

AFRICAN SWINE FEVER RESPONSE PLAN
THE RED BOOK

FAD PReP

**Foreign Animal Disease
Preparedness & Response Plan**



**United States
Department of
Agriculture**

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

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The recent spread of African Swine Fever (ASF) in Asia and Europe has elevated preparedness activities in the United States. This new plan, the *USDA APHIS ASF Response Plan: The Red Book (April 2020)*, has stemmed from these ongoing efforts to prepare, particularly in result of the VS Training and Exercise Program work for ASF. It provides a comprehensive response plan for the United States in the event ASF does encroach into our country. This plan incorporates and supersedes previous versions of the *ASF Disease Response Strategies* from which this plan evolved. Additionally, this plan includes changes made in related Foreign Animal Disease Preparedness and Response Plan (FAD PReP) materials.

The following list highlights important aspects that are included in this new *ASF Response Plan*.

- ◆ Comprehensively integrates feral swine response.
- ◆ Provides USDA authorities and APHIS guidance specific to an ASF response.
- ◆ Includes an expansive chapter that discusses control and eradication strategies for both domestic and feral swine.
- ◆ Identifies specific response actions that will be taken if ASF is detected.
- ◆ Updates the USDA APHIS National Stop Movement guidance.
- ◆ Incorporates Network Based Controls.
- ◆ Describes the initial 72 hour timeline for updated policy.
- ◆ Includes changes to surveillance guidance.
- ◆ Incorporates an extensive epidemiology section to include updates to zone, area, and premises designations specifically for ASF.
- ◆ Adds in an information management section.
- ◆ Adds in a continuity of business section, and references the *Secure Pork Supply Plan*.
- ◆ Expands information on feral swine management.
- ◆ Includes numerous appendices to supplement information with this response plan.

While this *ASF Response Plan* provides strategic guidance, policy guidance during an outbreak will provide information on specific aspects of the response on how to operationalize activities, particularly for the unified Incident Command. Any guidance developed will be consistent with and used alongside this *ASF Response Plan*. If ASF is detected, additional guidance and information will be distributed and available at www.aphis.usda.gov/fadprep.

The USDA APHIS acknowledges that significant work remains to respond effectively to ASF. Preparing for and responding to an ASF outbreak is and will be a complex effort that requires collaboration and cooperation from all stakeholders. USDA APHIS fully anticipates updates as new capabilities and processes become available. As such, if you have comments or suggestions on this document, please send an email to FAD.PReP.Comments@usda.gov for consideration and possible incorporation into future versions.

The FAD PReP mission is to raise awareness, define expectations, and improve capabilities for FAD preparedness and response. For more information, please go to www.aphis.usda.gov/fadprep.

Preface

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP)—*African Swine Fever Response Plan: The Red Book (April 2020)* provides strategic guidance for responding to an animal health emergency caused by ASF in the United States. Information in this plan may require further discussion and development with stakeholders.

This *ASF Response Plan* is under ongoing review. This document was last updated in **April 2020**. Minor revisions are noted below. Please send questions or comments to:

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Change Log USDA APHIS ASF Response Plan: The Red Book (April 2020)			
Revision (date)	Page / Section	Change	
V2 (June 11, 2020)	3-7 / 3.4.1	1	Clarified that movement standstill applies to finding in either domestic swine or feral pigs.
“	Preface	2	Adds statement to 2 nd paragraphs of Preface: “Minor revisions are noted below.”
“	3-11 / Table 3-1	3	Clarified Control Area established for domestic swine and feral pigs.

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Chapter 1

Introduction and ASF Information

1.1 INTRODUCTION TO RESPONSE PLAN

Due to the potential threat of African Swine Fever (ASF) in the United States from ongoing transmission throughout China and parts of Europe, this *ASF Response Plan: The Red Book* was created in April 2020. It derives information from, and supersedes the prior versions of the *African Swine Fever Disease Strategy*. The objectives of this plan are to identify the (1) capabilities needed to respond to an ASF outbreak in swine and (2) critical activities that are involved in responding to that outbreak and the time-frames for these activities. In an outbreak situation, these critical activities are under the authority of a unified Incident Command per the National Incident Management System.

This *ASF Response Plan* provides current information on ASF and its relevance to the United States. It does not replace existing regional, State, Tribal, local, or industry preparedness and response plans relating to ASF. Regional, State, Tribal, local and industry plans should be aimed at more specific issues in an ASF response. In particular, States should develop response plans focused on the specific characteristics of the State and the State's swine industry. Industry should develop response plans focused on the specific characteristics of their commercial operations and business practices.

1.2 SCOPE OF RESPONSE PLAN

This *ASF Response Plan* provides the best known strategic guidance for the U.S. Department of Agriculture (USDA) and the Animal and Plant Health Inspection Service (APHIS) and responders at all levels in the event of an ASF outbreak occurring in domestic or feral swine.

This document does not cover, in detail, incident coordination or general foreign animal disease (FAD) response. For more information on these aspects, please refer to the *APHIS Foreign Animal Disease Framework: Roles and Coordination (FAD PReP Manual 1-0)* and the *APHIS Foreign Animal Disease Framework: Response Strategies (FAD PReP Manual 2-0)*. These documents cover general roles and responsibilities as well as general FAD response strategies, respectively. These documents and other Foreign Animal Disease Preparedness and Response Plan (FAD PReP) materials are available here:

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

Additionally, this document does not provide response policy guidance that may change in an outbreak (e.g., specific virus elimination guidance, stamping-out policies, indemnity processes, etc.). Past experience has demonstrated that this type of information is more effective as distinct, short, concise documents that can be distributed and updated rapidly. In the event of an ASF outbreak in the United States, policy guidance and updates will be posted on a new ASF page located on the FAD PReP [website](#), similar to that of other recent FAD detections.

1.3 HISTORICAL PRESENCE AND CURRENT ASF SITUATION

ASF—first described in Kenya in the 1920s—is a contagious hemorrhagic disease of wild and domestic pigs. It is often characterized by high morbidity and mortality rates. There is no effective treatment for ASF-infected swine, nor is there a vaccine. ASF is a notifiable disease to the World Organization for Animal Health (OIE). The disease does not pose a risk to human health or food safety.

ASF is currently widespread and endemic in sub-Saharan Africa, parts of West Africa, and Sardinia. Spain and Portugal eradicated ASF in the mid-1990s; it was also eradicated from the Caribbean following outbreaks from 1977–1980. In the last decade, ASF has spread through Eastern Europe and the Caucasus. In the last few years, the disease has continued to spread in the European Union, primarily in wild boar. In August 2018, China reported the first ASF detections in their domestic swine population. ASF was later reported in Mongolia (January 2019), Vietnam (February 2019), Cambodia (March 2019), North Korea (May 2019), Laos (June 2019), Philippines (July 2019), Myanmar (August 2019), Timor-Leste (September 2019), South Korea (September 2019), and Indonesia (December 2019).

ASF has never been reported in the United States, Canada, Australia, or New Zealand.

1.3.1 Threat of ASF in the United States

Although ASF has never been detected in the United States, international travel and trade pose a substantial risk for viral incursion into the country. Illegal entry of swine products and byproducts presents the largest potential pathway for entry of ASF virus (ASFV) into the United States, see Table 1-1.

ASF is a critical threat to the United States due to the recent global spread, millions of susceptible swine in the United States, including feral swine, and the potential for severe economic impacts. The lack of a vaccine makes prevention of disease entry of utmost importance, and thorough preparation for an emergency response is crucial.

Table 1-1. Summary of Evaluated Likelihood Rating by Pathway into the United States¹

Pathway	Legal	Illegal
Live Pigs	Negligible, with low uncertainty	Negligible to low, with moderate uncertainty
Semen	Negligible, with low uncertainty	Low, with moderate uncertainty
Swine products and by-products	Negligible to low, with moderate uncertainty	High, with low uncertainty
Wildlife: Meat and Trophies	<Not reviewed>	Low to moderate, with high uncertainty
Feed (animal origin)*	Low to moderate, with high uncertainty	Negligible to low, with high uncertainty
Feed (plant origin)*	Negligible to moderate, with high uncertainty	Low, with high uncertainty
Feed (supplements)*	Negligible to low, with high uncertainty	<No data to evaluate>
Fomites	<Not reviewed>	Negligible to moderate, with high uncertainty
Regulated Garbage	Low, with moderate uncertainty	<Not applicable>

* Animal feed ingredients and fomites have the potential to be pathways associated with a moderate likelihood of ASFV entry, but there is high uncertainty because of the lack of data on transmission from these sources.

1.3.2 Preparedness Planning

Due to the continued expansion of ASF throughout Asia and Europe, heightened preparedness planning efforts are underway. USDA is working closely with other Federal and State agencies, the swine industry, producers, and international partners to prepare for and prevent an occurrence in North America. Since 2018, USDA has participated in a series of tri-lateral (Canada, Mexico, and the United States) ASF Forums, and initiated an ASF-specific exercise program to coordinate efforts. Preparedness and response exercises help ensure our Nation's readiness and provides an ideal, no-fault learning environment to discuss, practice, and implement plans, procedures, and processes in advance of an actual event. In result of these ASF preparedness activities, gaps have been clearly identified and improvements have been made, such as the release of this new *ASF Response Plan*. This plan provides updated progress in preparedness and response efforts; however, it is imperative to maintain vigilance and continue stakeholder collaborations in order to effectively protect U.S. swine and the U.S. economy from ASF.

¹ USDA APHIS CEAH. (2019, March). Qualitative assessment of the likelihood of African Swine Fever Virus entry to the United States: entry assessment. *Risk Assessment Team*. Retrieved from https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/swine/asf-entry.pdf.

1.4 NATURE OF THE DISEASE/VIRUS

This is a brief introduction to ASFV, which is a complex virus with variable clinical presentations. Further detail can be found in the *FAD PReP ASF SOP: Overview of Etiology and Ecology*.

1.4.1 Overview

ASFV belongs to the *Asfivirus* genus of the *Asfarviridae* family and is an enveloped virus with a double-stranded DNA genome. ASFV is unique, as it is the only known arthropod-borne DNA virus. There is no known vaccine or treatment.

Currently, there is only one recognized serotype of ASFV, however, more than 20 different genotypes have been described within that single serotype. There are significant variations in virulence across genotypes. Infection with ASFV presents in four different clinical forms (peracute, acute, subacute, and chronic), which are based on strain virulence, immune status, clinical signs, and gross lesions.

Susceptible species include all members of the pig family (Suidae): domesticated swine, European wild boar, warthogs, bush pigs, and giant forest hogs. While susceptible, warthogs and bush pigs are resistant to signs of clinical disease. Some members of the Suidae family native to the Americas, such as peccaries (*Tayassu* spp.), are believed to be resistant to infection.²

1.4.2 Introduction & Transmission

There are three primary modes of transmission for ASFV: direct contact, indirect contact (fomites), and vector-borne. Direct transmission occurs when infected animals come into contact with healthy animals through contact with infected saliva, respiratory secretions, urine and feces. Indirect transmission can occur through contaminated fomites, an example of which is the practice of “garbage-feeding” where swine become infected when fed food waste contaminated with uncooked pork products. Soft ticks (*Ornithodoros* spp.) serve as a vector for transmission, passing the virus to swine hosts when taking their blood meal. It is also possible that ASFV can infect pigs mechanically. A 2018 study found that, while ingested ASFV-spiked stable flies could infect some pigs, it is unlikely that

² Based on historical information, see Dardiri, A.H., Yedloutschnig, R.J., & Taylor, W.D. (1969). Clinical and serologic response of American white-collared peccaries to African swine fever, foot-and-mouth disease, vesicular stomatitis, vesicular exanthema of swine, hog cholera, and rinderpest viruses. *Proc Annual Meeting U.S. Animal Health Assoc.* 73, 437–52.

ingestion of blood-fed flies is a common route for transmission of ASFV between wild boars or between pigs within a stable.³

In sub-Saharan Africa, ASF is maintained through the sylvatic cycle—recurring transfer between bushpigs, warthogs, and giant forest hogs of Africa and *Ornithodoros* species ticks. These pigs are inapparently infected and act as reservoir hosts for ASFV.⁴ Infected ticks are also able to transmit ASFV to other ticks (sexual), to their offspring (transovarial), and from one life cycle to another (transstadial). ASFV is able to persist in its tick host for more than 5 years.⁵

In other areas of the world, ASFV has been introduced and transmitted by illegal movement of infected swine and contaminated products (and their contact with naïve swine). In addition, wild boar populations have been implicated in sustained transmission of ASFV, particularly in parts of the European Union.⁶ To date, *Ornithodoros* species of ticks do not appear to be critical to the maintenance of ASFV in European wild boar populations.

1.4.3 Incubation Period

The incubation period varies by route of transmission, ranging from 3–21 days. For the purpose of the OIE *Terrestrial Animal Health Code*, the incubation period in *Sus scrofa* (domestic and wild swine) is 15 days.⁷ A shorter incubation period is typically observed with the acute form of disease.

1.4.4 Clinical Signs

Clinical signs vary by virus strain and disease form caused by the virus (peracute, acute, subacute, and chronic). Swine affected with the peracute form of ASF, death is often the first indication of disease. Swine affected with the acute form may develop fever (105–107.6°F/40.5–42°C), anorexia, listlessness, cyanosis, incoordination, increased pulse and respiratory rate, leukopenia and thrombocytopenia (at 48–72 hours), vomiting, diarrhea, and abortion in pregnant sows.

Swine affected with subacute forms of ASF present with less intense, but similar clinical signs including slight fever, reduced appetite, and depression. Abortion in

³ Olesen, A.S., Lohse, L., Hansen, M.F., Boklund, A., Halasa, T., Belsham, G.J., ... Bodker, R. (2018). Infection of pigs with African swine fever virus via ingestion of stable flies (*Stomoxys calcitrans*). *Transboundary and Emerging Diseases*. 65, 1152–1157. Doi: 10.1111/tbed.12918.

⁴ OIE. (2019). African Swine Fever. Technical Disease Card. www.oie.int.

⁵ Sanchez-Vizcaino, J.M., Mur, L., Martinez-Lopez, B. (2012). African Swine Fever: An Epidemiological Update. *Transboundary and Emerging Diseases*. 59(Suppl. 1), 27–35.

⁶ European Food Safety Authority. (2018). Epidemiological analyses of African swine fever in the European Union. *European Food Safety Authority Journal*. 16(11), 5494.

⁷ OIE. (2019). Article 15.1.1. *Terrestrial Animal Health Code*. www.oie.int.

pregnant sows is also possible. Swine infected with the chronic form of the virus typically exhibit appetite loss, transient low fever, respiratory signs, necrosis of the skin, chronic skin ulcers, and swelling of the joints. They also can experience recurring episodes of disease, which could eventually lead to death.⁸ Table 1-2 summarizes these signs.

Table 1-2. Clinical Signs Caused by the Different Forms of ASF

	Peracute	Acute	Subacute	Chronic
Virulence of strain	High	High	Moderate to low	Low
Immune status	Death before seroconversion	Many die before seroconversion	Seropositive	Seropositive
Clinical signs	Often found moribund or dead	Febrile (40.5°C–41.5°C), leukopenia, anorexia, blood in feces, reluctant to move, abortion in sows, erythemic skin progressing to cyanosis near death	Variable but typically similar to, though less severe than, acute ASF	Mild fever for 2–3 weeks; pregnant sows may abort; reddened then dark, raised, dry, and necrotic skin lesions, especially over pressure points
Gross lesions	Death occurs before distinct lesions form	Spleen enlarged (up to 3 times normal), dark and friable; multiple hemorrhages of internal organs, especially kidneys and heart; hemorrhagic lymph nodes; edema of gall bladder and lungs; congestion of meninges and choroid plexus	Lesions are similar but milder than acute ASF; spleen may be 1.5 times normal size; lymph nodes enlarge but only mildly hemorrhagic; few petechial on kidneys	Fibrinous pleuritis, pleural adhesions, caseous pneumonia, hyperplastic lymphoreticular tissues, nonseptic fibrinous pericarditis, necrotic skin lesions

Adapted from: Kleiboeker, S.B. (2002). Swine fever: Classical swine fever and African swine fever. *Vet Clin Food Anim* 18, 431–451.

1.4.5 Morbidity and Mortality

For all forms of the disease, morbidity rates are very high. Mortality rates vary by form. For the peracute form, mortality can reach 100 percent and occur in the absence of any clinical signs within 7–10 days after exposure to the virus. The acute form is also associated with mortality rates that approach 100 percent, often with death occurring within 6–13 days post inoculation. The mortality rate for the subacute form is dependent on the age of the affected populations; younger pigs have higher rates (70–80 percent), while older pigs experience significantly lower

⁸ New experimental research suggests that a carrier status for ASFV is unlikely or may have been overstated as a contributor to ongoing transmission: Petrov, A. et al. (2018). No evidence for long-term carrier status of pigs after African swine fever virus infection. *Transboundary and Emerging Diseases*. 65(5), 1318–1328.

rates (less than 20 percent). For those affected by the chronic form of ASF, mortality is typically low.

1.4.6 Differential Diagnosis

When considering a potential diagnosis of ASF in the United States the following diseases should also be included in the differential diagnosis:⁹

- ◆ Classical swine fever,
- ◆ Porcine reproductive and respiratory syndrome,
- ◆ Erysipelas,
- ◆ Salmonellosis,
- ◆ Aujeszky's disease (or pseudorabies) in younger swine,
- ◆ Pasteurellosis, and
- ◆ Other septicemic conditions.

1.4.7 Persistence of ASFV

ASFV is a very resilient virus that can withstand low temperatures, fluctuations in pH, and remain viable for long periods in tissues and bodily fluids. Table 1-3 provides a breakdown of ASFV resistance to physical and chemical action based on the OIE ASF Disease Card. These factors must be considered when determining appropriate response strategies, including disinfection techniques.

⁹ OIE. (2019) African Swine Fever. Technical Disease Card. www.oie.int.

Table 1-3. Resistance of ASFV to Physical and Chemical Action

Action	Resistance
Temperature	Highly resistant to low temperatures. Heat inactivated by 56°C/70 minutes; 60°C/20 minutes. This OIE guidance must be adapted and validated for field conditions where use of these temperatures may not be feasible.
pH	Inactivated by pH < 3.9 or > 11.5 in serum-free medium. Serum increases the resistance of the virus, e.g., at pH 13.4—resistance lasts up to 21 hours without serum, and 7 days with serum.
Chemicals/disinfectants	Susceptible to ether and chloroform. Inactivated by 8/1000 sodium hydroxide (30 minutes), hypochlorites— between 0.03 percent and 0.5 percent chlorine (30 minutes), 3/1000 formalin (30 minutes), 3 percent ortho-phenylphenol (30 minutes) and iodine compounds. Note: disinfectant activity may vary depending on the pH, time of storage and organic content.
Survival	Remains viable for long periods in blood, feces, and tissues; especially infected uncooked or undercooked pork products. Can multiply in vectors (<i>Ornithodoros</i> sp.).

Source: OIE Technical Disease Card for African Swine Fever, 2019.

Chapter 2

Framework for ASF Preparedness and Response

2.1 FOUNDATION OF PREPAREDNESS AND RESPONSE

Successful emergency preparedness for, and response to ASF is based on the principles found in the National Response Framework (NRF) and in the National Incident Management System (NIMS). FAD PReP, including this ASF-specific plan, provides information and specific guidance on response requirements for an outbreak in the United States. FAD PReP documents are consistent with both NRF and NIMS.

As mentioned early in [Chapter 1](#), this document does not provide, in detail, general incident coordination and FAD response. For more information on aspects discussed in Chapter 2, please refer to the *APHIS Foreign Animal Disease Framework: Roles and Coordination (FAD PReP Manual 1-0)* and the *APHIS Foreign Animal Disease Framework: Response Strategies (FAD PReP Manual 2-0)*.

2.2 USDA AUTHORITIES

2.2.1 The Animal Health Protection Act, 7 U.S. Code 8301 et seq.

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.

Additionally, the Code of Federal Regulations (CFR) gives the APHIS Administrator authority to determine the existence of disease and the authority to prevent the spread of disease through the destruction and/or disinfection of animals, eggs, and materials as appropriate. As such, it also authorizes APHIS to appraise and indemnify animals and materials destroyed, provided certain conditions are met; these conditions include complying with quarantines, adhering to proper biosecurity protocols, and accurately designating payments between contract growers and owners of birds (9 CFR 53).

2.2.1.1 EXTRAORDINARY EMERGENCY

The AHPA also authorizes the Secretary of Agriculture—after notice to review and consultation with certain State or Tribal officials—to declare that an extraordinary emergency exists because of the presence of a pest or disease of livestock and because this presence threatens the livestock of the United States (7 *U.S. Code* 8306). This provides the Secretary with additional authority to hold, seize, treat, apply other remedial actions to, destroy (including preventively slaughter) or otherwise dispose of any animal, article, facility, or means of conveyance; and prohibit or restrict the movement or use within a State, or any portion of a State, of any animal or article, means of conveyance, or facility. Per this same section (7 *U.S. Code* 8306(d)(1)), the Secretary is required to compensate the owner of any animal, article, facility, or means of conveyance the Secretary requires to be destroyed unless certain conditions are met (these exceptions are listed in 7 *U.S. Code* 8306(d)(3)). If the owner fails to comply with such an order, the Secretary may take similar action and recover from the owner the costs of such action (7 *U.S. Code* 8306(c)).

2.2.2 The Swine Health Protection Act, 7 U.S. Code 3801 et seq.

The Swine Health Protection Act (SHPA), 7 *U.S. Code* 3801 et seq., authorizes the Secretary of Agriculture in cooperation with States and other jurisdictions to regulate the treatment and feeding of garbage to swine. Untreated garbage serves as media where numerous infectious diseases, such as ASF, could be transmitted via improperly treated garbage. The SHPA and regulations found in 9 CFR 166 contain provisions that prohibit persons from feeding waste unless properly treated to kill disease organisms. Those feeding are required to hold a valid license with the exception of circumstances outlined in 9 CFR 166. In addition, § 166.2(c) states that these regulations shall not be construed to repeal or supersede State law that prohibit the feeding of garbage to swine.

2.3 USDA APHIS VS GUIDANCE

2.3.1 Procedures and Policy for an ASF Investigation, VS Guidance 12001

Veterinary Services Guidance Document 12001 provides guidance for the investigation of potential FAD/emerging disease incidents. [Appendix B](#) provides a brief ready reference guide on *VS Guidance 12001* to assist responders during the initial disease investigation. The full guidance is available at www.aphis.usda.gov/fadprep.

2.3.2 Animal Health Policy in Relation to Wildlife, VS Memorandum 573.1

VS Memorandum 573.1, *USDA APHIS VS Animal Health Policy in Relation to Wildlife* (September 2008), provides guidance specifically for VS in the event of an FAD outbreak in domestic livestock that has a wildlife component, given the authority granted to APHIS under the AHPA. The memorandum states that in cases where VS policy supports eradication of an infectious agent/disease/vector, VS will seek measures, through 1) movement and testing requirements; 2) herd plans; and 3) emergency response plans to keep wildlife and livestock apart and to eradicate the disease from all potential reservoirs when eradication is deemed technically feasible. If eradication is not technically feasible at the time, measures must be taken to keep these potential reservoirs (wildlife and feral animals) separate from domestic livestock...

VS recognizes that State fish and wildlife management agencies have primary authority and responsibility for managing free-ranging wildlife. However, VS has statutory authority in the AHPA to implement disease control and/or eradication actions for wildlife under certain conditions.

Should wildlife be affected by the control and eradication measures proposed by the Secretary of Agriculture—including an extraordinary emergency—“the Secretary will consult with the State agency having authority for protection and management of such wildlife.”

2.4 USDA ROLES AND RESPONSIBILITIES OVERVIEW

Understanding the roles and responsibilities of Federal departments or agencies involved in responding to a FAD incident promotes an effective, coordinated emergency response. USDA responds “to animal and agricultural health issues” under USDA statutory authority and is the primary agency responsible for coordinating response efforts during an FAD incident affecting domestic livestock or poultry. Incidents will be handled in cooperation with States, Tribes, and local governments.

Federal response to the detection of an FAD such as ASF 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 an ASF outbreak response, the USDA may request Federal-to-Federal (FFS) support 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.

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. If an ASF outbreak occurs in the United States, the planning assumption is that the Secretary will declare an extraordinary emergency.

2.5 USDA APHIS INCIDENT MANAGEMENT

As the primary Federal agency for incident management during an ASF incident or outbreak, the USDA APHIS provides National Incident Management Teams (NIMTs), coordinates the incident response, manages public messages, and takes measures to control and eradicate ASF. It is critical that effective and efficient whole community situation management and clear communication pathways are employed for a successful response effort.

Synchronized management and organizational structure support control and eradication actions taken during an ASF outbreak. Accordingly, APHIS employs NIMS and the Incident Command System (ICS) organizational structures to manage an ASF response. 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.

2.5.1 Incident Management Structure

The APHIS Administrator is the Federal executive responsible for implementing APHIS policy during an ASF outbreak; the Administrator is supported by the APHIS Management Team (AMT) and the Emergency Preparedness Committee (EPC). Depending on the size of the outbreak, the APHIS Administrator and AMT may establish an APHIS-level Multi-program Committee (MPC) to coordinate resources; many of the MPC functions may be delegated to the VS Deputy Administrator, who is the Chief Veterinary Officer of the United States. The VS Deputy Administrator is supported by the VS Executive Team (VSET) to coordinate policy.

An APHIS National Incident Coordination Group (ICG), led by an Incident Coordinator and a deputy Incident Coordinator, is immediately established to

oversee the functions and response activities associated with the incident. This ICG is flexible and scalable to the size and scope of the incident, and works closely with unified Incident Command (IC) field personnel, in a unified Incident Management Team (IMT). The ICG also coordinates with any MPC Group that is established at the APHIS or USDA level, based on the specific incident. For example, in the 2014–2015 Highly Pathogenic Avian Influenza outbreak in the United States, both the USDA Multiagency Coordination (MAC) Group and the APHIS MPC Group (formerly referred to as the MAC Group) were formed due to the size, scope, and impact of the incident.

In addition to policy and incident coordination, the APHIS Administrator, AMT, VS Deputy Administrator, and VSET communicate, collaborate, and coordinate with relevant industry associations, the National Assembly of State Animal Health Officials and National Association of State Departments of Agriculture, public health agencies (Federal and State), and other partners in a whole community approach.

2.5.2 Field Organization

At the beginning of an incident, the State Animal Health Official (SAHO) or designee, and the VS Area Veterinarian in Charge (AVIC), or designee, initially serve as Co-Incident Commanders in a unified IC Structure. The AVIC will be relieved when a State and/or APHIS IMT is stood up, and an Incident Command Post (ICP) is established. In a large ASF incident, there may be multiple ICPs and full VS NIMTs may not be dispatched to each location; to-date, VS has five standing NIMTs. In any situation, ICPs will remain a unified State-Federal IC organizational structure.

If the outbreak involves more than one incident, more than one IC is likely to be established. An Area Command (AC) may also be established. In this case, individual Incident Commanders responsible for potentially multiple unified IMTs would report to the AC. AC organizational structures may not be established or appropriate in all incidents; in many cases, the ICG will perform the same functions as an AC. For more information on a single incident and multiple incident coordination along with a full NIMT configurations see *APHIS Foreign Animal Disease Framework: Roles and Coordination (FAD PReP Manual 1-0)*.

Chapter 3

ASF Outbreak Response Goals and Strategy

3.1 RESPONSE GOALS

The APHIS goals of an ASF response are to (1) detect, control, and contain ASF in swine as quickly as possible; (2) eradicate ASF using strategies that seek to stabilize animal agriculture, the food supply, the economy, and to protect public health and the environment; and (3) provide science- and risk-based approaches and systems to facilitate continuity of business (COB) 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 ASF-free status without the response effort causing more disruption and damage than the outbreak itself.

3.2 EPIDEMIOLOGICAL PRINCIPALS

The control and eradication of ASF in swine is based on four epidemiological principles:

1. *Prevent contact between ASFV and swine.* This is accomplished through
 - a. quarantine of infected swine and movement controls in the Control Area (Infected Zone [IZ] + Buffer Zone [BZ]),
 - b. utilization of Network-Based Controls (NBCs), and
 - c. enhanced biosecurity procedures that include preventing contact between feral swine and domestic swine.
2. *Stop the production of ASFV by infected or exposed swine.* This is accomplished by mass depopulation (and disposal) of infected and potentially infected swine; prioritization may increase effectiveness.
3. *Stop the transmission of ASFV by vectors.*
4. *Prevent ASFV from becoming established in feral swine populations.*

3.3 CONTROL AND ERADICATION STRATEGIES

The United States' primary control and eradication (response) strategy for ASF in swine is the establishment of quarantines and movement controls with eradication by stamping-out. There is currently no effective vaccine available for ASFV in swine.

APHIS acknowledges that there may be significant challenges to eradicate ASF, depending on the outbreak (e.g., if feral swine are infected). In any instance, movement control measures are critical since ASF is easily spread by infected swine and contaminated fomites. It is essential that movement controls are science- and risk-based to minimize disruption to normal business and to facilitate the appropriate allocation of incident resources. To assist in doing so, NBCs will be employed on traced Contact Premises in addition to the standard Control Area approach. The use of NBCs will target response resources to high risk epidemiologically-linked premises during an ASF outbreak in an effort to rapidly detect new cases.

3.3.1 Supporting Critical Activities

In order to achieve the goals of an ASF response, critical activities and tools must be implemented to successfully execute response strategies. Box 3-1 lists some necessary critical activities and tools in order to effectively contain, control, and eradicate ASF. A science- and risk-based approach that protects the public, animal health, the environment, and stabilizes animal agriculture, the food supply, and the economy is employed at all times. This chapter provides strategic guidance for a response; see [Chapter 4](#) for further information on activities and tools.

Box 3-1. Overview of Critical Activities and Tools for an ASF Response

Critical Activities and Tools for Containment, Control, and Eradication

- Public communication and messaging campaign
- Swift imposition of effective quarantine and movement controls
- Stringent and effective biosecurity measures
- Rapid diagnosis and reporting
- Epidemiological investigation and tracing
- Increased surveillance in domestic and feral swine populations
- Continuity of business measures for non-infected premises and non-contaminated animal products (*Secure Pork Supply Plan*)
- Mass depopulation and euthanasia
- Effective and appropriate disposal measures
- Virus elimination measures
- Feral swine population reduction

3.3.2 Defining Stamping-Out as a Response Strategy

For ASF, stamping-out is the depopulation of clinically affected swine and, as appropriate, swine that are directly exposed to the virus. Depopulation and disposal of Infected Premises or Pigs must be conducted in a biosecure manner to prevent further disease spread. Box 3-2 lists the key elements of stamping-out. Further detail on Depopulation, Disposal, and Decontamination (3D) activities are discussed later in [Section 4.12](#).

Box 3-2. ASF Stamping-Out Strategy

Stamping-Out Critical Goals

- The goal is that, as soon as possible after the identification of an Infected Premises or Pig, all infected swine should be depopulated in the safest, and most humane way possible. In some cases, other swine, such as those on Contact Premises, may also be depopulated.
- To be most effective in stopping disease transmission, it may be necessary to prioritize depopulation (of premises or even within a single premises) based on clinical signs and epidemiological information.
- Public concerns about stamping-out require a well-planned and proactive public relations liaison campaign.
- Care should be taken to consider the mental health implications for owners and responders.

3.3.2.1 OIE DEFINITION OF STAMPING-OUT

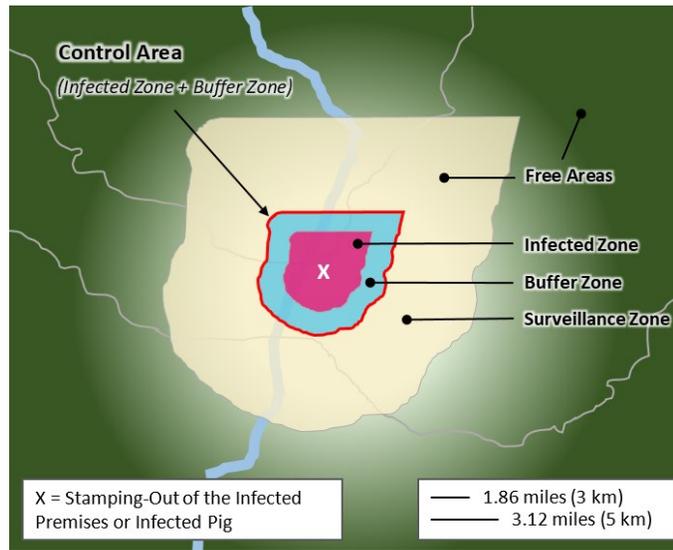
“Stamping-out” is defined in the *OIE Terrestrial Animal Health Code (2019)* as

a policy designed to eliminate an outbreak by carrying out under the authority of the Veterinary Authority the following: (a) the killing of the animals which are affected and those suspected of being affected in the herd or flock and, where appropriate, those in other herds or flocks which have been exposed to infection by direct animal to animal contact, or by indirect contact with the causal pathogenic agent; animals should be killed in accordance with Chapter 7.6; (b) the disposal of carcasses and, where relevant, animal products by rendering, burning or burial, or by any other method described in Chapter 4.13; (c) the cleansing and disinfection of establishments through procedures defined in Chapter 4.14.

3.3.3 Zones and Areas in Relation to Stamping-Out

Figure 3-1 illustrates an example of a stamping-out strategy where an Infected Premises or an infected feral pig are depopulated. See [Section 4.5.1](#) for further information on zones and areas for an ASF outbreak response.

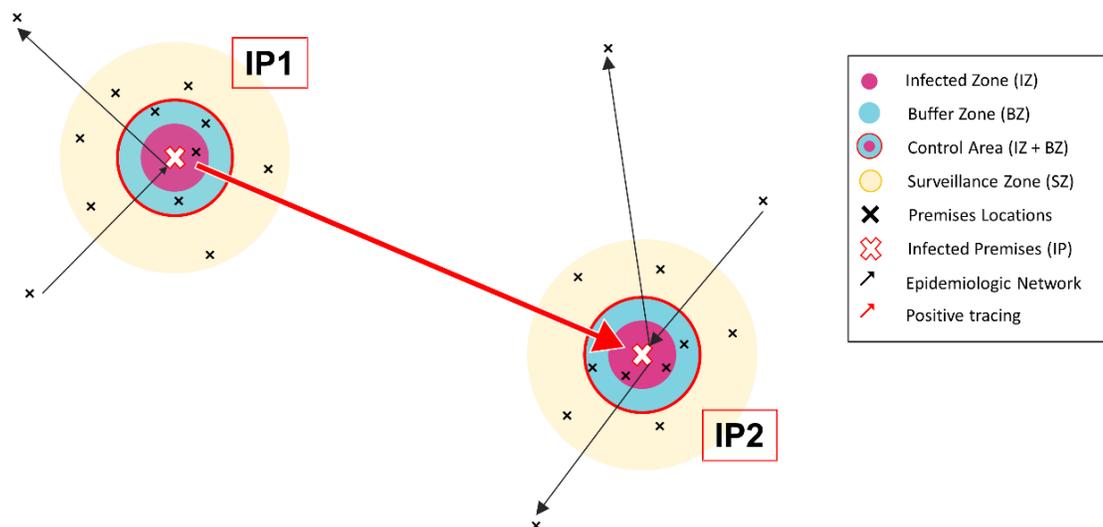
Figure 3-1. Example of Zones and Areas in Relation to Stamping-Out



3.3.4 Zones and Areas in Relation to Network Based Controls

Figure 3-2 illustrates an example of an epidemiologic network where tracing from the first Infected Premises (IP1) identified an epidemiologically-linked Contact Premises outside of the initial Control Area. NBCs requiring testing were placed on that Contact Premises, which resulted in a positive detection. This additional Infected Premises (IP2) triggered a new Control Area that led to additional Contact Premises. All premises that are traced/linked to an Infected Premises are subject to Control Area restrictions and diagnostic testing. Further information on NBCs and their utilization during an ASF outbreak can be found in [Section 4.6.2](#).

Figure 3-2. Example of an Epidemiologic Network in Relation to Network Based Controls



3.3.5 Control and Eradication of ASF in Domestic Swine

In the event ASF is detected in domestic swine,¹⁰ the primary control strategy is the establishment of Control Areas around Infected Premises; the primary eradication strategy is stamping-out. This section will focus on control strategies in domestic swine, for further information on stamping-out refer to [Section 3.3.2](#) and [Section 4.12.1](#).

The primary control strategy in domestic swine focuses on preventing ASFV from coming into contact with susceptible swine. This is accomplished through the establishment of Control Areas, supported by quarantine and movement controls, along with enhanced biosecurity efforts. The size and number of Control Areas will vary based upon the population(s) infected (commercial, backyard, or feral), the epidemiological information available, and the risk of ASFV transmission through swine, fomites or vectors. In any situation, a positive ASF detection would require a minimum Control Area consisting of a 3 kilometer IZ and a 2 kilometer BZ, plus a 5 kilometer Surveillance Zone (SZ) in the Free Area.

A full epidemiological assessment must be completed in order to determine the extent of the outbreak, which includes the identification and prioritization of epidemiologically-linked Contact Premises (also known as network premises), and surveillance for contact, sick and dead feral swine. Feral swine found near ASF infected domestic swine may be depopulated. All domestic swine premises, infected or not, should take additional biosecurity precautions to prevent contact between feral swine and domestic swine.

In addition to traditional Control Areas which focus on local containment and spread, NBCs will be employed to help identify additional infection and reduce transmission by applying movement controls to epidemiologically-linked Contact Premises. The capability to rapidly conduct comprehensive epidemiological investigations will enable responders to understand the scale and scope of the outbreak, and establish NBCs— an essential aspect of ASF control.

3.3.6 Control and Eradication of ASF in Feral Swine

In the event ASF is detected in feral swine, the primary control strategy is the establishment of Control Areas around Infected Pigs; the primary eradication strategy is the stamping-out of Infected Pigs followed by population reduction. This is essentially the same strategy as in domestic swine; however, implementation varies due to the differences between production based systems and wildlife. This section will focus on control strategies in feral swine, for further information on stamping-out refer to [Section 3.3.2](#) and [Section 4.12.1](#).

Control of ASF in feral swine focuses on limiting viral spread and transmission through the establishment of Control Areas that encompass infected feral swine.

¹⁰ See [Appendix A](#) for a complete list of swine (industry segment) definitions.

At minimum, the Control Area surrounding the Infected Pig will consist of a 3 kilometer IZ and a 2 kilometer BZ, plus a 5 kilometer SZ in the Free Area. A larger Control Area may be needed to encompass other infected and contact pigs given that feral swine are free-ranging, and interact with other feral swine across the landscape.

Like ASF control in domestic swine, Control Areas are dependent upon the epidemiological requirements of the outbreak. Feral swine will have additional epidemiological considerations than that of domestic swine. They are free ranging animals that cannot be “quarantined” and primarily move within defined home ranges. The home range of feral swine populations can vary widely, and are influenced by the availability of food and water resources, as well as by sex.

ASF is thought to move slowly through wild boar populations, with estimates suggesting rates of spread at 0.7 to 1.5 kilometers per month.^{11,12} The relatively slow rate of spread should allow the initial response to focus on intense on-the-ground surveillance to determine the extent of infection within populations so that adequately sized Control Areas can be established.

The establishment of Control Areas and zones will delineate where management actions occur. Feral swine within Control Areas will be removed and tested in accordance to incident depopulation efforts. Additional essential activities include strategic population reduction, public outreach, targeted surveillance, and surveillance for dead pigs. Any carcasses found will be tested and disposed of properly. Immediate carcass removal and proper disposal is key in preventing the spread of ASFV through wildlife. Recent work suggests that more than 50 percent of ASF transmission in wild boar can be carcass-based.¹³

Analytical tools that estimate local feral swine population abundance in the United States can be used to help refine control and eradication strategies.^{14,15}

¹¹ Podgórski, T., and Śmietanka, K. (2018). Do wild boar movements drive the spread of African swine fever? *Transboundary and Emerging Diseases*, 65(6), 1588–1596. Doi: 10.1111/tbed.12910.

¹² European Food Safety Authority (EFSA), Boklund, A., Cay, B., Depner, K., Földi, Z., Guberti, V., ... & Šatrán, P. (2018). Epidemiological analyses of African swine fever in the European Union (November 2017 until November 2018). *EFSA Journal*, 16(11), e05494. doi: 10.2903/j.efsa.2018.5494.

¹³ Pepin, K.M., et al. Unpublished.

¹⁴ Tabak, M. A., Piaggio, A. J., Miller, R. S., Sweitzer, R. A., & Ernest, H. B. (2017). Anthropogenic factors predict movement of an invasive species. *Ecosphere*, 8(6), e01844. Doi: 10.1002/ecs2.1844.

¹⁵ Lewis, J. S., Corn, J. L., Mayer, J. J., Jordan, T. R., Farnsworth, M. L., Burdett, C. L., ... & Miller, R. S. (2019). Historical, current, and potential population size estimates of invasive wild pigs (*Sus scrofa*) in the United States. *Biological Invasions*, 21(7), 2373–2384. Doi: 10.1007/s10530-019-01983-1.

[Chapter 4](#) provides further information on designations of feral swine zones, and areas ([Section 4.5.1](#)), in addition to management activities ([Section 4.13](#)) that occur within those designations to control and eradicate ASF.

3.4 INITIAL RESPONSE ACTIONS

3.4.1 Authorization for Response and Associated Activities

When the criteria for a presumptive positive ASF case have been met (see [Chapter 4](#) for case definitions), the APHIS Administrator or VS Deputy Administrator (Chief Veterinary Officer [CVO] of the United States) can authorize APHIS personnel—in conjunction with State, Tribal and unified IC personnel—to initiate certain response activities of the index case (Infected Premises or Infected Pig), including an epidemiological investigation of Contact Premises.

Upon ASFV confirmation by the National Veterinary Services Laboratories (NVSL) Foreign Animal Disease Diagnostic Laboratory, the Secretary of Agriculture will

- ◆ take immediate steps to declare an Extraordinary Emergency (refer to [Section 2.2.1.1](#));
- ◆ issue a National Movement Standstill of at least 72 hours with a detection in domestic swine or feral pigs;
- ◆ authorize depopulation of Infected Premises in conjunction with APHIS, State, and Tribal animal health officials according to the depopulation methods approved by the American Veterinary Medical Association; and
- ◆ authorize payment for virus elimination at a uniform, flat rate, based on the size of the affected premises.

The following sections provide further detail on the initial response actions taken for ASF outbreak.

3.4.2 Coordinated Public Awareness Campaign

If ASF is detected in the United States, a Joint Information Center will be established to organize, integrate, and coordinate information to ensure consistent messaging across multiple jurisdictions and disciplines. APHIS Legislative and Public Affairs—the primary liaison for an ASF outbreak—and the USDA Office of Communications will invite State, local, and industry communicators to participate.

A public awareness campaign must be effectively coordinated with the creation and distribution of audience-appropriate information. Effective communication

and messaging is one of the most important critical activities to the overall ASF effort. Box 3-3 provides key messages that should be emphasized and reinforced by communications personnel during an ASF outbreak.

Box 3-3. Key Communication Messages in an ASF Outbreak

Key Communication Messages

1. We are responding quickly and decisively to eradicate the virus.
2. ASF does not affect human health and cannot be transmitted from pigs to humans.
3. ASF is not a food safety concern—properly prepared meat is safe to eat.
4. We are safeguarding animal agriculture and the food supply.

An additional key message for producers:

5. Protect your herd with good biosecurity practices and be vigilant in reporting signs of illness to your veterinarian, or State or Federal animal health official.

3.4.3 Regulatory Movement Controls

A temporary hold order, a quarantine and/or some type of stop movement will be immediately issued on a premises by State authority, or Tribal authority, upon strong suspicion of ASF on a premises. Confirmation of ASF by NVSL is *not* necessary for States, or Tribes, to implement quarantines and/or movement controls on individual premises during an investigation. A Federal quarantine (under the AHPA and CFR authorities) may be issued when requested by SAHOs or as directed by the Secretary of Agriculture to restrict interstate commerce from the infected State(s); Federal quarantines may not always be issued in FAD outbreaks, including for ASF. Should this occur, USDA may ask States to provide the resources to maintain and enforce the quarantine. State and Federal officials will immediately discuss and determine potential quarantine and/or movement control requirements upon suspicion of ASF in the United States.

With confirmatory results, the unified Incident Commander will work with the Operations Section and the Planning Section to determine and establish zone, area, and premises designations during an ASF outbreak. These designations are captured in the Emergency Management Response System 2.0 (EMRS2)—the official system of record for permits and permitted movements made into, within, and out of ASF Control Areas.

Each State has different quarantine authorities; therefore, each State’s animal health emergency response plan should describe the implementation of quarantines and movement controls. Due to the highly-integrated nature of the swine industry, it will also be necessary to consider swine networks, which often include interstate movements. A unified understanding is necessary for effective movement control, particularly at the initial occurrence of any incident.

3.4.3.1 NATIONAL MOVEMENT STANDSTILL

A National Movement Standstill is a complete stop in live swine movement across the entire United States. It is primarily intended to allow States, Tribes, and industry to gather initial critical information for a unified approach to an ASF response, while inhibiting further virus transmission before effective disease control measures can be successfully implemented. Upon confirmation of ASF in domestic swine or feral pigs, the USDA will issue a National Movement Standstill for at least 72 hours via Federal Register Order or other regulatory mechanism. The duration of a National Movement Standstill may vary depending on the epidemiological circumstances of the outbreak.

In the event of a movement standstill, the USDA will provide clear concise policy guidance on the implementation and provisions of, made easily accessible to all stakeholders. Specifications of issuance will at least be defined for

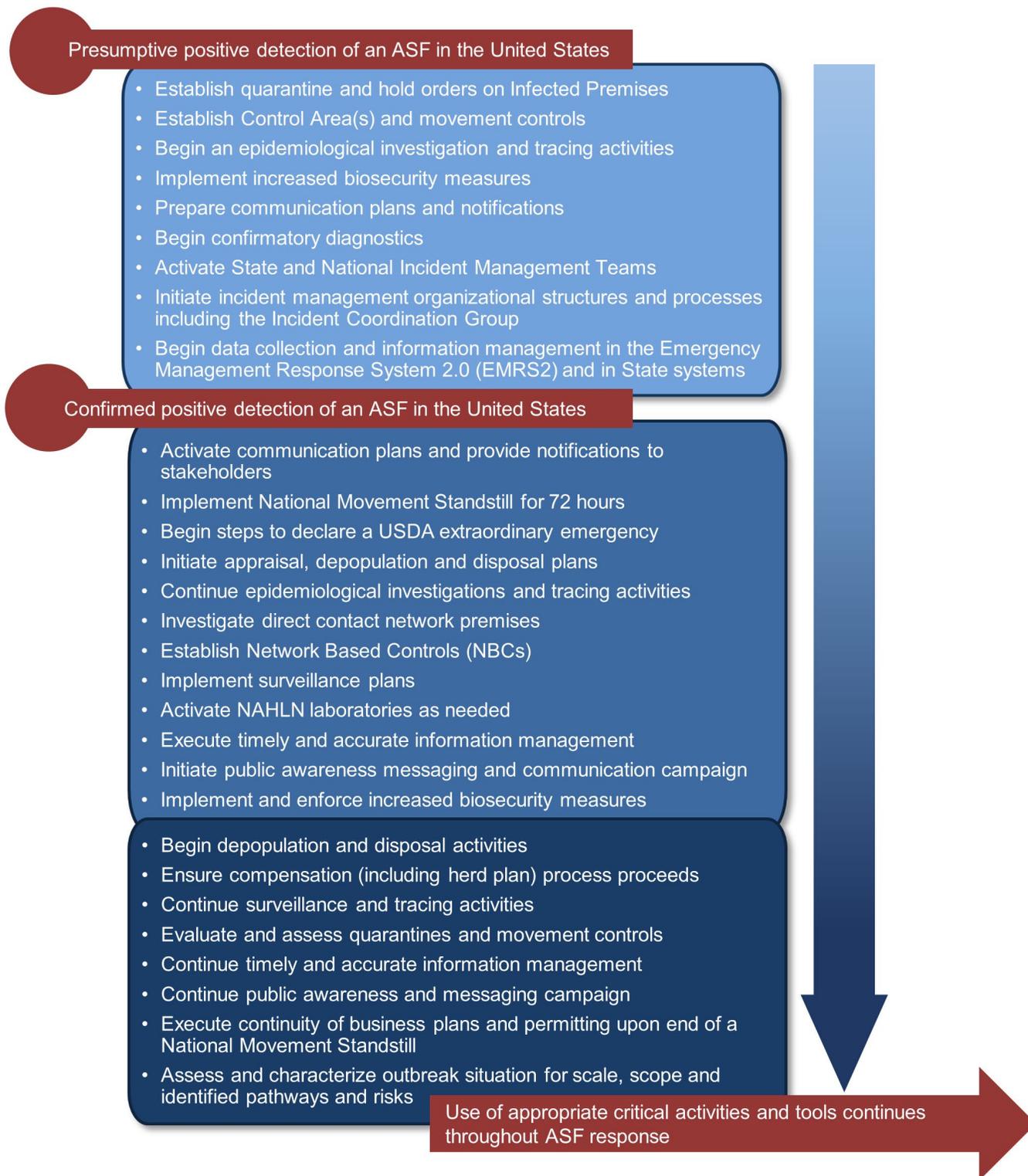
1. a specific geographical area or boundary (e.g., Nationwide or other);
2. a specific requirement that all live swine in transit at issuance must reach a destination;
3. a specific time indicating the duration of a standstill (e.g., 72 hours);
4. a specific list of what items are restricted from movement (e.g., live swine and germplasm); and
5. a specific list of what items are exempt from movement restrictions (e.g., negligible risk Food Safety and Inspection Service [FSIS]-inspected products).

Quarantine and movement controls are critical to stopping disease transmission, particularly for ASF. State, Tribal, and APHIS officials must carefully weigh the risk of disease transmission against the need to critical movements (e.g., feed) and business continuity. A National Movement Standstill only works if all parties involved understand the reasons and goals for a movement standstill, and have planned for it. Policy issued during an incident or outbreak will supersede these general specifications.

3.4.4 Initial Critical Activities of an ASF Response

After the detection of ASF in the United States, specific actions must occur as seen in Figure 3-3. These critical tasks are fundamental to the rapid control and containment of ASF. Figure 3-3 delineates many of the most important tasks and activities, but is not all-inclusive. Each response effort is different and may create unique challenges.

Figure 3-3. Initial Critical Activities of an ASF Response



3.4.5 Summary of Key Response Actions

Table 3-1 provides an overview of the initial response actions taken upon an ASF detection in either commercial, backyard or feral swine. [Chapter 4](#) discusses additional activities needed in order to support a successful ASF response.

Table 3-1. Overview of ASF Response Actions

Swine Population Infected	State – Tribal Quarantine of Infected Premises	Control Area Plus Network Based Controls	USDA Extraordinary Emergency Declaration	72 hour National Movement Standstill
Feral Swine Only	N/A	Control Area + Network Based Controls*	Yes	Yes
Domestic Swine Only	Yes	Control Area + Network Based Controls	Yes	Yes

* Epidemiological investigation to ensure infected feral swine are in their biological home range and have not been moved by human activity out of the Control Area. Domestic swine in Control Area are subject to movement control and surveillance activities.

3.5 MOVEMENT CONTROL POST STANDSTILL

The release of a National Movement Standstill *does not* mean that all USDA and State movement restrictions have been lifted, signifying the resumption of normal movement. States will have issued initial quarantines and established Control Areas, as necessary, to contain and control disease spread. Movements into, within, and out of a Control Area will typically require a permit.

While quarantine and movement controls are highly effective at limiting the spread of disease, they also impede upon normal business operations. Varying restrictions and requirements for live swine or product movement can be expected by non-infected States; therefore, impacting non-infected operations. The implementation of COB plans are essential to assist with the managed movement of non-infected premises and non-contaminated animal products. All States, infected or not, should anticipate the influx of permit requests once a standstill is lifted.

[Chapter 4](#) provides further information on quarantine and movement control, and COB during an ASF outbreak.

Chapter 4

Specific ASF Response Critical Activities and Tools

FAD PReP documents identify critical activities and tools to be employed in the event of an ASF outbreak. These critical activities and response tools assist in controlling, containing, and eradicating ASF while facilitating Continuity of Business (COB) in an outbreak. This chapter describes key parts of these critical activities and tools.

Documents referenced in this chapter can be found at www.aphis.usda.gov/fadprep.

4.1 ETIOLOGY AND ECOLOGY

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

4.2 LABORATORY DEFINITIONS AND CASE REPORTING

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* which describes the general process for developing and approving animal disease case definitions for use in animal health surveillance and reporting. The *ASF Case Definition* is available in the following sections.

4.2.1 Laboratory Definitions

The following case definitions are draft definitions from October 2018. In any ASF outbreak, case definitions may be edited after the first presumptive 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.

4.2.1.1 LABORATORY CRITERIA

1. *Agent isolation and identification:* Collect whole blood (EDTA and heparin), spleen, lymph nodes, tonsils, and kidneys. Keep samples as cold as possible without freezing. Tests include: virus isolation (VI), direct fluorescent antibody (DFA), sequencing, and real-time polymerase chain reaction (PCR).
2. *Serology:* Antibody detection in serum by Enzyme-Linked Immunosorbent Assays (ELISA,) indirect fluorescent antibody (IFA), and immunoperoxidase test (IPT). Antibodies develop 7–10 days post-infection and can persist for life. Pigs with virulent ASFV can die before antibody production occurs.

4.2.1.2 CASE DEFINITION AND REPORTING CRITERIA

1. *Suspect case:* An animal having clinical signs consistent with ASF or an epidemiologic link to ASFV.
2. *Presumptive positive case:* A suspect case with a non-negative screening laboratory test result for ASFV PCR at National Veterinary Services Laboratories (NVSL) Foreign Animal Disease Diagnostic Laboratory (FADDL) or National Animal Health Laboratory Network (NAHLN) laboratory approved for ASF preparedness or surge testing, or
 - a. A suspect case that is positive for ASFV antibodies by two different antibody tests at NVSL FADDL.
3. *Confirmed positive case:* An animal from which ASF virus has been isolated and identified at NVSL FADDL or a laboratory designated by the Secretary of Agriculture, or
 - a. A presumptive positive case with a positive confirmatory ASFV antigen test at NVSL FADDL.

ASF is a U.S. FAD and an OIE-notifiable disease. Suspect cases should be reported to a State Animal Health Official (SAHO) or Area Veterinarian in Charge (AVIC) who will decide if the report is credible and assign a Foreign Animal Disease Diagnostician (FADD) to further investigate the possibility of ASF infection. For more information on FAD investigation procedures please refer to *VS Guidance Document 12001* and the *FAD Investigation Manual (FAD PReP Manual 4-0)*.

4.3 DIAGNOSTICS

Effective and appropriate sample collection, diagnostic testing, surge capacity, and reporting are critical in an effective ASF response. These activities may require additional resources in the event of an ASF outbreak. In particular, herd sampling requires additional personnel. Surge capacity is also likely needed 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 ASF outbreak, the key goals for diagnostics are to

- ◆ provide clear direction to responders on sample collection and processing procedures, if modification from routine standards is required,
- ◆ meet the surge requirements for diagnostic testing at specific intervals, starting at time zero and at 24-hour intervals as the response escalates, and
- ◆ report all diagnostic test results to appropriate personnel *and* information management systems (Emergency Management Response System 2.0 [EMRS2]) as soon as possible and within 4 hours of diagnostic test completion.

The *FAD Investigation Manual (FAD PReP Manual 4-0)* offers detailed information on diagnostic sample collection, diagnostic testing, and reporting. This document provides guidance on who is responsible for diagnostic testing, sample packaging and shipping, and roles in FAD investigations.

[Appendix B](#) references *VS Guidance Document 12001* for FAD investigations, and provides the associated ready reference guide. The procedures outlined in this document should be followed in all FAD investigations, including those in which ASF is a differential diagnosis.

4.3.1 Sample Collection and Diagnostic Testing

Trained personnel and field collection kits are required to effectively collect samples from swine. Table 4-1 details what specimens should be collected for diagnostic testing at FADDL. Additional specific information on how to package and label laboratory submissions is also available [here](#).

Confirmatory diagnostic testing for ASF will be performed at NVSL FADDL at Plum Island. Tests performed to determine the presence of ASFV include virus isolation, antigen detection through DFA testing, ELISA, IFA, and PCR tests.

Table 4-2 shows diagnostic tests performed by FADDL, the required specimen and the minimum time needed to obtain results. Figure 4-1 shows the diagnostic test flow at FADDL for ASF samples received.

Table 4-1. Sample Collection for Diagnostic Testing

Specimen	Medium	Shipping preservative
Serum	Red top tube (10ml)	Ice pack
Whole blood Heparin – VI Whole blood EDTA – PCR	Green top tube (10ml) Purple top tube (10ml)	Ice pack
Fresh tissue: tonsil, gastrohepatic or renal lymph node, spleen	Separate Whirlpak per tissue type	Ice pack
Set of tissues	Formalin (10:1)	Ice pack

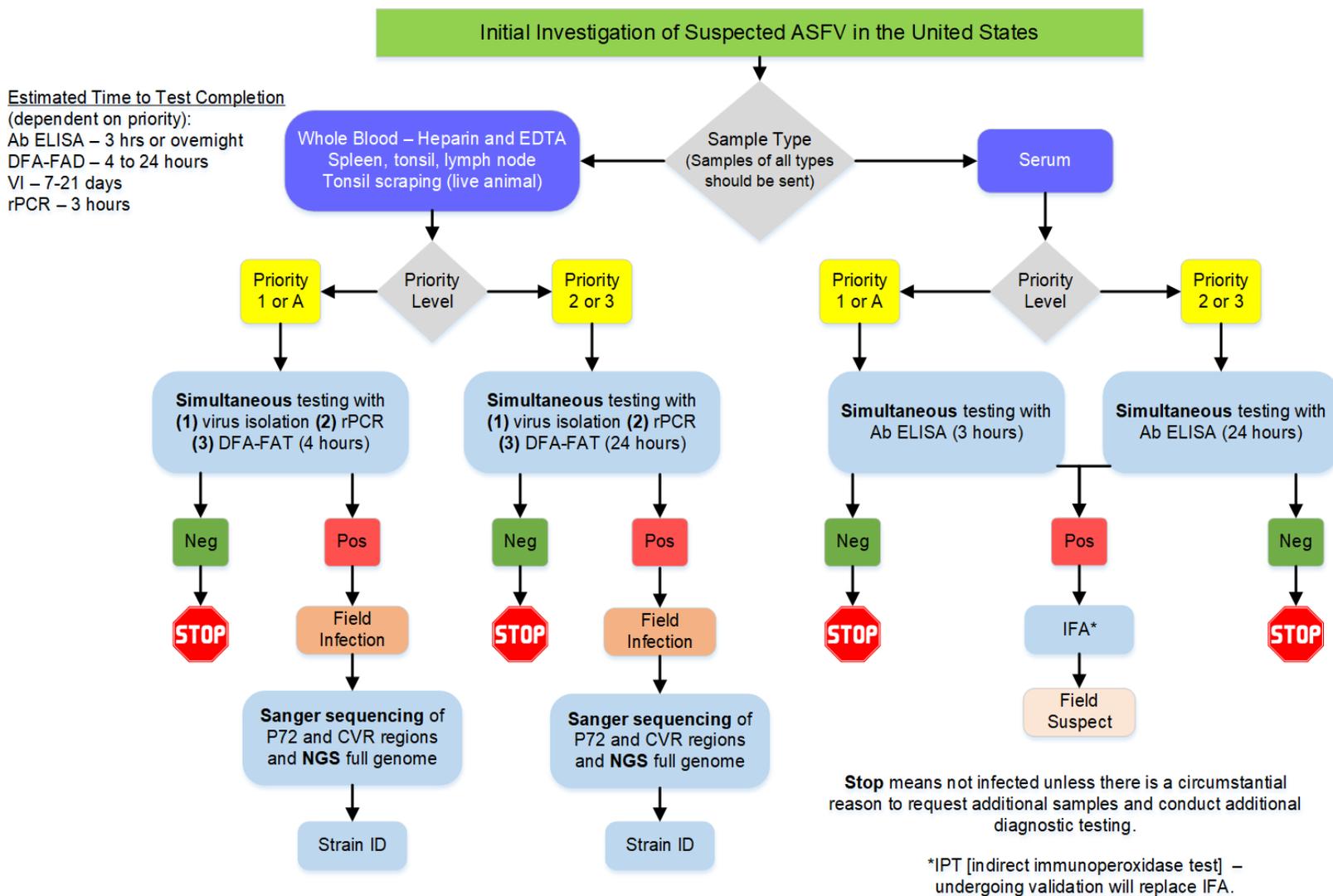
Source: [NVSL-FADDL Disease-Specific Guide to Sample Collection](#).

Table 4-2. Diagnostic Tests Performed for ASFV at NVSL FADDL

Procedure	Specimen	Minimum test time
Ab ELISA	Serum	1 day
DFA	Tissue (tonsil, lymph node, spleen)	1 day
IFA	Serum	1 day
Real time PCR	Blood, tissue (tonsil, lymph node, spleen)	3 hours
VI	Blood, tissue (tonsil, lymph node, spleen)	21 days (three 7-day cycles)

Note: Test time may vary depending on the number of samples or need to repeat the test. These are typical times that can be expected. Further information for an initial investigation is provided in Figure 4-1.

Figure 4-1. Diagnostic Test Flow for Initial Investigation of ASF in the United States



Estimated Time to Test Completion: Sanger sequencing from initial PCR, if sufficient quality sample / high viral load, otherwise from VI – 9 hours
NGS [next gen sequencing] (incomplete coverage) – as above, otherwise from VI – 33 hours

4.3.2 Surge Capacity

NAHLN laboratories provide rapid standardized surveillance and response testing for FADs. Currently, there are 46 laboratories approved for ASF testing. Collectively, they have the ability to run at least 40,000 PCRs every 24 hours. NAHLN maintains and updates this list on their website,¹⁶ along with a map to geographically visualize laboratory capacity by State. APHIS realizes that, in an ASF outbreak, collecting and testing diagnostic samples will require significant resources. It is a priority to maintain this capacity and ensure that additional NAHLN laboratories have this diagnostic capacity in the immediate future.

4.4 SURVEILLANCE

The purpose of surveillance is to define the distribution of the disease, detect new outbreaks, and establish disease-free zones. Surveillance activities can aid in establishing priorities in terms of control and mitigation strategies and help evaluate the efficacy of response efforts. They are also critical to maintaining COB and providing evidence of disease freedom following an outbreak.

Surveillance personnel are involved in the case definition development, design of surveillance sampling schemes, and the assessment and reporting of surveillance findings. It is critical to coordinate between the personnel conducting surveillance activities and those responsible for epidemiological investigations, quarantine and movement control, and biosecurity.

This section provides a broad overview of ASF surveillance. It is a precursor to [Appendix C](#) that provides further detail on example surveillance procedures and sampling schemes for domestic swine during an outbreak. Subject matter experts will support the unified Incident Command (IC) to help define appropriate surveillance strategies during an outbreak.

4.4.1 Surveillance Goals and Objectives

Surveillance is a critical activity during an outbreak of ASF. The following are the goals of surveillance in response to an ASF outbreak in either domestic or feral swine:

- ◆ Implement a surveillance plan that will (1) define the present distribution of ASF in domestic and feral swine and (2) detect unknown Infected Premises¹⁷ quickly.

¹⁶ For further information on NAHLN Laboratories, see <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/lab-info-services/nahln/ct-national-animal-health-laboratory-network>.

¹⁷ Refer to [Section 4.5.1](#) for zone, area, and premises designations.

- ◆ Define the epidemiologic network for each Infected Premises.
- ◆ Determine feral swine presence near domestic premises, and if present, incorporate susceptible feral swine populations within the surveillance plan; coordinate with APHIS Wildlife Services (WS), U.S. Department of Interior (DOI), State wildlife agencies, and State agriculture departments.
- ◆ Provide surveillance data summaries and analyses at intervals specified by the unified IC.

Box 4-1. Surveillance Plan Objectives in an ASF Outbreak

Surveillance Plan Objectives

- Detect ASF Infected Premises and infected feral swine quickly.
- Determine the size and distribution of the ASF outbreak.
- Determine zone and premises designations.
- Supply information to evaluate outbreak response activities.
- Provide surveillance and testing requirements for movement of live swine into, out of, and within Control Area(s) that will include epidemiologic networks.
- Provide surveillance and testing information for pre-movement requirements.
- Provide evidence that Control Area(s) are free of disease.
- Provide evidence to demonstrate disease-freedom following eradication.

4.4.2 Surveillance Activities Overview

There are three key periods of surveillance activities in an outbreak. The initial 72 hours post-ASF outbreak declaration, the control and eradication period (the time until last case is detected and depopulated), and the completion of virus elimination to declaration of disease freedom.

Surveillance activities begin with the development of a surveillance plan. Surveillance plans may differ to address the objectives of the incident, time period of the response, and the specifications of the zone, area, and premises designations (see [Section 4.5.1](#)). Plans may also vary by outbreak type, field capacity, and epidemiologic characteristics that can differ by region, host and virus. Surveillance activities and associated testing are based on the best scientific information available at the time, and may need to be modified as an outbreak progresses. Initial guidance for developing an ASF outbreak surveillance plan can be found in [Appendix C](#).

Data collection for surveillance purposes can be either passive or active. Passive surveillance is ongoing and begins with the producer, veterinarian, or laboratory personnel suspecting a case of ASF and informing State or Federal animal health officials. Active surveillance is initiated by regulatory officials requesting the collection of animal health data using a defined protocol to perform actions that

are scheduled in advance. Decisions about whether information is collected, what information should be collected, and from which animals is made by the investigator.¹⁸

4.4.3 Passive Surveillance

Passive surveillance is conducted at all times within the United States. Passive surveillance relies on producers, veterinarians, and laboratory personnel to voluntarily report suspect cases based on clinical signs and lesions of ASFV to State or Federal animal health officials. Passive surveillance for ASFV applies to all swine. Feral swine that are found dead or visibly sick (ruling out evidence of car strikes, etc.) will be euthanized and tested. Any suspect cases, in either domestic or feral swine having clinical signs compatible with ASF (e.g., abnormal health events and/or decreased production parameters), will trigger a FAD Investigation (per *VS guidance Document 12001*). In the event of an ASF detection, passive surveillance is intensified through rapid and clear communication to all producers and veterinarians.

APHIS WS works collaboratively with States that have established populations of feral swine to reduce the number of feral swine and associated damages they inflict to agriculture, property, natural and cultural resources, and human health. As WS routinely monitors feral swine populations, they alert VS of any suspect cases for ASF.

4.4.4 Active Surveillance for Domestic Swine

Due to the increased spread of ASF in Asia and Europe, USDA implemented a targeted active surveillance program in 2019. It has strengthened detection capabilities to enhance outbreak preparedness and support claims of disease freedom for ASF and Classical Swine Fever. This plan, Swine Hemorrhagic Fevers: African and Classical Swine Fever Integrated Surveillance Plan, can be found on the USDA APHIS ASF [webpage](#) under technical documents.

During the initial stages of an ASF outbreak, surveillance is designed to provide evidence so that informed decisions can be made in regards to zone sizing, premises designation, and epidemiologic networks. In particular, all Suspect Premises in the Control Area must be tested to determine whether they are Infected Premises or At-Risk Premises. In addition, Contact Premises epidemiologically-linked to Infected Premises, will be identified and prioritized so that appropriate surveillance activities and movement controls can be implemented quickly.

¹⁸ Active Surveillance is defined here by the International Conference on Animal Health Surveillance (ICAHS) in the Animal Health Surveillance Terminology Final Report from Pre-ICAHS Workshop, July 2013 (version 1.2).

As the response progresses, surveillance is used to assess the disease status within Control Areas, Surveillance Zones (SZ), and epidemiologically-linked networks. Surveillance assessments will determine if the initial parameters need to be re-evaluated or the criteria has been met for Control Area release. Surveillance can also provide evidence to demonstrate post-outbreak disease freedom.

Active surveillance also includes pre-movement testing; however, USDA APHIS is collaborating with stakeholders to further develop and define parameters for pre-movement testing.

4.4.4.1 ACTIVE OBSERVATIONAL SURVEILLANCE

Active surveillance efforts may include Active Observational Surveillance (AOS). AOS relies on producers and veterinarians to track the disease status of a herd by noting and acting upon clinical signs, abnormal health events (e.g., number animals treated, death loss) and production parameters (e.g., feed/water intake) that deviate from a pre-defined tolerance threshold. Each premises should keep a daily record of observation events, deviations from pre-defined thresholds, and any follow up communication and action that occurred in result.

For effective AOS, producers/owners should create a set of guidelines that outline specific production parameters expected at that individual site with corresponding investigation triggers related to abnormal health events and decreased production parameters. Ideally this should be done before an ASF outbreak occurs in the United States. Producers/owners should also create a communication plan that describes who to contact and when in response to these investigation triggers. Federal or State animal health officials should be contacted immediately if ASF is suspected.

During an outbreak, AOS should be conducted daily by trained on-farm observers. AOS does not replace the need for diagnostic testing but rather serves as a screening tool. AOS alone does not fulfill the requirements for permitted movements and laboratory confirmation will still be required.

4.4.4.2 OUTBREAK SELECTION CRITERIA AND SAMPLING METHODS

[Appendix C](#) provides a clinical scoring guide to assist observers in selecting animals to sample during an outbreak. The clinical scoring guide can also be used for AOS. If the criteria for a suspect case of ASF is met, a FAD Investigation is initiated per *VS Guidance 12001*.

Currently, individual animal sampling is the only validated method to detect ASFV; approved sample types, at this time, include whole blood and fresh tissue (spleen, lymph node, and tonsil). NVSL is diligently working to validate aggregate methods, such as rope sampling. [Appendix C](#) provides guidance to develop a surveillance sampling scheme based on individual animal sampling.

4.4.5 Active Surveillance for Feral Swine

In the event ASF is detected in feral swine populations, the initial surveillance goal will be to determine the distribution of infection. Once determined, control and eradication strategies can be implemented through established Control Areas (refer to [Section 4.5.1](#) for zone, area, and premises designations).

Feral swine within Control Areas will be removed and tested in accordance to incident depopulation efforts. In the event a Control Area covers a large geographical area, surveillance testing will be re-defined for the most efficient and effective approach. Surveillance activities outside of the Control Area and in the SZ will focus on heightened surveillance through wildlife management activities (see [Section 4.13](#)) where periodic sampling will occur. A sampling scheme will be developed during an outbreak and will be adapted with the progression of the outbreak, as needed, for availability of resources and for the designation of zones and areas. The ultimate goal is to eliminate ASF in feral swine in order to prevent the virus from spilling over into domestic swine.

4.5 EPIDEMIOLOGY

Epidemiological activities work to quickly and accurately identify cases of ASF, locate other Contact Premises that may be infected, and investigate the source of the outbreak. In particular, an epidemiologic investigation can classify premises so that appropriate zones, areas, and premises designations can be applied. Additional activities involve the tracing of all contacts with affected animals and premises, including movement of non-susceptible animals, humans, fomites, animal products or byproducts, and equipment that may have come into contact with ASFV.

4.5.1 Zones, Areas, and Premises Designations

A critical component of an ASF response is the designation of zones, areas, and premises, which are used in quarantine and movement control efforts. The Incident Commander works with the Operations Section and Planning Section to

1. determine appropriate zones, areas, and premises designations in the event of an ASF outbreak, and
2. re-evaluate these designations as needed throughout the outbreak based on the epidemiological situation.

Table 4-3 summarizes the premises designations that are employed in an ASF outbreak response. Table 4-4 summarizes the zone and area designations that would be used in an ASF outbreak response.

Table 4-3. Summary of ASF Premises Designations

Premises	Definition	Zone
Infected Premises/ Infected Pig(s) (IP)	Premises or pig location where a presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, ASF case definition, and international standards.	Infected Zone
Contact Premises (CP)	Premises with swine that have been epidemiologically linked to an IP through exposure to animals, animal products, fomites, or people. CPs would be subject to Network Based Controls.	Infected Zone, Buffer Zone, Free Area
Suspect Premises (SP)	Premises under investigation due to the presence of swine reported to have clinical signs compatible with ASF. This is intended to be a short-term premises designation.	Infected Zone, Buffer Zone, Surveillance Zone
At-Risk Premises (ARP)	Premises with swine, but none of those swine have clinical signs compatible with ASF. ARPs are not IPs, CPs, or SPs. ARPs may seek to move susceptible animals or products within the Control Area by permit. Only ARPs are eligible to become MPs.	Infected Zone, Buffer Zone
Monitored Premises (MP)	Premises objectively demonstrates that it is not an IP, CP, or SP. Only ARPs are eligible to become MPs. MPs 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 CP or SP.	Surveillance Zone, Free Area

Table 4-4. Summary of ASF Zone and Area Designations

Zone/Area	Definition
Infected Zone (IZ)	Zone that immediately surrounds an Infected Premises or Infected Pig(s).
Buffer Zone (BZ)	Zone that immediately surrounds an Infected Zone or a Contact Premises.
Control Area (CA)	Consists of an Infected Zone and a Buffer Zone.
Surveillance Zone (SZ)	Zone outside and along the border of a Control Area. The Surveillance Zone is part of the Free Area.
Free Area (FA)	Area not included in any Control Area. Includes the Surveillance Zone.

4.5.1.1 CONSIDERATIONS FOR ZONES AND AREAS

Typically in an incident the unified IC establishes an Infected Zone (IZ) and a Buffer Zone (BZ) within 12 hours of the index case. This Control Area (the IZ and the BZ) may change as the outbreak progresses. In an ASF incident, additional considerations are needed to incorporate the specific characteristics of the swine industry, as well as considerations for feral swine since they, too, are susceptible to ASF. Zone, area, and premises designations may include: epidemiologically linked Contact Premises that are not all in the same, or

contiguous geographical area, and areas that reflect home ranges of feral swine populations.

The perimeter of the Control Area should be at least 5 km (~3.12 miles) beyond the perimeter of the closest Infected Premises or Infected Pig. The size of the Control Area depends on the circumstances of the outbreak, including transmission pathways and estimates of transmission risk, swine movement patterns and concentration points, distribution of feral swine in proximity, natural terrain, jurisdictional boundaries, and other factors. The boundaries of the Control Area can be modified or redefined when tracing and other epidemiological information becomes available.

Table 4-5 provides a description of the minimum sizes of areas and zones for both domestic and feral swine; and Table 4-6 describes the epidemiologic factors used to determine the size of zones and Control Areas.

Table 4-5. Minimum Size of Zones and Areas

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 or Infected Pigs based on epidemiological circumstances. This zone may be redefined as the outbreak continues.
Buffer Zone (BZ)	Perimeter should be at least 2 km (~1.24 miles) beyond the perimeter of the IZ. Width is generally not less than the minimum radius of the associated IZ, but may be much larger. This zone may be redefined as the outbreak continues.
Control Area (CA)	Perimeter should be at least 5 km (~3.12 miles) beyond the perimeter of the closest Infected Premises or Infected Pig. Please see Table 4-6 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 5–10 km (~3.12 miles to ~6.21 miles) beyond the Control Area.

Table 4-6. Factors to Consider in Determining Control Area Size for ASF

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 geographic features ◆ Areas defined by manmade structures ◆ Areas defined by distance between premises
ASF epidemiology	<ul style="list-style-type: none"> ◆ Reproductive rate ◆ Incubation period ◆ Ease of transmission ◆ Infectious dose ◆ Modes of transmission (contact with secretions, excretions, fomites, vectors) ◆ Survivability in the environment ◆ Ease of diagnosis (for example, no pathognomonic signs; requires diagnostic laboratory testing)

Table 4-6. Factors to Consider in Determining Control Area Size for ASF

Factors	Additional Details
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 ▪ Species of animals ▪ Production stage ▪ 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 animal populations and population density ◆ Animal movements ◆ Critical movements (e.g., feed) ◆ Movement of traffic (fomites) and personnel to and from premises (fomite spread) ◆ Biosecurity measures in place prior to outbreak
Environment	<ul style="list-style-type: none"> ◆ Types of premises in area or region ◆ Land use in area or region
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 backyard premises	<ul style="list-style-type: none"> ◆ Types of premises, animal movements, and network of animal and fomite movements
Feral Swine	<ul style="list-style-type: none"> ◆ Presence/absence of populations ◆ Population density ◆ Estimates of home range size ◆ Number of ASF positive carcasses ◆ Presence of feral swine markets or slaughter facilities

4.5.1.1.1 Additional Considerations for Feral Swine

Additional factors for zones and areas must be considered in the event feral swine are infected with ASFV. Feral swine are free ranging animals that primarily move within defined home ranges. The size of these home ranges vary based on resources, climate, habitat, and other factors.

Since an ASF outbreak in feral swine would almost certainly involve more than one pig, the IZ would likely be larger than the 3 kilometer minimum recommendation around a single index case. The initial IZ would encompass all ASF-positive feral swine cases and expand beyond the home range size for the affected population(s) of feral swine. Since feral swine home ranges vary widely,

the exact size of the Control Area(s) will be determined by wildlife experts after initial assessment. The average is approximately 1.5 to 3 square kilometers.¹⁹

Additional work on feral swine contact networks indicate that contact, and by extension, disease transmission, is uncommon between feral swine that are more than 2 kilometers apart on the landscape. The resulting IZ would therefore extend at least 3 kilometers out in all directions from the feral swine index case²⁰ with adaptations for natural and manmade landscape features. Some regions also have additional feral swine data available²¹ that could be used in the event of an outbreak to refine both home range estimates and the size of the IZ.

The BZ will expand proportionally with increases in the IZ so that it always provides a buffer equivalent to at least 2 kilometers surrounding the IZ. The BZ will indicate an area of increased ASF risk where no positive feral swine have been detected. Additionally, there will be a SZ of at least 5 kilometers surrounding the BZ. These zones will be adapted as the incident progresses, in addition to changes in epidemiology.

4.5.2 Visualizing Zones and Areas for Domestic & Feral Swine

Figure 4-2 illustrates examples of zones, areas, and premises designations for both domestic and feral swine. Adjustments will be needed during an outbreak based on the evolving epidemiological and incident situation.

¹⁹ Kay, S. L., Fischer, J. W., Monaghan, A. J., Beasley, J. C., Boughton, R., Campbell, T. A., ... & Wisely, S. M. (2017). Quantifying drivers of wild pig movement across multiple spatial and temporal scales. *Movement ecology*, 5(1), 14. Doi: 10.1186/s40462-017-0105-1.

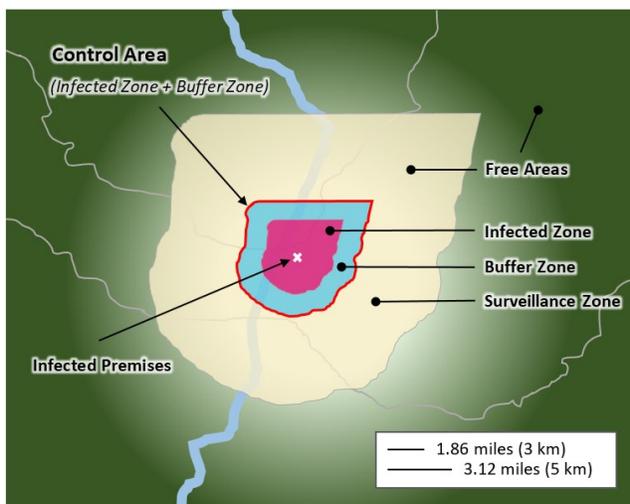
²⁰ Pepin, K. M., Davis, A. J., Beasley, J., Boughton, R., Campbell, T., Cooper, S. M., ... & Wyckoff, C. (2016). Contact heterogeneities in feral swine: implications for disease management and future research. *Ecosphere*, 7(3), e01230. Doi: 10.1002/ecs2.1230.

²¹ Kay, S. L., Fischer, J. W., Monaghan, A. J., Beasley, J. C., Boughton, R., Campbell, T. A., ... & Wisely, S. M. (2017). Quantifying drivers of wild pig movement across multiple spatial and temporal scales. *Movement ecology*, 5(1), 14. Doi: 10.1186/s40462-017-0105-1.

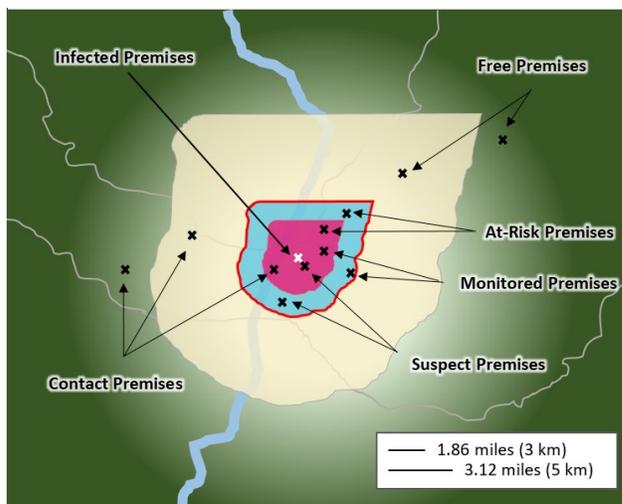
Figure 4-2. Examples of Zones, Areas, and Premises for Domestic Swine and Feral Swine in an ASF Outbreak Response

Domestic Swine

Zones and Areas



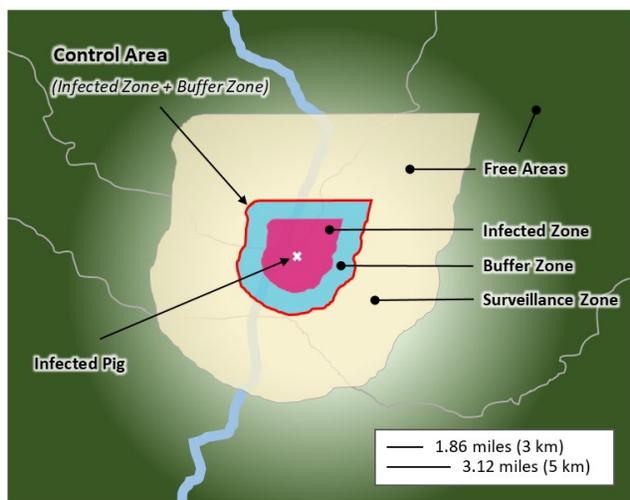
Premises



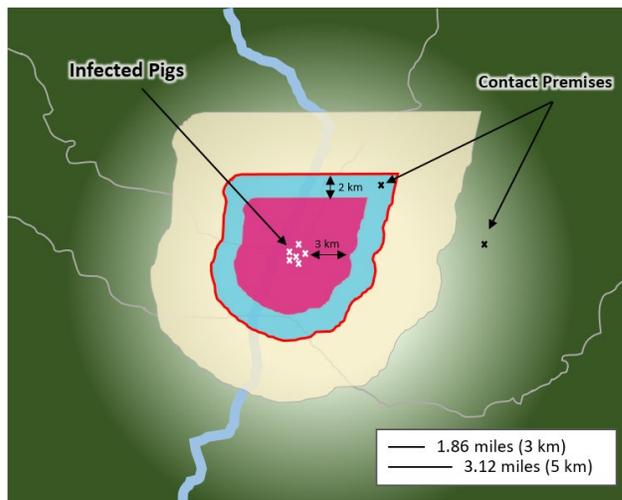
Note: Stamping-out is not pictured in these figures. The Surveillance Zone is part of the Free Area.

Feral Swine

Zones and Areas



Pigs*



* The minimum Infected Zone is 3 kilometers; however, when multiple pigs are found nearby on the landscape the Infected Zone will be adjusted to incorporate all pigs, which potentially can result in a larger Infected Zone.

Note: Stamping-out is not pictured in these figures. The Surveillance Zone is part of the Free Area.

4.5.3 Epidemiological Investigation and Tracing

An epidemiologic investigation can identify the index case, determine risk factors for transmission, and support the development of mitigation strategies. During an ASF outbreak, an epidemiological questionnaire will be utilized by the unified IC to assist in determining the scale and scope of the outbreak. The investigation and associated questionnaire will incorporate wildlife contact, particularly for feral swine, as well as an assessment to determine whether *Ornithodoros* spp. ticks are implicated in, or present a risk for, ongoing transmission. Evidence from recent outbreaks in previously ASF-free countries suggest that ticks may not play an epidemiologically significant role (if any role) in sustained transmission; other modes of direct and indirect transmission pathways should be the focus of control and containment activities.

Intensive tracing activities will also be required during an ASF outbreak to identify all Contact Premises. Tracing should identify all movement onto and off of an Infected Premises that occurred within the last 30 days (i.e., two OIE incubation periods for ASFV). In addition, all premises or locations having a shared direct or indirect contact during the last 15 days with the Infected Premises will also be traced and subject to surveillance requirements (see [Appendix C](#) for more detail).

Box 4-2 explains the fundamental importance of movement tracing in an ASF response effort.

Box 4-2. Importance of Movement Tracing in an ASF Outbreak

Tracing

One of the single most important and urgent veterinary activities during an ASF outbreak is to rapidly and diligently trace-back and trace-forward movements from an Infected Premises. This tracing aids in the control of the spread of ASFV and limits the impact of the outbreak. Tracing should capture all movements to and from the premises including, but not limited to, susceptible swine, non-susceptible species, animal products, vehicles, crops/grains, and personnel. Tracing also includes consideration of all potential modes of transmission and possible contact with feral swine.

Administering epidemiological questionnaires and tracing activities are typically conducted by a unified IC. Additional virtual support may be necessary from other personnel that have epidemiology expertise. No two incidents are the same: questionnaires, procedures, and priorities will be determined based on the specific circumstances of the incident.

The *Epidemiological Investigation and Tracing SOP* as well as the *NAHEMS Guidelines: Surveillance, Epidemiology, and Tracing* both provide more information.

4.6 QUARANTINE AND MOVEMENT CONTROL

Quarantine and movement control measures are fundamental to any ASF response effort, as movement of infected animals and contaminated fomites spread ASFV. By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control can be a powerful tool in controlling and eradicating an ASF outbreak.

Movement control is typically accomplished through a permit system for Control Areas. Permitting allows entities to make necessary movements without creating an unacceptable risk of disease spread. Criteria required for movement will depend on the risk of that movement, and may include biosecurity, cleaning and disinfection (C&D), and/or diagnostic testing depending on the specific permit. EMRS2 is APHIS system of record for permits and permitted movements made into, within, and out of ASF Control Areas.

It is important that quarantine and movement controls, while critical to stopping disease transmission, also consider competing priorities: in implementing measures, States, Tribes, and APHIS officials must weigh the risk of disease transmission against the need for critical movements (e.g., feed) and business continuity. Considerations should also be taken for the highly-integrated nature of the swine industry, where movements are often incorporated in networks and cross State lines. Movement control procedures are based on the best scientific information available at the time, and all personnel—premises owners, managers, and responders—should adhere to these measures.

The *NAHEMS Guidelines: Quarantine and Movement Control* and the *FAD PReP Permitted Movement* manual provides further information on measures considered necessary to prevent the spread of ASF.

4.6.1 Control Area Movement

Movement related to animal business into, within, and out of a Control Area will either require a permit or tracking by the unified IC or producers. Any movement of commodities, animals, and conveyance brings some level of risk of ASFV transmission from a known or unknown Infected Premises to non-infected premises. The risk of moving commodities, swine, and conveyances depends on the nature of the item being moved and its ability to transmit or be contaminated with ASF.

For movement of susceptible swine and swine products out of the Control Area to a Free Area, the permit process occurs as described in the document entitled *Permitted Movement (FAD PReP Manual 6-0)*. This includes approval from the origin State, and if interstate, the destination State. Requirements for a permit may vary depending on the permit, which takes into consideration the incident, National standards, State regulations, applicable OIE standards, and conditions for

the particular permitted movement(s), such as biosecurity procedures and risk assessment recommendations.

It is a State's responsibility for ensuring producers in their State know what type of movements require a permit, what requires no permit but reporting to the State and/or the unified IC, and what requires enhanced record keeping by the producer. It is important that criteria for movement during an ASF outbreak is communicated in an accurate and timely manner.

4.6.1.1 PERMIT REQUESTS

Permit requests are made to the State and/or Incident Management Teams established for the response. APHIS uses the EMRS2 Customer Permit Gateway, also referred to as “the Gateway”, for permits and permitted movements in regard to a Control Area. EMRS2 does not guarantee, certify, or otherwise assume that all requirements for a permit have been met. EMRS2 only facilitates the issuance of permits; it remains critical that all responsible parties ensure and remain vigilant that any requirements are met, as necessary, for the issuance of permits.

Permits and permitted movement outside the scope of the Control Area (in other words, not going into, within, or out of a Control Area) during an ASF outbreak are not captured in EMRS2 and should continue under regular authorities (Federal, State, and/or Tribal), using existing processes, procedures, and guidance. For a large scale ASF outbreak, States, APHIS, and industry continue to develop improved permit procedures and processes for Control Areas, pre-movement testing, and surveillance in the Free Area.

For general information and guidance on permitting, please refer to the document *Permitted Movement FAD PReP (Manual 6-0)*.

4.6.2 Network Based Controls

Network Based Controls (NBCs) are designed to be used in combination with traditional Control Areas to assist in limiting the spread of ASFV. Unlike traditional Control Areas that focus on local spread surrounding an Infected Premises, NBCs directly address movement and its role in disease transmission. As a result, additional cases can be identified quickly and incident resources can be utilized more efficiently.

Regulatory officials and producers are expected to work together during an outbreak to identify Contact Premises—premises that have potentially been exposed to ASFV due to an epidemiologic link to an Infected Premises. Epidemiologic links that are most important to the spread of ASFV include the movement of people, animals, and equipment between sites. These premises, along with those in the Control Area, are most likely to be infected with ASF. NBC Contact Premises are therefore subject to control measures similar to Contact Premises within the Control Area.

Chapter 3 [Section 3.3.4](#) provides an example of zones and areas in relation to NBCs.

4.7 CONTINUITY OF BUSINESS

COB manages movement for non-infected premises and non-contaminated animal products in a regulatory Control Area and facilitates movement, into, within, and out of a Control Area. COB provides science- and risk-based approaches and systems as a critical activity in an ASF 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. COB planning can help to minimize unintended consequences on producers and consumers impacted by ASF while still achieving the goals of disease response.

During an ASF outbreak, COB plans will be implemented to facilitate the managed movement of commodities and animals from At-Risk Premises and Monitored Premises existing within regulatory Control Areas, helping the swine industry to continue business operations. To ensure effective implementation of COB plans, they must be developed and exercised in advance of any outbreak.

The *NAHEMS Guidelines: Continuity of Business* covers topics such as

- ◆ preparedness and response goals,
- ◆ key roles and responsibilities in COB planning,
- ◆ details of COB as part of an FAD response, and
- ◆ potential components required for a COB plan.

For more information on COB for an ASF outbreak, please see [Appendix E](#) for an overview of the *Secure Pork Supply Plan* and refer to the *Secure Pork Supply Plan* located at www.securepork.org.

4.8 INFORMATION MANAGEMENT

Information management and reporting during an ASF incident or outbreak ensures that responders, stakeholders, and decision-makers have access to accurate and timely critical emergency response information. Ideally, Federal, State, Tribal, and local information management systems are compatible for information and data sharing.

EMRS2 is the official USDA APHIS system of record in an ASF outbreak. It contains critical information, such as Infected Premises data, and provides automation for essential response processes (e.g., resources, and permitting). It is essential that EMRS2 contain accurate premises data prior to an incident to

facilitate response efforts and devote resources to critical response tasks. States are strongly encouraged to import data before an ASF outbreak occurs.²²

4.8.1 Data Entry

In an ASF outbreak, the goal is to have EMRS2 data entry processes performed in 12-hour or shorter intervals. Data should be entered as quickly as possible. Data must be entered in both an accurate and consistent manner across widespread field operations; this is particularly important when there is more than one Incident Command Post (ICP). If possible, it may be necessary and/or beneficial to centralize certain data-entry capabilities, particularly when field resources are stretched. With accurate and timely data entry, USDA and State/Tribal officials using EMRS2 will be able to follow a premises from a first reported contact, to diagnostic sample submission, through virus elimination (for a positive premises), with full transparency about where a premises stands in the response and recovery process. [Appendix D](#) provides an example workflow illustrating a broad overview of EMRS2 data entry activities undertaken when response activities occur.

Field personnel should be provided with access to mobile technology devices necessary for collecting, monitoring, and sharing information. EMRS2Go is a mobile application which enables rapid and straightforward data entry into EMRS2 from the field. Rapidly functional, robust, and scalable information technology infrastructure is needed during an ASF outbreak.

4.8.2 Reporting

Reporting plays an important role, not only in directing disease mitigation activities in the field for the unified IC, but also in resource allocation, budgeting, and internal and external communication regarding the incident. Reporting does not replace or supplant “communications.” Instead, reporting offers information and data on the incident that can be used in communications materials, such as websites and press releases.

Data entered into EMRS2 is used for internal and external situation reports produced daily, weekly, and as requested. It is also used to produce specific reports on key aspects of the response, such as permitting or deployments. Both the National Incident Management Team and National Incident Coordination Group (ICG) rely on EMRS2 for producing accurate reports during an outbreak. It is imperative in an ASF outbreak that information management, data quality, and data integrity is a priority.

²² States can refer to the EMRS2 webpage for more information, and more specifically, the guidance, *Premises Data Transfer to EMRS2 from External/State Based Systems*, which is located here: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/sa_emrs/ct_emrs.

4.8.3 Information Management Systems and Tools

In an ASF outbreak, there are key systems which help to facilitate response. These include the following:

- ◆ EMRS2, the USDA APHIS official system of record;
- ◆ APHIS Emergency Qualifications System, managed by APHIS Dispatch personnel, used for requesting and deploying qualified personnel to the incident;
- ◆ Laboratory Messaging System, which communicates (messages) laboratory results from NVSL and some NAHLN laboratories, including directly to EMRS2;²³
- ◆ Third party systems, such as ArcGIS and Tableau, are utilized to tailor incident information for enhanced communication, illustration, and analyses.

For more information on these aspects, please refer to the *APHIS Foreign Animal Disease Framework: Incident Information Management and Reporting (FAD PReP Manual 3-0)*.

4.9 COMMUNICATIONS

Although not specific to ASF, the *HPAI Communications SOP* provides guidance on communication activities during an outbreak that would also apply to any FAD outbreak. It covers roles and responsibilities, and internal and external communication procedures. Additional ASF-specific guidance and resources will be provided during an ASF outbreak. ASF communication objectives 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.

APHIS Legislative and Public Affairs (LPA) will play a critical communications role to deliver timely and accurate information to stakeholders, States, international partners, Congressional staff, the media, and the public. Effective external communications concerning disease risks to human health and food

²³ Not all NAHLN laboratories currently have messaging capabilities. This is a high priority for USDA APHIS and the NAHLN laboratories.

safety can calm anxiety, instill confidence, and support compliance with emergency directives. LPA will closely coordinate with States and industry to ensure effective communication channels and unified messages are in place through a coordinated public awareness campaign discussed in [Section 3.4.2](#). A good working relationship with the press will be cultivated to provide timely, accurate information to the public. By gaining the public's trust, the need for emergency procedures that may temporarily alarm the public can be better tolerated. In addition, effective communication can help restore consumer confidence in the safety of swine products. Box 4-3 summarizes the importance of communications in the event of an ASF outbreak.

Box 4-3. Importance of Communications in an ASF outbreak

Importance of Communication to Support Response

- To engage and leverage Federal, State, Tribal, local, and stakeholder relationships to provide unified public messages for local, National, and international audiences.
- To address issues and concerns relating to food safety, public health, and animal welfare.
- To address issues and concerns relating to interstate commerce, continuity of business, and international trade.
- To ensure the dissemination of key communication messages to consumers and producers.

4.10 HEALTH & SAFETY AND PERSONAL PROTECTIVE EQUIPMENT

Though ASF is not a threat to public health, responders may be exposed to other health hazards; prevention of adverse human health events related to emergency response efforts is very important. For general information, please see the *National Animal Health Emergency Management System (NAHEMS) Guidelines: Health and Safety* and *NAHEMS Guidelines: Personal Protective Equipment*. In an incident, refer any health and safety questions or concerns to the Safety Officer or other designated response official.

4.10.1 Mental Health Concerns

The health and safety of all personnel is affected by the mental state of those involved in the ASF response effort. An ASF outbreak could have a significant psychological effect on both responders and owners of affected swine. Quarantine and movement restrictions may also impact mental health in populations affected by such controls. Care should be taken in the event of an ASF outbreak to consider and provide resources and directions for support. Incident Commanders should encourage the use of mental health support provided to field staff; Safety Officers assigned to the ICPs are key resource for personnel.

The Department of Health and Human Services (HHS) has developed resources specifically for emergency and disaster responders, State and local planners,

health professionals, and the general public at <https://emergency.cdc.gov/coping/index.asp>; additional general mental health information is here: www.cdc.gov/mentalhealth. APHIS employees can also find support through the Employee Assistance Program found here: <http://www.foh4you.com/>.

4.11 BIOSECURITY

Strict biosecurity measures are crucial to prevent or slow the spread of ASF. Owners, producers, veterinarians, and responders should observe strict biosecurity measures during an incident or suspected incident. Proper biosecurity during an ASF outbreak has two key functions: containing the virus on Infected Premises (biocontainment) and preventing the introduction of ASFV from the movement of personnel and fomites to naïve premises (bioexclusion).

Preventing exposure of swine to ASFV in blood, fluids, carcasses, fomites and the environment is critical in preventing ASF transmission; this includes employing and enhancing vector control methods. Biocontainment and bioexclusion measures can also be implemented *within* a premises to slow or limit the spread between pens and buildings when ASF has been diagnosed; this can help facilitate control and containment activities.

APHIS acknowledges that identifying and depopulating infected or exposed feral swine may be difficult. As such, it is critical for producers to implement and maintain biosecurity measures that prevent contact between feral swine and domestic swine. Producers should seriously reevaluate any outdoor production of pigs on premises that are in proximity to an Infected Premises or feral swine.

An additional area of consideration is garbage feeding, which is regulated by APHIS; States determine whether or not to allow this regulated garbage feeding within their State. During an ASF outbreak, APHIS and/or State officials may implement additional requirements or inspections related to garbage feeding.

4.12 3D ACTIVITIES

3D activities include depopulation, disposal, and decontamination during an outbreak. Due to the nature of ASFV, 3D options may be limited; therefore, the supplemental [3D Guidance—Option Matrices and Considerations](#) assists responders in determining the 3D alternatives during an outbreak. Note, that data are based on scientific research, and not necessarily based on field experience. This guidance, the Carcass Management Dashboard, and other tools are available on the APHIS Carcass Management website: <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/carcass-management>.

4.12.1 Mass Depopulation and Euthanasia

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 that gives as much consideration to the welfare of animals as practicable, given extenuating circumstances. Mass depopulation will likely be employed in an ASF outbreak as a response measure to prevent or mitigate the spread of ASF through the elimination of infected or potentially infected swine in order to protect agriculture and the National economy. The United States recognizes this as a control and eradication strategy, as defined by international standards and the OIE as “stamping-out” (refer to [Section 3.3.2](#)).

In an ASF outbreak, euthanasia or mass depopulation will be conducted in accordance to the American Veterinary Medical Association guidance²⁴ so that all affected swine are depopulated 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.

The method of depopulation will depend on animal considerations, facility characteristics, method characteristics (practicality, reliability, irreversibility, and compatibility), personnel considerations, carcass considerations, equipment considerations, and the environment where the animals are maintained. With ASF, significant environmental contamination can result from blood and fluids from infected swine—this should also be considered when selecting depopulation (and disposal) methods. In all cases, euthanasia or depopulation activities must incorporate excellent biosecurity practices to control the ASFV and prevent further transmission.

4.12.2 Disposal

Proper disposal of animal carcasses and materials (e.g., bedding, feed) prevents or mitigates spread of ASFV. The goal is to conduct operations in a timely, safe, biosecure, aesthetically acceptable, and environmentally responsible manner. Wastes requiring disposal may include carcasses, animal products, contaminated manure, litter, bedding, contaminated feed, contaminated personal protective equipment, and contaminated materials and equipment that cannot be cleaned and disinfected.

Due to the persistent nature of ASFV, options for disposal are limited. For example, composting may not be feasible when there are large amounts of biomass; resources for rendering are currently limited. Burial poses significant challenges with environmental contamination and the ability of the ASFV to

²⁴ The *AVMA Guidelines for the Depopulation of Animals* support advance planning for possible emergency situations and provide guidance for making decisions during an emergency: <https://www.avma.org/resources-tools/avma-policies/avma-guidelines-depopulation-animals>.

persist in the environment. Each option has its own environmental, logistical, and managerial challenges. APHIS and State officials and subject matter experts will collaborate to determine best approaches.

Disposal may involve other State and Federal agencies: USDA may coordinate with HHS, the Department of Homeland Security, and/or the Environmental Protection Agency to provide technical assistance and guidance, in alignment with Federal, State, and local regulations.

Refer to the *FAD PReP Disposal SOP* and the *NAHEMS Guidelines: Disposal* for more details.

4.12.3 Cleaning and Disinfection/Virus Elimination

C&D is a general term describing a part of regular biosecurity operations (e.g., to disinfect vehicles). Cleaning is the removal of gross contamination, organic material, and debris via dry cleaning (sweeping) and/or wet cleaning (water and soap or detergent); disinfection destroys or eliminates the pathogen through heat or chemical means (Table 1-2 provides information on ASFV susceptibility according to the OIE). A combination of methods may be required.

In a disease response context, virus elimination refers to the C&D activities that are undertaken stepwise after depopulation and disposal in order to move towards restocking. Virus elimination is C&D with the primary purpose to destroy or eliminate ASFV on the premises as cost effectively as possible to prevent further spread. A virus elimination plan includes the area/materials to be C&D, methods, personnel, materials, supplies, equipment and other relevant considerations. When performing virus elimination procedures, it is important to do so in the safest manner possible. The plan may also include the scientific rationale for virus elimination parameters, the process by which the premises will be evaluated and recorded as successfully C&D, specific protocols, and procedures for handling damaged private property due to C&D activities. Contingencies such as fallowing may be considered for premises that cannot be C&D.

This link provides information on disinfectants approved for use against ASFV: https://www.aphis.usda.gov/animal_health/emergency_management/downloads/sf-virus-disinfectants.pdf. The document at this link is updated as needed.

Further information can be found in the *FAD PReP Cleaning and Disinfection SOP* and in the *NAHEMS: Cleaning and Disinfection*.

4.13 WILDLIFE MANAGEMENT AND VECTOR CONTROL

USDA APHIS works 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, including feral swine. This collaboration, communication, and coordination occurs in both the unified IC as well as in Multiagency Coordination Groups when established.

The *NAHEMS Guidelines: Wildlife Management and Vector Control for an FAD Response in Domestic Livestock* discusses personnel and equipment required for wildlife management, quarantine and movement control for wildlife, wildlife risk assessment, wildlife surveillance, and related activities. Please refer [Section 2.3.2](#) regarding *VS Memorandum 573.1* for additional information on VS animal health policy in relation to wildlife.

4.13.1 Feral Swine Management

In any ASF response, epidemiologists and wildlife experts will need to quickly assess the presence of feral swine populations in or near the area of infection. ASFV can infect many different members of the Suidae family including wild boar which can be found in the United States. However, peccaries, which are also found in North America, are believed to be resistant to infection with ASFV.

A wildlife management plan that addresses transmission of ASF in feral swine will need to be developed as soon as possible after identification of the index case in either domestic swine or feral swine. This plan should aim to mitigate transmission pathways, preventing the exposure of ASFV to domestic livestock and naïve feral swine populations, ultimately eliminating ASF in feral swine. The decision to implement control measures in wildlife will be based on not only the risk assessment and surveillance, but also the feasibility of conducting successful control measures. In all cases, the wildlife management plan must be conducted within local laws and regulations, and management activities to control and eradicate ASF in feral swine must be conducted by trained personnel proficient in wildlife health, capture, restraint, biosecurity, and humane euthanasia.

4.13.1.1 MANAGEMENT ACTIVITIES

Management activities are based on the initial epidemiological assessment and may change as the outbreak evolves. ASF measures would include, but are not exclusive to

- ◆ survey and surveillance for feral swine presence,
- ◆ control measures,
- ◆ enhanced biosecurity measures to separate wildlife and domestic livestock,
- ◆ stamping-out, and

◆ population reduction.

These specific measures will be conducted depending on the zone and area designation determined by the epidemiological assessment. Within the IZ, habitat manipulation, such as fencing, may be employed to limit feral swine dispersal and further dissemination of the virus. Feral swine reduction will occur systematically in an attempt to limit disturbance.²⁵

The BZ will also be subject to management activities, including feral swine population reduction. Heightened surveillance activities will assist in the detection of ASF in feral swine outside of the Control Area. The SZ will also employ carcass detection methods, in addition to trail camera monitoring, and periodic sampling of feral swine populations for ASF testing. Outside of the SZ, activities would focus on enhanced public outreach to encourage reporting of sick or dead feral swine. This includes informing the public of the risk posed by feral swine feeding of uncooked waste in urban garbage dumps (potentially contaminated by illegal imports) and working with local jurisdictions on human-mediated feral swine movements. Controlling and eliminating feral swine may be a difficult, resource-intensive activity.

4.13.2 Vectors

ASF can be transmitted by soft ticks (*Ornithodoros* spp.), and potential vectors for ASFV do exist in the United States. Ticks can remain infected with ASFV for the duration of their life and ASFV can persist in tick colonies for extended periods. APHIS and State officials would need to assess if vectors are present in the Control Area and determine if control measures are necessary and/or cost-effective.

4.14 INDEMNITY AND COMPENSATION

4.14.1 Authority

The Animal Health Protection Act (AHPA) (7 U.S.C. §8301 et seq.) provides broad authority to the Secretary of Agriculture to prevent, detect, control, and eradicate diseases and pests of animals. It also provides authority to pay claims for animals, articles, or means of conveyance that are destroyed. In order for USDA to consider paying indemnity, USDA must approve any depopulation or destruction activities *before* depopulation or destruction of animals or materials occurs.

Further guidance is provided in the Code of Federal Regulations (CFR), particularly in 9 CFR Part 53, which is generally considered to be—for most

²⁵ Satran, P. (2019). *African swine fever in the Czech Republic*. Retrieved from https://ec.europa.eu/food/sites/food/files/animals/docs/reg-com_ahw_20190225_asf_cze.pdf.

purposes, absent any extraordinary emergency declaration by the Secretary—the regulatory authority governing indemnity and compensation during an ASF outbreak. Please refer to 9 CFR 53 for more information.

4.14.2 Procedures

State and APHIS officials must approve depopulation prior to its occurrence in order for producers to receive indemnity. This requires rapid communication between producer, company, State officials, APHIS and laboratory officials. Depopulation will occur after the *USDA APHIS Appraisal & Indemnity Request Form* is signed by appropriate parties. Every attempt will be made to collect inventory information and other required data as quickly as possible to ensure rapid depopulation as epidemiological circumstances require.

Appraisal and compensation documents released by the ICG or the unified IC during an incident specify personnel responsibilities, appraisal procedures, assessment of compensation eligibility, payment of indemnity, and require forms and reports during an ASF outbreak.

4.15 ANIMAL WELFARE

During an ASF outbreak, humane treatment must be provided to swine given the specific circumstances of the outbreak as prescribed by veterinary authorities of the affected States or Tribal nations. Humane care should be conducted during any type of movement standstill, and for infected animals until they are euthanized or depopulated. The *Overview of Animal Welfare SOP* contains additional information.

4.16 VACCINATION

To date there is no treatment or vaccine available for ASFV. In the past, live attenuated vaccines have been used in Spain and Portugal but with accompanying safety issues that made the vaccine unsuitable for use. All other attempts with subunit vaccines and DNA vaccines have been unable to confer complete protection. The Agricultural Research Service located at Plum Island Animal Disease Center in New York is currently working to develop a live-attenuated deletion-mutant vaccine that is both safe and effective for use.

Chapter 5

Recovery

5.1 CRITERIA FOR PROOF OF FREEDOM

The OIE does not grant official recognition for ASF-freedom, but as a member of the OIE, the United States can self-declare the entire country, zone, or compartment free of ASF. Please refer to the most current OIE *Terrestrial Animal Health Code* for provisions on ASF-freedom in a country or zone, compartment, establishment of a containment zone free from ASF, recovery of free status, and recommendations for importation of swine and swine products from countries not free of ASF.

Trading partners will evaluate, on an individual or multilateral basis, all self-declarations from the United States for ASF-freedom both after an incident and for any regionalization activities that may occur during an incident. Trading partners determine whether to lift or modify trade restrictions based on information that is provided by the United States.

5.2 OIE TERRESTRIAL ANIMAL HEALTH CODE

For the purposes of the OIE *Terrestrial Animal Health Code* (2019), as stated in Article 15.1.1., there is a distinction between domestic and captive wild pigs, wild and feral pigs, and African wild suid species. Per Article 15.1.2, “commodities of suids can be traded safely in accordance with the relevant articles of this chapter.”

5.2.1 Article 15.1.4 Country or Zone Free from ASF

1. Historical freedom

A country or zone may be considered free from ASF without pathogen-specific surveillance if the provisions of Article 1.4.6 are complied with and commodities of suids are imported in accordance with the relevant articles of this chapter.

2. Freedom in all suids

A country or zone which does not meet the conditions of point 1) above may be considered free from ASF in all suids when it complies with all the criteria of Article 15.1.3 and when:

- a. surveillance in accordance with Articles 15.1.28 to 15.1.33 has been in place for the past three years;

-
- b. there has been no case of infection with ASFV during the past three years; this period can be reduced to 12 months when the surveillance has demonstrated no evidence of presence or involvement of *Ornithodoros* ticks;
 - c. commodities of suids are imported in accordance with Articles 15.1.8 to 15.1.21.

3. Freedom in domestic and captive wild pigs

A country or zone which does not meet the conditions of point 1) or point 2 b), i.e. when there are cases of infection with ASFV in feral or wild suids, may be considered free from ASF in domestic and captive wild pigs when it complies with all the criteria of Article 15.1.3, especially point 7), and when:

- a. surveillance in accordance with Articles 15.1.28 to 15.1.33 has been in place for the past three years;
- b. there has been no case of infection with ASFV in domestic or captive wild pigs during the past three years; this period can be reduced to 12 months when the surveillance has demonstrated no evidence of presence or involvement of *Ornithodoros* ticks;
- c. commodities of suids are imported in accordance with Articles 15.1.8 to 15.1.21.

5.2.2 Article 15.1.7 Recovery of Free Status

Should an outbreak of ASF occur in a previously free country or zone, its status may be restored three months after the disinfection of the last infected establishment, provided that:

1. a stamping-out policy has been implemented and, in the case where ticks are suspected or known to be involved in the epidemiology of the infection, has been followed by the use of sentinel pigs in the infected establishments for two months;
2. surveillance in accordance with Article 15.1.31 has been carried out with negative results.

Otherwise, the provisions of point 2) of Article 15.1.4 apply.

The OIE *Terrestrial Animal Health Code* (2019) can be found here:
<http://www.oie.int/en/standard-setting/terrestrial-code/access-online/>.

5.3 RESTOCKING

During an ASF incident in the United States, APHIS and/or State officials will provide additional guidance for restocking previously Infected Premises, including any sentinel activities that may be required. A primary goal of the response is to ensure that response efforts do not cause more damage and

disruption than the disease outbreak itself; however, caution is urged in restocking premises since re-infection strains resources and perpetuates the risk of ASF transmission.

Appendix A

Swine Definitions (Industry Segments)

For the purposes of ASF response in the United States:

Backyard swine: Domestic swine raised for food production and confined to a housing facility with access to the outdoors surrounded by a fence or other barrier.

Breeder swine: Sexually intact swine over 6 months of age (from 9 CFR 71).

Commercial swine: Domestic swine raised for food production and confined to a housing facility designed to prevent exposure to feral swine.

Domestic swine: Any swine species owned in a captive environment, whether the confinement is in a building or behind a fence or other barrier. Domestic swine may be further characterized as backyard swine or commercial swine.

Feeder swine: Swine under 6 months of age that are not slaughter swine (from 9 CFR 71).

Feral swine: Free-roaming swine (from 9 CFR 78). Feral swine are not domestic swine.

Slaughter swine: Swine being sold or moved for slaughter purposes only (from 9 CFR 71).

Appendix B

Procedures for ASF Investigations and Specimen Submission

Veterinary Services (VS) Guidance Document 12001 provides guidance for the investigation of potential foreign animal disease/emerging disease incidents. This document is available under “APHIS and VS Emergency Management Resources” at www.aphis.usda.gov/fadprep.

VS GUIDANCE 12001.3 READY REFERENCE GUIDE:
PROCEDURES AND POLICY FOR THE INVESTIGATION
OF POTENTIAL FOREIGN ANIMAL DISEASE (FAD)/
EMERGING DISEASE INCIDENTS (EDI)



FAD INVESTIGATION IS INITIATED

AVIC and SAHO will:

- Assign an FADD.
- Ensure FAD Referral Control Number is assigned in EMRS.
- Assign FAD/EDI Case Coordinator(s).
- Ensure that initial case report is prepared and transmitted to the FADD.
- Consult with FADD, NVSL, and NAHLN lab to determine a diagnostic sample submission plan. Include AVIC and SAHO for State of NAHLN lab, if different from the State of sample origin.
- Consult with FADD to ensure that an investigation classification and a diagnostic sample submission priority are assigned.
- If AVIC, SAHO, and FADD designate Priority 1 or A, immediately call VS District and NPIC.

FADD will:

- Contact producer/owner/veterinary practitioner within 8 hours, and conduct a site visit within 24 hours. Situations involving interstate or international commerce must be investigated immediately.
- Contact NVSL Ames/NVSL FADDL and the NAHLN lab by phone prior to sample shipment/transport with the following:
 - Tracking number or transport identification,
 - Estimated time of arrival, and
 - Classification and priority.
- Ensure VS 10-4 Specimen Submission Form is completed for all diagnostic samples.
- Contact AVIC, SAHO, and Tribal Officials with quarantine or hold order recommendations.
- Along with AVIC, ensure that EMRS data entry and follow-up forms are completed.

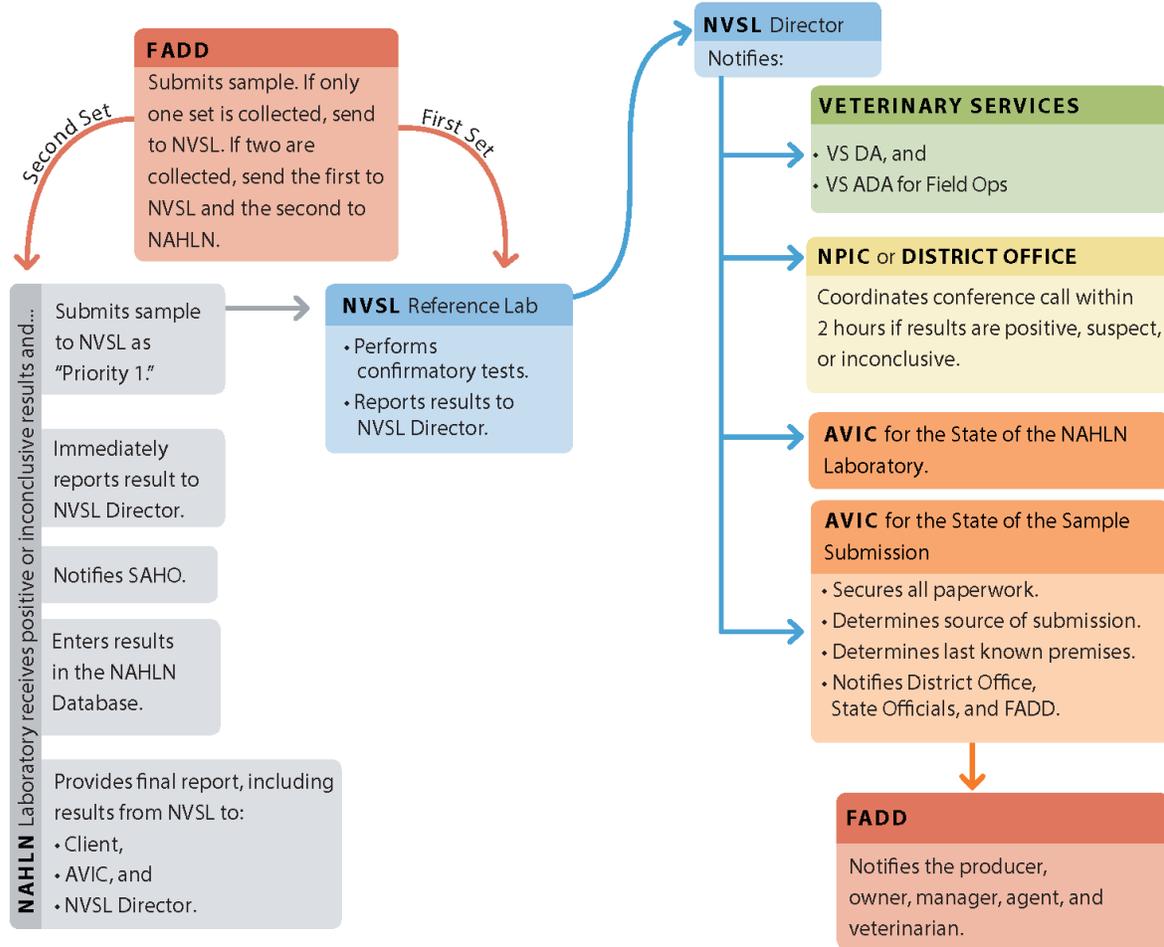
NPIC or DISTRICT OFFICE

Coordinates conference call within 2 hours if Priority 1 or A.

PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY A
<ul style="list-style-type: none"> • High Suspicion • NPIC or District Office coordinates conference call within 2 hours • Rapid or extraordinary methods for sample collection and transport • Testing conducted immediately upon arrival (overtime services as needed) 	<ul style="list-style-type: none"> • Intermediate Suspicion • Rapid methods for sample collection and transport • Testing conducted as necessary (overtime services as needed) • If sample arrives before close of business test immediately; after close of business test the following day; Saturday test on weekends only with prior notification and approval 	<ul style="list-style-type: none"> • Low Suspicion • Routine methods for sample collection and transport • Testing conducted in accession order (no overtime services) 	<ul style="list-style-type: none"> • Intermediate or Low Suspicion • NPIC or District Office coordinates conference call within 2 hours • Potential circumstances of investigation indicate need for rapid or extraordinary methods for sample collection and transport • Testing conducted immediately upon arrival (overtime as needed)

March 2020

DIAGNOSTIC SAMPLE REPORTING PROCEDURES



NVSL FADDL		NVSL AMES	
Main Office	(631) 323-3256	NVSL Director	(515) 337-7601
AFTER HOURS AND WEEKENDS		Diagnostic Virology	(515) 337-7551
Diagnostic Services Section Head	(631) 375-5314	Diagnostic Bacteriology & Pathology	(515) 337-7526
Acting Diagnostic Services Section Head	(631) 405-0218	Diagnostic Bioanalytical & Reagent	(515) 337-7563
Courier	(631) 566-0073	AFTER HOURS AND WEEKENDS	
		Nat'l Centers for Animal Health Dispatch	(515) 337-7200

NPIC (M-F, 8:00 AM – 4:30 PM ET)		APHIS VS DISTRICT OFFICES	
Jon Zack	(240) 252-8074	District One	(508) 363-2278
Barbara Porter-Spalding	(919) 637-4409	District Two	(517) 337-4700
AFTER HOURS AND WEEKENDS		District Three	(916) 854-3950
NPIC/NVS 24/7 Emergency Answering Service	(800) 940-6524	District Four	(512) 383-2400

March 2020

Appendix C

ASF Surveillance Guidance for Domestic Swine

INTRODUCTION

Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), Center for Epidemiology and Animal Health (CEAH) Surveillance Design and Analysis (SDA) Unit prepared the following outbreak surveillance guidelines for African Swine Fever (ASF) in domestic swine. These guidelines are based on current scientific and best practice information available and may be updated at any time.

Please note that the information provided within this Appendix is ancillary to that in Section 4.4 of this response plan.

PURPOSE

This guidance expands upon the information presented in Section 4.4 specific to domestic swine. It provides initial procedures and recommendations for designing an ASF surveillance plan focused on disease detection during an outbreak. The information provided here serves as an example for use by the unified Incident Command (IC) in developing incident specific surveillance plans. These plans may be revised as new information becomes available.

This guidance does not specifically address surveillance for continuity of business (pre-movement testing) in an outbreak. At this time, USDA APHIS is collaborating with stakeholders to further develop and define parameters for pre-movement surveillance testing of live swine in an ASF outbreak. Movement controls for domestic swine will apply to both Control Areas and epidemiologic networks. For more information on guidance to support business continuity, please see the *Secure Pork Supply Plan* (www.secureporksupply.com).

CONTROL & SURVEILLANCE PROCEDURES

Immediately following an ASF detection in either domestic swine or feral swine, an Infected Zone (IZ) and Buffer Zone (BZ) (Control Area) along with the surrounding Surveillance Zone (SZ)¹ will be established around an ASF Infected Premises or Pig (IP). The epidemiologic network associated with an IP will also be defined and identified as Contact Premises (CP). Table C-1 lists potential

¹ Refer to Section 4.5.1 for zone, area, and premises designations.

epidemiologic links and example questions for responders to help define networks.

Defining Networks

Network premises can be either direct traces (involve live animal movement) or indirect traces (do not involve live animal movement). Indirect traces can be further divided into those that involve contact with swine and those that do not involve contact with swine.

Regulatory officials and producers are expected to work together during an outbreak to identify network premises. The epidemiologic network includes the following types of CPs:

1. *Direct Contact (Live animal movement)*: All premises that the IP has shipped swine to in the last 30 days, and all premises the IP has received swine from in the last 30 days.
2. *Indirect Contacts (swine)*: All premises that have a shared indirect contact *with* the IP in the last 15 days in result of entering a barn or pen with swine present. These contacts may include, but are not exclusive to: shared equipment, shared staff, veterinarian visits, and load out crews. Any interactions with these indirect contacts on premises that have come into contact with an IP 15 days prior to, or after, should be included in a network.
3. *Indirect Contact (non-swine)*: All premises having shared indirect contact with the IP in the last 15 days in result of entering a premises without swine contact when going into a barn or pen. These indirect contacts may include, but are not exclusive to: feed trucks, maintenance crews, and other vehicle traffic. All premises that have been visited by these indirect contacts the same day as a visit to an IP should be included into a network. For example, a premises received a semen delivery and the same transport made another delivery to an IP that same day prior to receipt. That premises will be designated as a CP to the IP and be subject to Network Based Controls (NBCs).

Table C-1. Potential epidemiological network links for swine premises that should be explored when defining Contact Premises. (This list is not meant to be exhaustive.)

Potential Epidemiologic Link	Example Questions to help define the Epidemiologic Network	Goal
Pigs, semen, or embryos received or shipped	<ul style="list-style-type: none"> ◆ What premises have received pigs from the Infected Premises during the past 30 days? ◆ What premises have supplied pigs to the Infected Premises over the past 30 days? ◆ Have any semen or embryos recently been imported or exported from the Infected Premises? 	Identify links to premises through live pigs
Employees	<ul style="list-style-type: none"> ◆ What premises do they work on? ◆ Have they been in contact with any other pigs? ◆ Have they recently been traveling abroad or hunting? ◆ Any other potential links to infected/contaminated pigs or pork products (recent visitors from abroad, meat purchased from outside the US, etc.)? ◆ Social networks – common grocery stores, convenience stores, restaurants, coffee shops, etc.? Other commonalities that need further investigation? ◆ Other recent visitors on premises - utility workers, service workers, sales representatives, etc.? 	Identify links to premises or contaminated products through employees
Veterinarians	<ul style="list-style-type: none"> ◆ Has a veterinarian been on the premises recently? ◆ What other premises has the veterinarian visited before/after this premises? 	Identify links to premises through veterinarians
Feed trucks	<ul style="list-style-type: none"> ◆ Last feed delivery? ◆ Where did feed come from? ◆ Where did truck go before and after delivery? ◆ Cleaning/disinfection of machinery? 	Identify links to premises through feed/feed trucks

Diagnostic Sample Types & Testing

Confirmatory diagnostic testing for ASF will be performed at National Veterinary Services Laboratory (NVSL) Foreign Animal Disease Diagnostic Laboratory (FADDL). In an outbreak, National Animal Health Laboratory Network (NAHLN) laboratories provide rapid and standardized surveillance and response testing.

Currently, individual animal sampling is the only validated method to detect ASFV by rRT-PCR. At this time, approved sample types include whole blood and fresh tissue (spleen, tonsil, and lymph node). NVSL FADDL is diligently working to validate aggregate methods, such as rope sampling. If oral fluids are validated and approved for use in an outbreak, further guidance on sample size and technique will be provided. For more information on laboratory diagnostics and sampling, refer to Section 4.3 in the main text of this response plan.

Passive Surveillance during an Outbreak

Passive surveillance is the voluntary reporting of suspect cases by producers, veterinarians, and laboratory personnel. It is conducted at all times in the United States through FAD investigations (per *VS Guidance 12001*). In the event of an ASF detection, passive surveillance is intensified through rapid and clear communication to all producers, veterinarians, and other relevant stakeholders. In addition, there will be enhanced outreach emphasizing increased infection risk and need for biosecurity.

PROCEDURES

Specific morbidity and mortality levels that signal the need for investigation will vary by operation/production type. Herds within the Control Area that experience ASF compatible clinical signs, abnormal health events (increased death loss/animals treated) or decreased production parameters (feed/water consumption or rate of gain) should be reported, investigated and sampled as rapidly as possible. At the unified ICs discretion, investigations can be performed by a Foreign Animal Disease Diagnostician or other designated response personnel (e.g. a company veterinarian). When an investigation is warranted, the following procedures should occur:

1. Schedule an appointment to collect samples as quickly as possible.
2. Conduct sampling according to the recommendations found in Section 4.3 and as directed by the unified IC with subsequent submission to the designated NVSL or NAHLN lab.
3. Record all relevant information in Emergency Management Response System 2.0 (EMRS2).

Active Surveillance during an Outbreak

During the initial stages, surveillance is designed to inform zone sizing and premises designation. As the response progresses, surveillance provides evidence so that Control Areas can be released, and provides subsequent evidence for post-outbreak disease freedom. Surveillance activities also include continuity of business (pre-movement surveillance) for Monitored Premises; however, at this time USDA APHIS has not defined these parameters.

PROCEDURES

The following procedures are recommended for active surveillance during an ASF outbreak.

1. Sample premises within the Control Area, SZ, and network according to the Recommended Sampling Scheme in Tables C-2 and Table C-3.

- a. Where possible, use samples or results from pre-movement testing towards active surveillance requirements.
 - b. If pre-movement sampling requirements do not meet the frequency and sampling guidelines as described below, ensure enough additional testing is performed to meet these guidelines.
2. Submit samples to the designated NVSL or NAHLN laboratories.
 3. Record all relevant information into EMRS2. Follow guidance from the unified IC on entering any additional information.

RECOMMENDED SAMPLING SCHEME

1. Immediately investigate and sample any new reported cases of:
 - a. ASF compatible clinical signs or abnormal mortality events.
 - b. Premises with epidemiologic links to an IP.
2. Prioritize premises to sample within a Control Area, SZ, and Network if resources are limited
 - a. New reported cases with ASF compatible clinical signs
 - b. Premises located within the Control Area
 - c. Direct contact traces (live animal movement)
 - d. Indirect contact traces (swine)
 - e. Premises located within the SZ
 - f. Indirect contact traces (non-swine)
3. Prioritize sample collection on a premises using targeted surveillance (select animals to sample by focusing on those animals more likely to have disease caused by ASFV) as follows:
 - a. Abnormal mortalities (sudden death, found dead)
 - b. Sick animals with clinical signs compatible with ASF, see Table C-4
 - c. High probability of disease animals: animals which have decreased production/feed intake, appear unhealthy, are under high stress (i.e., recent movement), or may have an exposure

risk (being housed near entry/exit points), but not necessarily showing clinical signs that are consistent with ASF.

- d. Apparently healthy animals
4. Collect samples as outlined in Chapter 4 of the [FAD Investigation Manual \(FAD PReP Manual 4-0\)](#). Sample types currently approved for ASFV detection include whole blood and fresh tissue (spleen, tonsil, lymph node).
 5. Sample the appropriate number of animals for the appropriate within herd prevalence (Table C-2), with sampling distributed amongst all epidemiologic units/barns.
 - a. The frequency of sample collection is determined by the premises type and zone classification as depicted in Table C-2.
 - b. Table C-3 provides sample sizes for the recommended 10 percent prevalence level and allows for alternative prevalence values to be explored.

Table C-2. Recommended Sampling Scheme for an ASF outbreak response by zone and premises types.

Zone/ Premises designation ¹	Number of Premises to Sample within a Zone	Within Herd Prevalence to Detect	Frequency of Sampling	Sampling Duration
Infected Zone IP, CP, ARP, MP	All	10%	Every 3 days for 2 samplings, then every 6 days	Duration of Quarantine
Buffer Zone CP, ARP, MP	All	10%	Every 6 days ²	Duration of Quarantine
Surveillance Zone FP	1% Zone-Level Prevalence	10%	Within 15 days of first ASF detection, then every 15 days or as new zones are designated ³	Duration of Quarantine
Network CP	All	10%	Every 6 days	Duration of Quarantine

¹ Premises designation: Infected Premises (IP), Contact Premises (CP), At-Risk Premises (ARP), Monitored Premises (MP), Free Premises (FP).

² Frequency of sampling is subject to change and can be adjusted based on observed incubation periods, likely route of disease introduction, feasibility of sampling and disease introduction risk.

³ If feral swine are present, more frequent sampling throughout the quarantine period is recommended.

Table C-3. Sample sizes¹ for five prevalence values and a range of group sizes. Sample sizes achieve 0.95 probability of detection using a 95 percent sensitive test.²

Group size ³	Sample size at 0.5% prevalence	Sample size at 1% prevalence	Sample size at 5% prevalence	Sample size at 10% prevalence	Sample size at 15% prevalence
40	40	40	33	22	16
50	50	50	41	23	18
75	75	61	50	27	18
100	100	100	47	27	18
200	200	164	54	28	19
300	300	199	56	29	20
400	327	222	58	29	20
600	399	248	59	30	20
800	444	262	60	30	20
1000	474	272	60	30	20
>5000	594	305	62	30	20

¹ Sample sizes computed using Cannon, 2001. These are not appropriate for pooled or aggregate samples.

² If pooling is performed at the lab, the number of individual samples collected on a premises may increase to account for different test sensitivity. The number of tests run by the lab will decrease if 5 sample pools are performed.

³ Group size refers to the size of the population being sampled. The same calculations would apply to individual animals or premises.

ACTIVE OBSERVATIONAL SURVEILLANCE

Active Observational Surveillance (AOS) is a purposeful effort to detect evidence of disease through observation of clinical signs and should be performed by premises personnel on a daily basis. The clinical scoring guide provided in Table C-4 can be used for reference. AOS is intended to assist with disease detection and is not meant for permitting movement into, within, or out of a Control Area. If criteria has been met for a suspect case of ASF then an FAD Investigation should be initiated per *VS Guidance 12001*.

The following outlines criteria for AOS:

- ◆ Observations are ongoing, frequent (e.g., once or twice a day in confinement facilities or once every 2 to 3 days in extensively managed operations), and follow a pre-planned schedule.
- ◆ Observer is specifically tasked with monitoring for evidence of disease, toxicity, or other causes of morbidity, mortality and decreased production.
- ◆ The group of animals undergoing AOS is clearly defined.

- ◆ A set of guidelines is created by each premises that outlines the specific production parameters expected with corresponding investigation triggers related to abnormal health events and decreased production parameters.
- ◆ A communication plan is created for a response to the investigation triggers, including when to contact regulatory animal health officials or their designees.
- ◆ Observer is aware of and understands the production parameters, investigation triggers, and communication plan.

Observation of clinical signs or other changes consistent with ASF during AOS serves as the screening “test.” Confirmatory testing is laboratory-based.

CLINICAL SCORING GUIDE

The ASF clinical scoring guide below is provided as a reference to identify sick pigs as part of AOS and for targeted sampling for active surveillance during an outbreak. This guide is intended to aid in early detection of ASF and clinical signs are described for acute/subacute infection of ASFV. To use the guide, sick animals should be categorized by the total clinical score based on the described parameters. A pig with a total clinical score of 9 and above should be immediately targeted for testing. Pigs with clinical scores below 9 should be closely monitored and re-evaluated on a daily basis. See Table C-4 below for scoring criteria. If ASF is suspected, notify response personnel immediately.

Table C-4. Clinical Scoring Guide for Acute/Subacute Infection of ASFV

SCORE		CLINICAL SIGNS	DESCRIPTION
4	<input type="checkbox"/>	High fever (>104°F)	May see huddling, red skin/ears, listless attitude, hot to the touch
	<input type="checkbox"/>	Erythema	Black/red/purple discoloration of skin, hemorrhages of distal extremities (ear tips, distal limbs, tail)
	<input type="checkbox"/>	Off-feed/ Anorexic	Not eating, no interest in food
	<input type="checkbox"/>	Vomiting	
	<input type="checkbox"/>	Abortion (sows)	
3	<input type="checkbox"/>	CNS Signs	Hesitant walking, incoordination
	<input type="checkbox"/>	Lethargic, Depressed	Moderate to severe: reluctant to move/walk, recumbent
	<input type="checkbox"/>	Emaciated	Backbone and ribs visible, head appears larger than body
	<input type="checkbox"/>	Bloody diarrhea	
2	<input type="checkbox"/>	Reduced feed intake	Shows interest in food, but does not eat
	<input type="checkbox"/>	Respiratory signs	Cough, increased respiratory rate or effort, nasal discharge
	<input type="checkbox"/>	Epistaxis	
1	<input type="checkbox"/>	Eats slowly when fed	
	<input type="checkbox"/>	Empty stomach	Thinned body muscles
	<input type="checkbox"/>	Reduced amount of feces	
Total Score:			

This clinical scoring guide was created with input from experts having recent experience with ASF infection.

Documentation

Documentation of surveillance activities is critically important. EMRS2 is the system of record for all ASF outbreaks in the United States. Relevant surveillance activity data must be entered into EMRS2 in as close to real-time as possible. This data may be reported internally and externally through situation or close-out reports or other means. At a minimum, the following items are important to report:

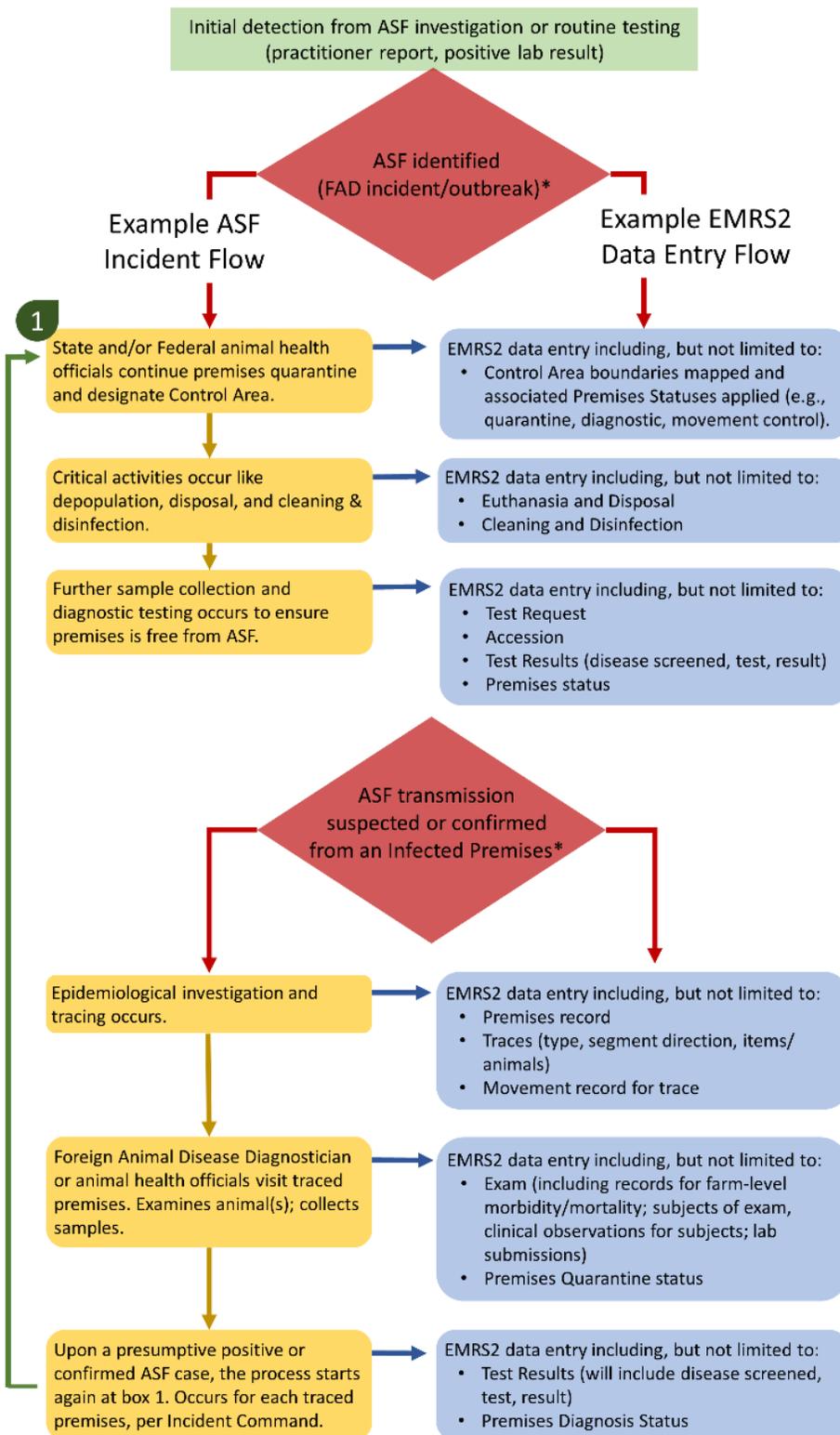
- ◆ Number of premises in Control Area and SZ.
- ◆ Number premises contacted, and means of contact, for passive surveillance.
- ◆ Number premises visited and sampled (including dates) for outbreak surveillance.
- ◆ Total animals sampled at each premises per site visit.
- ◆ Laboratory results for all submissions. Include data from pre-movement surveillance that is used to meet outbreak surveillance requirements. Refer to the unified IC for guidance on how to appropriately record these and other data.

Appendix D

Example Overview Emergency Management Response System 2.0 Workflow

Figure D-1 provides an example workflow illustrating a broad overview of the Emergency Management Response System 2.0 (EMRS2) data entry activities undertaken when ASF response activities occur. Disease management involves a dizzying array of activities, which are recorded and managed within EMRS2.

Figure D-1. EMRS2 Data Entry Example Workflow for an ASF Outbreak



*Tracing may start with a presumptive or confirmed positive case. If there is concern an FAD has been transmitted off of the infected premises, tracing will occur simultaneously with other activities on the premises, like depopulation and disposal.

Appendix E

Overview of the Secure Pork Supply Plan

This appendix is provided as a reference for Continuity of Business in the event of an ASF outbreak. This document, last updated in January of 2020, provides an overview of the *Secure Pork Supply (SPS) Plan* with resources for stakeholders. This overview, and further information can be found on the *SPS Plan* website: www.securepork.org.

Secure Pork Supply (SPS) Plan for Continuity of Business



January 2020

Introduction

Foot and mouth disease (FMD), classical swine fever (CSF), and African swine fever (ASF) are highly contagious foreign animal diseases (FADs). FMD virus infects pigs and other cloven-hooved livestock, including cattle, sheep, goats, and deer. CSF virus and ASF virus only infect pigs. The United States eradicated FMD and CSF many years ago, and ASF has never infected pigs in this country. These diseases are present in many other countries and cause severe animal production losses. However, FMD, CSF, and ASF are not public health or food safety concerns. Industry, state and federal officials have worked collaboratively with swine disease experts to develop response plans should one of these FAD viruses infect susceptible animals in the United States. Response strategies for controlling and stopping the spread of these animal diseases will include stopping movement of susceptible animals and their products, rapid identification of infected animals, strategic depopulation with proper disposal, and vaccination, when available. Responsible Regulatory Officials (local, state, tribal, and federal officials, as appropriate) have the authority and responsibility to establish regulatory Control Areas around FAD infected premises. They can also regulate animal, animal product (semen), and other movements that pose a risk to spread virus within, into, and out of these Control Areas.

Purpose of the Secure Pork Supply Plan

The Secure Pork Supply (SPS) Plan provides the guidance for a workable business continuity plan for pork premises **with no evidence of the FAD infection** located in a regulatory Control Area and allied industries that is credible to Responsible Regulatory Officials. Continuity of business (COB) for the swine industry revolves around the ability to move those animals with no evidence of infection but located within a Control Area to slaughter and processing facilities and between production phases. Officials must balance the risks of allowing movement of animals to slaughter and processing facilities and between production phases against the impact of not allowing movement.

Participation is voluntary. Having the SPS Plan guidance available and implemented, when possible, prior to an FAD outbreak enhances coordination and communication between all stakeholders. The intent is to speed up a successful FAD response, and eventually enable the issuance of animal movement permits after the extent of the outbreak is understood. This will support COB for pork producers, transporters, packers, processors, and allied industries who choose to participate.

The SPS Plan is the result of a multi-year collaborative effort by industry, state, federal, and academic representatives. Funding for its development was provided by USDA Animal and Plant Health Inspection Service (APHIS) and the National Pork Board. The SPS Plan provides **guidance only**. In an actual outbreak, decisions will need to be made by the Responsible Regulatory Officials and the industry based on the unique characteristics of the outbreak.

The **purpose of this document** is to provide a succinct overview of the SPS Plan and related resources to industry stakeholders and Responsible Regulatory Officials. It facilitates pork industry preparedness for, and response to, an FMD, CSF, or ASF outbreak.

Response Guidance Documents

There are several guidance documents for Responsible Regulatory Officials to use in an FAD outbreak. The goals of the SPS Plan align with these guidance documents.

- **Strategic guidance for responding to FMD, CSF, and ASF** in the United States can be found in the following *Foreign Animal Disease Preparedness and Response Plan (FAD PRoP)* documents:
 - *Foot-and-Mouth Disease Response Plan: The Red Book*
www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf
 - *Classical Swine Fever Response Plan: The Red Book*
www.aphis.usda.gov/animal_health/emergency_management/downloads/csf_responseplan.pdf
 - *African Swine Fever Disease Response Strategy*
www.aphis.usda.gov/animal_health/emergency_management/downloads/asf_strategies.pdf
 - *Ready Reference Guides*, which accompany many of the detailed documents and material below, offer quick summaries of the information for training and educational purposes.
www.aphis.usda.gov/aphis/ourfocus/animalhealth/emergency-management/ct_fadprep_readyreferenceguides

- Strategies for a managed response to an FAD outbreak will change as the outbreak progresses (phase) and will depend upon the magnitude (type), location of the outbreak, vaccine availability, and other characteristics.
 - These pre-defined phases and types of an FMD outbreak are described in the guidance document FAD PRoP Classification of Phases and Types of a Foot- and-Mouth Disease Outbreak and Response. This document helps facilitate the development of adaptable emergency response and business continuity plans for the U.S. livestock industry in the event of a FMD outbreak in North America.
www.aphis.usda.gov/animal_health/emergency_management/downloads/phases-and-types-of-an-fmd-outbreak_2013.pdf
 - Center for Food Security and Public Health (CFSPH) Drafts of Phases and Types documents for CSF and ASF are also available:
www.securepork.org/Resources/Phases-and-Types-of-a-CSF-Outbreak.pdf
www.securepork.org/Resources/Phases-and-Types-of-ASF-Outbreak.pdf

- **Surveillance, epidemiology, and tracing techniques** will be utilized by Responsible Regulatory Officials during the outbreak to detect new cases, understand and adapt to the outbreak situation, and provide information for decision making and disease control procedures. The USDA has developed the *FAD PRoP/National Animal Health Emergency Management System (NAHEMS) Guidelines: Surveillance, Epidemiology, and Tracing*. These activities likely will lead to additional regulatory activities such as quarantine and movement controls.
www.aphis.usda.gov/animal_health/emergency_management/downloads/nahems_guidelines/nahems_sur_epi_trac.pdf
 - Proposed **animal surveillance** methods to demonstrate a lack of evidence of FMD, CSF, or ASF virus infection may allow animal and/or product movement to support business continuity without increasing the risk of spreading infection are described in *Surveillance Guidance to Support the SPS Continuity of Business Plan during an FMD, CSF, or ASF Outbreak* available at:
www.securepork.org/Resources/SPS_Surveillance-Guidance.pdf.

- **Quarantine and movement controls** are critical activities to control FADs. These approaches include establishing a Control Area around each infected premises and issuing movement restrictions for pigs and other susceptible animals and their products in a Control Area. The USDA has developed the *FAD PRoP/NAHEMS Guidelines: Quarantine and Movement Control* to

describe these measures.

www.aphis.usda.gov/animal_health/emergency_management/downloads/nahems_guidelines/nahems_qmc.pdf

- **Continuity of business (COB)** activities for premises with no evidence of infection in a Control Area aim to minimize disruptions to commerce caused by quarantine and movement restrictions and decrease the economic consequences of an FAD outbreak. The USDA has developed *FAD PReP/NAHEMS Continuity of Business (COB) Guidelines*. These guidelines provide the basis for managed movement --which is an important component of business continuity--of animals with no evidence of infection and their products from within a Control Area in an FAD incident. www.aphis.usda.gov/animal_health/emergency_management/downloads/nahems_guidelines/cob_nahems.pdf
- **Emergency response management** during an FAD outbreak involves considerable amounts of data, including investigation records, premises identification numbers, individual animal and herd-level laboratory test results, movement permits, and resource allocation information. **Producers in a Control Area will be required to have a National Premises Identification Number (PIN) to request movement permits in an outbreak.** PINs are available from the office of the State Animal Health Official (www.aphis.usda.gov/aphis/ourfocus/animalhealth/traceability/state-pin). States may consider transferring their accurate premises data into the USDA Emergency Management Response System (EMRS) prior to any outbreak. EMRS is the USDA APHIS official system of record for all animal health incidents; therefore, all data needed to request movement permits will need to be entered into EMRS. This greatly facilitates response efforts. For more information, refer to *USDA Premises Data Transfer to EMRS from External/State-Based Systems, June 16, 2016* at: www.aphis.usda.gov/animal_health/emergency_management/downloads/emrs_premisesdatatransfer.pdf and *Ready Reference Guide- Introduction to EMRS* November 2017 at: www.aphis.usda.gov/animal_health/emergency_management/downloads/emrs_rrg_intro.pdf.
- **Permits issued in an FAD outbreak serve to document movements** of animals and animal products into, within, and out of a regulatory Control Area. There are two types of permits in an FAD outbreak: specific and COB, both of which are based on risk and meeting certain criteria. The Secure Pork Supply Plan has developed permit guidance for the movement of pigs and semen (see Table 1). For more information about permits, refer to the USDA
 - *Ready Reference Guide – Defining Permitted Movement, February 2017* at: www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/rrg_definingpermittedmovement.pdf,
 - *Ready Reference Guide – Permitting Process, February 2017* at: www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/rrg-permittingprocess.pdf
 - *Foreign Animal Disease Preparedness and Response Plan (FAD PReP) Permitted Movement (Manual 6-0)* at: www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/fadprep_man6-0_permit-mvmt.pdf.

Managed Movement of Animals in an FAD Response

Movement restrictions¹ of susceptible livestock species is one strategy for the control and containment of FAD during an outbreak in the U.S. However, prolonged movement restrictions will negatively impact the livestock industry and animal welfare. Livestock operations *affected* by movement restrictions but *not*

¹ In this document the term “movement restrictions” will be used as a general term to encompass the language and implementation differences among federal movement recommendations and individual state plans.

infected with FAD will need to restart movement as soon as possible to support business continuity in a way that is consistent with mitigating the risk of spreading FAD. For more information, please see *Managed Movement of Susceptible Livestock Species in the U.S. during a Foot and Mouth Disease Outbreak*, August 2019.

- Overview (two-page) available at: www.cfsph.iastate.edu/pdf-library/FMD-Resources/disease-fmd-sfs-managed-movement-overview.pdf
- Considerations for Regulatory Officials (six-pages) available at: www.cfsph.iastate.edu/pdf-library/FMD-Resources/disease-fmd-sfs-managed-movement-regulatory-officials.pdf

During FAD outbreak exercises with states, USDA recommended a 72-hour national movement standstill of susceptible species and animal products once an FAD is diagnosed. It may take several days or weeks for the livestock industry, state and federal officials to understand the extent of the outbreak and have confidence that animals with no evidence of infection can move without spreading the FAD. Once the national movement standstill lifts, movement restrictions may remain for the regulatory Control Area(s) to limit risk of disease spread by animals, animal products, vehicles, and other equipment. Movement into, within, or out of Control Area(s) will be by permit only and based on the risk posed by that movement and the site's ability to meet permit requirements. Production sites that follow the guidance in the SPS Plan will be better prepared to request a movement permit once movement restarts. Table 1 provides a summary of movement permit guidance.

It is the Regulatory Officials' responsibility during an outbreak to detect, control, and contain the FAD as quickly as possible with the ultimate goal of eradication. Responsible Regulatory Officials managing the incident will make permitting decisions regarding animal, animal product (semen), and other movements that pose a risk of virus spread within, into, out of, and through Control Areas based on the unique characteristics of the outbreak, the status of the premises, and the potential risks and mitigations involved with the types of movement.

It is the producer's responsibility during an FAD outbreak to keep his/her animals from becoming infected, focusing on what they can control on their production site. To facilitate business continuity (movement), producers will need to provide assurances to the Responsible Regulatory Officials and the destination premises that they are not contributing to the spread of disease nor putting their own animals at risk of exposure. Some movements carry more risk than others. Biosecurity will be paramount to limiting disease spread. An enhanced biosecurity plan increases individual preparedness to maintain COB in the face of an FAD outbreak. Producers should be ready to provide evidence that they have implemented all of the enhanced biosecurity measures recommended in the *SPS Self-Assessment Checklist for Enhanced Pork Production Biosecurity* available at www.securepork.org/. Additionally, producers should be prepared to manage their pig premises if they are not allowed to move animals for several days or weeks.

Packers and processors are essential to the success of business continuity for the pork industry during an FMD, CSF, or ASF outbreak. FMD, CSF, and ASF are not public health or food safety concerns. Therefore, animals which pass ante-mortem and post-mortem inspection by USDA Food Safety Inspection Service (FSIS) are safe and wholesome for human consumption, even if they are in the pre-clinical or recovery stage of an FMD, CSF, or ASF infection. Many packing plants have on-site rendering capacity for non-edible products, so any virus in those products would be destroyed prior to leaving the packing plant. Following the announcement of an FAD outbreak, processing all healthy animals already at the slaughter facility as well as those in transit to the facility may be a possible way to reduce potential virus amplification and further spread of FMD, CSF, or ASF. Processing healthy animals preserves high quality protein for human consumption and reduces the need for carcass disposal if animals were depopulated for disease control. Processing healthy animals from a regulatory Control Area should continue even if FMD, CSF, or ASF infected animals are suspected or proven to already be at the packing plant. Product that has passed FSIS inspection is safe and wholesome for human consumption and may be released into commerce for human consumption.

Packing plant employees, truck drivers, and others who contact animals or their bodily fluids must observe

proper enhanced biosecurity protocols to avoid transmitting the FMD, CSF, or ASF virus to susceptible animals when these individuals leave the plant. All personnel must be instructed on enhanced biosecurity steps to follow prior to and after leaving the plant.

The SPS Plan includes guidance for producers and packers (when requesting) and officials (when evaluating requests) for animal and/or product movement permits. There may be additional requirements depending on the scope of the outbreak. Following the guidance in the SPS Plan could enable movement sooner, once animal movement resumes.

Following the Guidance in the Secure Pork Supply Plan

During an outbreak, premises in a regulatory Control Area that need to move animals with no evidence of an FAD infection may need to comply with the SPS Plan guidelines to receive approval for a movement permit, provided their state follows the guidance in the SPS Plan. Responsible Regulatory Officials also may implement additional requirements depending on the outbreak situation. Also, all interstate movements must meet existing movement/state entry requirements in addition to these outbreak-specific conditions. Implementing the guidance outlined in the SPS Plan before an outbreak may decrease the risk of disease exposure and spread. It also facilitates the eventual issuing of movement permits, for premises with no evidence of infection, and for allied industries.

To Prepare Prior to an Outbreak:

Request a National Premises Identification Number (PremID or PIN) from the office of your State Animal Health Official: Having a PIN facilitates requesting movement permits during an outbreak. A PIN includes a valid 911 address and a set of matching coordinates (latitude and longitude) reflecting the actual location of the animals on the premises. A PIN is required for both the premises of origin and premises of destination (www.aphis.usda.gov/aphis/ourfocus/animalhealth/traceability/state-pin). When a premises becomes infected, all premises with the same PIN number may be considered to be infected. Generally, it is best to have separate PIN numbers for premises more than ¼ mile apart. Contact the office of your State Animal Health Official when guidance is needed. Producers and packers are encouraged to validate their PIN with the National Pork Board at <https://lms.pork.org/Premises> to ensure their information on file accurately represents the location of the animals and not a mailbox at a residence or business affiliated with the animal premises. Submit corrections to the office of your State Animal Health Official. Validated PINs speed up communication and response during an outbreak.

Implement enhanced biosecurity: Stringent biosecurity measures are essential to prevent entry of virus into each herd. Pig premises with animals raised indoors should review the items in the *Self-Assessment Checklist for Enhanced Pork Production Biosecurity* (Biosecurity Checklist for Animals Raised Indoors and Animals with Outdoor Access) and work with their veterinarian to develop a site-specific biosecurity plan addressing each item in the checklist. The Biosecurity Checklists, *Information Manual for Enhanced Biosecurity for Pork Production: Animals Raised Indoors* and biosecurity templates (to assist in writing the biosecurity plan), and materials for educating individuals that work on the site (in English and Spanish) are available on the SPS website: www.securepork.org. A majority of the biosecurity measures in the Biosecurity Checklist could be implemented even in the absence of an FAD outbreak to prevent entry and spread of domestic diseases. Producers are encouraged to develop their biosecurity plans with their herd veterinarian and share it, upon request, with their State Animal Health Official.

Designate and train individuals on production sites to monitor for FADs and collect samples (surveillance): Animal caretakers should be trained to observe animals and recognize abnormal findings (clinical signs and/or changes in production parameters) and record their observations (normal or abnormal). These specially trained personnel are referred to as Swine Health Monitors. Training materials for disease monitoring include presentations, handouts, and posters that visually depict clinical signs of FMD, CSF, and ASF in pigs. Educational materials are available in English and

Spanish on the SPS website at www.securepork.org/. Health record keeping templates also are available for sites that do not already have a system to document health observations and production parameters.

The document, [Surveillance Guidance to Support the SPS Continuity of Business Plan during an FMD, CSF, or ASF Outbreak](#), summarizes some potential surveillance options for pig premises within a Control Area to demonstrate a lack of evidence of FMD, CSF, and ASF virus infection to support continuity of business movements. Designated individuals on each production site should be trained to collect oral fluid, nasal swabs, and other diagnostic samples. Videos and handouts for oral fluid collection and handouts for nasal swab collection are available to assist in training (in English and Spanish) at: www.securepork.org/training-materials.php. Additional resources are being developed. Producers need to establish a relationship with a USDA Category II Accredited Veterinarian if they have not already, as they may be a necessary component of disease monitoring (surveillance) during an outbreak. A veterinarian who is accredited by the USDA should lead this training. These designated individuals should periodically practice sample collection, and sample collection supplies should be maintained on the premises. The herd veterinarian should know which approved diagnostic laboratory within the National Animal Health Laboratory Network they can submit the samples to for testing during an FAD outbreak. Having designated individuals on the site trained and ready to collect and submit samples will enable the premises to start surveillance sampling as soon as they find themselves in a Control Area and are requested to submit samples. Diagnostic tests to be performed and sampling protocols may evolve throughout the outbreak based on new knowledge and technology. Protocol options for surveillance will be determined by Responsible Regulatory Officials.

Maintain movement records for traceability: Premises in a Control Area will be required to provide information at the beginning of an outbreak to identify potential exposure to the disease. Maintaining accurate records of movement of animals, feed, supplies, equipment, personnel, and visitors enables producers to provide accurate information for trace back and trace forward. Accurate records speed up the traceability process and allow faster determination of the premises status—Contact, At-Risk, or Monitored. This information would help demonstrate that the premises had not had specific contact with Infected, Suspect, or Contact Premises in a Control Area. Find USDA definitions for traceability and premises designations at the end of this document. These designations guide additional surveillance and permitting decisions. Animal movement permits are not issued to Infected, Suspect, or Contact Premises due to the risk of disease spread.

Movement records should also include the names, addresses and telephone numbers of animal transporters (truckers), employed personnel, feed suppliers, etc. Maintaining electronic records is preferred when possible, but paper copies may also be acceptable. If needed, sample movement logs can be found at www.securepork.org. This information can help define the scope of an outbreak but it can be daunting to provide a lot of detail on short notice. Producers can use the *Secure Pork Supply Practice Questionnaire* (www.securepork.org/Resources/SecurePorkSupply-Questionnaire.pdf) to get a feel for the information needed in an outbreak.

Requesting a Secure Food Supply Movement Permit During an Outbreak

Before requesting a Secure Food Supply movement permit for pigs or semen, both the premises of origin and the premises of destination, including packing plants, need to have a National PIN, and the destination premises and State need to be willing to accept the risk of receiving animals or semen. Each premises requesting a movement permit must be registered through the office of their State Animal Health Official and/or established as a premises in the USDA's Emergency Management Response System (EMRS) before requesting a permit. EMRS is the USDA APHIS official system of record for all animal health incidents. For premises participating in the SPS Plan, permits should be requested through the EMRS Customer Permit Gateway or similar State-approved permitting request system that is capable of exporting data required for USDA APHIS EMRS during an outbreak, or vice

versa. If a State elects to use their own information management system to handle permitting, the information must, in near real-time, be linked into EMRS, especially for interstate movements where approval of both origin and destination State must be granted and Unified Incident Command be informed.

Further information on Secure Food Supply permits and permitted movements is available in the document *FAD PReP Manual 6-0: Permitted Movement*, available at www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/fadprep_man6-0_permit-mvmt.pdf. It contains detailed information on the different types of permits and movements as well as thorough explanations of the permitting process.

Provide the following information (it will be recorded in EMRS):

- Permit class—where you want to move animals or animal products in relation to the Control Area (such as out of Control Area).
- Permit reason—why you want to move animals or animal products (such as direct to slaughter).
- Origin premises—premises location (physical latitude/longitude) including validated National PIN must be entered in a State information system. For permits issued by EMRS or the EMRS Gateway, the National PIN must be entered into EMRS. (State information systems and EMRS will share data before or during incidents.)
- Destination premises—premises location (physical latitude/longitude) including validated National PIN must be entered in a State information system. The destination premises must sign a statement that they understand the risk of accepting animals from the regulatory Control Area. For permits issued by EMRS or the EMRS Gateway, the National PIN must be entered into EMRS. (State information systems and EMRS will share data before or during incidents.)
- Item(s) permitted—category of what you want to move (feed, animals, manure, etc.).
- Item class—specifically what is moving (such as boars to slaughter).
- Duration/span of permit—first movement date, how long the permit is valid, and over what time period movements are expected to occur.

For any permitted movement, the Origin State can request documentation from the premises making the request, and attach that documentation to the permit request in EMRS or make the information available through a workable data management system. This documentation may include:

- Trace back/forward information. Evidence that the premises is NOT infected, NOT a suspect, and NOT a contact.
- A completed copy of the Biosecurity Checklist and the site-specific biosecurity plan
- Written assurance by the producer of compliance with this Biosecurity Checklist or documentation of verification by a third party such as a SPS Verifier
- Information demonstrating normal health status for the animals on the production site involved (such as swine health monitoring documents and/or Certificate of Veterinary Inspection signed by an Accredited Veterinarian that inspected the animals destined for load out)
- Diagnostic testing results from samples tested. When submitting samples for testing, it is imperative that the National PIN for the location sampled always is included with the diagnostic submission. (The recommended type and number of samples to collect and frequency of collection are being developed and may change as the outbreak progresses.)
- For animal movements to another site, the destination premises must indicate that they understand and accept the risks associated with receiving the animals. States may require a signed form be submitted with the permit request.

Completed movement permit requests will be reviewed first by the Origin State. The permit can be recommended for approval to the Destination State, not recommended for approval to the Destination State, or rejected. If approved by the Origin State, then the Destination State reviews and approves or rejects the permit. The destination premises also may have the ability to reject a permit. If the permit request is not approved, an explanation for denial will be provided in the EMRS Gateway. If approved, the

producer will receive the approved permit (likely as an electronic PDF) from the appropriate official working to inform Unified Incident Command; it is also available for download directly from the EMRS Gateway. The permitted movement must comply with all requirements on the permit; all subsequent permitted movements associated with that permit must be submitted to and recorded in EMRS through the permit Gateway or State-approved data information system for permits.

Table 1. Summary of Movement Permit Guidance for Pigs or Semen located within a Control Area during an FMD, CSF, or ASF Response

Permitting Guidance for Movement of Pigs or Semen	Condition Met?
1. Traceability information is available (PIN, GPS Coordinates, and information on type and number of animals /quantity of semen to be moved)	Yes
2. Biosecurity measures listed in the Biosecurity Checklist are in place and acceptable to Responsible Regulatory Officials	Yes
3. Trace back/forward information is acceptable; premises is not Infected, Suspect or Contact	Yes
4. Destination premises and State are willing to accept the animals or semen	Yes
5. No evidence of infection based on disease monitoring (surveillance)	Yes
Permit guidance to move pigs or semen if all above responses are “Yes”	Consider Issuing MOVEMENT PERMIT

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Comments

Please send comments or suggested edits for improvement to: spsinfo@iastate.edu

Additional Resources

The Secure Pork Supply website has additional resources available at: www.securepork.org

Definitions

The following definition is from USDA Animal Disease Traceability, October 2019 available at: www.aphis.usda.gov/aphis/ourfocus/animalhealth/SA_Traceability

- Animal disease traceability: knowing where diseased and at-risk animals are, where they’ve been, and when is important to ensure a rapid response when animal disease events take place.

The definitions below are from the USDA Foreign Animal Disease Preparedness and Response Plan (FAD PReP) Foot-and-Mouth Disease Response Plan: The Red Book, September 2014 available at: www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf

- Infected Premises (IP): Premises where a presumptive positive case or confirmed positive case exists based on laboratory results, compatible clinical signs, case definition, and international standards.

- Contact Premises (CP): Premises with susceptible animals that may have been exposed to FMD, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from IP.
- Suspect Premises (SP): Premises under investigation due to the presence of susceptible animals reported to have clinical signs compatible with FMD. This is intended to be a short-term premises designation.
- At-Risk Premises (ARP): Premises that have susceptible animals, but none of those susceptible animals have clinical signs compatible with FMD. Premises objectively demonstrates that it is not an IP, CP, or SP. ARP seek to move susceptible animals or products within the Control Area by permit. Only ARP are eligible to become MP.
- Monitored Premises (MP): Premises objectively demonstrates that it is not an Infected, Contact, or Suspect Premises. Only ARP are eligible to become MP. Monitored Premises meet a set of defined criteria in seeking to move susceptible animals or products out of the Control Area by permit.

Appendix F

Glossary

Active Surveillance	Surveillance where officials initiate the collection, collation, and analysis of animal health data to define the extent of disease, to detect new outbreaks, and to establish disease-free zones utilizing defined surveillance protocols.
Active Observational Surveillance	A form of active surveillance during an outbreak to detect evidence of disease through observation of clinical signs based on select criteria; this serves as a purposeful effort to actively screen premises for suspect classification that will trigger laboratory testing for disease confirmation.
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.
African Swine Fever (OIE)	ASFV has been isolated from samples from a suid; or antigen or nucleic acid specific to ASFV has been identified in samples for a suid showing clinical signs or pathological lesions suggestive or ASF or epidemiologically linked to a suspected or confirmed case of ASF, or from a suid giving cause for suspicion of previous association or contact with ASFV; or antibodies specific to ASFV have been detected in samples from a suid showing clinical signs or pathological lesions consistent with ASF, or epidemiologically linked to a suspected or confirmed case of ASF, or giving cause for suspicion of previous association or contact with ASFV.
Backyard Swine	See Attachment A.
Breeder Swine	See Attachment A.
Case	Any pig infected by ASFV, with or without clinical signs.
Commercial Swine	See Attachment A.
Continuity of Business	The managed movement of non-infected animals and non-contaminated animal products from non-infected premises in an ASF outbreak.
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.
Domestic Swine	See Attachment A.

Etiology	The causes or origin of disease, or the factors that produce or predispose toward a certain disease or disorder.
Euthanasia (OIE)	The act of inducing death using a method that causes a rapid and irreversible loss of consciousness with minimum pain and distress to animal.
FAD PReP (Foreign Animal Disease Preparedness and Response Plan)	Documents used to identify overall strategies, veterinary functions, organization, and countermeasures necessary to contain and control an FAD outbreak. It is also used to integrate functions and countermeasures with emergency management systems and operations conducted in joint and unified command by Federal, State, Tribal, and local personnel.
Feeder Swine	See Attachment A.
Feral Swine	See Attachment A.
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.
Germplasm	Plant or animal material (such as seeds, pollen, rootstock, or sperm) that is collected and stored chiefly for future use in breeding, conservation, or research.
Incubation period (OIE)	For the purposes of the OIE <i>Terrestrial Code (2019)</i> the incubation period for <i>Sus scrofa</i> (domestic and wild swine) shall be 15 days. The incubation period is the longest period that elapses between the introduction of the pathogenic agent into the animal and the occurrence of the first clinical signs of the disease.
Index case	The first or original case identified in a disease outbreak.
Lairage (OIE)	Pens, yards, and other holding areas used for accommodating animals in order to give them necessary attention (such as water, feed, rest) before they are moved on or used for a specific purpose including slaughter.
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.
Movement control	Refers to the movement of people, animals, animal products, vehicles, and equipment in a specific area subject to certain criteria typically accomplished through a permit system.
Movement standstill	Temporary prohibition of the initiation of any new movement of susceptible species and products in a defined area.

National Animal Health Laboratory Network (NAHLN)	NAHLN is a cooperative effort between two U.S. Department of Agriculture agencies and the American Association of Veterinary Laboratory Diagnosticians. It is a national network of State and University laboratories, which use common testing methods and software platforms to perform diagnostics and share information.
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)	Organization that collects and publishes information on animal diseases from approximately 182 member countries 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.
Passive Surveillance	The voluntary reporting of suspect cases by producers and practitioners.
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 depopulation	Depopulation under the competent authority of susceptible animal species in herds on premises that have been exposed to infection by direct animal-to-animal contact or by indirect contact of a kind likely to result in the transmission of ASFV prior to the expression of clinical signs.
Premises	A geographically and epidemiologically defined location, including a ranch, farm, stable, or other establishment.
Quarantine	Imposes restrictions on entering or leaving a premises, area, or region where disease exists or is suspected.
Sensitivity (OIE)	The proportion of infected sampling units that are correctly identified as positive.
Slaughter Swine	See Attachment A.
Specificity (OIE)	The proportion of uninfected sampling units that are correctly identified as negative.
Stamping-out (OIE)	A policy designed to eliminate an outbreak by carrying out under the authority of the Veterinary Authority the following: a) 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 with the causal pathogenic agent; animals should be killed in accordance with Chapter 7.6; b) the disposal of carcasses and, where relevant, animal products by rendering, burning or burial, or by any other method described in

	Chapter 4.13; and c) the cleansing and disinfection of establishments through procedures defined in Chapter 4.14.
Susceptible animal	Any animal that can be infected with and replicate the disease pathogen of concern. The susceptible animals of primary concern to this plan are swine.
Susceptible species	See susceptible animal.
Targeted Surveillance	A strategy that focuses on sampling premises or populations that may be at risk including sick pigs, and elevated mortality events with the purpose of enhancing vigilance for animal disease.
Trace back	The identification of the origin and movements of all animals, animal products, conveyances, possible fomites, people, vehicles, and possible vectors from an Infected Premises to establish the original source of infection.
Trace forward	The tracing of all animals, people, and fomites that have left Infected Premises and could have possibly transmitted ASF to a new premises. These premises should be investigated, evaluated, and placed under quarantine or other measures depending upon their risk.
Vector (OIE)	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. The organism may or may not pass through a development cycle within the vector.
Virus Elimination	The cleaning and disinfection activities that are undertaken after depopulation and disposal with the primary purpose to destroy or eliminate all viruses on the premises as cost effectively as possible.
Wildlife (VS Memo 573.1)	All free-ranging animals, including native and exotic wildlife species, as well as feral domestic animals in the United States.
Wildlife reservoir (VS Memo 573.1)	A population of free ranging/free living species in which an infectious agent/vector has become established, lives, and multiplies and is therefore a potential sources of infection/infestation to other domestic and free ranging species.
Wild Swine	See Attachment A.

Appendix G

Abbreviations

3D	depopulation, decontamination, and disposal
AHPA	Animal Health Protection Act
AC	Area Command
AMT	APHIS Management Team
ACIA	antigen capture immunoassay
AOS	active observational surveillance
AD	Assistant District Director
APHIS	Animal and Plant Health Inspection Service
ARP	At-Risk Premises
AVMA	American Veterinary Medical Association
ASF	African swine fever
ASFV	African swine fever virus
AVIC	area veterinarian in charge
BZ	Buffer Zone
C&D	cleaning and disinfection
CFR	Code of Federal Regulations
COB	continuity of business
CVO	Chief Veterinary Officer of the United States (VS DA)
DFA	direct fluorescent antibody
DHS	Department of Homeland Security
DNA	deoxyribonucleic acid
DOI	Department of Interior
EDTA	Ethylenediaminetetraacetic acid
ELISA	enzyme-linked immunosorbent assay
EMRS2	Emergency Management Response System 2.0
EPC	emergency preparedness committee
FAD	foreign animal disease
FADD	Foreign Animal Disease Diagnostician

FAD PReP	Foreign Animal Disease Preparedness and Response Plan
FADDL	Foreign Animal Disease Diagnostic Laboratory (Plum Island, NY)
FFS	Federal-to-Federal support
FSIS	Food Safety and Inspection Service
HHS	Department of Health and Human Services
HPAI	highly pathogenic avian influenza
IC	Incident Command
ICG	Incident Coordination Group
ICP	Incident Command Post
ICS	Incident Command System
IFA	immunofluorescence assays
IMT	Incident Management Team
IP	Infected Premises
IPT	immunoperoxidase test
IZ	Infected Zone
JIC	Joint Information Center
LPA	Legislative and Public Affairs
MAC	Multiagency Coordination
NAHEMS	National Animal Health Emergency Management System
NAHLN	National Animal Health Laboratory Network
NBC	network based control
NIMS	National Incident Management System
NIMT	National Incident Management Team
NPIC	National Preparedness and Incident Coordination
NRF	National Response Framework
NVSL	National Veterinary Services Laboratories
NVSL-Ames	National Veterinary Services Laboratories-Ames, IA
NVSL-FADDL	National Veterinary Services Laboratories-Foreign Animal Disease Diagnostic Laboratory Plum Island, NY
OIE	World Organization for Animal Health
PCR	polymerase chain reaction
PPE	personal protective equipment
rRT-PCR	real-time reverse transcriptase polymerase chain reaction

SAHO	State Animal Health Official
SDA	Surveillance Design and Analysis
SHPA	Swine Health Protection Act
SOP	standard operating procedure
SPS	Secure Pork Supply
SZ	Surveillance Zone
TDD	telecommunications device for the deaf
USDA	U.S. Department of Agriculture
VI	virus isolation
VS	Veterinary Services
VSET	VS Executive Team
WS	Wildlife Services

Appendix H

Selected References and Resources

Note: all FAD PReP documents are also references to this USDA APHIS *ASF Response Plan: The Red Book*, which are located at www.aphis.usda.gov/fadprep.

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