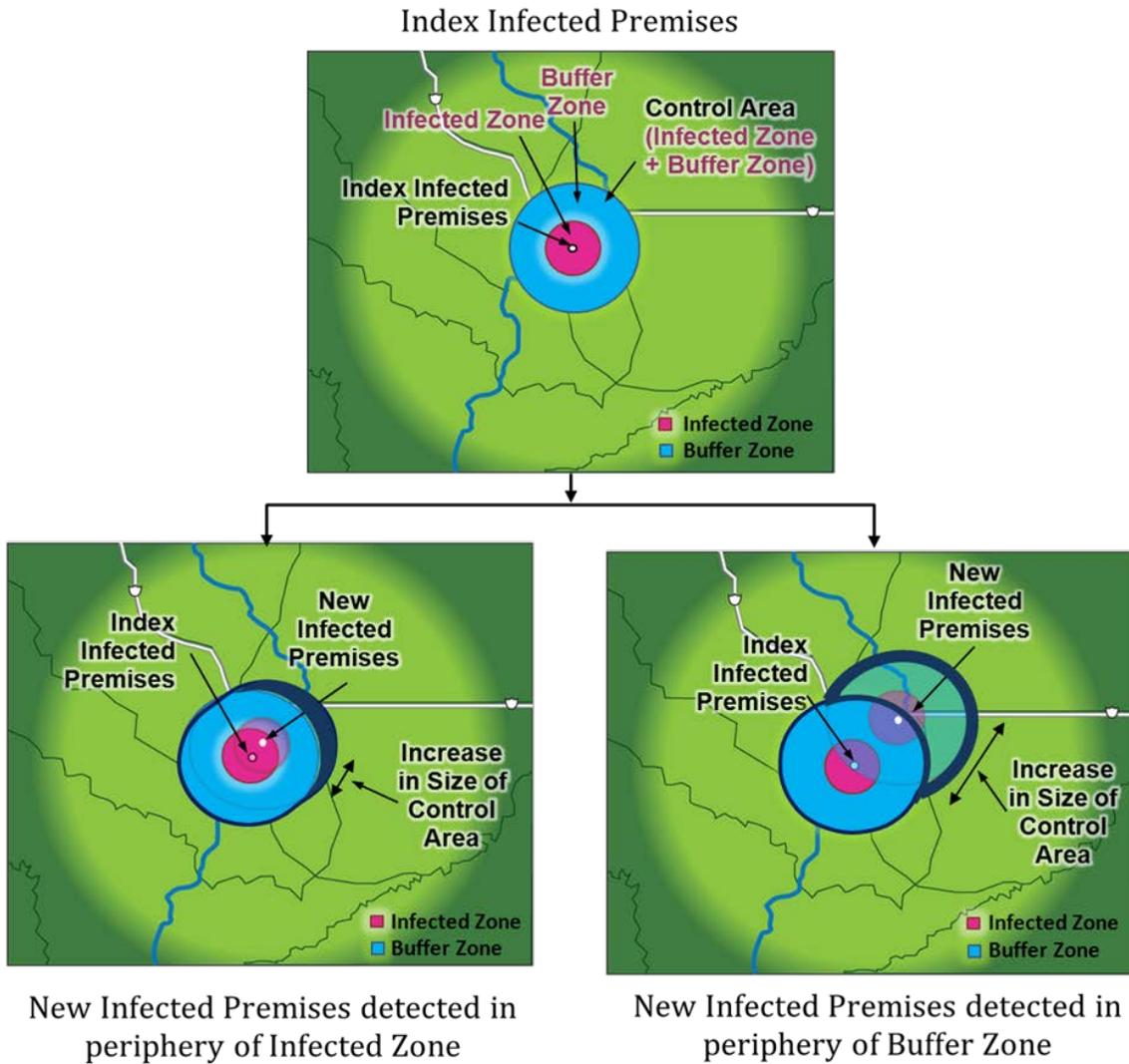
Assumptions for Surveillance Schemes

1. Production parameters will be monitored for indications of CSF intrusion.
2. The consequences of an infected but undetected premises is greater if it is located at the periphery of the BZ vs. the periphery of the IZ:
 - ◆ Increased opportunity of disease spread due to less stringent movement requirements in the BZ.
 - ◆ Increased difficulty of surveillance.
 - A larger number of ARP that require sampling.
 - A larger geographic area over which to sample ARP.

- Increased size of the Control Area (CA): An IP will increase the size of the CA by the radius of the IZ. However, if the newly detected IP is located on the periphery of the BZ, the size of the CA will increase by the radius of the IZ and the BZ.

Figure D-3 shows that the size of the CA depends on where the new IP is located.

Figure D-3. Infected Premises' Effect on Size of Control Area



Selected References and Resources

Koenen, F. G. Van Caenegem, J.P. Vermeersch, J. Vandenheede, and H. Deluyker. “Epidemiological characteristics of an outbreak of classical swine fever in an area of high pig density.” *Veterinary Record*, 1996, 139, pp. 367–371.

Risatti, G.R., J.D. Callahan, W.M. Nelson, M.V. Borca. “Rapid detection of classical swine fever virus by a portable real-time reverse transcriptase PCR assay.” *J Clin Microbio*, 2003, 41(1), pp. 500–505.

Stegeman, A., A.R.W. Elbers, J. Smak, and M.C.M. de Jong. “Quantification of the transmission of classical swine fever virus between herds during the 1997–1998 epidemic in The Netherlands. *Prev Vet Med*, 1999, 42(3-4) pp. 219–234.

Appendix E

Procedures for CSF Investigation and Specimen Submission

Veterinary Services (VS) Guidance 12001.1 “Policy for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents” provides VS policy for the investigation and communication of potential foreign animal disease/emerging disease incidents.

The document is available at <http://inside.aphis.usda.gov/vs/em/fadprep.shtml> for APHIS employees).

Appendix F

Epidemiological Investigation Questionnaire

This appendix contains a sample epidemiological questionnaire that could be employed in the event of a classical swine fever (CSF) outbreak.

This epidemiological questionnaire is only an example template. Based on the epidemiological situation or the types of premises involved in the actual outbreak, it may be appropriate to add other questions regarding other risk factors which may play a role in transmission.

Sample CSF Epidemiology Questionnaire

Date: _____

Business/farm name: _____

Primary contact: _____

Business address: _____

Business telephone number: _____

Cell telephone number: _____

Fax number: _____

Home telephone number: _____

E-mail address: _____

Secondary contact: _____

Business address: _____

Business telephone number: _____

Cell telephone number: _____

Fax number: _____

Home telephone number: _____

E-mail address: _____

Farm address (911 and Animal Location): _____

City: _____ Zip code: _____

County: _____ Township: _____

Range: _____ Section: _____

GPS coordinates (decimal degrees): _____

Premises identification number: _____

The purpose of this epidemiological questionnaire is to help the Incident Command determine premises designations: Contact Premises, At-Risk Premises, or Monitored Premises. Additional information will be considered (for example, diagnostic tests) for movement permits.

A. General Information

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

B. Animal Population on Premises

7. a. Please identify the animals on the premises.

Species	Males > 1 year	Females > 1 year	< 1 year
Swine			

7. b. Non-susceptible species (type and number): _____

C. Employee Risk Factors

8. Do any of your personnel work at other premises with swine or have they visited other premises, feedlots, processing plants, or swine slaughtering facilities within the past 28 days? Yes No
 If Yes, what premises? _____
9. Do any of your workers live with someone who works at another swine premises, feedlot, processing plant, slaughter facility or rendering plant? Yes No
10. Have you hired new personnel during the past 28 days? Yes No
 If Yes, did they work for another swine premises before you hired them? Yes No
 If Yes, where did they work prior to coming to your premises? _____
11. Has an employee from this premises visited a slaughter/rendering facility within the past 28 days? Yes No

If Yes, what facility? _____
If Yes, did the person clean and disinfect his vehicle? Yes No
If Yes, did the person change outer clothes? Yes No
If Yes, did the person disinfect footwear or change into footwear assigned to this premises upon return? Yes No

12. Have any of your employees been overseas? Yes No
If Yes, where? _____

D. Biosecurity Risk Factors

13. Have wild or feral swine been seen on the property in the last 28 days? Yes No

14. Have rodents, dogs, or cats been observed in swine housing in the past 28 days? Yes No

15. Which of the following **best** describes this farm's usual carcass (normal mortality) disposal method?
 Rendering
 Composting on site
 Burial on site
 Incineration on site
 Other (specify: _____)

16. Do you dispose of swine for other farms? Yes No

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

If no, what requirements have not been met?

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

E. Trace Back Information

In the last 28 days, did the following movements **onto** the farm occur? If yes, please provide as much accurate information as possible for each unique source. You can add more rows by 'right clicking' in the box and selecting "Insert→Insert Rows Below".

19. Susceptible Swine

Yes Don't know No

If yes,

a. How many animals? _____

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

20. Pork Products or By-Products

Yes Don't know No

If yes,

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

21. Feed trucks

Yes Don't know No

If yes,

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

22. **Fresh litter/bedding**

Yes Don't know No

If yes,

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

23. **Manure**

Yes Don't know No

If yes,

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

24. **Hoof Trimmers**

Yes Don't know No

If yes,

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

25. **Mortality Pick Up/Renderer**

Yes Don't know No

If yes,

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

a. Did the driver leave the vehicle while on this premises?

Yes Don't know No

b. If Yes,

What area of the premises did he enter? _____

Was driver required to wear outer clothes and foot wear provided by this premises?

Yes Don't know No

26. **Company vet/service tech**

Yes Don't know No

If yes,

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

27. **Non-company vet/consultant**

Yes Don't know No

If yes,

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

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

If yes,

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

29. **Customer/buyer/dealer**

Yes Don't know No

If yes,

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

30. **Other producer**

Yes Don't know No

If yes,

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

31. **Non-business visitor (friend/neighbor)**

Yes Don't know No

If yes,

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

F. Trace Forward Information

In the last 28 days, did the following movements **off** the farm occur? If yes, please provide as much accurate information as possible for each unique source. You can add more rows by 'right clicking' in the box and selecting "Insert→Insert Rows Below".

32. **Susceptible Swine**

Yes Don't know No

If yes,

a. How many animals? _____

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

33. **Pork Products or By-Products**

Yes Don't know No

If yes,

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

34. **Feed trucks**

Yes Don't know No

If yes,

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

35. **Fresh litter/bedding**

Yes Don't know No

If yes,

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

36. **Manure**

Yes Don't know No

If yes,

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

37. **Hoof Trimmers**

Yes Don't know No

If yes,

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

38. **Mortality Pick Up/Renderer**

Yes Don't know No

If yes,

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

a. Did the driver leave the vehicle while on this premises?

Yes Don't know No

b. If Yes,

What area of the premises did he enter? _____

Was driver required to wear outer clothes
and foot wear provided by this premises?

Yes Don't know No

39. **Company vet/service tech**

Yes Don't know No

If yes,

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

40. **Non-company vet/consultant**

Yes Don't know No

If yes,

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

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

If yes,

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

42. **Customer/buyer/dealer**

Yes Don't know No

If yes,

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

43. **Other producer**

Yes Don't know No

If yes,

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

44. **Non-business visitor (friend/neighbor)**

Yes Don't know No

If yes,

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

Appendix G

Secure Pork Supply Plan

The *Secure Pork Supply (SPS) Plan* is a public-private-academic collaboration, currently in progress. *The overall goal is to maintain business continuity for pork and pork product producers and processors in a foreign animal disease (FAD) outbreak and to provide a continuous supply of pork and pork products for consumers. The SPS plan will address classical swine fever (CSF) as well as foot-and-mouth disease, African swine fever, and swine vesicular disease.*

The *SPS Plan* will develop processes and procedures that pork producers, processors, and Federal and State agencies agree are feasible. These processes and procedures will allow the safe movement of pork and pork products from producers in a CSF Control Area (as long as they have no evidence of disease) through a processing plant, such that the classical swine fever virus does not spread. The Animal and Plant Health Inspection Service (APHIS) and the National Pork Board have provided funding to examine this issue in detail and develop specific response recommendations. Each group has a set of objectives that will contribute to developing a national *SPS Plan*. Communication among the researchers through development will ensure the final products are complementary and well coordinated. Participants include individuals from the following organizations and entities (in alphabetical order):

- ◆ American Association of Swine Veterinarians
- ◆ Center for Animal Health and Food Safety, University of Minnesota
- ◆ Center for Food Security and Public Health, Iowa State University
- ◆ National Center for Foreign Animal and Zoonotic Disease Defense
- ◆ National Pork Board
- ◆ National Pork Producers Council
- ◆ State Animal Health Officials
- ◆ U.S. Department of Agriculture, APHIS, Veterinary Services.

The *SPS Plan* has also created seven working groups:

1. Biosecurity
2. Surveillance

-
3. Monitored Premises and Compartmentalization
 4. Data Collection, Management, and Sharing
 5. Risk Assessments
 6. Communication

Response to a Foreign Animal Disease (FAD) Outbreak Tomorrow. Each of these groups consists of members from academia and industry, State Animal Health Officials, and APHIS officials. These groups will take part in activities that contribute to the development of the *SPS Plan*, including the following:

- ◆ Development of biosecurity performance standards for all phases of swine production, transportation, and processing.
- ◆ Development of recommendations for Comprehensive and Integrated Swine Surveillance to meet needs for FAD surveillance before, during, and after an FAD outbreak.
- ◆ Develop criteria to receive and maintain monitored premises status during an FAD outbreak.
- ◆ Develop criteria for swine production systems to be eligible for compartmentalization according to the World Health Organization for Animal Health guidelines.
- ◆ Recommend data that should be collected prior to, and in the event of, an outbreak to enable optimal management of an FAD outbreak.
- ◆ Recommend and prioritize risk assessments necessary to provide additional scientific basis for the *SPS Plan*.
- ◆ Develop recommendations for policies and procedures for maximizing a secure pork supply while minimizing FAD spread with resources that are currently available.
- ◆ Develop communications plans for use before and after an outbreak.

Appendix H

Examples of Movement Control Notices

This appendix provides two examples—Federal and State—of halting movement of animals during a disease outbreak.

EXAMPLE—WEST VIRGINIA

Commissioner of Agriculture Halts Poultry Shows and Sales after AI-Positive Flock Discovered in Virginia

Commissioner of Agriculture Gus R. Douglass has ordered a halt to poultry shows and sales throughout West Virginia in response to a turkey flock that tested positive for low pathogenicity avian influenza (LPAI) in Mt. Jackson, Va., just across the West Virginia border.

The strain is not the “bird flu” that has been plaguing Southeast Asia and parts of Europe and poses no threat to human health.

The order applies to any gathering of live birds, including shows at fairs and festivals and sales of poultry. The order is effective Monday, July 9, and will be in place for 30 days unless another positive flock is discovered.

The order does not apply to the commercial industry, which tests every flock for AI before it is moved off the farm to ensure that infected birds are not trucked past other poultry farms.

“Having already dealt with a positive flock in West Virginia earlier this year, we want to take every precaution to protect our poultry industry from a potentially devastating situation,” said Commissioner Douglass.

He also noted that the West Virginia Department of Agriculture is on high alert for any signs of the disease here, and that the industry has been exercising enhanced surveillance protocols since a 2002 AI outbreak that affected West Virginia and Virginia.

Poultry companies on both sides of the border have instructed their growers not to spread litter or move it from their farms until further notice.

According to the Virginia Department of Agriculture and Consumer Services (VDACS), testing over the weekend by the USDA’s National Veterinary Services Laboratory (NVSL) in Ames, Iowa, confirmed the presence of AI antibodies, which indicates possible prior exposure to the virus. The turkeys did not show any signs of illness prior to testing.

Virginia is closely monitoring all poultry operations within a six-mile radius of the affected farm.

NVSL is doing further testing to help identify the virus and hopefully determine its source. VDACS, USDA and the poultry owner are working cooperatively to minimize the possibility that the virus will move beyond this farm.

The affected flock contains 54,000 birds, which will be euthanized as a precaution as soon as possible and composted on-site. While LPAI poses no risk to human health, federal and state policy is to eradicate H5 and H7 subtypes because of their potential to change into more serious types, which have a higher mortality rate among birds.

Source: http://www.wvagriculture.org/news_releases/2007/7-9-07.html

EXAMPLE—FEDERAL

Source: <http://www.federalregister.gov/articles/2003/04/16/03-9322/exotic-newcastle-disease-additions-to-quarantined-area#p-3>



18531

Rules and Regulations

Federal Register

Vol. 68, No. 73

Wednesday, April 16, 2003

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

9 CFR Part 82

[Docket No. 02-117-5]

Exotic Newcastle Disease; Additions to Quarantined Area

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Interim rule and request for comments.

SUMMARY: We are amending the exotic Newcastle disease regulations by quarantining El Paso and Hudspeth Counties, TX, and Dona Ana, Luna, and Otero Counties, NM, and prohibiting or restricting the movement of birds, poultry, products, and materials that could spread exotic Newcastle disease from the quarantined area. This action is necessary on an emergency basis to prevent the spread of exotic Newcastle disease from the quarantined area.

DATES: This interim rule was effective April 10, 2003. We will consider all comments that we receive on or before June 16, 2003.

ADDRESSES: You may submit comments by postal mail/commercial delivery or by e-mail. If you use postal mail/commercial delivery, please send four copies of your comment (an original and three copies) to: Docket No. 02-117-5, Regulatory Analysis and Development, PPD, APHIS, Station 3C71, 4700 River Road Unit 118, Riverdale, MD 20737-1238. Please state that your comment refers to Docket No. 02-117-5. If you use e-mail, address your comment to regulations@aphis.usda.gov. Your comment must be contained in the body of your message; do not send attached files. Please include your name and address in your message and "Docket No. 02-117-5" on the subject line.

You may read any comments that we receive on this docket in our reading room. The reading room is located in room 1141 of the USDA South Building, 14th Street and Independence Avenue SW., Washington, DC. Normal reading room hours are 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. To be sure someone is there to help you, please call (202) 690-2817 before coming.

APHIS documents published in the **Federal Register**, and related information, including the names of organizations and individuals who have commented on APHIS dockets, are available on the Internet at <http://www.aphis.usda.gov/ppd/rad/webrepor.html>.

FOR FURTHER INFORMATION CONTACT: Dr. Aida Boghossian, Senior Staff Veterinarian, Emergency Programs Staff, VS, APHIS, 4700 River Road Unit 41, Riverdale, MD 20737-1231; (301) 734-8073.

SUPPLEMENTARY INFORMATION:

Background

Exotic Newcastle disease (END) is a contagious and fatal viral disease affecting the respiratory, nervous, and digestive systems of birds and poultry. END is so virulent that many birds and poultry die without showing any clinical signs. A death rate of almost 100 percent can occur in unvaccinated poultry flocks. END can infect and cause death even in vaccinated poultry.

The regulations in "Subpart A—Exotic Newcastle Disease (END)" (9 CFR 82.1 through 82.15, referred to below as the regulations) were established to prevent the spread of END in the United States in the event of an outbreak. In § 82.3, paragraph (a) provides that any area where birds or poultry infected with END are located will be designated as a quarantined area, and that a quarantined area is any geographical area, which may be a premises or all or part of a State, deemed by epidemiological evaluation to be sufficient to contain all birds or poultry known to be infected with or exposed to END. Less than an entire State will be designated as a quarantined area only if the State enforces restrictions on intrastate movements from the quarantined area that are at least as stringent as the regulations. The regulations prohibit or restrict the movement of birds, poultry, products,

and materials that could spread END from quarantined areas. Areas quarantined because of END are listed in § 82.3, paragraph (c).

On October 1, 2002, END was confirmed in the State of California. The disease was confirmed in backyard poultry, which are raised on private premises for hobby, exhibition, and personal consumption, and in commercial poultry.

In an interim rule effective on November 21, 2002, and published in the **Federal Register** on November 26, 2002 (67 FR 70674-70675, Docket No. 02-117-1), we amended the regulations in § 82.3(c) by quarantining Los Angeles County, CA, and portions of Riverside and San Bernardino Counties, CA, and restricting the interstate movement of birds, poultry, products, and materials that could spread END from the quarantined area.

In a second interim rule effective on January 7, 2003, and published in the **Federal Register** on January 13, 2003 (68 FR 1515-1517, Docket No. 02-117-2), we further amended § 82.3(c) by adding Imperial, Orange, San Diego, Santa Barbara, and Ventura Counties, CA, and the previously non-quarantined portions of Riverside and San Bernardino Counties, CA, to the list of quarantined areas. Because the Secretary of Agriculture signed a declaration of extraordinary emergency with respect to the END situation in California on January 6, 2003 (see 68 FR 1432, Docket No. 03-001-1, published January 10, 2003), that second interim rule also amended the regulations to provide that the prohibitions and restrictions that apply to the interstate movement of birds, poultry, products, and materials that could spread END will also apply to the intrastate movement of those articles in situations where the Secretary of Agriculture has issued a declaration of extraordinary emergency (new § 82.16).

On January 16, 2003, END was confirmed in backyard poultry on a premises in Las Vegas, NV. Therefore, in a third interim rule effective January 17, 2003, and published in the **Federal Register** on January 24, 2003 (68 FR 3375-3376, Docket No. 02-117-3), we amended § 82.3(c) by quarantining Clark County, NV, and a portion of Nye County, NV, and prohibiting or restricting the movement of birds, poultry, products, and materials that

could spread END from the quarantined area. On January 17, 2003, the Secretary of Agriculture signed a declaration of extraordinary emergency because of END in Nevada (see 68 FR 3507, Docket No. 03-001-2, published January 24, 2003).

On February 4, 2003, END was confirmed in backyard poultry on a premises in the Colorado River Indian Nation in Arizona. Therefore, in a fourth interim rule effective February 10, 2003, and published in the **Federal Register** on February 14, 2003 (68 FR 7412-7413, Docket No. 02-117-4), we amended § 82.3(c) by quarantining La Paz and Yuma Counties, AZ, and a portion of Mohave County, AZ, and prohibiting or restricting the movement of birds, poultry, products, and materials that could spread END from the quarantined area. On February 7, 2003, the Secretary of Agriculture signed a declaration of extraordinary emergency because of END in Arizona (see 68 FR 7338, Docket No. 03-001-3, published February 13, 2003).

On April 9, 2003, END was confirmed in backyard poultry on a premises in El Paso County, TX. Therefore, in this interim rule, we are amending § 82.3(c) by designating El Paso and Hudspeth Counties, TX, and Dona Ana, Luna, and Otero Counties, NM, as a quarantined area and prohibiting or restricting the movement of birds, poultry, products, and materials that could spread END from the quarantined area. As provided for by the regulations in § 82.3(a), this quarantined area encompasses the area where poultry infected with END were located and a surrounding geographical area deemed by epidemiological evaluation to be sufficient to contain all birds or poultry known to be infected with or exposed to END.

Emergency Action

This rulemaking is necessary on an emergency basis to prevent the spread of END. Under these circumstances, the Administrator has determined that prior notice and opportunity for public comment are contrary to the public interest and that there is good cause under 5 U.S.C. 553 for making this rule effective less than 30 days after publication in the **Federal Register**.

We will consider comments that we receive during the comment period for this interim rule (see **DATES** above). After the comment period closes, we will publish another document in the **Federal Register**. The document will include a discussion of any comments we receive and any amendments we are making to the rule.

Executive Order 12866 and Regulatory Flexibility Act

This rule has been reviewed under Executive Order 12866. For this action, the Office of Management and Budget has waived its review under Executive Order 12866.

This rule amends the regulations by quarantining El Paso and Hudspeth Counties, TX, and Dona Ana, Luna, and Otero Counties, NM, and prohibiting or restricting the movement of birds, poultry, products, and materials that could spread END from the quarantined area. This action is necessary on an emergency basis to prevent the spread of END from the quarantined area.

This emergency situation makes timely compliance with section 604 of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) impracticable. We are currently assessing the potential economic effects of this action on small entities. Based on that assessment, we will either certify that the rule will not have a significant economic impact on a substantial number of small entities or publish a final regulatory flexibility analysis.

Executive Order 12372

This program/activity is listed in the Catalog of Federal Domestic Assistance under No. 10.025 and is subject to Executive Order 12372, which requires intergovernmental consultation with State and local officials. (See 7 CFR part 3015, subpart V.)

Executive Order 12988

This rule has been reviewed under Executive Order 12988, Civil Justice Reform. This rule: (1) Preempts all State and local laws and regulations that are in conflict with this rule; (2) has no retroactive effect; and (3) does not require administrative proceedings before parties may file suit in court challenging this rule.

Paperwork Reduction Act

This rule contains no new information collection or recordkeeping requirements under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

List of Subjects in 9 CFR Part 82

Animal diseases, Poultry and poultry products, Quarantine, Reporting and recordkeeping requirements, Transportation.

■ Accordingly, 9 CFR part 82 is amended as follows:

PART 82—EXOTIC NEWCASTLE DISEASE (END) AND CHLAMYDIOSIS; POULTRY DISEASE CAUSED BY SALMONELLA ENTERITIDIS SEROTYPE ENTERITIDIS

■ 1. The authority citation for part 82 continues to read as follows:

Authority: 7 U.S.C. 8301-8317; 7 CFR 2.22, 2.80, and 371.4.

■ 2. In § 82.3, paragraph (c) is amended by adding, in alphabetical order, entries for New Mexico and Texas to read as follows:

§ 82.3 Quarantined areas.

* * * * *
(c) * * * * *
* * * * *

New Mexico

Dona Ana County. The entire county.
Luna County. The entire county.
Otero County. The entire county.

Texas

El Paso County. The entire county.
Hudspeth County. The entire county.

Done in Washington, DC, this 10th day of April 2003.

Bobby R. Acord,
Administrator, Animal and Plant Health Inspection Service.

[FR Doc. 03-9322 Filed 4-15-03; 8:45 am]

BILLING CODE 3410-34-P

FARM CREDIT ADMINISTRATION

12 CFR Part 615

RIN 3052-AC05

Funding and Fiscal Affairs, Loan Policies and Operations, and Funding Operations; Capital Adequacy

AGENCY: Farm Credit Administration.

ACTION: Final rule.

SUMMARY: The Farm Credit Administration (FCA or agency) amends its capital adequacy regulations to add a definition of total liabilities for the net collateral ratio calculation, limit the amount of term preferred stock that may count as total surplus, clarify the circumstances in which we may waive disclosure requirements for an issuance of equities by a Farm Credit System (FCS, Farm Credit or System) institution, and make several nonsubstantive technical changes. These amendments update, modify, and clarify certain capital requirements.

EFFECTIVE DATE: This regulation will become effective 30 days after publication in the **Federal Register** during which either or both houses of

Appendix I

Glossary

Animal product	Blood or any of its components, bones, bristles, feathers, flesh, offal, skins, and any by-product containing any of those components that originated from an animal or bird.
Case	An individual animal infected by classical swine fever virus (CSFV), with or without clinical signs.
Compartment (compartmentalization)	An animal subpopulation contained in one or more establishments under a common biosecurity management system with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control, and biosecurity measures have been applied for the purpose of international trade.
Confirmed positive premises	Any premises with at least one confirmed positive case (animal) as specified by the current APHIS definition for classical swine fever (CSF); Infected Premises.
Control Area	A Control Area (an Infected Zone and Buffer Zone) has individual premises quarantine for Infected Premises, Suspect Premises, and Contact Premises and movement restrictions for At-Risk Premises and Monitored Premises.
Emergency vaccination	A disease control strategy using the immunization of susceptible animals through the administration of a vaccine comprising antigens appropriate to the disease to be controlled.
Etiology	The causes or origin of disease or the factors that produce or predispose toward a certain disease or disorder.
Euthanasia	The humane destruction of an animal accomplished by a method that produces rapid unconsciousness and subsequent death with a minimum of pain or distress, or a method that utilizes anesthesia produced by an agent that causes painless loss of consciousness and subsequent death.
FAD PRoP (Foreign Animal Disease Preparedness and Response Plan)	Documents used to identify veterinary functions and countermeasures necessary to contain and control a foreign animal disease (FAD) outbreak. It is also used to integrate functions and countermeasures with emergency management systems and operations conducted in a Unified Command by local, State, and Federal personnel.

Domestic Pigs (OIE Definition)	All domesticated pigs, permanently captive or farmed free range, used for the production of meat for consumption, for the production of other commercial products or for breeding these categories of pigs.
Fomites	Inanimate objects that can transmit infectious agents from one animal or person to another.
Foreign animal disease	A transboundary animal disease not known to exist in the U.S. animal population.
Incident Command System	A standardized, on-scene, all-hazards incident management approach that <ul style="list-style-type: none"> ◆ allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure; ◆ enables a coordinated response among various jurisdictions and functional agencies, both public and private; and ◆ establishes common processes for planning and managing resources.
Incubation period	For the purposes of the OIE <i>Terrestrial Animal Health Code (2012)</i> , the incubation period for pigs exposed postnatally is 2–14 days. The incubation period is the longest period that elapses between the introduction of the pathogen into the animal and the first clinical signs of the disease.
Index case	The first or original case identified in a disease outbreak.
Kill	Any procedure which causes the death of an animal.
Mass depopulation	Method by which large numbers of animals must be destroyed quickly and efficiently with as much consideration given to the welfare of the animals as practicable, but where the circumstances and tasks facing those doing the depopulation are understood to be extenuating.
Modified stamping-out policy	Animal health measures for stamping-out that are not implemented in full.
National Animal Health Laboratory Network (NAHLN)	A network comprised of laboratories, including National Veterinary Services Laboratories and State/university laboratories, that perform diagnostic tests for endemic diseases, targeted surveillance, and FAD response testing.
Non-susceptible animal	Animal that does not develop a particular disease when exposed to the causative infectious agent of that disease.

OIE (World Organization for Animal Health)	International organization that collects and publishes information on animal diseases from 178 countries (April 2012) and develops standards for animal health.
Outbreak	The occurrence of cases of a disease that are in excess of what is normally expected in a given population.
Personal protective equipment (PPE)	Clothing and equipment to prevent occupational injuries and diseases through control of exposure to potential hazards in the work place after engineering and administrative controls have been implemented to the fullest extent.
Preemptive slaughter	Depopulation under the competent authority of susceptible animal species in herds or flocks on premises that have been exposed to infection by direct animal-to-animal contact or by indirect contact of a kind likely to cause the transmission of CSFV prior to the expression of clinical signs.
Premises	A geographically and epidemiologically defined location, including a ranch, farm, stable, or other establishment.
Regionalization (also known as zoning)	An animal subpopulation defined primarily on a geographical basis (using natural, artificial, or legal boundaries).
Rendering	Process by which purified fat and protein products are recovered from inedible portions of animals by cooking at high temperatures.
Slaughter	The killing of an animal or animals for human consumption, often by bleeding.
Stamping-out (OIE definition)	Means carrying out under the authority of the Veterinary Authority, on confirmation of a disease, the killing of the animals which are affected and those suspected of being affected in the herd and, where appropriate, those in other herds which have been exposed to infection by direct animal to animal contact, or by indirect contact of a kind likely to cause the transmission of the causal pathogen. All susceptible animals, vaccinated or unvaccinated, on an infected premises should be killed and their carcasses destroyed by burning or burial, or by any other method which will eliminate the spread of infection through the carcasses or products of the animals killed.
Susceptible animal	Any animal that can be infected with and replicate the disease pathogen of concern. In the case of CSF, this is only domestic and wild swine (<i>Sus scrofa</i>).

Trace back	The identification of the origin and movements of all animals, animal products, possible fomites, people, possible vectors, and so on that have entered onto an infected premises.
Trace forward	The tracing of all animals, people, fomites, and so on that have left an infected premises. The premises that received the animals or goods should be investigated and kept under surveillance or quarantine.
Vector	An insect or any living carrier that transports an infectious agent from an infected individual to a susceptible individual or its food or immediate surroundings.

Appendix J

Abbreviations

3D	depopulation, disposal, and decontamination
ABC	Avidin-Biotin complex
AC	Area Command
AEOC	APHIS Emergency Operations Center
AgELISA	antigen-capture enzyme-linked immunosorbent assay
AHPA	Animal Health Protection Act
APHIS	Animal and Plant Health Inspection Service
ARP	At-Risk Premises
AVIC	Area Veterinarian In Charge
AVMA	American Veterinary Medical Association
BVD	bovine viral diarrhea
BPA	Blanket Purchase Agreement
BZ	Buffer Zone
CA	Control Area
CCC	Commodity Credit Corporation
CDC	Centers for Disease Control and Prevention
CEAH	Centers for Epidemiology and Animal Health
CF	Contingency Fund
CFR	Code of Federal Regulations
CP	Contact Premises
CSF	classical swine fever
CSFV	classical swine fever virus
CVO	Chief Veterinary Officer
CVZ	Containment Vaccination Zone
DCC	Dispatch Coordinating Center
DF	disease freedom
DHS	U.S. Department of Homeland Security
DIVA	differentiation of infected from vaccinated animals

DOI	Department of Interior
EDTA	ethylenediaminetetraacetic acid
ELISA	enzyme-linked immunosorbent assay
EMLC	Emergency Management Leadership Council
EMRS	Emergency Management Response System
EOC	emergency operations center
EPA	Environmental Protection Agency
EQS	Emergency Qualification System
ESF	Emergency Support Function
FA	Free Area
FAD	foreign animal disease
FADDL	Foreign Animal Disease Diagnostic Laboratory
FAD PReP	Foreign Animal Disease Preparedness and Response Plan
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FFS	Federal-to-Federal support
FSIS	Food Safety Inspection Service
GIS	geographic information system
HHS	U.S. Department of Health and Human Services
IC	Incident Command
ICG	Incident Coordination Group
ICP	Incident Command Post
ICS	Incident Command System
IMT	Incident Management Team
IP	Infected Premises
IP	Immunoperoxidase (In Section 5.2.1.1)
IP-VN	Immunoperoxidase virus neutralization test
IRCT	International Response Coordination Team
IZ	Infected Zone
JFO	Joint Field Office
JIC	Joint Information Center
LPA	Legislative and Public Affairs

Appendix K

Selected References and Resources

Note: This appendix lists documents related to classical swine fever (CSF) response. All related FAD PReP documents listed in [Appendix A](#) are also references for this *CSF Response Plan*.

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MAC	Multiagency Coordination
MLV	modified live virus
MP	Monitored Premises
NAHEMS	National Animal Health Emergency Management System
NAHERC	National Animal Health Emergency Response Corps
NAHLN	National Animal Health Laboratory Network
NASDA	National Association of State Departments of Agriculture
NCAHEM	National Center for Animal Health Emergency Management
NCIE	National Center for Import and Export
NGO	non-governmental organization
NIC	National Incident Coordinator
NIMS	National Incident Management System
NRCC	National Response Coordinator Center
NRCT	National Response Coordination Team
NRF	National Response Framework
NRMT	National Response Management Team
NSU	National Surveillance Unit
NVS	National Veterinary Stockpile
NVSL	National Veterinary Services Laboratories
NVSL Ames	NVSL location for FAD diagnostic testing in Ames, IA
NVSL FADDL	NVSL location for FAD diagnostic testing in Plum Island, NY
OIE	World Organization for Animal Health
PCR	polymerase chain reaction
PPE	personal protective equipment
PPV	positive predictive value
PVZ	Protection Vaccination Zone
ROSS	Resource Ordering and Status System
RRCC	Regional Response Coordinator Center
rRT-PCR	real-time reverse-transcriptase polymerase chain reaction
RT-PCR	reverse-transcriptase polymerase chain reaction
SAHO	State Animal Health Official
SITC	Smuggling Interdiction and Trade Compliance

SK-6	swine kidney cells
SOP	standard operating procedure
SP	Suspect Premises
SPS	Secure Pork Supply
SZ	Surveillance Zone
TAIO	Tool for the Assessment of Intervention Options
TDD	telecommunications device for the deaf
USDA	U.S. Department of Agriculture
VI	virus isolation
VN	virus neutralization
VNT	virus neutralization test
VP	Vaccinated Premises
VS	Veterinary Services
VZ	Vaccination Zone
WS	Wildlife Services