Panhandle Regional Foreign and Emerging Animal Disease (FEAD) Support Annex

Approval and Implementation

Panhandle Regional Foreign and Emerging Animal Disease (FEAD) Support Annex

This annex applies to all Counties, Cities, and departments for the geographical area defined as the State Planning Region 1 and Disaster District 1 and as served and represented by the Panhandle Regional Planning Commission.

This annex is hereby approved for implementation.

2/18/2014
Date

Kevin Starbuck

Kevin Starbuck, CEM
Chairperson
Panhandle Regional Emergency Management Advisory Committee (PREMAC)
Panhandle Regional Planning Commission (PRPC)

Record of Changes

Panhandle Regional Foreign and Emerging Animal Disease (FEAD) Support Annex

Change #	Date of Change	Entered By	Date Entered

Panhandle Regional
Foreign and Emerging Animal Disease (FEAD) Support Annex

I. AUTHORITY

A. Federal

1. Code of Federal Regulations, Title 7, Sections 8301-8317 (Animal Health Protection Act), May 13, 2002
2. Code of Federal Regulations. Title 9, Chapter 1, Part 53, January 1, 2010
3. Code of Federal Regulations. Title 9, Chapter 1, Part 94, January 1, 2010

B. State

1. Government Code, Chapter 418 (Emergency Management)
2. Texas Agriculture Code Title 1. General Provisions, Chapter 1, General Provisions
3. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products,
4. Subtitle C, Chapter 161, Subchapter A, General Provisions
5. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products,
6. Subtitle C, Chapter 161, Subchapter C, General Powers and Duties of Commission
7. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products, Subtitle C, Chapter 161, Subchapter D, Quarantines
8. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products, Subtitle C, Chapter 161, Subchapter E, Regulation of Importation of Animals
9. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products, Subtitle C, Chapter 161, Subchapter F, Veterinarian Reports of Diseased Animals
10. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products, Subtitle C, Chapter 161, Subchapter G, Regulation of Livestock Markets
11. Texas Agriculture Code Title 6 Production, Processing, and Sale of Animal Products, Subtitle C, Chapter 161, Subchapter H, Remedies and Penalties
12. Texas C, Chapter 161, General Disease and Pest Control, Sec. 161.061-161.065
13. Texas Administrative Code Title 4 Agriculture, Part II, Chapter 58, Subchapter A, General Requirements
14. Texas Administrative Code Title 4 Agriculture, Part II, Chapter 58, Subchapter B, Quarantine Requirements
15. Texas Administrative Code Title 4 Agriculture, Part II, Chapter 58, Subchapter C, Movement Restriction Requirements
16. Texas Administrative Code Title 4 Agriculture, Part II, Chapter 58, Subchapter D, Disposal Requirements
17. Texas State Foreign and Emerging Animal Diseases (FEAD) Response Plan, Appendix 3 to Annex O

C. Regional

1. Panhandle Regional Response Plan for State Planning: Region 1
2. Quarantine Integrated Management Zones, Routes & Ports, Emergency Management Tool for Infectious Foreign Animal Disease Outbreak, Natural Livestock Disasters
3. Mutual aid agreements and contingency plans

D. Local

1. Appendix 4 to Annex N Direction and Control, Animal Issues Plan

II. PURPOSE

This annex provides a framework for the Panhandle Multiagency Coordination Center (PMACC) to provide support to the upper 26 counties of the Texas Panhandle during a Foreign and Emerging Animal Disease (FEAD) incident. This annex, used in conjunction with the Panhandle Regional Response plan, outlines the coordination and support of the region to the State and local jurisdictions in preparing for, responding to, and recovering from the FEAD threat.

The FEAD Regional Support Annex describes the roles and responsibilities associated with incidents involving the Region's agriculture and food systems that require a coordinated industry, local, regional, state, and federal response. The Panhandle Regional Response Framework utilizes the following principles:

- Engaged partnership
- Tiered response
- Scalable, flexible and adaptable operational capabilities
- Unity of effort through unified command
- Readiness to act

III. EXPLANATION OF TERMS

A. Acronyms

AIC	Animal Issues Committee
AVMA	American Veterinary Medical Association
APHIS	Animal and Plant Health Inspection Service (USDA)
BT	Bioterrorism
BZ	Buffer Zone
CA	Control Area
CZ	Control Zone
DDC	Disaster District Committee
DSHS	Department of State and Health Services
EAD	Emerging Animal Disease
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EPA	Environmental Protection Agency (federal government)

ESF	Emergency Support Function
FADD	Foreign Animal Disease Diagnostician
FEAD	Foreign and Emerging Animal Disease
FMD	Foot and Mouth Disease
FSA	Farm Service Agency (USDA)
ICP	Incident Command Post
IZ	Infected Zone
NAFMDVB	North American Foot-and-Mouth Disease Vaccine Bank
NIMS	National Incident Management System
NVS	National Veterinary Stockpile
OIE	World Organization for Animal Health
PARIS	Panhandle Area Regional Information System
PAWG	Panhandle Animal Working Group
PMACC	Panhandle Multi-Agency Coordination Center
PMOC	Panhandle Medical Operations Center
PREMAC	Panhandle Regional Emergency Management Advisory Committee
PRPC	Panhandle Regional Planning Commission
PRRP	Panhandle Regional Response Plan
SITREP	Situation Report
STAR	State of Texas Assistance Request
TAES	Texas Agricultural Extension Service
TAHC	Texas Animal Health Commission
TAMUS	Texas A&M University System
TCEQ	Texas Commission on Environmental Quality
TCFA	Texas Cattle Feeders Association
TDA	Texas Department of Agriculture
TDH	Texas Department of Health
TPWD	Texas Parks and Wildlife Department
TRACE	Texas Rural Awareness, Compliance, and Education (Program)
TRRN	Texas Regional Response Network
TVMA	Texas Veterinary Medical Association
USDA	United States Department of Agriculture
VMO	Veterinary Medical Officer (federal)
VS	Veterinary Services (APHIS)
WebEOC	Web Emergency Operations Center
WTO	World Trade Organization

B. Definitions

1. Animal Control Officer (ACO) - The person who has been designated by a jurisdiction to deal with animal-related issues. The title of this individual and the placement within the jurisdiction's organization chart varies throughout the region. Sometimes this person may be referred to as the [City/County] Animal Coordinator (CAC).

2. Cleaning and Disinfection (C&D) - The process of removing debris from an object and then applying a chemical to destroy a specific pathogen.

3. Control Zone (CZ) or Control Area (CA) - combines an Infected Zone (IZ) and Buffer Zone (BZ); includes the individual Infected Premises, Suspect Premises, and Contact Premises; and has movement restrictions for At-Risk Premises.

4. Biosecurity guidelines – Identify appropriate precautions, personal protective equipment, and steps for managing various fomites and equipment.

5. Depopulation - The humane destruction of both sick and exposed or non-exposed animals to prevent the spread of a contagious animal or zoonotic disease. See mass depopulation definition.

6. Disaster District - A regional state emergency management organization that serves as the initial source of emergency assistance for local governments.

7. Disaster District Committee (DDC) - Consists of a Chairperson (local Highway Patrol Captain) and regionally located agency representatives of the State Emergency Management Council. The DDC Chairperson identifies, coordinates, and directs state resources within the district to respond to emergencies.

8. Emergency Operations Center (EOC) - Consists of equipped facilities from which government officials exercise direction and control in an emergency.

9. Epidemiologist - For the purpose of this plan a person who investigates the causes of veterinary diseases and public health problems to prevent them from spreading or reoccurring.

10. Epidemiological information - Data collected to aid in the determination of disease spread and infectivity.

11. Euthanasia - The act or process of painlessly ending life.

12. Fomite - An object that can carry disease agents from one susceptible animal to another. Examples include clippers, needles, clothing, feed or water buckets, and shovels.

13. Field Veterinarian - A veterinarian assigned to the TAHC or USDA.

14. Foreign Animal Disease Diagnostician (FADD) - A specially trained person who investigates a suspected foreign or emerging animal disease and determines if the illness is “unlikely”, “possible”, or “highly likely” as an FEAD. If FEAD is suspected, he/she will coordinate sample collection and movement to a laboratory for testing and can implement movement restrictions, such as a Hold Order.

15. Foreign and Emerging Animal Disease (FEAD) – A disease which has the potential for spread, and/or can have serious socio-economic or public health consequence and a major impact on the domestic and/or international trade of animals, animal products, and animal by-products.

16. Holding facility - A temporary designated facility that may be used to house and feed animals during disaster evacuations or following the aftermath of a disaster event.

17. Hold Order - A temporary verbal and written order issued by the State Veterinarian or designated representative, when an infectious disease is suspected in livestock to isolate any specific livestock premises pending completion of laboratory testing.

18. Mass depopulation - A method by which large numbers of animals are destroyed, quickly and efficiently, with as much consideration given to the welfare of the animals as possible. See depopulation definition.

19. Movement control - Tool used to restrict the movement of infected animals, exposed, or at risk animals, animal products, and fomites in controlling and containing a FEAD outbreak. It is accomplished through a permit system that allows entities to make necessary movements and meticulous recordkeeping of those movements

20. Mutual Aid Agreement (MAA) - Inter-local agreements made between governments or organizations, public or private, for reciprocal aid and assistance during emergency situations.

21. Office International des Epizooties (OIE) – This organization was formed through International Agreement on January 25th 1924. In May 2003, it became the World Organization for Animal Health. It is an intergovernmental organization and is responsible for improving animal health worldwide and is recognized as a reference organization by the World Trade Organization (WTO).

22. Panhandle Regional Response Plan (PRRP) - The Panhandle Regional Response Plan provides guidelines, establishes protocols, identifies tasks, lists responsibilities, and provides logistical support in the event of a catastrophic incident that exceeds the capabilities of the local jurisdictions. It includes this annex, the Panhandle Regional FEAD Support Annex.

23. Pathologist - A scientist who interprets and diagnoses the changes caused by disease in animal tissues and thereby assists in determining why an animal or group of animals may have died or become ill.

24. Permitting - Transparent explicit general rules and policy regarding movement requirements for various commodities. It is issued by a veterinarian or other person authorized by the TAHC.

25. Premises - The property where an animal(s) is/are located.

26. Personal Protective Equipment (PPE) - Personal safety apparel that meets the requirements of American National Standard for High-Visibility Apparel and/or determined to protect or prevent the spread of disease.

27. Panhandle Multi-Agency Coordination Center (PMACC) - A regional multiagency coordination center system whose main goal is to facilitate an adequate and unified response to any catastrophic incident that occurs within the region. It functions under NIMS and ICS principles and as an operations support organization, it will serve as a resource clearing house for regional resources in support of incident command posts and emergency operations centers.

28. Panhandle Medical Operations Center (PMOC) - A multi-agency coordination group whose primary objective is to enhance and operationalize a coordinated healthcare response in an effort to support local jurisdictions in addressing incidents that have regional health care implications. The PMOC will support the upper 26 counties with obtaining regional healthcare assets and coordinate its operations with the PMACC and the DDC as necessary in an effort to obtain assets for local jurisdictions and coordinate a regional healthcare response.

29. Region - Refers to a geographic area and its associated jurisdictions that lie within the defined boundaries.

30. Regional response - Synchronized, coordinated, and comprehensive response that employs regional resources in advance of state or federal assistance.

31. Quarantine Integrated Management Zones - Routes and Ports – a tool set of maps of the Texas Panhandle, which identify local resources and routes which can be used for planning quarantine and movement restrictions in the event of an FEAD incident.

32. Quarantine Order - A legal and medical order issued when testing has confirmed the presence of an infectious or contagious disease in livestock; usually issued by the state veterinarian or authorized official restricting the movement of agricultural products such as livestock.

33. State of Texas Assistance Request (STAR) - electronic method to request resources from the DDC. Only an EMD or the EMC on behalf of the EMD may submit the request and can be accessed through WebEOC.

34. Stop Movement Order - Issued by the state veterinarian or authorize official, prohibiting the movement of a particular agricultural product into, out of, or within defined boundaries.

35. Surveillance - A critical activity used to detect disease during an outbreak, determine the size and extent of a disease outbreak and supply information to evaluate outbreak control activities.

36. TAHC-APHIS/VS/TX Memorandum of Understanding - The agreement by which TAHC veterinarians and inspectors work in a “seamless” relationship with APHIS-VS-TX veterinarians and inspectors.

37. Texas Animal Health Commission (TAHC) - A state agency, whose mission and role is to assure the marketability and mobility of Texas livestock and to sustain and continue to make a vital contribution to wholesome and abundant supply of meat, eggs, and dairy products. TAHC makes and enforces regulations to prevent, control, and eradicate specific infectious and/or contagious animal diseases that endanger livestock.

38. Toxicologist - Person trained in the sciences of poisonous chemicals, pharmaceutical agents and drugs, etc., and how a person or other living thing reacts to them.

39. Texas Rural Awareness Compliance Education (TRACE) Program Representative - A TAHC or USDA/APHIS/VS/TX veterinarian, animal health technician, or animal livestock inspector assigned by region to provide assistance for animal emergency management, public information, and educational purposes.

40. Texas Regional Response Network (TRRN) - A comprehensive database of resources located throughout the state that will be used to identify resource types, quantities and locations in the event of a catastrophic incident.

41. Vaccination – The introduction into humans or domestic animals of microorganisms that have previously been treated to make them harmless for the purpose of inducing the development of immunity.

42. Vaccination Zone - Emergency vaccination zone classified as either a containment vaccination zone - typically inside a Control Area—or a protection vaccination zone -

typically outside a Control Area. Vaccination zone may be a secondary zone designation.

43. Withdrawal Time - the time needed after drug administration to any food animal where drug residue may not be found in marketed meats, eggs, organs, or other edible products.

44. Web Emergency Operations Center (WebEOC) - Client program that allows access to various boards that detail situation and resource status and provides an electronic mechanism for requesting state resources. It can be accessed by a local computer with internet access.

45. Zoonotic disease - A disease that is transmissible from animals to humans and vice versa.

IV. SITUATION AND ASSUMPTIONS

A. Situation

1. A typical situation may be an FEAD outbreak which could occur naturally or as an act of terrorism. It could emerge from within the state or enter Texas from other states or countries via diseased livestock or wildlife, animal-related products, or livestock wastes.

2. There are two means of transmission through fomites.

   a. Direct transmission occurs when a susceptible animal or human comes in direct or close contact with an infected, contagious animal or human. This is the most common means of transmission.

   b. Indirect transmission occurs when animals and people come in contact with infected or contaminated animate vectors, inanimate vehicles and environmental fomites. Examples of transmission via fomites include contaminated brushes, clippers, needles, ball guns, clothing, milking units, teat dip cups, feed or water buckets and shovels. Traffic transmission is a type of fomite transmission in which a vehicle, trailer, or human spreads organic material in other locations.

3. Zoonotic diseases are shared between animals and humans. They can spread from animal to animal, animal to human, human to animal, or human to human. Examples of zoonotic diseases include Anthrax, Dengue, Ebola, Hemorrhagic fever, Lyme disease, Malaria, Plague, Rocky Mountain Spotted Fever, and West Nile Virus infection.

4. Highly contagious FEAD's, such as Foot-and-Mouth Disease (FMD) primarily affects cattle, swine, sheep, goats, deer and other cloven-hooved ruminants. Most animals recover from the disease but are left debilitated, thus resulting in grave economic impact with severe losses in dairy and meat production.

5. The Foot and-Mouth Disease outbreak in the United Kingdom in 2001 resulted in the slaughter of nearly six million livestock, over the course of the outbreak for both disease-control and welfare reasons. The cost estimates for the outbreak exceeded $12-16 billion dollars. The U.S. has been FMD free since 1929. Due to its rapid spreading nature, FMD is one of the animal diseases that livestock owners dread most. Once FMD

is recognized on a livestock premise, the impact of the potential rapid spread of the outbreak to susceptible livestock and wildlife will be overwhelming and potentially catastrophic.

6. The cattle feeding industry is a major contributor to both the Panhandle's economy and to the economy of Texas. In 2011, approximately 13 percent of all cattle in the nation were located in Texas—more than twice the percentage of the second ranked state. The beef industry dominates the Texas agriculture sector. The industry's $11 billion in revenue in 2011 represented 49 percent of total state agricultural revenue.

7. The Texas Animal Health Commission (TAHC) has legislative authority to make and enforce regulations to prevent, control, and eradicate specific infectious animal diseases which endanger livestock in the State of Texas. Regional and Local Jurisdictions will provide coordination and resources as requested and available.

B. Assumptions

1. The impact would come primarily from lost international trade, as well as costs directly associated with the eradication effort, including the expenses of depopulation, indemnity, carcass disposal, and cleaning and disinfection. In addition, there would be direct and indirect costs related to foregone production, unemployment, and losses in related businesses. The social and psychological impact on local owners and growers would also be severe.

2. An FEAD may be infectious or contagious, it may affect both farm/ranch animals and wildlife and it may be extremely difficult to identify, isolate, control, and eradicate. Control and eradication will involve local, county, state, and federal agencies and industry, not just those associated with agricultural activities.

3. An Incident Command Post (ICP) - established by State or Federal Agencies - may be as small or as large as necessary to manage response operations for controlling and eradicating the FEAD. It may involve only state and possibly federal animal health personnel; or it may include many local, state and federal organizations, along with industry representatives.

4. Outside assistance will be available in most instances but it will take time to receive support. Therefore, the region will be prepared to respond and sustain operations for a minimum of 72 hours.

5. Activation of the PMACC will be based on increased readiness and response at the state and federal levels in accordance with the Panhandle Regional Response Plan, for SPR1, Attachment 1.

6. The PMACC will provide support to local, regional, industry and state agencies by utilizing WebEOC, PARIS, and other web based programs to assist in resource coordination, resource prioritization, and tracking.

7. Setting quarantine zones and movement control measures are the responsibility of the State Veterinarian and USDA and will be a collaborative effort between industry, local, regional, state, and federal authorities.

8. Vaccines for FEAD may be available, but must be matched to the specific type and subtype of the virus causing the outbreak. Vaccination can help contain the disease if it

is used strategically to create barriers between FEAD-infected zones and disease-free areas.

9. The Texas Panhandle has a high concentration of large livestock operations in addition to considerable numbers of cloven hooved wildlife. Conducting rapid depopulation and disposal or vaccination on or off premises with large numbers of animals will be a logistical challenge.

10. Human health can also be negatively impacted by an FEAD. Some of the diseases are zoonotic (spread from animals to humans) and the loss of animals and livelihood can have severe mental health impacts for those raising or working with the animals. Responders, individuals, and communities may succumb to stress and/or emotional trauma. Driven by fear alone, many of the "worried well" could overwhelm health and medical infrastructure, disrupting or slowing down medical treatment of genuine patients.

11. The PMOC may be activated to provide support to industry, local, regional, state, and federal agencies, along with the public, by coordinating health and medical services. In addition, the PMOC could be tasked to assist with preparation and dissemination of information to the public, industry, responders, and other health care professionals to dispel rumors.

V. CONCEPT OF OPERATIONS

A. General

The PMACC will be activated to support the response to an FEAD incident. A basic organizational structure is outlined in Appendix 1: Regional Response. The PMACC may:

1. Prepare for and assist local jurisdictions in locating and obtaining critical resources necessary for the containment, control, and eradication of the FEAD.

2. Maintain situational awareness of regional resources and incident management activities.

3. If deemed necessary due to the type and severity of the FEAD incident, the PMACC will request that the PMOC be activated to support medical coordination and support activities by:

   a. Assisting the state in determining the health and economic implications to ensure policies, resources and activities support overall healthcare objectives.

   b. Providing support to industry, local, regional, and state agencies by coordinating mental health services for responders, livestock owners, and others involved in the response.

B. Phased Response

1. Phases

A phased response will be used during an FEAD incident. The three phases are the 1) planning, 2) short-term response, and 3) long-term response. Appendix 1: Regional Response reflects the FEAD Response Timeline of Events, and emphasizes necessary

actions in the first few days which are fundamental to rapid control and containment.

a. The planning phase takes place before an incident occurs. This phase is critical to ensuring a level of preparedness exists with local jurisdictions throughout the region. These efforts must be coordinated with industry, state, and federal plans.

b. Short-term response typically occurs over the first 72 hours of the incident, from the time an outbreak is suspected until it has been confirmed. This will be the initial response conducted by state and federal regulators, working with industry and local authorities using readily available resources located in the region. During this period, local veterinarians, State Veterinarian, and USDA Area Veterinarian in Charge will make all decisions.

c. The long-term response and transition to recovery will be supported by industry partners, state, and/or federal resources from outside the region. Local and regional resources will play a critical role in sustaining response and recovery efforts.

2. Planning

Planning takes place before the incident occurs. This is an ongoing process that is continually upgraded and refined as threats are better understood and as resources and technologies become available. Regional planning initiatives may include the following tasks:

a. Developing a program to ensure all those who may be involved in FEAD response and recovery operations understand their responsibilities and expected actions.

b. Preparing and periodically revising this annex to deal with new FEAD threats and the steps that will be necessary to deal with the threat. Revisions will also be required when prevention/response actions change for existing FEADs.

c. Developing, scheduling, and conducting training classes for responders and applicable state agency personnel who will be involved in FEAD control, containment, decontamination (e.g., locally employed procedures for cleaning and disinfection), and animal depopulation operations including state and local law enforcement personnel.

d. Offering training for applicable agency officials and responder personnel regarding the potential and predictable human impacts of a FEAD.

e. Training responders and officials on all laws and regulations pertaining to FEAD response operations and on rules of engagement.

f. Conducting training and awareness campaigns to inform all veterinarians, game wardens, game biologists, industry and other animal professionals of the basic clinical signs for identifying foreign and emerging animal diseases.

g. Information on disease threats can be found in Appendix 2: Animal Disease Threats.

3. Short-term Response

a. Notification of the local jurisdiction should result in the initiation of coordination activities to understand the potential impacts and implications of the FEAD incident. This should be done in consultation with industry, local, regional, and state stakeholders to facilitate the response. Activation of the DDC / PMACC / PMOC could be part of this process to assist with response activities, including: stop movement, quarantine, permitting, vaccination, depopulation, cleaning and decontamination, and disposal.

b. The affected county/s may choose to activate their EOC(s) in support of the requested response actions (e.g. traffic control, etc.). The PMACC will remain in close contact with the EOC(s) or the designated emergency management coordinator(s) to assist with stakeholder notification as needed

c. A WebEOC incident to coordinate response and facilitate situational awareness to an FEAD incident will be created.

d. Utilizing local resources immediate traffic control within the affected area may be requested by TAHC. Local jurisdiction(s) may be asked to provide traffic control within the county or as part of a larger Quarantine Integrated Management Zones (as outlined in the Routes and Ports planning document-which is available through the PRPC) in response to a quarantine order. The PMACC may be requested to find traffic control resources to assist the affected jurisdiction in safely initiating the traffic control points. PMACC may be asked to assist local, regional, industry and state agencies in defining affected control points and zones through the use of the Routes and Ports maps.

e. Additional activities that the PMACC may be asked to support can be found in Appendix 1: Regional Response. Anticipated support actions by local jurisdictions are contained in the Local FEAD planning documents.

4. Long-term Response

a. The long-term response may entail the establishment and maintenance of roadblocks and traffic stops around the full quarantine boundary; placement of additional signs and barricades to replace temporary traffic control; establishment of permanent detours marked by signage; and public information regarding open routes. Voluntary stop movement and similar public responses are essential and can be accomplished through posted detours and public information.

b. Additional tasks that the PMACC may be asked to provide for coordination and support include:

1) Continued coordination and support of local jurisdiction response. This may include identification of resources to augment local resources over an extended period of time;

2) Replacing nonstandard temporary devices with approved permanent devices;

3) Installing signs for long-term detours;

4) Initiating a public information campaign regarding detours, disinfection stations, travel restrictions, and other transportation-related issues;

5) Incorporating the available resources of state and federal agencies; and

6) Assisting with documentation of response costs and expenditures to facilitate recovery reimbursement.

C. Readiness and Response Levels

a. Most FEAD incidents typically occur without warning. Therefore, establishing a set of increasing readiness actions is difficult for an FEAD response.

b. Basic preparedness can be achieved through enhanced awareness and education for producers, allied and associated industries, veterinarians, wildlife officials, meat and food inspectors, animal processing plant operators, animal health educators, and other personnel associated with the animal industry.

c. Refer to the Panhandle Regional Response Plan to view established readiness and response levels.

D. Summary of State & Federal Actions

1. Requesting External Assistance

a. Timely and effective resource management is essential to successful operations and response to an FEAD incident. It is important to recognize and understand the region's resource management capability in order to identify and request the needed equipment and support during an incident.

b. Methods of requesting and tracking resources are discussed and identified in the Panhandle Regional Response Plan, Attachment 4.

2. Movement Control Response

a. By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control are key in controlling and containing a FEAD outbreak. Movement control is accomplished through a hold order, movement restriction order, and/or permit system.

b. A critical component in the movement control process is the designation of zones, areas, and premises. Refer to Appendix 3: Movement Control for additional information.

3. Start Movement Order

a. Permitting - During the disease incident, the State Veterinarian will issue an official permit for movement of animals and animal products to allow their transport from a premises or geographic area within a quarantine order. Permits to move livestock or other affected animals from premises to premises within a control area can also be issued. The VS Form 1-27 will be used to document and track movement control.

b. Movement Control - Specific movement controls are briefly summarized in Appendix 3: Movement Control. In general terms, the following movement guidelines will be used:

1) Movement to Slaughter within a Control Area

Permits to move to slaughter (for human food use) or processing can be issued if the livestock are eligible for a permit for movement from premises to premises or for movement directly to slaughter.

2) Movement Out of an Infected Zone

No susceptible livestock species or products posing a significant risk of disease transmission may leave the infected zone unless they are going directly to slaughter at an approved slaughter facility established in the buffer surveillance zone or meet the criteria described on a permit. No materials, which can serve as fomites and pose risk of disease transmission, may leave the infected zone except by permit.

3) Movement within an Infected Zone

During the initial phase of an incident, livestock entering an operation should not be allowed to move within an infected zone except at the discretion of the State Veterinarian.

4) Movement within Buffer or Surveillance Zone

Susceptible animal species or products posing a risk may be moved within the buffer surveillance zone under permit if they are known not to be infected with or exposed to the disease agent and animals show no signs of other communicable diseases.

5) Movement Out of the Buffer or Surveillance Zone

Susceptible animal species or products may be allowed to leave the control area if a risk assessment deems such movement to be appropriate. Movement

will require a permit as prescribed by the State Veterinarian. Decontamination of such animals may be required.

6) Movement of Non-Susceptible Livestock

Movement of non-susceptible livestock out of the control area requires a permit as prescribed by the State Veterinarian. Decontamination of such animals may be required.

4. Vaccination

a. The use of emergency vaccination strategies may be considered in an FEAD outbreak. Vaccination of cattle against FEAD has been practiced with relatively positive results. Vaccine has not only prevented clinical disease, but helps control FEAD transmission in an outbreak. However, this is not an effective strategy early in response because of time to vaccinate efficacy. Used with interferon it may be better; however there is limited access to enough vaccine to and vaccination has only been used to regain FMD-free status.

b. An emergency vaccination strategy can help to achieve the goals of an FEAD response effort, and is founded upon epidemiological principles. In order to be effective, vaccines used in emergency vaccination must be matched to a specific serotype, and ideally matched with the field strain causing the outbreak.

c. There are many challenges to using emergency vaccination in a Foot and Mouth Disease (FMD) response. Where FMD is endemic, vaccination is accepted as a highly effective prevention and control program. However, OIE guidelines employ very stringent controls on the export of susceptible animals from these countries. Therefore, the goal in an FMD incident is to achieve the status of “FMD-free without vaccination”.

d. Emergency vaccination information is further discussed in Appendix 4: Vaccination.

5. Depopulation

a. Depending on the strategy or strategies selected, animals on an Infected Premise will most likely be depopulated as soon as possible after declaration of a FEAD outbreak. Susceptible animals on Contact Premises may also be depopulated as soon as possible.

b. Appendix 5: Depopulation offers FEAD-specific information on mass depopulation and euthanasia, including evaluation of various euthanasia methods, such as gunshot, penetrating captive bolt, electrocution, injectable euthanasia, and carbon dioxide or other gas. It is important to note that both gunshot and captive bolt are specified means by the AVMA and USAHA. Further, carbon dioxide and other gases are approved for use in poultry but not for livestock.

c. In an FEAD outbreak, if mass depopulation must be undertaken, it should be conducted as safely, quickly, efficiently, and humanely as possible. In addition, the PMOC will need to be prepared to handle the psychological impacts due to potential emotional and psychological impact on animal owners, caretakers, their families, and other personnel in the event of an outbreak.

d. Depopulation, mass depopulation, and euthanasia are not synonymous. Euthanasia involves transitioning an animal to death as painlessly and stress-free as possible. Depopulation is a method where animals must be destroyed quickly and efficiently with as much consideration given to the welfare of animals as practicable, given extenuating circumstances. Mass depopulation is a method by which large numbers of animals are depopulated.

e. Mass depopulation is employed in an FEAD response to prevent or mitigate the spread of FEAD through eliminating infected or potentially infected animals. The AVMA Guidelines for the Euthanasia of Animals: 2013 Edition, states "Depopulation may employ euthanasia techniques, but not all depopulation methods meet the criteria for euthanasia. Because they do not always meet the criteria for euthanasia, these techniques will be addressed in a separate document, the AVMA Guidelines for the Depopulation of Animals."

f. Qualified personnel should perform mass depopulation using the safest, quickest, and most humane procedures in accordance with AVMA guidance. If personnel or materials are insufficient, the Incident Commander or other official should request emergency depopulation, disposal, and decontamination contractor support for depopulation efforts.

6. Disposal

a. Effective disposal of animal carcasses and materials is a key factor of a successful response to an animal health incident, such as an FEAD event. The overall goal of disposal operations is to eliminate all animal carcasses that result from the disease or depopulation measures.

b. Disposal must be done in a timely, safe, bio-secure, and environmentally responsible manner. A sound disposal strategy must be based on protecting public health and preventing the spread of the disease.

c. During an animal health emergency, disposal operations will be determined after an evaluation of disposal sites and optimal disposal procedures. In some situations, the most expeditious method of disposal will be on-site disposal. That is, disposal will occur on the premises where the animals are dying or being depopulated. However, off-site burial such as landfills offer the best alternative. Further information and guidance can be found in Appendix 6: Disposal.

7. Cleaning and Disinfection

a. Because FEAD may have a high survival rate on both organic and inorganic materials, aggressive cleaning and disinfection practices may be required for control and eradication. Vehicles involved in transport of depopulated animals must be cleaned and disinfected immediately before leaving the disposal site.

b. The Cleaning and Disinfection Appendix 7: Cleaning and Disinfection provides additional information on the cleaning and disinfection effort, optimal cleaning and disinfection methods for FEAD, processes used to inactivate viruses from organic materials, how to clean and disinfect equipment and premises after detection, and Environmental Protection Agency (EPA) approved disinfectants.

c. Because the aerosol transmission of FEAD can be a concern, depending on the pathogen and the likelihood of the infective dose of the organism, care should be exercised to reduce the generation and dispersal of potentially infective dust and aerosolized materials during cleaning and disinfection procedures. Also, transporting carcasses in leak proof containers with tarps overlapping the trailer walls, is likely sufficient to minimize aerosol transmission. If items cannot be cleaned and disinfected adequately, they will be disposed of using burial, incineration, or other appropriate means.

d. If available personnel or materials are insufficient for cleaning and disinfection in an FEAD outbreak, the Incident Commander can request emergency contractor support through the State area command (DPS/TAHC). In turn, the request will be routed to the DDC and SOC.

VI. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES

A. General

1. An anticipated organization appears in Appendix 1: Regional Response and it is depicted in Panhandle Regional Response Plan, Attachment 3 to the Basic Plan. These procedures will be employed to respond to and recover from an FEAD Incident.

2. Effective response to an FEAD Incident, which will begin with industry working with state and federal regulators to investigate reported issues, will require response assistance from local, region, state and federal agencies.

3. The PMACC is a regional multiagency coordination center whose main goal is to facilitate unified response to any catastrophic incident that occurs within the region. The PMACC may be asked by local jurisdictions or DDC/state agencies to assist in resource management, coordination, and support to an FEAD incident.

4. The PMOC will provide healthcare coordination and support to the local jurisdiction within the PRPC region in the FEAD response effort. It will be activated at the request of the DDC when an incident occurs with human health implications (real or perceived) and will function primarily as a coordination and support mechanism to the regional health and medical community.

B. Assignment of Responsibilities

1. The PMACC as a support center to the DDC and local EOC's will:

    a. Coordinate prioritization of resource distribution in the event of an FEAD incident. After receiving requests from the local EOCs, the ICP will route them to the State Area Command which is comprised of DPS and TAHC representatives.

    b. Serve as the conduit, to ensure resource providers are alerted or mobilized, and ensure that materials and supplies are sent to the EOCs as requested.

    c. Maintain and use a listing of all mutual aid agreements with the region.

    d. Track resource status during all phases of the FEAD incident.

2. The PMOC will complete the following:

    a. Support local, regional, and state incident management policies and priorities, specifically related to health and medical objectives, in response to the FEAD incident.

    b. Provide support to industry, local, regional, state, and federal agencies, along with the public, by coordinating health and medical services.

    c. Assist with preparation and dissemination of health and medical information to the public, industry, responders, and other health care professionals to dispel rumors.

VII. DIRECTION AND CONTROL

Within this region the Disaster District Chairperson (DDC) (or designee) will ensure that needed resource support is provided to the TAHC responders. The DDC will work closely with local EOCs, the PMACC and PMOC to determine if the resource can be provided by the region or if appropriate resources are not available, then a request for additional assistance will be forwarded to the State Emergency Management Council in the State Operations Center (SOC).

PMACC/PMOC will provide support to the state DDC and Local EOC's with coordination, support, and resource management.

The PMACC/PMOC will facilitate the management and tracking of resources from the initial request, staging, utilization, and demobilization to the parent jurisdiction, as applicable.

VIII. ADMINISTRATION AND SUPPORT

A. Resource Support

The departments and agencies involved in FEAD operations that require additional resources should first consider use of local and regional resources through local EOCs, DDC, and PMACC/PMOC before requesting state resources.

If resources are not available from within the region, the jurisdiction's request will then be processed by the DDC up to the state through the State Operations Center.

Additional information and guidance is found in Panhandle Regional Response Plan, Attachment 4.

B. Communications

Local jurisdictions and state agencies responding to an FEAD outbreak will use their existing systems for communicating. If these resources are inadequate, additional communications capabilities may be requested through the DDC and PMACC. Additional information and guidance is found in Panhandle Regional Response Plan, Attachment 2.

C. Reporting

During emergency operations, participating agencies shall prepare periodic situation reports (SITREPs) to the appropriate reporting entity. The reporting schedule shall be coordinated between the local, regional, state, and federal coordinating entities.

D. Records

Certain expenses incurred in carrying out FEAD response and recovery operations may be recoverable from the responsible party or, in the event of a Presidential Disaster Declaration or a Declaration of an Extraordinary Emergency by the USDA Secretary of Agriculture, partially reimbursed by the federal government. Therefore, all jurisdictions, agencies and organizations assisting in countering and/or responding to the FEAD threat should keep records of labor, materials, and equipment used and goods and services contracted for during large-scale emergency operations for possible reimbursement.

E. Post-Incident Review

Local jurisdictions, agencies, and organizations that participated in the FEAD response effort should ensure their representatives participate in the review process. The purpose of this review is to identify needed improvements in this annex, procedures, facilities, and equipment.

IX. ANNEX DEVELOPMENT AND MAINTENANCE

A. The Panhandle Regional Emergency Management Advisory Committee (PREMAC) is responsible for developing and maintaining this annex.

B. This FEAD Incident Support Annex will be reviewed periodically and updated in accordance with current procedures.

X. REFERENCES, APPENDICES, ATTACHMENTS

A. References

1. Operation Palo Duro: Policy and Decision-making in Response to an FMD Outbreak; The CNA Corporation, May 2007

2. NCHRP REPORT 525, Surface Transportation Security, Vol 13, A Guide to Traffic Control of Rural Roads in an Agricultural Emergency, 2008

3. Foreign Animal Health Emergency Management System, NAHEMS Guidelines: Continuity of Business, USDA APHIS, October 2012

4. APHIS Factsheet, Foot-and-Mouth Disease, Feb 2007

5. APHIS Factsheet, Protecting America from FMD and Other High Consequence Livestock Diseases, April 2007

6. Foot and Mouth Disease Response Plan, THE RED BOOK, Foreign Animal Disease Preparedness & Response Plan, APHIS FAD Framework Response Strategies, USDA APHIS, DRAFT June 2012

7. Foreign Animal Disease Preparedness & Response Plan, APHIS FAD Framework Response Strategies, USDA APHIS, May 2012

8. Panhandle Regional Response Plan for State Planning Region 1, Attachment 1: Organization and Operations for PRPC Regional Resource Coordination Center of Regional Response Plan, and Attachment 3: Regional Support for Health and Medical to State Planning Region1 Regional Response Plan, September 2008

9. Foot and Mouth Disease Standard Operating Procedures: Cleaning and Disinfection. FAD PReP, USDA APHIS, DRAFT December 2010

10. NAHEMS Guidelines: Cleaning and Disinfection. FAD PReP, USDA APHIS, June 2011

11. NAHEMS Guidelines: Vaccination for Contagious Diseases, FAD PReP, USDA APHIS, July 2011

12. NAHEMS Guidelines: Vaccination for Contagious Diseases, Appendix A: Foot and Mouth Disease, FAD PReP, USDA APHIS, April 2011

13. NAHEMS Guidelines: Mass Depopulation and Euthanasia, FAD PReP, USDA APHIS, May 2011

14. Foot and Mouth Disease Standard Operating Procedures: 13. Mass Depopulation and Euthanasia: FAD PReP, USDA APHIS, DRAFT December 2010

15. NAHEMS, USDA, Operational Guidelines: Disposal, April 2005

16. Standard Operating Procedures: 14 Disposal. FAD PReP, DRAFT September 2012

17. Catastrophic Animal Mortality Management (Burial Method), Technical Guidance. USDA/Natural Resources Conservation Service, Texas State Soil and Water Conservation Board, October 26, 2005

18. Carcass Disposal: A Comprehensive Review. National Agricultural Biosecurity Center Consortium, Carcass Disposal Working Group, USDA APHIS Cooperative Agreement 02-100100355-CA, March 2004

19. American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals: 2013 edition

B. Appendices, Attachments

Appendix 1: Regional Response

Attachment A - FEAD/FMD Response Timeline
Attachment B - FEAD Incident Organization Chart
Attachment C - Regional Response Checklist (PRPC / PMACC / PMOC)

Appendix 2: Animal Disease Threat

Attachment A - Top 17 Animal Disease Threats in the US
Attachment B - Disease Table

Appendix 3: Movement Control

Attachment A - Example Quarantine/Hold Order
Attachment B - Premise Designations
Attachment C - Summary of Movement Restriction Zones and Areas
Attachment D - VS Form 1-27
Attachment E - Quarantine/Hold Order Release
Attachment F - Movement Control Guidelines
Attachment G -Traffic Control Notes
Attachment H - Basic C&D Team Equipment and Supply List

Appendix 4: Vaccination

Attachment A - Sample Herd Vaccination Form
Attachment B - Vaccine Administration

Appendix 5: Depopulation

Attachment A - Considerations for Approved Depopulation Methods
Attachment B - Method of Depopulation Suitable for Cattle and Sheep
Attachment C - Materials, Supplies, and Equipment

Appendix 6: Disposal

Attachment A - Disposal of Common Infectious Agents
Attachment B - Ruminant Disposal Methods
Attachment C - Disposal Options Checklist

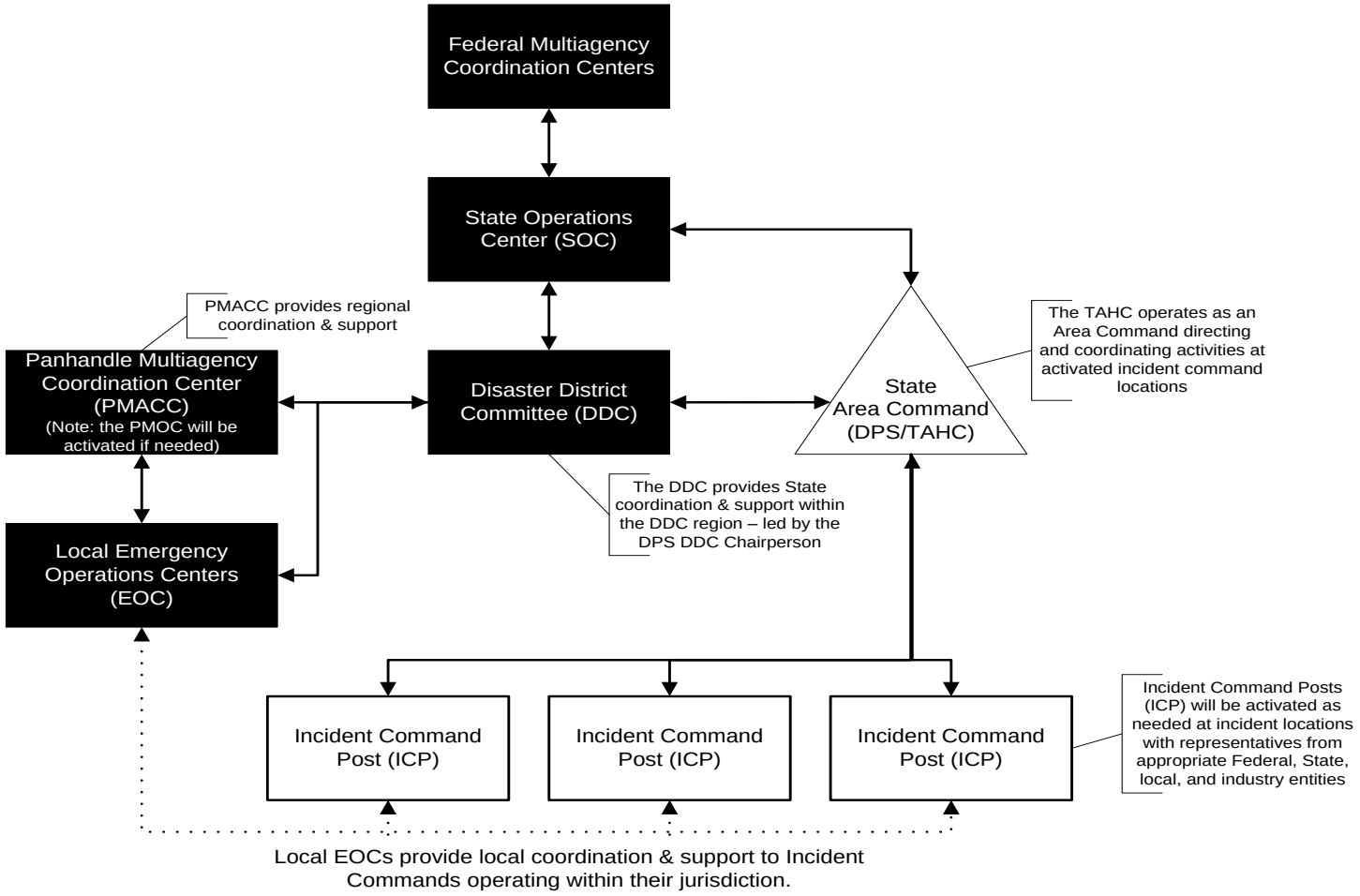
Appendix 7: Cleaning and Disinfection

Attachment A - Disinfectant Selection Criteria
Attachment B - Chemical Disinfectants Effectiveness Chart
Attachment C - FMD Specific Disinfectants

Appendix 8: Local Plan Template

Appendix 1: Regional Response

Attachment A - FEAD Incident Organization Chart



NOTE: The FEAD incident organization chart is based on a review of Federal & State planning guidance related to an FEAD incident. Based on NIMS principals the organization will adjust based on the objectives of the response, direction & control requirements, and policy direction, coordination, and support requirements.

Attachment B - FEAD/FMD Response Timeline of Events

Short Term Response					Long Term Response	
Detection and identification of the FMD Virus*	**Hours/Days**				**Weeks/Months**	**Recovery**
Initiate Hold Order on Infected Premise	Mobilize ICP personnel.	Develop a surveillance plan and implement existing diagnostic support.	Ramp up Incident Command and Operations Center.	Validate initial Buffer Zone designation and the Control Area boundaries.	Initiate continuity of business plans.	Surveillance for recognition of disease freedom.
	Establish initial Control Areas and identify premises.	Evaluate quarantine and movement controls. Implement permitting process.	Implement epidemiological surveillance and diagnostic support plan at at-risk species and notify other counties or states.	Validate list of premises with susceptible herds(and species) in the Control Area.	Continue permitting, movement control, and prioritized disruption.	Release of Control Area restrictions.
	Begin enhanced biosecurity procedures on infected, contact, and susceptible premises.	Initiate virus identification for vaccine.	Implement procedures for bio-secure transportation corridors to market or other key facilities for disease-free goods and animals.	Validate boundary of the Surveillance Zone.	Continue vaccination.	Regain disease free status.
	Establish quarantine zones and movement restrictions for infected and contacted premises.	Initiate public awareness campaign	Develop procedures for managing contaminated products.	Begin decontamination and disposal procedures at identified sites.		
	DDC activates the PMACC**	Upon confirmation or presumptive diagnosis through the NAHLN lab, begin treatment, vaccination and/or depopulation.	Establish storage and/or disposal areas for animals or products stopped in transit.	Continue treatment, vaccination and/or depopulation.		
***This is a specific example for Foot and Mouth Disease (FMD) that may not work for other FEADs**						
**** Will occur once there is a confirmation of a FEAD. The local EOC/PMACC will not be activated if this is the initial Index area.**						

Attachment C - Regional Response Checklist (PRPC / PMACC / PMOC)

Action	State Activities	Regional Support Activities	✓
Planning		PRPC and the PMACC will maintain current resource and stakeholder lists for the Region. List will be maintained in the Panhandle Area Regional Information System (PARIS).	
		PMAC will provide emergency managers with any updates to the Regional FEAD Support Annex and Local Animal Issues Plan.	
		PRPC will facilitate periodic exercises on various functions within the FEAD Support Annex.	
FEAD/FMD Incident Response Stop Movement/Hold Order	State issues a Hold Order-affecting a single premise and issued when the disease in suspected. State initiates a conference call after a confirmed positive event. State representatives (TAHC/SOC/ICP) will initiate FEAD/FMD Incident Response at local regional level if needed. EMD/EMC will be contacted by the State ICP. This occurs when FADD has suspicion, has a presumptive positive, and/or there is history or evidence of a disease spread. The DDC will be notified early on in an incident and by the way the DDC and PMACC coordinate, this will be an informal notification to local jurisdictions.	PMACC Activation can be requested by the DDC, PREMAC Chairperson or a local Emergency Management Director.	
	If an incident occurs, the SOC will initiate a	DDC/PMACC will use the FEAD Incident created in WebEOC.	

Action	State Activities	Regional Support Activities	✓
	WebEOC incident. State issues Stop Movement affecting part of the region. A quarantine is issued when the disease is confirmed. A stop movement order affects a region and will be issued as an aid to help prevent further spread of a disease.	*Note: the PMACC on the initial incident would most likely not be engaged until the incident reaches a point where locals are notified. Industry will be notified early because they are the ones notifying TAHC to send a FADD for the investigation.*	
	Foreign Animal Disease Diagnosticians (FADD) will continue testing for additional suspected cased of FEAD and report to the Incident Command. The FADD information will be shared when released by the State Vet.	PMACC will notify appropriate EMD and EMC's via PARIS that a FEAD Incident Board has been created in WebEOC.	
	TAHC will provide support, expertise and personnel for actions such as surveillance, permitting and inspections, cleaning and disinfection, decontamination, animal depopulation and carcass disposal	PMACC will develop a 24 hour operations schedule as needed	
		PMACC Unit Leader will provide all PMACC personnel with copies of both the Regional FEAD Support Annex and Local Animal Issues Plan of the jurisdictions affected.	
		If PMACC liaison is requested, PMACC personnel will co-locate with the DDC to support communications to stakeholder and resource identification as requested.	
		PMACC will assist affected jurisdictions in posting SITREPs and processing STAR requests on WebEOC. PMACC may receive posts/requests via phone, text or email. *Note: Procedures for requesting and tracking resources are identified in the Panhandle Regional Response Plan, Attachment 4*	
		If needed, PMACC will request assistance from the ESF 8 Group to notify regional healthcare providers of the suspected disease	

Action	State Activities	Regional Support Activities	✓
		and to create FAQ sheet to aid in education of the public and to help control the numbers of potential “worried well”.	
Restricted and Stop Movement Procedures	A Stop movement order will be a “voluntary” type order, with industry self-policing in assuring movements don’t continue. If movement, law enforcement would be activated to assist in stopping movement.	PMACC will refer to the local Animal Issues Plan-Attachment K and prepare to assist affected jurisdictions as needed for resource requests. *Note: Restricted movement could include traffic control points, cleaning & disinfecting and permitted movement*	
Permitted Movement	TAHC will direct permitting activities and provide support, expertise, and personnel for actions such as surveillance, permitting and inspections, cleaning and disinfection, decontamination, animal depopulation, and carcass disposal	PMACC will assist local jurisdiction in documenting movement of animals under a VS 127 Permit in WebEOC	
	TAES will assist with the permitting of animal movements and animal welfare issues at the local level when animals, animal products, and/or animal-related equipment are allowed to move under permit.	PMACC will provide technical assistance to TAHC in the use of the PARIS Reentry/Permitted Movement Registry for non-animal resources.	
Vaccination	TAHC will provide biologicals, support, expertise, and personnel for vaccination. TAHC will establish vaccination prioritization and methods for certification of vaccination. Assist with funding and recovery associated with required vaccination costs.	PMACC will assist local jurisdictions in identifying and requesting personnel and material resources to aid in the vaccination process.	
		PMACC will assist local jurisdictions with documentation of response costs to facilitate recovery reimbursement.	

Action	State Activities	Regional Support Activities	✓
Sheltering for Hold Order	.	PMACC will refer to the local Animal Issues Plan-Attachment F and prepare to assist affected jurisdictions as needed for resource requests.	
Cleaning & Disinfection	TAHC will provide support, expertise, and personnel for cleaning and disinfection, decontamination.	PMACC will refer to local Animal Issues Plan-Attachment N and prepare to assist affected jurisdictions in identifying and requesting personnel, equipment and other material resources.	
Depopulation	TAHC will provide support, expertise, and personnel for animal depopulation, and carcass disposal.	PMACC will assist local jurisdictions in identifying and requesting personnel, equipment and other material resources.	
Disposal	TAHC will provide support, expertise, and personnel for carcass disposal. TECQ will permit large scale onsite disposal sites.	PMACC will refer to local Animal Issues Plan-Attachment I to assist local jurisdictions with resources necessary to evaluate and implement suitable disposal measures, which are environmentally safe and meet public health requirements.	

Appendix 2: Animal Disease Threats

Attachment A - Top 17 Animal Disease Threats in the United States

1	**Highly Pathogenic Avian Influenza, which primarily affects avian animals (i.e., poultry).**	10	Japanese Encephalitis
2	**Foot and Mouth Disease, which primarily affects all cloven-hoofed animals.**	11	African Horse Sickness
3	Rift Valley Fever	12	Venezuelan Equine Encephalitis
4	Exotic Newcastle Disease	13	Contagious Bovine Pleuropneumonia
5	Nipah and Kendra Virus	14	Heartwater (Ehrlichia ruminantium)
6	Classical Swine Fever	15	Eastern Equine Encephalitis
7	African Swine Fever	16	Q Fever (Coxiella burnetii)
8	Bovine Spongiform Encephalopathy	17	Akabane Fever
9	Rinderpest (declared eradicated on 25 May 2011 by the OIE)		

Note: The disease table in Appendix 2: Animal Disease Threats, Attachment 2 provides greater detail on the disease threat.
Source: NAHEMS Guidelines: Vaccination for Contagious Diseases

Attachment B - Disease Table

The following table is provided to further explain diseases that may affect livestock, how diseases are transmitted, where they occur, and the recommended control measures.

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
Anthrax	Y	Y	Y	M	S	S	S		S	L	Y	2010	Bacterial Spore	Decontamination of contaminated tissues, surfaces, and environments is difficult.	Vaccine; Antibiotics effective, but course of disease usually to quick
Aujeszky's disease (Pseudorabies)	N	Y	Y	S	M	S	M		S	L	N	L	Enveloped Virus	Prevent Feral Pig population from interacting with cattle	
Bluetongue (EHD)	N		Y			S		M		Y	1988	2010	Non-Enveloped Virus	No efficient treatment; insect control	Vaccine
Bovine babesiosis Tick Fever, Cattle Fever, Texas Fever, Piroplasmosis, Redwater	Y	Y	Y					M		1943	N	L	Protozoan	Reducing exposure of cattle to ticks	Vaccine
Bovine spongiform encephalopathy (BSE)	Y	Y	Y				M			Y	2011	N	Prion	Do not use feed containing ruminant derived proteins; Decontamination of prion-contaminated tissues, surfaces, and environments is difficult	There is no treatment for BSE

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
Bovine tuberculosis	Y	Y	Y	M			S			L	?	L	Acid-fast bacteria		Treatment of infected animals is rarely attempted because of the high cost, lengthy time and the larger goal of eliminating the disease
Bovine viral diarrhea (BVD)	N		Y	M	M	S				Y	Y	L	Non-Enveloped Virus	Control is achieved with a combination of removal of infected cattle, vaccination, and enhanced biosecurity	Vaccination should be used to decrease clinical disease and to reduce the risk of viral shedding within and between groups of stocker or feeder cattle
Brucellosis (Brucella abortus)	Y	Y	Y		S	S	M			L	L	L	Vegetative bacteria		Surveillance; Vaccine only in endemic areas
Campylobacter jejuni	Y		Y			M	M			L	?		Vegetative bacteria	Campylobacter species are susceptible to many disinfectants	No vaccine; Treatment is often limited to fluid and electrolyte replacement therapy; Antibiotics are occasionally given
Contagious bovine pleuropneumonia (CBPP)	N	Y	Y	M	S					1892	N	N	Vegetative bacteria	Quarantine, test, slaughter; CBPP bacteria do not survive for long in the environment and are inactivated by most common disinfectants.	Vaccine only in endemic areas
Crimean Congo haemorrhagic fever	Y		Y				S	M		N	N	N	Enveloped Virus	Prevention depends on avoiding bites from infected ticks and contact with infected blood or tissues.	None

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
Cryptosporidiosis (cryptosporidium Parvum)	Y				S	S	M						Protozoan (spore)	The protozoa are resistant to many disinfectants; chlorine does not effectively kill the organism	No specific treatment is available; supportive therapy is usually effective as the disease tends to be self–limiting; vaccines have not been developed
E. Coli 0157:h7	Y				S	M	M						Vegetative bacteria	Prevention of shedding in domesticated animals, particularly ruminants, is expected to decrease the number of human infections	
Echinococcosis/ hydatidosis	Y		Y				M		S	?	Y		Worm	Prevention of access of dogs to livestock carcasses or slaughter wastes from farms, households, abattoirs or butchers	Vaccine
Epizootic haemorrhagic disease (EHD); Ibaraki disease	N		Y					M		L	?		Non-Enveloped Virus	Insect control	No vaccine
Foot and mouth disease	N	Y	Y	M	M	S				1929	1952	1954	Non-Enveloped Virus	Quarantine, test, slaughter, disinfect	Vaccine
Giardia	Y						M		S				Protozoan	Concurrent cleaning and disinfection of the environment is expected to increase the effectiveness of treatment by reducing the parasite burden.	No drug is currently licensed to treat giardiasis in these animals
Haemorrhagic septicemia	N		Y	M		S				1969	N	N	Vegetative bacteria	Hemorrhagic septicemia can be eradicated with quarantines, movement controls, tracing of contacts, euthanasia of infected and exposed animals,	Vaccine only in endemic areas

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
														and cleaning and disinfection of the premises. P. Multocida is susceptible to most common disinfectants, as well as to mild heat (55°C/131°F).	
Heartwater	N	Y	Y		S			M		N	N	N	Vegetative bacteria	Control tick population	Tetracycline antibiotics are only effective if given EARLY in the course of the disease, by day 2 or 3 after fever appears and before nervous signs
Infectious bovine rhinotracheitis/infectious pustular vulvovaginitis (IBR, Red Nose)	N		Y	M	M					Y	Y	L	Enveloped Virus	Management practices designed to reduce stress, isolate infected animals, and provide adequate food and water will limit disease transmission and severity	Vaccination prior to movement, commingling and exposure to infected cattle can be effective to prevent disease
Johne's disease (Paratuberculosis)	?		Y		S	S	M			Y	Y	L	Acid-fast bacteria	Screening tests for new animals to identify and eliminate infected animals and ongoing surveillance of adult animals	There is no known treatment for the disease
Listeria	Y			S	S		M						Vegetative bacteria	Feeding good quality silage with a low ph; Rodents should be controlled.	Can be treated with a variety of antibiotics
Lumpy skin disease	N	Y	Y					M		N	N	N	Enveloped Virus	Virus can survive for up to 35 days in desiccated scabs and for at least 18 days in air-dried hides.	Vaccine and antibiotics
New world screwworm (Cochliomyia hominivorax)	Y	Y	Y					M		1982	N	2001	Parasitic Fly	Spraying or dipping with insecticides	Subcutaneous injections of ivermectin and related compounds; treatment with larvacides
Old world screwworm (Chrysomya bezziana)	Y	Y	Y					M		N	N		Parasitic Fly	Spraying or dipping with insecticides	Subcutaneous injections of ivermectin and related compounds; treatment with

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
															larvacides
Q fever	Y		Y	M	M	S		S		Y	Y	N	Vegetative bacteria	Prevent contact with wild animals; Control tick population	Vaccine only in endemic areas
Rabies	Y		Y		M					Y	Y	L	Enveloped Virus	Prevent interaction with wild animals	Vaccine not routine for cattle
Rift Valley fever	Y	Y	Y					M		N	N	N	Enveloped Virus	Surveillance and vector control	Vaccine only in endemic areas
Rinderpest (declared eradicated on 25 May 2011 by the OIE)	N	Y	Y		M					N	N	N	Enveloped Virus	Virus is inactivated rapidly in the environment, and decontamination is not difficult	Vaccine
Salmonella spp.	Y					S	M		S	Y	Y		Vegetative bacteria		Can be treated with a variety of antibiotics
Surra (Trypanosoma evansi)	N	Y	Y					M		N	N	N	Protozoan	Quarantines, movement control, and solation or slaughter; Trypanosomes cannot survive for long periods outside the host; controlling arthropod vectors is	Vaccination and antiparasitics in endemic areas
Theileriosis (East Coast Fever)	N	Y	Y					M		N	N	N	Protozoan	Controlling tick population	Vaccines and antiparasitic drugs available; Treatment is most effective in the early stages of the disease
Trypanosomosis (tsetse-transmitted);Nagana	N	Y	Y			S		M		N	N	N	Protozoan	Quarantines, movement control, and solation or slaughter; Trypanosomes cannot survive for long periods outside the host; controlling arthropod vectors is	Antiparasitics in endemic areas
Tularemia	Y		Y	M			M	S		L	?	N	Vegetative bacteria	Bacteria can survive long periods in the environment. Tick control can reduce the risk of infection. Endemic in panhandle rabbit and hare	Tularemia can be treated with various antibiotics including tetracyclines and quinolones.

Disease / pathogen	Zoonotic potential	TAHC reportable*	OIE reportable	Mode of transmission**						Endemic areas***			Agent type	Sanitary prophylaxis	Medical prophylaxis
				Aerosol	Direct Contact	Fomite	Oral	Vector	Environmental	United States	Canada	Mexico			
														populations.	
Vesicular stomatitis	Y	Y	Y		M			M		Y	1949		Enveloped Virus	Quarantine and movement control; uninfected livestock should kept away from any animals that could be infected	Treatment is symptomatic. Animals with mouth lesions should be provided with softened feed.
West Nile fever	Y		Y					M		Y	Y		Enveloped Virus	Implement mosquito control measures	No specific treatment, other than supportive care, is available.

*This list is not comprehensive. Certain zoonotic diseases (those with the ability to cause illness in both animals and people) are also reportable to the Texas Department of State Health Services

**M – Major source of organism; S – Secondary source of organism

***Y- disease present, L – Disease limited to one or more zones,? - suspected but not confirmed, N - never reported and under active surveillance; date indicates last reported case (Data obtained from 2012 annual reports to OIE)

Disease information was compiled from the Technical Disease Fact Sheets on The Center for Food Security and Public Health Animal Disease Information Website: http://www.cfsph.iastate.edu/DiseaseInfo/index.php?lang=en

Appendix 3: Movement Control

Attachment A – Example Quarantine/Hold Order

Texas Animal Health Commission
Disease Quarantine/Hold Order

_____ _____
Premises Owner ID

_____

_____ _____
Reason for Test

The Texas Animal Health Commission (TAHC) has ascertained that _____

_____

located on the premises described as _____, consisting of _____ acres,

situated in _____ County and located approximately _____ miles _____

of _____ Texas are infected with/exposed to_____

_____.

Therefore, pursuant to provisions of the Texas Agriculture Code together with applicable Texas Animal Health Commission regulations, **quarantine is now hereby imposed on the above described premises and the above specified animals or fowl located thereon.**

These animals are prohibited from being moved from this premise until this quarantine is released. Movement is allowed only by written permit or certificate issued by an authorized representative of the Commission in conformity with the regulations governing the above named disease or condition.

Any person violating this quarantine is subject to criminal prosecution.
Special exemptions: _____

_____

Effective this _____ day of _____, _____.

TEXAS ANIMAL HEALTH COMMISION

_____ BY: _____
Executive Director **TAHC Representative**

CC: _____

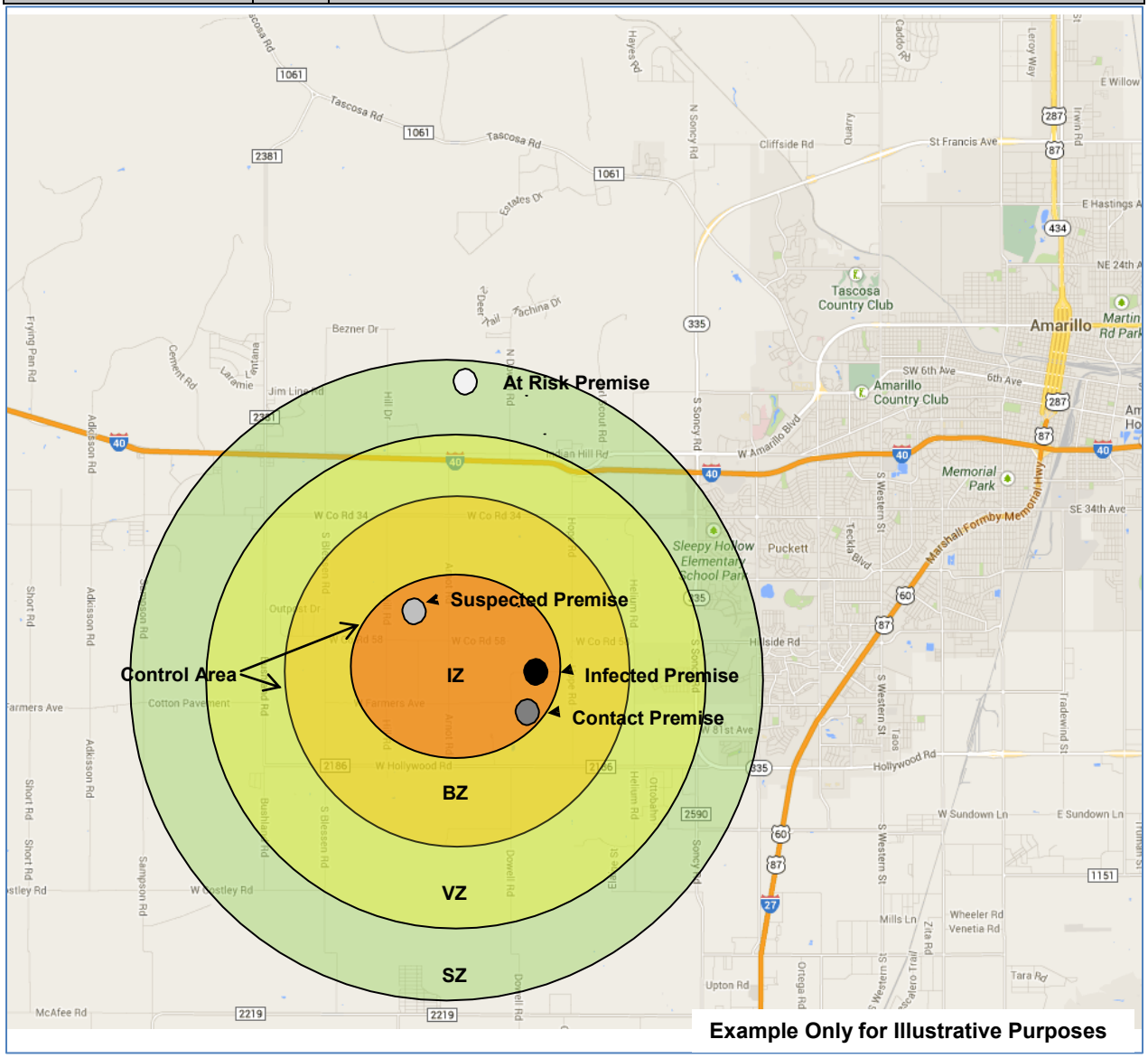
TAHC Form 91-63 (Revised 01/01/2010)

Attachment B - Premise Designations

Summary of Premise Designations		
Premise	**Definition**	**Zone**
Infected Premise (IP)	Premise where a presumptive positive case or confirmed positive case exists.	Infected Zone
Contact Premise (CP)	Premise with susceptible animals that may have been exposed to the Foreign Emerging Animal Disease (FEAD) agent, either directly or indirectly, including but not limited to exposure to animals, animal products, fomites, or people from Infected Premises.	Infected Zone, Buffer Zone
Suspect Premise (SP)	Premise under investigation due to the presence of susceptible animals reported to have clinical signs.	Infected Zone, Buffer Zone, Surveillance Zone
At-Risk Premise (ARP)	Premise with susceptible animals, but none have clinical signs compatible with the FEAD. Premise objectively demonstrates that it is not an Infected Premise, Contact Premise, or Suspect Premise. At-Risk Premises may move susceptible animals or products within the Control Area by permit.	Infected Zone, Buffer Zone
Notes: 1) Infected Premises, Contact Premises, and Suspect Premises are subject to quarantines. 2) At-Risk Premises are subject to Movement Control Restrictions. 3) **Source: FMD Response Plan (REDBOOK), USDA APHIS, June 2012 (draft)**		

Attachment C - Summary of Movement Restriction Zones and Areas

Infected Zone	**IZ**	Zone that immediately surrounds an Infected Premise Perimeter should be 3km (1.86miles) beyond the Infected Premise
Buffer Zone	**BZ**	Zone that immediately surrounds an Infected Zone or a Contact Premise Perimeter should be 7km (4.35miles) beyond the Infected Zone
Control Area	**CA**	Consists of an Infected Zone and a Buffer Zone Perimeter should be 10km (6.21miles) of the Infected Premise
Surveillance Zone	**SZ**	Zone outside and along the Control Area
Free Area	**FA**	Area not included in the Control Area
Vaccination Zone	**VZ**	A protection vaccination zone typically outside the Control Area



Attachment D - VS Form 1-27, Permit for Movement of Restricted Animals

This permit identifies restricted animals moved for quarantine/slaughter purposes. The information is needed to identify disease infected/exposed animals that are moved to specific locations in order to control and prevent spread of the disease (9 CFR 71 through 85). See reverse side for additional information.

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES

PERMIT FOR MOVEMENT OF RESTRICTED ANIMALS

USE A SEPARATE FORM FOR EACH SPECIES

FORM APPROVED OMB NO. 0579-0051

No. Example

5. STATE WHERE ISSUED: TX

1. NAME AND ADDRESS OF SHIPPER OR CONSIGNOR (Include Zip Code)
PRPC EXAMPLE
123 SOMEWHERE RD
PANHANDLE CITY, TX 79000

6. MOVEMENT TO BE: ☐ INTERSTATE ☒ INTRASTATE

7. MOVEMENT FOR: ☐ QUARANTINE ☒ SLAUGHTER

2. CONSIGNEE (Destination Name and Address, include Zip Code)
PACKING HOUSE 1
1 PACKING HOUSE RD
LUBBOCK, TX

8. DISEASE: FMD

9. STATUS OF ANIMALS — No. Reactor: | No. Exposed: 50 | No. Other (Specify):

10. STATUS OF HERD OF ORIGIN: EXPOSED

11. STATUS OF AREA OF ORIGIN: EXPOSED

3. MOVED FROM (Name and Location of Premises if other than item 1 above)

12. NO. ANIMALS IN THIS SHIPMENT: 50

13. SPECIES (One only): BOV

4. NAME AND ADDRESS OF OWNER AT TIME CONDITION DIAGNOSED
PRPC EXAMPLE
123 SOMEWHERE RD
PANHANDLE CITY, TX 79000

14. TRANSPORTATION VEHICLE LICENSE NO. OR OTHER IDENTIFICATION NO.: TX 1234

15. SEAL NO.: 12345678910

16. VEHICLE REQUIRED TO BE CLEANED AND DISINFECTED AT DESTINATION: ☒ YES ☐ NO (If Yes, items 32, 33, and 34 are Applicable)

VALID ONLY FOR ABOVE DESTINATION

17. ANIMALS TO BE MOVED

COMPLETE EAR TAG NO.	BREED	SEX	DISEASE BRAND	OTHER IDENTIFICATION (Complete No.)	COMPLETE EAR TAG NO.	BREED	SEX	DISEASE BRAND	OTHER IDENTIFICATION (Complete No.)
EXAMPLE 1 74AAA0001	BX	S			EXAMPLE 17 74AAA0017	BX	S		
EXAMPLE 10 74AAA0010	BX	S			EXAMPLE 18 74AAA0018	BX	S		
EXAMPLE 11 74AAA0011	BX	S			EXAMPLE 19 74AAA0019	BX	S		
EXAMPLE 12 74AAA0012	BX	S			EXAMPLE 2 74AAA0002	BX	S		
EXAMPLE 13 74AAA0013	BX	S			EXAMPLE 20 74AAA0020	BX	S		
EXAMPLE 14 74AAA0014	BX	S			EXAMPLE 21 74AAA0021	BX	S		
EXAMPLE 15 74AAA0015	BX	S			EXAMPLE 22 74AAA0022	BX	S		
EXAMPLE 16 74AAA0016	BX	S			EXAMPLE 23 74AAA0023	BX	S		

I certify that I have inspected the animals described on this permit and find them eligible to move in accordance with the requirements of State and Federal regulations.

18. SIGNATURE OF INSPECTOR	19. DATE ISSUED	20. TIME ISSUED	VOID AFTER 21. DATE	VOID AFTER 22. TIME

WARNING TO OWNER, SHIPPER AND TRUCKER - LIVESTOCK MUST BE DELIVERED TO CONSIGNEE WITHOUT DIVERSION

I understand that it is a violation of Federal law to move the animals identified herein interstate except in accordance with the provisions of applicable Federal Regulations. I also understand that such animals must comply with existing state laws and regulations governing movement of livestock and poultry. I have arranged or will arrange for a copy of this permit to accompany the interstate shipment and be delivered with the above described animals.

23. SIGNATURE OF OWNER OR SHIPPER	24. TITLE ☐ OWNER ☐ SHIPPER	25. DATE SIGNED

I certify that the animals described on this permit were received and slaughtered/quarantined in accordance with the requirements of the State and Federal regulations on the date indicated in item 29.

26. PLACE ANIMALS RECEIVED	27. DATE ANIMALS ARRIVED	28. NO. ANIMALS RECEIVED	29. DATE SLAUGHTERED/QUARANTINED

30. DATE AND TIME SEALS BROKE	31. AUTHORIZED SIGNATURE	32. DATE CLEANED AND DISINFECTED (if required)	33. SIGNATURE OF INSPECTOR	34. DATE SIGNED

VS FORM 1-27 (JUN 89) *Previous edition may be used.*

Attachment E – Quarantine/Hold Order Release

Texas Animal Health Commission
Release of Disease Quarantine/Hold Order

_____ _____
Date

_____

_____

The ☐☐☐ Quarantine ☐☐☐ Hold Order dated _____, on the premises and animals located in _____ County, Texas, because of is hereby ☐☐☐ released ☐☐☐ partially released.

The premises and animals included in this release and described as:

_____

_____

_____

The release was made possible by these circumstances or actions:

_____

_____

_____

TEXAS ANIMAL HEALTH COMMISSION

_____ _____ _____
Executive Director **TAHC Representative**

CC: _____

_____

_____

TAHC Form 91-62 (Revised 01/01/2010)

Attachment F - Movement Control Guidelines

Movement into Control Area from Outside Control Area to Specific Premise					
Moving within a Control Area from a/an →	**Infected Premise**	**Suspect Premise**	**Contact Premise**	**At-risk Premise**	**Monitored Premise**
Susceptible animals	Prohibited, except under certain circumstances as determined by the ICP, such as slaughter.	Prohibited, except under certain circumstances as determined by the ICP, such as slaughter.	Prohibited, except under certain circumstances as determined by the ICP, such as slaughter.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by the ICP; surveillance diagnostic tests, premises biosecurity, and risk assessment may be required for permit.
Other animals (non-susceptible livestock) from premises with susceptible species	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.
Movement within a Control Area					
Moving out of a Control Area from a/an →	**Infected Premise**	**Suspect Premise**	**Contact Premise**	**At-risk Premise**	**Monitored Premise**
Susceptible animals	Prohibited, except under certain circumstances as determined by the ICP, such as slaughter.	Prohibited, except under certain circumstances as determined by the ICP such as slaughter.	Prohibited, except under certain circumstances as determined by the ICP such as slaughter.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.
Other animals (non-susceptible livestock) from premises with susceptible species	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Prohibited unless specific permit granted by ICP and appropriate biosecurity measures.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by the ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.

Movement from Inside a Control Area to Outside a Control Area from Specific Premises					
Moving out of a Control Area from a/an →	**Infected Premise**	**Suspect Premise**	**Contact Premise**	**At-risk Premise**	**Monitored Premise**
Susceptible animals	Prohibited, except under certain circumstances as determined by the ICP.	Prohibited, except under certain circumstances as determined by the ICP.	Prohibited, except under certain circumstances as determined by the ICP.	At-Risk Premises must become Monitored Premises to move susceptible livestock out of a Control Area.	Allowed to move by permit approved by ICP; surveillance, diagnostic tests, premises biosecurity, and risk assessment may be required for permit.
Other animals (non-susceptible livestock) from premises with susceptible species	Prohibited unless specific permit approved by ICP and appropriate biosecurity measures and risk assessment.	Prohibited unless specific permit approved by ICP and appropriate biosecurity measures and risk assessment.	Prohibited unless specific permit approved by ICP and appropriate biosecurity measures and risk assessment.	Allowed to move by permit approved by ICP; surveillance and diagnostic tests for susceptible animals on premises, premises biosecurity, and risk assessment may be required for permit.	Allowed to move by permit approved by ICP; surveillance and diagnostic tests for susceptible animals on premises, premises biosecurity, and risk assessment may be required for permit.
Note: Information derived and amended from: FMD Response Plan (THE RED BOOK), USDA APHIS, June 2012 (draft).					

Attachment G - Traffic Control Notes

Traffic Control Notes for Level 3 - Road Closure (no access permitted)

Level 3: **Road closures- Roads are barricaded and all traffic movement is stopped.**

Location: Road closures should be located near intersections. There should be good sight distance to the closures at least equal to the braking distance at the posted speed limit.

Personnel: Generally at least one person should be located near a road closure to hand out information sheets and to describe detour routes. A law enforcement officer should patrol road closures and respond quickly if needed. Possible law enforcement personnel who could be utilized include: local sheriff's Deputy Officers, state patrol troopers, local police, game and parks officers, Texas and Southwestern Cattle Raisers Association Officers, Department of Criminal Justices Officers and the National Guard.

Equipment: The following equipment should be provided for each road closure:

- **Barricades** - standard Type III barricades supplemented with plastic fence are preferred, but other available materials such as hay bales, gates, or regular fence can be substituted.
- **Signage** - at least one advance warning sign is required on each side of the road block. The advance sign should be 100 to 500 feet in advance of the road closure. Detour routing signs should be installed and Biohazard signs should be used.
- **Personal protective equipment (PPE**) - All personnel working at road closures, including law enforcement personnel, should wear safety apparel. Especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at road closures depending on the specific disease including respiratory protection, as well as eye, face, and head protection in accordance with OSHA regulations.
- **Shelter** - Personnel at road closures may use work or personal vehicles for shelter.
- **Lighting** - Warning lights may be mounted on barricades and warning signs used for road closures. Vehicles used in traffic control, should display high-intensity rotating, flashing, oscillating, or strobe lights. Road barricades that are not retro reflective should be well-lit at night.
- **Communications** - Each person stationed at road closures should be provided with a means of communication with the emergency operations center. This may include the use of portable radios, pagers, cellular phones, or citizen-band radios.
- **Portable sanitary facilities** - These should be provided for personnel.
- **Maps** - personnel stationed at road closures should have maps showing the quarantined area with detours highlighted.

Reference: NCHRP Report 525, A Guide to Traffic Control of Rural Areas in an Agricultural Emergency, 2008

Traffic Control Notes for Level 2 - Traffic Check Point

Level 2: **Traffic Checkpoints – Vehicles are screened and those related to agriculture are returned to their places of origin or holding sites, or they are allowed to proceed under permit.**

Location: Check points should be located on road sections that are relatively straight and flat and well removed from potential sight restrictions so that stopped vehicles are visible from either approach. Diversion points should be available so that traffic can turn around or wait for further instructions.

Personnel: At least one law-enforcement officer with a cruiser should be stationed at each traffic check point. On roads with traffic of 1,000 vehicles per day, two or more officers may be needed to ensure that delays are not excessive.

Possible law enforcement personnel include: local sheriff's staff, state patrol troopers, local police, game and parks officers, Texas Southwestern Cattle Raisers Association Officers, and Department of Criminal Justices Officers. In the initial stage, a police cruiser with high-intensity rotating, flashing, oscillating, or strobe lights may be used for advance warning of a traffic check point.

For long-term operations, two or more non-law-enforcement personnel with vehicles should be stationed at traffic check points to assist officers and to upgrade traffic control devices. Non-law-enforcement personnel who can be utilized include county road department staff, state DOT personnel, and state conservation staff. Counties can also utilize citizen corps or other volunteer organizations.

Equipment: The following equipment should be provided for each traffic check point:

- **Signage** - After initial stages, at least one advance warning sign is required for each direction of travel. The advance sign should be 100 to 500 feet in advance of the traffic stop. Biohazard signs should be used when available.

- **Personal protective equipment (PPE) -** All personnel working at road closures, including law enforcement personnel, should wear safety apparel. Especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at traffic check points depending on the specific disease including respiratory protection as well as eye, face, and head protection in accordance with OSHA regulations.

- **Shelter** - Personnel at traffic check points should be provided with shelter from temperature extremes, winds, and precipitation.

- **Lighting** - Street or portable lighting should be provided near traffic stops. Warning lights may be mounted on warning signs used in advance of traffic stops. Vehicles used in traffic control, should display high-intensity rotating, flashing, oscillating, or strobe lights. Police cruisers should also display flashing lights.

- **Communications** - Each law enforcement officer stationed at road closures should be provided with a means of communication with the Emergency Operations Center. This communications method may include the use of portable radios, pagers, cellular phones or citizen band radios.

- **Portable sanitary facilities** - These should be provided for personnel stationed at traffic check points.

- **Maps** - personnel stationed at traffic check points should have maps showing the quarantined area with detours highlighted.

Reference: NCHRP Report 525, A Guide to Traffic Control of Rural Areas in an Agricultural Emergency, 2008

Traffic Control Notes for Level 1 - Traffic Check Point with C& D Station

Level 1: **Traffic checkpoints can prevent the spread of disease by ensuring traffic is controlled and only authorized vehicles are allowed to move in or out of the quarantine area. Level 1 checkpoints are used with the added provision of a station to clean and disinfect vehicles and equipment and to disinfect individuals exiting a quarantine zone. In an agricultural emergency, the quarantine applies directly to plants or animals, but individuals and vehicles may spread the disease if disinfection efforts are not utilized.**

Location: Cleaning and disinfection stations should be located in areas away from moving traffic. Check points should be located on either side of the cleaning and disinfection station in the middle of road sections that are relatively straight and flat so that stopped vehicles are visible from either approach to the check point. Diversion points should be available so that traffic can turn around or wait for further instructions.

Personnel: At least two law-enforcement officers with cruisers should be stationed at each traffic check point with a cleaning and disinfection station. On roads with traffic of 1,000 vehicles per day, three or more officers may be needed.

Possible law-enforcement personnel include: local sheriff's staff, State patrol troopers, local police, game and parks officers, Texas and Southwestern Cattle Raisers Association Officers, and Department of Criminal Justices Officers If available, two or more non-law-enforcement personnel with vehicles should be stationed at traffic check points to assist officers and to upgrade traffic control devices. Additional personnel will be needed to operate the cleaning and disinfection station.

Non-law-enforcement personnel who can be used may include county road departments, state DOT personnel, National Guard, and state conservation staff. Counties can also utilize citizen corps or other volunteer organizations.

Equipment: The following equipment should be provided for each traffic check point with a cleaning and disinfection station:

- **Signage** - At least one advance warning sign is required for each direction of travel. The advance sign should be 100 to 500 feet in advance of the traffic stop. Biohazard signs should be used when available.

- **Personal protective equipment (PPE**) - All personnel working at traffic check points, including law enforcement personnel, should wear safety apparel. Especially at night, personnel may need apparel meeting the performance standard for Class 3 risk exposure. Other PPE may be required at traffic check points depending on the specific disease including respiratory protection as well as eye, face, and head protection in accordance with OSHA regulations.

- **Shelter** - Personnel at traffic check points should be provided with shelter from temperature extremes, wind, and precipitation.

- **Lighting** - Street or portable lighting should be provided near traffic stops. Warning lights may be mounted on warning signs used in advance of traffic stops. Vehicles used in traffic control, should display high-intensity rotating, flashing, oscillating, or strobe lights. Police cruisers should also display flashing lights.

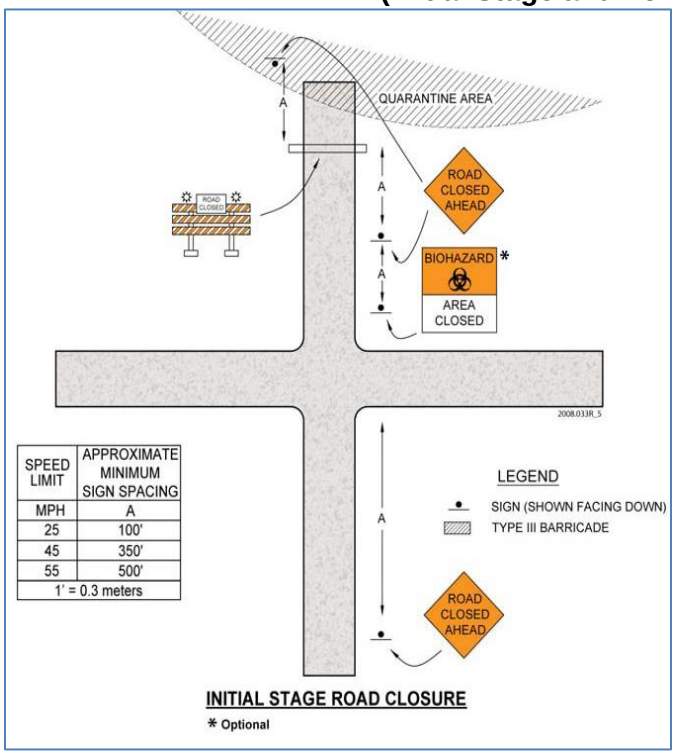
- **Communications** - Each law enforcement officer stationed at a traffic check point should be provided with a means of communication with the EOC. This communication method may include the use of portable radios, pagers, cellular phones, or citizen band radios.

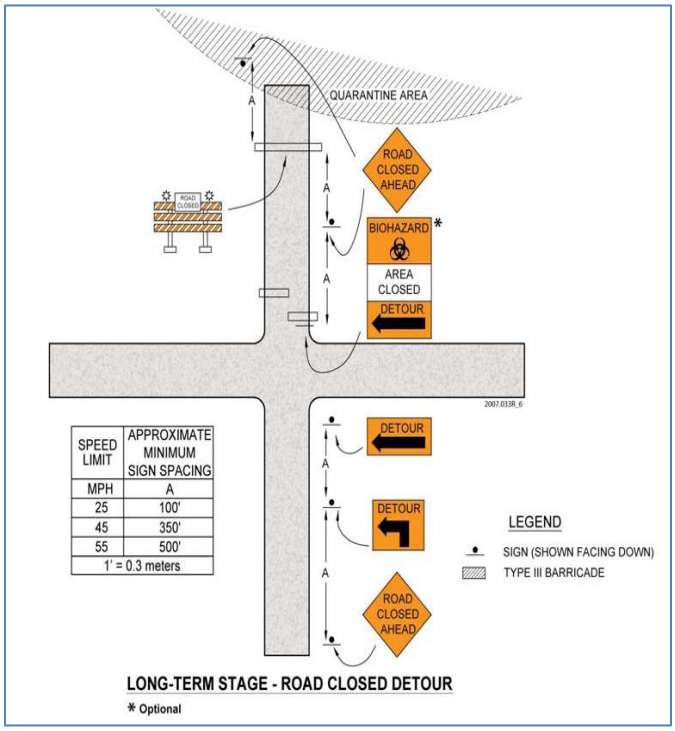
- **Portable sanitary facilities** - These should be provided for personnel stationed at traffic check points.

- **Maps** - Personnel stationed at traffic check points should have maps showing the quarantined area and with the detours highlighted.

Reference: NCHRP Report 525, A Guide to Traffic Control of Rural Areas in an Agricultural Emergency, 2008

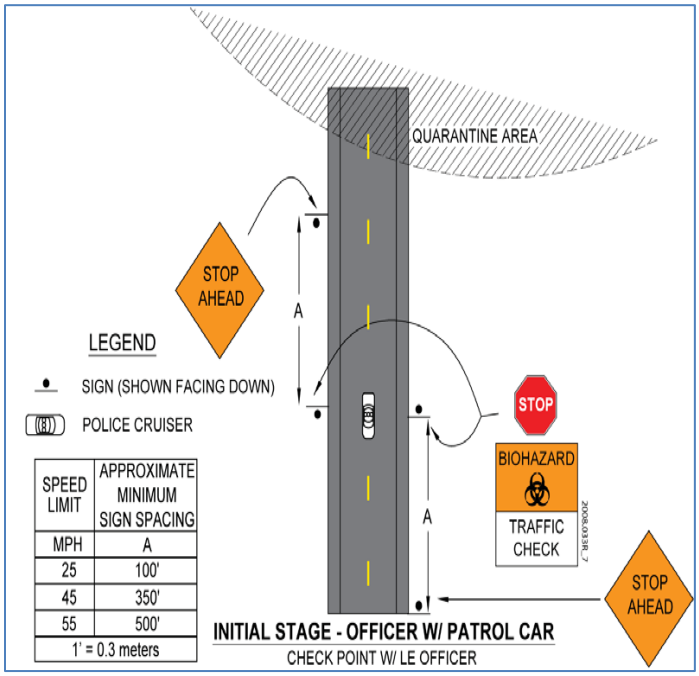
Road Closure Traffic Control – Without Law Enforcement (Initial Stage and Long Term Stage)

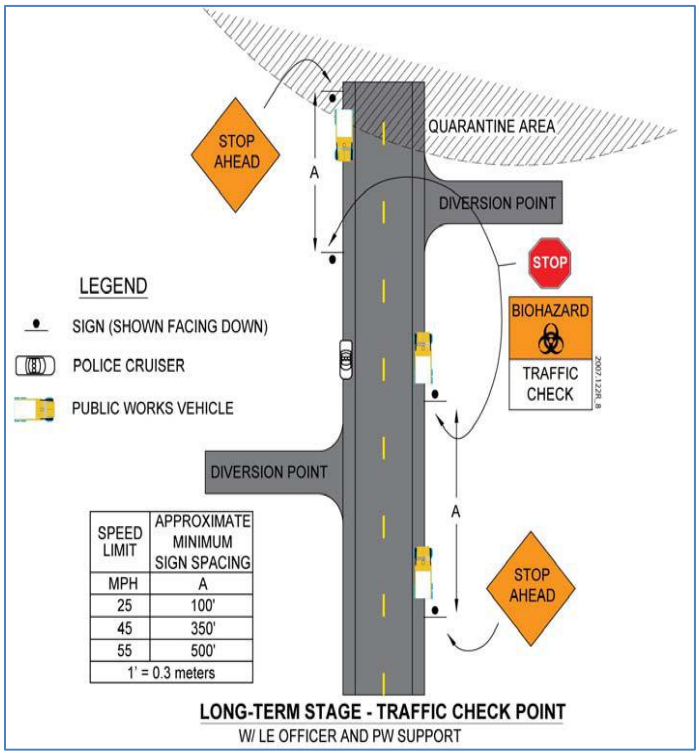




QTY	SIGNS
	Stop ahead
	Road closed
	Detour
	Arrows
	US/State route numbers
	Road name signs
	Biohazard signs
	Variable message signs
	BARRICADES
	Portable barricades
	Gates
	Hay Bales, Cones, Barrels
	VEHICLES
	Police cruiser
	Trucks with sign capacity
	Trucks with towing/hauling capacity
	Other safety vehicles with flashers
	MAPS
	State and County road maps
	Property and Land-use maps
	SAFETY EQUIPMENT
	Reflective vests
	Flares
	Personal Protective Equipment
	COMMUNICATION EQUIPMENT
	Radio with spare batteries
	SHELTER
	Lighting
	Portable Sanitary facilities

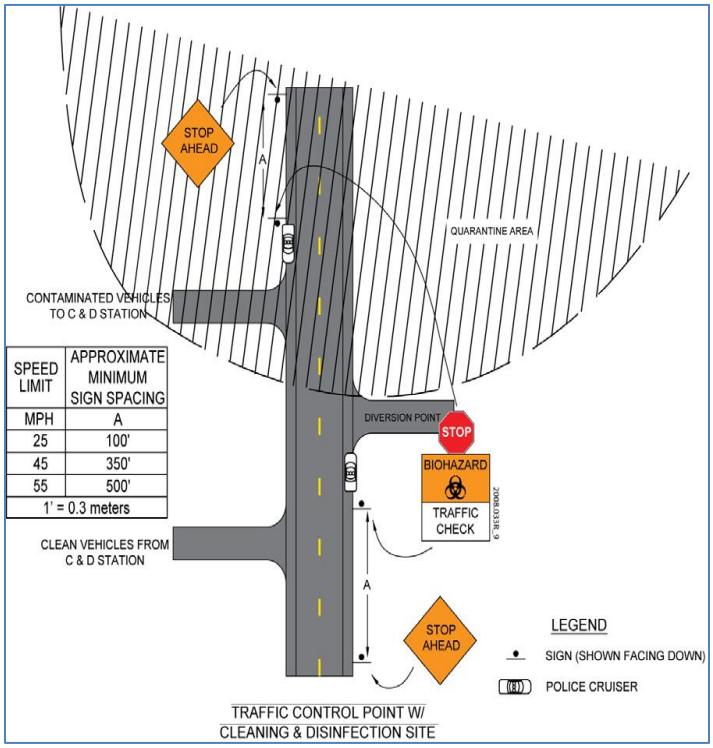
Road Closure Traffic Control – With Law Enforcement (Initial Stage and Long Term Stage)





QTY	SIGNS
	Stop ahead
	Road closed
	Detour
	Arrows
	US/State route numbers
	Road name signs
	Biohazard signs
	Variable message signes
	BARRICADES
	Portable barricades
	Gates
	Hay Bales, Cones, Barrels
	VEHICLES
	Police cruiser
	Trucks with sign capacity
	Trucks with towing/hauling capacity
	Other safety vehicles with flashers
	MAPS
	State & County road maps
	Property and Land-use maps
	SAFETY EQUIPMENT
	Reflective vests
	Flares
	Personal Protective Equipment
	COMMUNICATION EQUIPMENT
	Radio with spare batteries
	SHELTER
	Lighting
	Portable Sanitary facilities

Traffic Control – For Traffic Checkpoint
(With Cleaning and Disinfection Station)



QTY	SIGNS
	Stop ahead
	Road closed
	Detour
	Arrows
	US/State route numbers
	Road name signs
	Biohazard signs
	Variable message signes
	BARRICADES
	Portable barricades
	Gates
	Hay Bales, Cones, Barrels
	VEHICLES
	Police cruiser
	Trucks with sign capacity
	Trucks with towing/hauling capacity
	Other safety vehicles with flashers
	MAPS
	State and County road maps
	Property and Land-use maps
	SAFETY EQUIPMENT
	Reflective vests
	Flares
	Personal Protective Equipment
	COMMUNICATION EQUIPMENT
	Radio with spare batteries
	SHELTER
	Lighting
	Portable Sanitary facilities

Attachment H – Basic C& D Team Equipment and Supplies List

For a Team of Ten Members

Individual Equipment

Coveralls – cloth	1 PR
Coveralls – disposable	2 PR
Coat – waterproof	1 EA
Pants – waterproof	1 EA
Hat – waterproof	1 EA
Gloves - heavy gauntlet rubber	1 PR
Gloves - surgical rubber	5 PR
Masks – surgical (if needed)	3 EA
Respirator (if needed)	1 EA

Hand Tools

Claws hammer	2 EA
Pliers	2 EA
Screwdriver	2 EA
Phillips screwdriver	2 EA
Crescent wrench 12 inch	2 EA
Crowbar	2 EA
Hatchet	2 EA
Wire brushes w/scraper nose	2 DZ
Fiber brushes long handle	2 DZ
Pails 12-14 quart	6 EA
Sponges	2 DZ
Tent or other shelter	1 EA
Axe	2 EA
Shovels	2 EA
Fork manure	2 EA
Brooms heavy	3 EA
Hoes	4 EA
Rakes garden	2 EA
Scrapers long handle	2 EA
Post-hole digger	2 EA
Hose ¾ inch x 25 feet	3 EA
Vacuum shop	1 EA
Electrical cord 12 gage 100 feet	1 EA

Power Tools & Equipment

Generator	1 EA
Power spray unit and tank	1 EA
Spray nozzle	2 EA
Safety can 5 gallon w/ gas	1 EA
Hose (3.4 inch x 50 foot)	5 EA

Miscellaneous

Rubber gloves	10 PR
Safety goggles	4 EA
Tub plastic 1o gallon	2 EA
Cans metal 10 gallon	2 EA
Can garbage galvanized 30 gallon	2 EA
Bag plastic (8 mil 50) gallon for debris 100 count	1 EA
Bag plastic (4 mil 30 gallon) for clothes 50 count	1 EA
First Aid Kit with eye wash	1 EA
Water bottled 1 gallon per person	1 EA
Sports drink 1 quart per person	1 EA

Chemicals

Detergent Virkon®S 1 gallon	1 EA
Bleach 100 lbs for 300 gallons working solution or (Ultra bleach- 1 gallon diluted in 9 gallons of water)	1 EA
Soda Ash (anhydrous sodium carbonate [Na2CO3]) 4%w/v=1 lb./3gallons water 50 lbs for 300 gallons working solution	
Lye (sodium hydroxide [NaOH]) 2%w/v=1 lb./6 gallons water)	
Test strips for disinfectant concentration	

Appendix 4: Vaccination

Vaccination protocols can be found in the USDA NAHMES Guidelines (references 12. and 13.) This appendix provides an abbreviated discussion on vaccination.

A. Introduction

1. The control of a foreign animal disease outbreak may require large-scale vaccination of food animals to minimize the impact on animal and public health, ensure continuity of the U.S. food supply, and minimize the economic impact on food producers. Decisions regarding which vaccines to use and which animals to vaccinate will vary with the disease involved, species affected, and stage of the outbreak. The decision to vaccinate will be based on scientific, economic, political and other factors.

2. The National Veterinary Stockpile (NVS) is maintained by National Center for Animal Health Emergency Management (NCAHEM) through USDA-APHIS. Its mission is to provide States the countermeasures needed to respond to catastrophic animal disease outbreaks that nature or intentional introduction may create.

3. The NVS intends to stockpile vaccines for animal diseases that would be most damaging to animal agriculture, human health, and the U.S. economy. The NVS plans to acquire supplies to respond to the top 17 animal disease threats, which are listed in Appendix 2: Animal Disease Threats.

4. The NVS program also provides logistical support for the North American Foot and Mouth Disease Vaccine Bank and delivers FMD vaccine to the incident command. The NVS can also arrange service contracts for mass depopulation, disposal, and disinfection of animal production facilities if required. NVS will be deployed as needed through coordination efforts with the TAHC.

5. Foot and Mouth Disease (FMD) vaccine is controlled by the U.S. Department of Agriculture, with no pre-emptive vaccination allowed at this time. Vaccines provide only serotype-specific protection. Vaccination against one serotype may fail to protect fully or at all against other strains within the serotype.

6. Onset of immunity is not immediate. Inactivated FMD vaccines may decrease the number of cattle and sheep presenting clinical signs as early as 4 days after vaccination with herd protection improving for the next 2-3 weeks. The vaccine does not help an animal that is already infected. Swine appear to be more difficult to protect. Studies have reported some protection as soon as 3-4 days after vaccination; however, pigs may not be completely protected against disease until 21-28 days after vaccination.

7. Duration of immunity depends on the type of vaccine used and varies by species of animal. No currently available vaccine provides “sterilizing immunity” which will prevent subsequent infection.

8. Diagnostic testing capabilities to differentiate infected and vaccinated animals are necessary if an emergency vaccination strategy is utilized.

9. Information contained in this appendix is provided for situational awareness of what is involved in vaccination procedures. The incident will determine how involved the locals and regional members will be in providing support to the incident needs. Specific actions that may be required regarding vaccination can be found in Appendix 8: Local Plan Template.

   USDA Agricultural Research Service scientists have discovered a new way to fight foot-and-mouth disease. Scientists have discovered interferons - which are proteins - can instantly protect animals against FMD - giving vaccines enough time to induce the animal's immune response necessary to fight the disease. There are three families of interferons - type I, type II and type III - and type I has proven to be effective in controlling FMD. Scientists combined type I and II in an anti-viral vaccine delivery system for pigs - which provided protection when combined with a vaccine from the first day until the vaccine immune response kicked in seven days later. However this method did not work well in cattle. But scientists have found a type III interferon that protects cattle from FMD as early as one day after vaccination. The USDA is funding further research into this methodology.

B. Strategy

In the event of a disease outbreak affecting livestock, various strategies may be employed, depending on the scope of the outbreak and the nature of the disease. In some cases, depopulating livestock without vaccinating animals may be the fastest way for a disease-free country to resume trade without restrictions.

Vaccination may be inappropriate or impractical in instances where vaccinated animals cannot be distinguished from naturally infected animals or where sufficient quantities of vaccine are not readily available.

Strategies will depend on the scope of the outbreak, the nature of the disease, the efficacy and availability of vaccine, and trade restrictions pertaining to a disease or vaccine.

1. Suppressive or Dampening Down Vaccination

   Vaccination can slow or stop disease transmission by decreasing the probability that an animal will become infected and/or reducing the shedding of pathogens from infected animals. Emergency vaccination conducted both within and around infected zones is called suppressive or “dampening down” vaccination. Suppressive vaccination can take place throughout a country or zone; however, large quantities of vaccine and manpower would be needed.

2. Targeted Vaccination

Targeted vaccination may be directed at uninfected animals of high value, which can include livestock with valuable or unusual genetic backgrounds, long-lived production animals, zoo animals, or endangered species. Targeted vaccination can also be directed at uninfected areas where there is a high density of susceptible animals.

3. Ring Vaccination

Ring vaccination, a form of targeted vaccination, refers to a strategy of immunizing animals within a defined area around infected premises or infected zones. Its purpose is to prevent virus transmission from a focal outbreak to surrounding uninfected areas. Ring vaccination depends on the ability to rapidly detect disease cases and identify animals or premises at the greatest risk of disease from confirmed cases.

The size and shape of the vaccination zone will depend on a disease's route(s) of transmission, the history of travel between zones, the geography and weather, and the number and species of susceptible animals. Defining the size and shape of a vaccination zone in ring vaccination can be complex.

4. Barrier Vaccination

Barrier vaccination is very similar to ring vaccination in that its goal is to prevent transmission across the vaccination zone. Barrier vaccination can be appropriate when there is a risk that the infection will spread into an uninfected area from a neighboring country or region.

C. Vaccine Information

1. Vaccine Types

a. There are two main types of conventional vaccines: modified live vaccines and killed inactivated vaccines. There are several types of novel vaccines developed using new technologies. These include live vectored vaccines, chimeric vaccines, plant-derived vaccines, and DNA vaccines.

b. Both modified live vaccines and killed vaccines, when used in food animals, are subject to mandatory withdrawal times determined by the country in which they are licensed. This means that vaccinated animals or products from those animals may not enter the food chain in the time between when the vaccine is administered and before the withdrawal time has elapsed.

c. Withdrawal times are intended to ensure meat, milk, or other products from the vaccinated animal are free from vaccine organism contamination. In the U.S., withdrawal times are determined by the manufacturer, the USDA, and the center for veterinary biologics when a product is licensed.

2. Vaccine Delivery

There are numerous methods to deliver vaccines to animals, and each licensed vaccine is intended only for delivery by the routes stated on its label. Vaccines may be packed in individual dose vials or multiple dose vials. Always refer to the vaccine label and/or insert to determine the volume of a single dose and the route by which it should be given.

3. Vaccine Handling

   Proper handling of vaccines during transport, storage, and reconstitution, and between administrations is critical to ensuring their safety and efficacy. Requirements for individual vaccines vary, but understanding and following general principles of vaccine handling will maximize the likelihood that vaccines will perform as expected. Always refer to the vaccine manufacturer's recommendations for the specific handling requirements of each vaccine.

4. Personal Safety

   Some vaccines, particularly modified live vaccines, have the potential to cause serious illness or infection in humans if they are accidentally injected or stuck with a needle. Use caution when handling any vaccine, particularly modified live vaccines, to avoid exposure to vaccines and needle sticks.

5. Animal Traceability

   a. Regardless of the nature of the emergency requiring mass vaccination, identifying individual animals or herds of animals with a unique identification (e.g., numbers, letters, brands, and others) including a location identifier is critical for traceability purposes.

   b. It is essential to have accurate information on which animals have been vaccinated in order to manage a disease outbreak. Keeping accurate records for information such as date, location, and type of vaccine hinges on the ability to identify to which animal(s) the record refers. In the case of livestock, uniquely identifying individuals, pens, or herds of animals is necessary to track vaccination records, testing results, or other information for the emergency response.

   c. Swine raised in large production systems are typically identified by group or lot, rather than individually, provided that all of the animals remain in the group. Swine can be identified by tattoo, ear notching, ear tags, or some combination thereof. The methods of identification vary between operations. For most grow-finish pigs, sows, and boars, unique individual animal identification is not necessary for movements within a state, as long as the group is shipped as lot and the individual lot identification is maintained.

   d. Cattle can be identified with brands, ear tags, which may be a radio frequency identification (RFID) button tag, plastic dangle tag, and/or a metal brucellosis vaccination tag, or silver metal tag in the right ear, or some combination thereof. The methods of identification vary between operations. Note: the State of Texas does not accept branding as a means of identification for vaccination.

D. Record Keeping

1. Accurate and accessible record keeping is crucial to the success of any vaccination effort. Sufficient data must be recorded to determine which animal or herd was vaccinated on a particular date against which disease(s), and to trace the vaccine source and lot number. Recording unnecessary data can waste time and clutter data sheets.

2. For an emergency vaccination effort, instructions will be provided as to what information should be recorded. A copy of the vaccination records may be kept with both the herdsman and a regional vaccine coordinator in the event of a highly contagious foreign animal disease outbreak.

3. Attachment A is a Sample Herd/Flock Vaccination Form. A standard form will most likely be provided by the animal health authorities. Likewise, USDA approved personnel will be responsible for administering the vaccine and completing the paperwork. Minimum information that should appear, includes:

   - All individual animal identification devices and number(s)
   - Name and mailing address of animal owner
   - Signalment (species, age, sex, breed)
   - Date of vaccination
   - Route of vaccination (intramuscular [IM], subcutaneous [SC], intranasal [IN] and location on the animal
   - Vaccine information
   - Brand or manufacturer
   - Product name or number
   - Lot number and expiration date
   - Withdrawal date (for food-producing animals)
   - Person administering the vaccine (accreditation number as well)

E. Vaccine Administration

1. Swine

   Proper techniques and injection sites must be used when administering vaccines. Ensure the animal is properly restrained to allow successful administration and to reduce the potential for breaking needles. Ensure all needles are accounted for before and after administration. Follow the recommended guidelines for needle size and length in the table found in Attachment B. Properly dispose of all used needles in a puncture-proof container.

2. Cattle

   a. Domestic cattle can generally be divided into two categories: those raised for beef production and those raised for milk production.

   b. Mandatory meat withdrawal times must be observed between vaccination and slaughter for human consumption, and will vary by vaccine. Dairy operations must observe any required milk withdrawal times.

   c. Injections into the muscle of cattle may cause blemishing of the muscle, adversely affecting carcass value. Thus, whenever permitted by the vaccine

label, it is best to give injections subcutaneously rather than intramuscularly. When giving more than one vaccine, it is preferable to administer them on opposite sides of the neck.

d. See table in Appendix 4: Vaccination, Attachment B for types of needles recommended for different injection sites.

e. A new needle should be used for each animal when there is concern about spreading diseases between animals. New needles should always be used when vaccinating cattle intended for breeding or in a breeding herd, due to the potential to transmit bovine leukemia virus or bovine immunodeficiency virus between animals. Properly dispose of all used needles in an approved biomedical sharps container.

3. Sheep and Goats

a. Domestic sheep and goats can be raised for meat, milk, or wool/mohair production. In an emergency situation, instructions will be provided on which vaccines to administer, which route of administration is appropriate, and recommended withdrawal times (if applicable).

b. Subcutaneous injections in sheep and goats are usually given in the loose skin where the neck and shoulder join. They are given by making a tent of skin on the neck or shoulder and injecting the vaccine. A 0.5 inch needle is helpful for ensuring the needle is not accidentally pushed through both sides of the tented skin.

c. Intramuscular injections may be given in the thigh muscle or the large muscles along the side of the neck. IM injections are usually given in the lower hip or shoulder. A 0.5 inch needle is also a good size to use for intramuscular injections.

Attachment A: Sample Herd Vaccination Form

Animal / Herd Owner

Last Name First Name

Street Address City State Zip Code

Species

☐ Cattle ☐ Swine ☐ Sheep
☐ Beef ☐ Horse ☐ Goats
☐ Dairy ☐ Poultry ☐ Other _____

Vaccine

Disease Manufacturer Product Name / Number

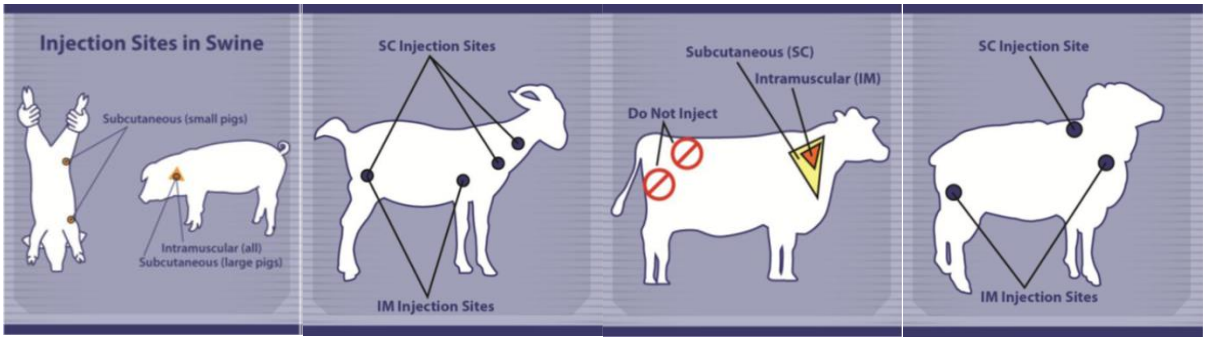
Serial / Lot Number Expiration Date Withdrawal Time

Dose Given Route of Administration Location / Site Given

Administered by Accreditation number

Date	Animal or Group ID Number	Breed	Sex	Processor

Attachment B: Vaccine Administration



Recommended Needle Sizes for Cattle		
Intramuscular injection	**Gauge**	**Length**
Calves (<300#)	18 or 20	1” or 1 ½ “
Yearlings (300-700#)	16 or 18	1” or 1 ½ “
Adult (>700#)	16 or 18	1” or 1 ½ “
Subcutaneous injection		
Calves (<300#)	16 or 18	½ or ¾ “
Yearlings (300-700#)	16	½ or ¾ “
Adult (>700#)		
Recommended Needle Sizes for Swine		
Intramuscular injection	**Gauge**	**Length**
Baby pigs	18 or 20	5/8 or ½ “
Nursery	16 or 18	¾ or 5/8 “
Finisher	16	1”
Breeding stock	14, 15, or 16	1” or 1 ½”
Subcutaneous injection		
Nursery	16 or 18	½”
Finisher	16	¾”
Breeding stock	14 or 16	1”
Reference: NAHEMS Guidelines: Vaccination for Contagious Diseases		

Appendix 5: Depopulation

A. Introduction

1. Mass depopulation may be employed in an FEAD response to prevent or mitigate the spread of FEAD through eliminating infected or potentially infected animals. Depopulation and carcass disposal may represent the most effective means of disease control and eradication. After declaration of an FEAD incident, the strategy may be to depopulate animals on an Infected Premise, as well as susceptible animals on Contact Premises, as soon as possible.

2. If mass depopulation is determined to be necessary, it should be provided to the affected animals as safely, quickly, efficiently, and humanely as possible. In addition, the emotional and psychological impact on animal owners, caretakers, their families, and other personnel must be considered.

3. Mass depopulation and euthanasia are not synonymous, and the USDA Animal and Plant Health Inspection Service (APHIS) recognizes a clear distinction. Euthanasia involves transitioning an animal to death as painlessly and stress-free as possible. Mass depopulation is a method by which large numbers of animals must be destroyed quickly and efficiently to reduce risk of disease progression with as much consideration given to the welfare of animals as practicable, given extenuating circumstances. Depopulation is only authorized under extreme circumstances.

4. As presented in the State FEAD Response Plan, a field ICP will be established and it will conduct FEAD response operations. These activities will include:

    - Obtaining samples from potentially exposed animals for testing purposes,
    - Shipping samples to the appropriate NAHLN laboratory,
    - Issuing quarantines, hold orders, and movement permits and
    - Humanely depopulating animals, as appropriate and necessary.

5. Attachment A provides an overview of the advantages, disadvantages and considerations for human safety for depopulation methods appropriate for ruminates. Attachment B provides an overview of the approved methods of euthanasia appropriate for feeder cattle and lambs. Basic equipment and supplies needed are listed in Attachment C. Carcass disposal is discussed in Appendix 6: Disposal.

B. Planning

1. Planning is essential to ensure that euthanasia is carried out efficiently, and unimpeded by a lack of resources. Thus, it will be necessary to develop a depopulation plan based on the assessment and details how depopulation will be performed at a given site. The plan should address the following:

    - Extent of destruction,
    - Depopulation methods,
    - Depopulation sites,
    - Order of destruction,
    - Personnel (trained and certified),

- Materials, supplies, and equipment,
- Legal authority,
- Rate of depopulation that is linked to the rate of disposal,
- Storage prior to disposal,
- Movement to the disposal site,
- Documentation of the final disposition of carcasses,
- Documentation process which includes completed indemnity forms (if applicable) and any required documentation of the depopulation, and
- Cleaning and disinfecting plans for depopulation site, transportation equipment, and final disposal site.

2. Other key considerations that must planned for, include:

   - Ensuring that the premises are secured with a buffer zone to keep onlookers at a reasonable and safe distance,
   - Ensuring runoff from bodily fluids and/or discharge from cleaning and disinfection procedures does not create a contamination/transmission issue,
   - If conducting euthanasia outdoors, ensuring the process is screened with a visual barrier obscuring the view from public roads,
   - Using tents or canopies to protect the operation from the weather and photography,
   - Request the closure of airspace to prevent interference and unwanted publicity.
   - Confining animals in biosecure areas,
   - Identifying centrally located disposal sites and making all practicable attempts to co-locate the destruction site with the disposal site,
   - Allowing disposal teams adequate rest and meal breaks and monitoring for signs of fatigue or emotional distress, and
   - Avoiding damage to property.

C. Depopulation Methods

1. The American Veterinary Medical Association (AVMA) Guidelines on Euthanasia, 2013 edition discusses preferred and acceptable methods of euthanasia for particular species, Some acceptable methods of mass depopulation and euthanasia for cloven-hoofed animals (cattle, pigs, sheep, goats, buffalo, and even-toed wildlife species) include:

   - Blunt trauma,
   - Percussive stunning,
   - Gun shot,
   - Penetrating captive bolt,
   - Electrocution,
   - Chemical euthanasia agents- not allowable as primary for larger animals, only adjunctive, and
   - Carbon dioxide gas - AVMA 2013 page 26 suggests serious constraints on use of CO_2. Page 51 section on cattle, does not list CO_2 as acceptable, page 54 chemical methods are adjunctive for cattle. CO_2 is acceptable for swine.

2. The final choice of an approved method will depend on many factors including the following:

a. Animal considerations

- Number of animals (individual animals or large collectives),
- Species and production type of animals,
- State of domestication (tame, handled animals or wild animals),
- Status of the animal (pet or production farm animal), and
- Physical characteristics including: size, weight, and age.

b. Facility characteristics

- Type of facilities available, including occupational health and safety aspects,
- The logistics of extracting carcasses from the building,
- Positioning of depopulation activities for easy access of carcass removal, and
- Space for carcass disposal.

c. Characteristics of the method

- Practicality of the method(s), including the availability of proficient and certified operators,
- Ability to induce loss of consciousness and death while minimizing pain, distress, anxiety, and apprehension,
- Time required to induce loss of consciousness,
- Reliability and repeatability of the method,
- Irreversibility of the method,
- An euthanasia method that is single-step rather than two-step or multi-step (e.g., captive bolt followed by injection or pithing),
- Compatibility of method's with requirement and purpose,
- Compatibility of method's with subsequent evaluation, examination, or use of tissue,
- Compatibility with species, age, and health status,
- Availability of pharmaceutical agents and the potential for human abuse or safety hazard,
- Emotional effect on observers or operators,
- Public acceptance of euthanasia method,
- Risk of spreading the disease agent and hazard to the environment, and
- Degree of animal restraint required.

d. Personnel considerations

- Training required by operators to reach proficiency,
- Safety, and
- Willingness of personnel to engage in long-term depopulation operations.

D. Extent of Depopulation

1. Specific instructions on the extent of depopulation must be presented.

2. Usually, animals to be depopulated in order of priority are:

    - Animals with the greatest propensity to shed (spread) the disease agent,
    - Animals showing clinical signs of the disease,
    - Animals that have had contact with diseased animals,
    - Animals susceptible to the disease of concern, and
    - Animals where feeding levels cannot be maintained due to movement restrictions of foodstuffs.

E. Site Location

1. Consider the following factors in selecting a destruction site:

    - Facilities available on site,
    - Animal security,
    - Proximity and ease of access and transport requirements to the disposal site,
    - Safety of all personnel on site and in the immediate vicinity,
    - Acceptability to the owner or manager,
    - Likelihood the depopulation method will cause damage to property and services,
    - Protection or screening from the public view, and
    - Availability of storage facilities if needed.

F. Order and Timeframe of Destruction

1. Disease control requirements will influence the order, but the order of destruction is likely as follows:

    - Animals determined to have a high likelihood of shedding the disease agent,
    - Affected animals,
    - Their direct contacts, and
    - Other susceptible animals, in descending order of epidemiological importance.

In determining priorities for euthanasia, animal welfare requirements may override eradication considerations. For example, animals that cannot obtain feed or water, may be euthanized before better-managed populations. However, sick and distressed animals will require euthanasia before healthy animals.

Attachment A - Considerations for Approved Depopulation Methods for Cattle & Sheep

Method	Human Safety Risks	Advantages	Disadvantages	Equipment
Gun Shot	-Bullet poses considerable risk	-Recommended for animals that cannot be restrained or are difficult to handle.	-May not kill animal -May present biosecurity risk from leaking body fluids -May preclude evaluation of brain if damaged by Shooting	-Skilled and licensed operator -Appropriate firearm and ammunition for cattle -.22 caliber long rifle" for calves & lambs -.22 caliber not acceptable for larger animals - Hollow points bullets not allowed
Penetrating Captive Bolt	-Moderate	-Safer for operator than free bullet method	-May be a two-step process based on size -Misplaced captive bolt gun may compromise animal welfare -Bolt gun must be maintained, cleaned -Several guns may need to be used to reduce over heating -animal must be retrained	-Different sizes of captive bolt guns for different size livestock.
Electrocution (Head to Heart) (**Not approved for cattle)**	-High – requires considerable operator knowledge	-No tissue or blood exposure -Physically demanding for operator	-Restrain is necessary -Two-step process for large animals Time consuming	-Electrical supply -Electrodes

Method	Human Safety Risks	Advantages	Disadvantages	Equipment
		-Requires monitoring		
Barbiturates	-Low	-Humane & rapid killing of animals	-Animals must be restrained -Administered by a trained professional -Limited access to pharmaceutical agent --High cost	-Syringes & needles -Drug to be injected
Carbon Dioxide	Gases present potential hazardous aspects	-Non-invasive -No tissue or blood exposure -Minimizes stress	-Not appropriate for cattle -Requires excellent ventilation systems to disseminate gas	-Suitable chamber - Compressed CO2

Source:

1) American Veterinary Medical Association. AVMA Guidelines on Euthanasia, 2013.
2) American Association of Bovine Practitioners, Practical Euthanasia of Cattle: Considerations for the Producer, Livestock Market Operator, Livestock Transporter, and Veterinarian, 1999.
3) United States Animal Health Association, Foreign Animal Disease , 2008

Attachment C – Materials, Supplies and Equipment

Equipment	Quantity
Cameras and video cameras for safety and documentation purposes.	
Level “C” PPE	
Species- and age-specific equipment, such as, CO2 tanks, captive bolt apparatus, firearms, and ammunition	
Portable corrals and squeeze-chutes or stanchions, extra livestock panels, chains, T-posts, post driver(helps secure the portable corrals and decrease the chance of animals lifting them up/escaping) tie wire	
Rope halters	
Truck (with separate cab and box compartments, and a hydraulic lift tailgate) to move carcasses. Must be leak proof with liner or bed.	
Skid steer or front end loader and chains to move cattle.	
Motorized sprayer (John Bean sprayer)	
Incineration material (e.g., fuel, wood, straw, air curtain)	
Earth moving equipment - to dig the burial locations, vent tubes, knives (to trochar the rumen)	
If using C02 for non-commercial chicken houses, need cans with lids and a hose/adapter	
Handling equipment	
Paddles	
Cattle prod	
Hog panels	
Chicken hooks	
Nets	
Knives for removing ear tags for documentation purposes	
Ropes for removing animals from chutes	
Supplies	
Fire extinguisher	
Water for cleaning and disinfection	
Scrub brushes/buckets for cleaning and disinfection	
Water-based foam concentrate for poultry depopulation	
Ammunition for both firearms and captive-bolt apparatus	
Waterless hand cleaner disinfectant	
Cold packs and First Aid Kit	
Drinking water	
Heavy duty trash bags, small plastic bags, duct tape	
Paper towels	
Zip lock bags	
Zip ties (cable ties)	
Clipboard and pen	
Safety equipment: PPE, sunscreen, boots, tyvex safety glasses	

Appendix 6: Disposal

A. Introduction

1. Effective disposal of animal carcasses and materials is a key component of a successful response to an FEAD incident. The overall goal of disposal operations is to eliminate in a timely, safe, bio-secure, and environmentally responsible manner, all animal carcasses that result from an animal health incident. When a disease agent-such as the Foot and Mouth Disease (FMD) virus-is involved, disposal of materials potentially contaminated with that agent must be accomplished as well.

2. Current Texas guidance states that the Texas Animal Health Commission (TAHC) by order may require the slaughter of livestock, under the direction of the commission, or the sale of livestock for immediate slaughter at a public slaughtering establishment maintaining federal or state inspection if the livestock is exposed to or infected with a disease other than bluetongue or vesicular stomatitis, that:

   - Is recognized by the USDA as a foreign animal disease,
   - Is the subject of a cooperative eradication program with the USDA,
   - Is named on “List A” of the Office International Des Epizooties, or
   - Is the subject of a state of emergency, as declared by the Governor.

3. Additionally, the TAHC shall determine the most effective methods of disposing of diseased carcasses, including methods other than burning or burial.

4. The selection of optimal disposal sites in an FEAD incident involves a variety of factors and concerns. In most situations, the most expeditious method of disposal on a premise (where animals are dying or being depopulated) is that of burial at a single on-premises site. Compared to other disposal methods, burial is simpler, more expeditious and economical. On-site burial also minimizes biosecurity concerns involved in moving contaminated carcasses, animal products, and other materials off an affected premise.

B. Disposal Methods

1. Rendering

   Rendering is a process of both physical and chemical transformation resulting in three end products, carcass meal, melted fat, and water. The main carcass rendering processes include size reduction followed by cooking and separation of fat, water, and protein materials.
   Rendering offers several benefits to food animal and poultry production operations, including, providing a hygienic means of disposing of of routine mortality as well as possible animals condemned during a disease outbreak. The end products of rendering have economic value and can be stored for long periods of time. Using proper processing conditions, final products will be free of pathogenic bacteria and unpleasant odors.

   In an outbreak of disease such as FMD, transport and travel restrictions imposed by the quarantine, may make it impossible to reach rendering plants and it is unknown

if they will be willing to accept or even have the capacity to render the amount needed.

2. Composting

Carcass composting is a natural biological decomposition process that takes place in the presence of oxygen (air).Composting involves a phased decomposition of animal carcasses over a period of time. A drawback is that it take too long before a virus (such as FMD) becomes inactivated. The process involves the breakdown of organic materials by microorganisms such as bacteria and fungi which results in the release of heat, water, CO2 and other gases. The process can be complex and requires an appropriate site, proper management and a carbon source such as, woodchips, straw, cornstalks or similar products.

Windrow composting technique takes place in a static pile. The site is usually built in open spaces with no walls or roofs and not protected from weather. Windrow composting is often used for disposal of large animals. Bin composting is the simplest form of a contained composting method, where carcasses and composting material are confined within a structure built from any materials that are structurally adequate to confine the compost pile material.

3. Incineration

There are three broad categories of incineration: open-air, fixed facility, and air-curtain. Open air includes burning carcasses in an open field. Examples of fixed facilities are crematoria, small carcass incinerators at veterinary colleges, large waste incineration plants, on- site incinerators, and power plants. Air-curtain incineration involves a machine that fan-forces a mass of air through a manifold that accelerates the incineration process generally conducted in an earthen trench.

While incineration is biologically safe, produces little waste, and does not create water pollution concerns, the primary concern is emission of particulates generated during burning. Indirect environmental costs include the impact of emissions and other products of combustion on air, liquid leakage on soil and water, and the remaining ash. Disease spread through the air is also a concern. The air quality risk will be higher if the process is not properly managed. Smoke and odor are both a concern to neighbors and the general public. Other issues for cost consideration include worker safety precaution and burn permits. Also, there is very limited capacity in managing large numbers of carcasses.

4. Alkaline Hydrolysis

Alkaline Hydrolysis is a process that uses a caustic agent, such as sodium hydroxide and heat to hydrolyze carcasses into a sterile solution and calcium products. The process requires expensive equipment and provides only low volume capacity; therefore, this method has limited application in a disease outbreak situation.

The impacts of alkaline hydrolysis carcass disposal efforts on water should be negligible if conducted properly. The most likely impacts on water quality would likely be due to runoff from the site that might carry sediments and materials washed off

equipment. If the digestate (resulting material) produced by alkaline hydrolysis is land applied, it may be desirable to monitor water quality (surface water and shallow groundwater) for these fields. However, if the digestate is applied at rates that are safe with respect to nutrients and trace metals, the environmental impacts should be minimal. Also, there is limited capacity in managing large numbers of carcasses.

5. Burial

For animal disease eradication efforts, trench burial traditionally has been a commonly used, and in some cases, even a preferred, disposal option. In spite of potential logistical and economic advantages, concerns about possible effects on the environment and public health have resulted in a less favorable standing for this method.

Landfills represent a significant means of waste disposal in the US and throughout the world and have been used as a means of carcass disposal in several major disease eradication efforts, including the 1984 and 2002 avian influenza outbreaks in Virginia and the 2001 outbreak of foot and mouth disease in the United Kingdom.

a. Trench Burial

Disposal by trench burial involves excavating a trough into the earth, placing carcasses in the trench and covering with the excavated material (backfill).Relatively little expertise is required to perform trench burial, and the required equipment is commonly used for other purposes.

Trench burial is cited as a relatively economical option for carcass disposal as compared to other available methods. It is also reported to be convenient, logistically simple, and relatively quick, especially for daily mortalities, as the equipment necessary is generally widely available and the technique is relatively straightforward.

b. Landfill Burial

The use of modern landfills is a highly regulated operation, engineered and built with technically complex systems specifically designed to protect the environment. Permitted landfills for carcass and material disposal may be an option. The necessary equipment, personnel, procedures and containment systems are already in place. Transport of the carcasses to the landfill can pose some risk of disease spread.

During an emergency or instance of catastrophic loss, time is often very limited, and therefore landfills offer the advantage for waste disposal. Furthermore, the quantity of carcass material that can be disposed of via landfills can be relatively large. Even though disposal by landfill may be an allowed option, and a suitable landfill site may be located in close proximity, landfill operators may not be willing to accept animal carcasses.

C. Planning

1. Planning is essential to ensure that the disposal task is carried out efficiently and unimpeded by a lack of resources. Ideally, this disposal plan will be made in consultation with the owner.

2. As presented in the State FEAD Response Plan, a field ICP will be established and it will conduct FEAD response operations. These activities will include:

   - Obtaining samples from potentially exposed animals for testing purposes,
   - Shipping samples to the appropriate laboratory,
   - Issuing quarantines, hold orders, and movement permits, and
   - Humanely depopulating animals, as appropriate and necessary ensuring the proper disposal of animal carcasses.

3. Before an FEAD outbreak, a carcass disposal plan or guidance needs to be developed that includes the following:

   - Considering all feasible disposal alternatives,
   - Collecting and recording important contact information,
   - Identifying sources and acquiring needed equipment and materials,
   - Identifying services such as dead stock haulers and heavy equipment operators,
   - Identifying all disposal sites, treatment sites, and landfills,
   - Identifying carcass composting expertise and material suppliers,
   - Understanding biohazardous waste disposal (sharps, medical waste, etc.), and
   - Listing ancillary disposal equipment sources for refrigeration, grinders, storage tank.

4. Additionally, the written plan should detail how disposal will be performed at a given site. The plan should include the following sections:

   - Background,
   - Site characteristics,
   - Waste characteristics,
   - Selected site-specific disposal options,
   - Regulatory permits and approvals,
   - Materials, supplies, and equipment,
   - Personnel training, certification, and briefings,
   - Operational timeline for disposal, and
   - Quality Assurance/Quality Control.

5. Selecting Site-Specific Disposal Options

   Additionally, the plan should provide details of how to implement all the disposal options during the FEAD response. Because selection of an optimal disposal option - in an animal health emergency - involves many complex factors, several tools are provided in the reference material to assist in the decision making process.

   For example, Attachment A summarizes disposal methods for common infectious agents. Attachment B discusses advantages and disadvantages of methods for ruminant disposal. And Attachment C provides a quick checklist for determining a suitable disposal solution.

6. Other considerations for planning on-site disposal include:

    - Public health or environmental protection laws,
    - Availability of alternative disposal sites (e.g., nearby commercial landfills),
    - The suitability for burial or incineration near the site where the animals are euthanatized,
    - The number and species of carcasses and the amount and type of other material in need of disposal,
    - Any potential hazards the material may pose to humans or livestock,
    - The amount and size of rocks and the type of soil in the potential disposal site.
    - Roads or open areas that allow access to the disposal site,
    - The permissible distance between the seasonal high water table and the bottom of the burial pit,
    - The minimum permissible distance between the wells and water reservoirs and the bottom of the burial pit,
    - Proximity to high-density housing or other public areas,
    - The location of underground and overhead utility structures,
    - Climate and weather factors (e.g., prevailing winds, wet, frozen ground),
    - The intended use of the burial site, after disposal activities are completed, and
    - Availability of equipment needed for the type of disposal method.

Attachment A - Disposal of Common Infectious Agents

Agent	Classification	Preferred Disposal Method	Recommended Disinfectants
BSE/ Scrapie	Prion, non-viral	Bury, burn, or alkaline hydrolysis	Bury or burn any contaminated materials, then use soap and detergent followed by sodium hypochlorite
Avian influenza/ Newcastle	Category A virus	Bury or burn	Soaps and detergents, sodium hypochlorite, calcium
FMD/ Swine vesicular disease	Category B virus	Bury or burn	Acids for FMD; oxidizing agents and alkalis for animal housing and equipment; soaps, detergents, and citric acid for humans
Anthrax	Bacterial spore	Burn	Formaldehyde, gluteraldehyde, hydrogen peroxide,peracetic acid
Source: Carcass Disposal: A Comprehensive Review			

Attachment B - Ruminant Disposal Methods

Method	Advantages	Disadvantages	Resources
Mass Burial On Site	-Removal of large amounts of biomass -Facilities can be decon-taminated immediately -Risk of disease spreading is reduced upon covering the carcasses with adequate fill	-Requires multi-agency approval -Significant site planning -Public opposition -Potential environmental contamination, including fluids from decay process	-Excavation equipment -Cover material -Appropriate landscape
Landfill	-Cost per ton is manageable -Infrastructure may be in place to accept large quantities of materials quickly. -Back up safety and compliance teams exist -Liner systems for containment may be in place	-Requires transporting carcasses off-site -Permitting process may lead to delay in burial -Operator may refuse to accept materials -Safe management of fluids from decay process -Standard practices are different for each site	-Approved landfill site
Composting	-Removal of large amounts of biomass -Yields a humus-like product with nutrients and organic matter that can be recycled -Cost effective	-Slow carcass decay -Poor odor retention -Leachate production -May continue to expose environment/wildlife	-Carbon source i.e., sawdust, straw, stalks -Composting site -Tractor or skid loader -Long stem composting thermometer
Incineration	-Bio-secure	-Fixed capacity -Public opposition -Expensive to operate -Incinerators are incapable of handling large volumes of carcasses	-Fuel -Incineration facility
Alkaline Hydrolysis	-Combine sterilization and digestion into one process -Reduction of waste -Complete destruction of pathogens including prions	-Limited capacity for large volumes of carcasses -Potential issues regarding disposal of effluent	-Jacketed stainless steel pressure vessel. -Sodium hydroxide or potassium hydroxide -Water, energy for steam generation
Rendering	-Good biosecurity -High temperatures destroy disease pathogens -Environmentally sound	-Requires transporting carcasses off-site -Cost of transportation to rendering plant -Capacity constraints in handling surges -Some geographic areas not served	-Rendering plant

Source: Council for Agricultural S&T, Ruminant Carcass Disposal Options for Routine and Catastrophic Mortality (2009)

Attachment C - Disposal Options Checklist

Onsite burial?

a. Are soils suitable?
b. Will leachate contaminate groundwater in excess of public health standards?
c. Is adequate land available for on-site burial?
d. Is burial permitted by applicable regulatory authorities?
e. Can permit requirements be met?
e. Will land owner accept on-site burial and associated environmental liabilities?
f. What is the proximity to waterways, residences, public building?
g. Does it meet Texas Administrative Code or PRPC disposal code?

Composting?

a. Are the site conditions suitable for composting the number of animals affected?
b. Is the site, at least 200 feet from water wells, surface water bodies (lakes, streams, etc.), sinkholes, seasonal seeps or other hydrologically sensitive areas?
c. Is there adequate land area to build compost piles?
d. Is it located away from neighbors and/or out of sight?
e. Is it located downward from neighbors and/or houses?
f. Is it located away from environmentally-sensitive areas?
g. Is it located close to the livestock facility or have clear access for transport?
h. Is it clear of overhead utility lines?
i. Is it located on a gentle slope so there will be no water ponding?
j. Is there a sufficient local supply of carbon source such as wood chips ?

Rendering?

a. Are rendering sites available?
b. Is transportation available?

Landfill or fixed incineration facility?

a. Are landfills or fixed facilities available for disposal?
b. Is secure transport available for off-site burial or incineration?
c. Is open air burning permitted?
d .Are permits required?
e. Is there an adequate source of combustible material such as fire wood?

Source: SOP: 14 Disposal, FAD PREP, USDA, APHIS

Appendix 7: Cleaning and Disinfection

A. Routine Cleaning and Disinfection Considerations

1. Cleaning procedures can be a cost-effective means of reducing pathogenic organisms and reduce the risk of pathogens entering and spreading. Disinfection protocols may vary depending on the needs of the situation. The following recommendations provide basic guidelines for cleaning and disinfection.

2. Basic cleaning and disinfection (C&D) of premises, equipment, vehicles, and personnel is recommended to be a part of routine operations. Increase C&D effort during an animal health emergency, such as FEAD. Carry out C&D processes in a systematic manner to ensure effectiveness and efficiency.

3. Cleaning is one of the most important steps in the C&D process. When done correctly, cleaning alone can remove over 90% of microorganisms. The goal is to remove as much organic matter as possible. Organic material can harbor microorganisms for long periods of time. This step improves disinfection efficacy since most disinfectants are not as effective when organic material is present. The cleaning process involves 1) dry cleaning (removal of debris with a brush or broom), 2) washing, 3) rinsing, and 4) when possible, complete drying.

4. Washing further reduces the number of microorganisms in the area to a safer level. This is the most crucial step in the C&D process and will most likely eliminate the majority of remaining microorganisms. Soak the area with hot water and detergent or other cleaning agent, and then wash by wiping, spraying, or scrubbing. Allow areas to dry before application of the selected disinfectant to reduce potential dilution of the disinfectant upon application.

5. Disinfectants are physical or chemical agents that destroy vegetative bacteria (but not necessarily spores), viruses, and fungi. Use disinfectants that target a wide variety of organisms, work in any environment, and are non-toxic, non-irritating, non-corrosive and relatively inexpensive. Because, no disinfectant is ideal for all criteria, careful consideration of the characteristics is essential to select the most useful, effective and cost-efficient product. See Attachment 1.

6. Disinfectant selection will depend on the microorganism targeted, as well as environmental factors (e.g., temperature, pH), and disinfection methods. Attachment 2 shows the effectiveness of different types of chemical disinfectants on types of microorganisms.

7. Disinfectant labels contain important information on the proper use and hazards of a chemical. Always read the entire product label and explicitly follow dilution instructions to ensure the safest, most effective concentration is applied. It is a violation of federal law to use a product in a manner inconsistent with its labeling. Pay particular attention to the proper use of a product application, effectiveness, and associated hazards (human, animal, and environment).

8. Designated C&D areas are locations set aside for staging and controlling operations. Create a designated cleaning station containing equipment (e.g., tubs, scrub brushes) to aid in the removal of gross debris and application of disinfection products. Ensure designated cleaning station contains a water supply and runoff

collection area. Ensure the wastewater and runoff collection plan is compliant with any EPA National Pollutant Discharge Elimination System permits.

9. Waste management is an important aspect of any C&D operation. Waste can be subject to different federal, state, local, and tribal regulations and requirements. Consult with the Texas Animal Health Commission (TAHC) and the Texas Commission on Environmental Quality (TCEQ) on how to handle waste.

B. Heightened Cleaning and Disinfection Considerations

1. C&D procedures are a crucial part of any animal health emergency response situation. The potential for the spread or transfer of microorganisms, especially highly contagious pathogens, can occur from the direct or indirect contamination of premises, equipment, vehicles or personnel and the movement of animals or animal products.

2. During a heightened biosecurity situation, target efforts against the properties of the disease and organisms that cause it. As discussed in previous chapters, this includes knowing the route of transmission of disease so C&D procedures can be targeted toward contaminated areas.

3. Microorganisms vary in survivability or persistence in the environment, and in susceptibility to disinfection. Be aware of the suspected or confirmed pathogen involved to select the most efficacious disinfection method. This includes understanding the disease agent's 1) general properties, 2) persistence in the environment, 3) route of transmission, and 4) susceptibility to disinfection.

4. Vehicles (trucks, trailers, etc.) used for transporting animals, products or by-products or contaminated equipment have the potential to spread disease. Contamination can occur directly by the vehicle or by transfer of material by wheels. During heightened biosecurity operations, limit the number of vehicles allowed to enter the zones.

5. Clean the vehicle first to remove as much organic debris as possible. Brush or scrape debris from the vehicle. Washing of the vehicle should follow. High pressure spraying equipment may help to clean wood pores, cracks and crevices. Clean the vehicle from top to bottom and wash the underside of fender wells and the vehicle frame. Apply an appropriate disinfectant with a low pressure sprayer and allow its proper contact time to elapse. Also, clean and disinfect the interior of the vehicle.

6. People coming in and out of the zones can be a source of disease. Limit access to the zones and ensure individuals thoroughly wash hands with antibacterial soap before entering and leaving the areas. Be sure to provide warm water with antimicrobial soaps, scrubs, and hand cleaners for personnel decontamination following removal of disinfected PPE items.

7. Boot baths are an excellent means of preventing mechanical transfer of microorganisms by personnel. Boot baths must be maintained properly to be effective. Common problems with boot baths include 1) inadequate removal of organic debris prior to stepping into the disinfectant solution, 2) inadequate contact time allowed for the disinfectant, and 3) infrequent change of disinfection solution.

   Replace boot bath disinfectant solution daily, at a minimum; however, more frequent replacement will be needed in large or busy areas or when organic debris

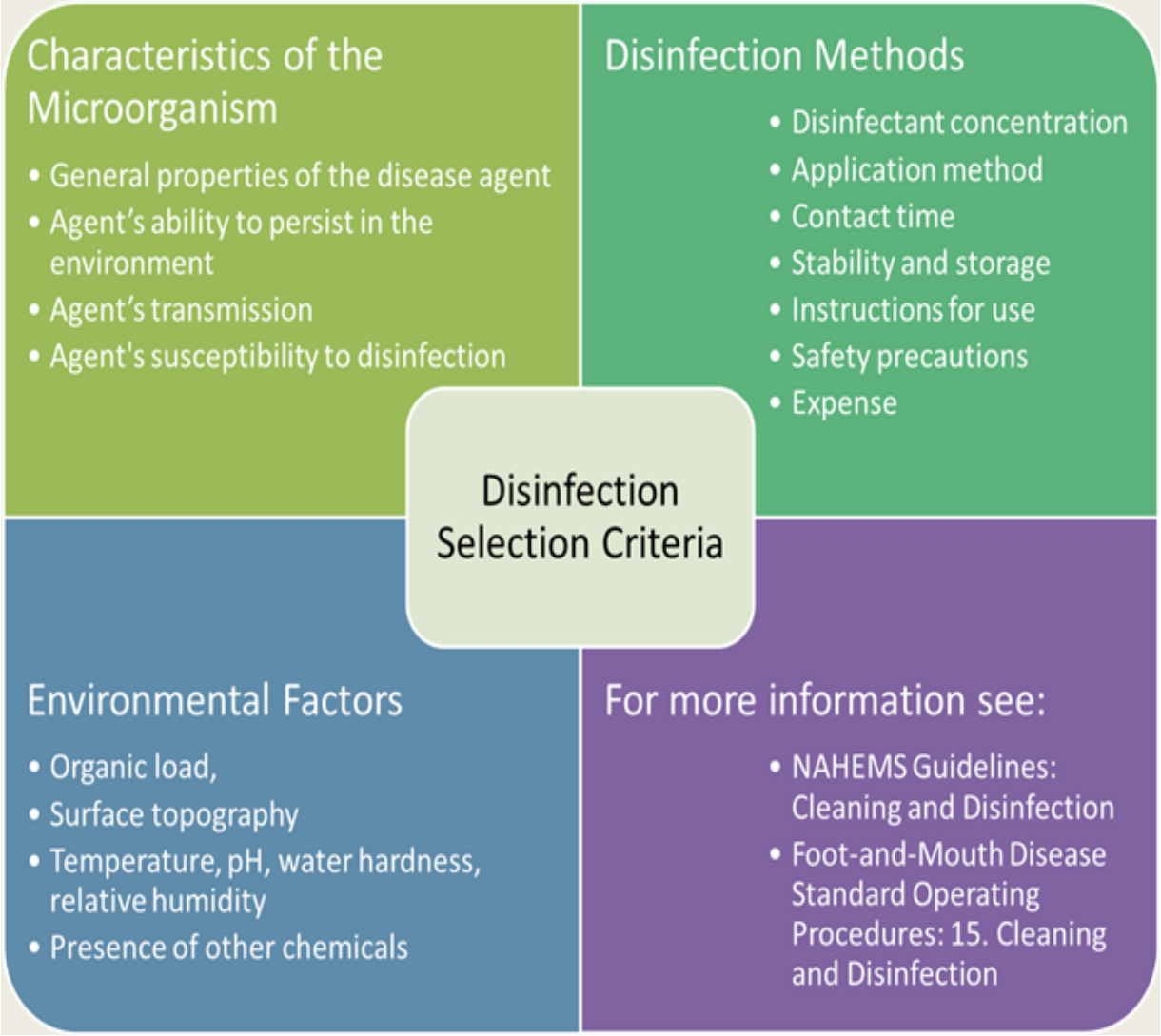
accumulates in the boot bath. Keep boot bath solutions from freezing and protect from rain to avoid dilution. Disinfectants are most effective on rubber boots. Porous materials like leather are more difficult to disinfect and may be ruined in the process.

8. Personal protective equipment protects employees during C&D operations. This includes wearing coveralls, boots, and gloves. Wear face protection (e.g., goggles, mask, face shield) based on the product or application method (e.g., misting) used and when mixing disinfectant solutions. Wear masks in situations involving significant amounts of dust generation or zoonotic disease potential.

9. For more information on PPE, see the *FAD PReP/NAHEMS Guidelines: Personal Protection Equipment (2011)*.

10. For more information on cleaning and disinfection see *FAD PReP/NAHEMS Guidelines: Cleaning and Disinfection* (2011) and the *FAD PReP FMD SOP 15: Cleaning and Disinfection* (2010).

Attachment A - Disinfectant Selection Criteria



Attachment B - Chemical Disinfectants Effectiveness Chart

Instructions: Consult a veterinarian to determine the disease of interest. Use the table to identify what type of microorganism causes the disease (e.g., vegetative bacteria, enveloped virus), then determine what type of chemical disinfectant will kill that type of microorganism.

Chemical Disinfectants		**Microorganisms**					
		Vegetative bacteria	**Enveloped viruses**	**Non-enveloped viruses**	**Bacterial spores**	**Acid-fast bacteria**	**Prions**
Acids	hydrochloric, sulfuric, acetic	**+**	**+**	**-**	**±**	**-**	**-**
Alcohols	ethyl alcohol, isopropanol	**++**	**+**	**-**	**-**	**+**	**-**
Aldehydes	formaldehyde, glutaraldehyde	**++**	**++**	**+**	**±a**	**+**	**-**
Alkalis	sodium hydroxide, calcium hydroxide, calcium carbonate	**+**	**+**	**±**	**±**	**+**	**-**
Biguanides	chlorhexidine	**++**	**±**	**-**	**-**	**-**	**-**
Chlorine Compounds	sodium hypochlorite	**+**	**+**	**+**	**+**	**+**	**-**
Oxidizing Agents		**+**	**+**	**±**	**+b**	**±**	**-**
Phenolic Compounds	o-phenylophenol	**++**	**±c**	**-**	**-**	**±**	**-**
Quaternary Ammonium Compounds		**++**	**±**	**-**	**-**	**-**	**-**

++ highly effective
+ effective
± limited or variable
– no activity

Notes:
1) formaldehyde is sporicidal, glutaraldehyde is not.
2) hydrogen peroxide combined with peracetic acid, strong oxidizing agents, is sporicidal
3) varies with composition of disinfectant
4) Adapted from NAHEMS Operational Guidelines: Cleaning and Disinfection, November 2011.

Attachment C - FMD Specific Disinfectants

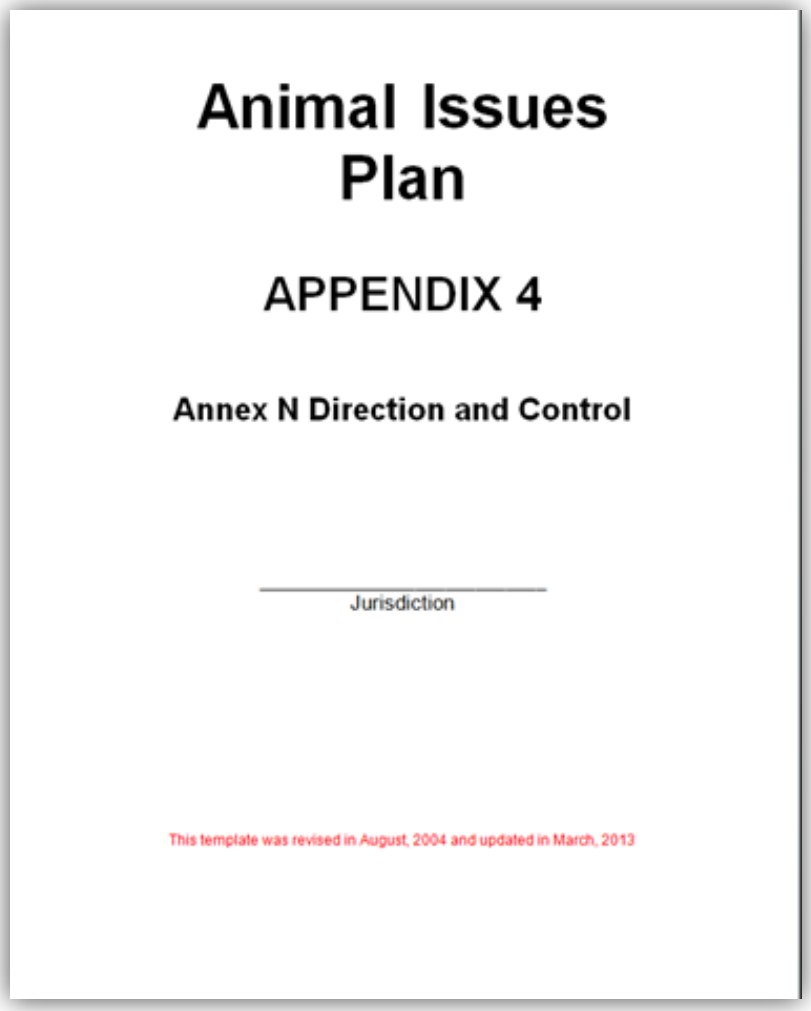
This table lists U.S. EPA-registered pesticides that may be used against the FMD virus in farm settings. This table includes only those pesticides that the National Pesticide Information Retrieval System (NPIRS®) has indicated are EPA-approved for use against the listed disease pathogen in farm premises and related structures and equipment. The NPIRS can be found via: http://www.aphis.usda.gov/

EPA No.	Product Name	Manufacturer	Active Ingredient	Pest and Use Site
211-62	Low pH Phenolic 256	Central Solutions, Inc.	2-Benzyl-4-chlorophenolo-Phenylphenol	FMD virus in/on livestock premises, livestock feeding and watering equipment, livestock equipment, hog farrowing house, hog barns/houses/parlors/pens, farrowing equipment, animal feeding and watering equipment, animal equipment, animal transportation vehicles, and shoe baths.
464-689	Ucarsan Sanitizer 420	Dow Chemical Co.	Glutaral	FMD virus in/on livestock premises, livestock equipment, and animal living quarters.
464-696	Ucarsan Sanitizer 4128	Dow Chemical Co.	Glutaral	FMD virus in/on hog farrowing pen premises, hog barns/houses/parlors/pens, animal living quarters, animal feeding and watering equipment, farm premises, and farm equipment.
1677-129	Oxonia Active	Ecolab, Inc.	Peroxyacetic acid Hydrogen Peroxide	FMD virus in/on livestock barns, livestock premises, animal quarters, animal cages, milking equipment, dairy equipment, and agricultural premises.
1677-203	Oxysept LDI	Ecolab, Inc.	Peroxyacetic acid Hydrogen Peroxide	FMD virus in/on livestock barns, livestock feeding and watering equipment, livestock equipment, animal living quarters, animal cages, animal feeding and watering equipment, and animal equipment.

EPA No.	Product Name	Manufacturer	Active Ingredient	Pest and Use Site
6836-86	Lonza DC 101	Lonza, Inc.	Alkyl dimethyl benzyl ammonium chloride Didecyl diemthyl ammonium chloride Octyl decyl dimethyl ammonium chloride Dioctyl dimethyl ammonium chloride	FMD virus in/on livestock premises, livestock feeding and watering equipment, and livestock equipment.
70060-19	Aseptrol S10-TAB	BASF Catalysts, LLC	Sodium chlorite Sodium dichloroisocyanurate dihydrate	Per the data provided to NPIRS® by EPA, FMD virus is not listed in connection with any use sites. However, according to the October 22, 2007, EPA stamped approved label, the product is approved for use against FMD virus in/on animal rearing and confinement facilities, animal rooms, and industrial applications that involve the housing of animals.
70060-20	Aseptrol FC-tab	BASF Catalysts, LLC	Sodium chlorite Sodium dichloroisocyanurate dihydrate	FMD virus in/on livestock premises, livestock feeding and watering equipment, livestock equipment, livestock transportation vehicles, livestock premises, hog barns/ /houses /parlors/pens, animal quarters, animal cages, animal feeding and watering equipment,animal equipment, animal transportation vehicles, and shoe baths.
71654-6	Virkon S	E.I. du Pont de Nemours & Company	Sodium chlorite Sodium peroxymonosulfate	FMD virus in/on animal feed equipment, livestock barns, livestock pens, livestock stalls, livestock stables, livestock equipment, animal quarters, animal feeding and watering equipment, animal grooming instruments, animal equipment, agricultural premises, agricultural equipment, animal transportation vehicles, horse stables, and human footwear.
MSDS Search sites: 1) http://www.epa.gov/ 2) http://msdssearch.com/				

Appendix 8: Local Plan Template

The local plan template is located in Appendix 4 Direction and Control, Animal Issues Plan. A number of attachments are contained in the template for locals to address the response needs to an animal incident.



Animal Issues Plan

APPENDIX 4

Annex N Direction and Control

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Jurisdiction

This template was revised in August, 2004 and updated in March, 2013