

**USDA APHIS/ STATE OF VERMONT
COOPERATIVE EMERGENCY RESPONSE PLAN
FOR A HIGHLY CONTAGIOUS ANIMAL DISEASE**

Last updated: October 2012

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I. EXECUTIVE SUMMARY / INTRODUCTION

The introduction of a highly contagious disease into Vermont's agricultural community will have severe economic and socio-political ramifications and may impact public health and safety. Depending on scope, response to the disease will require extraordinary resources and cooperation between local, state and federal agencies.

This document provides a plan for a cooperative emergency response to a highly contagious disease in the State of Vermont. A highly contagious disease can be defined as having the following characteristics:

1. Transmitted via direct/indirect contact
2. Rapidly spreads from animal to animal or from farm to farm
3. Above normal morbidity or mortality

Due to the complexities of the nation's animal agricultural industries and the fact that USDA-APHIS Veterinary Services (VS) will be the lead and will immediately establish a Unified Command with the State Animal Health Official(s) in response to any highly contagious disease outbreak, regardless of scope, considerable federal resources have been devoted to developing emergency preparedness and response plans to mitigate the effects of these incidents. Additionally, a Foot and Mouth Disease (FMD) outbreak is the scenario that is often used nationally for planning purposes and has been the model that has driven much of the preparedness effort in Vermont and New England during the past decade. A FMD outbreak is the model used for this plan as well. USDA-APHIS VS maintains a national FMD response plan, *The Red Book*, which can be viewed via the following link: http://www.aphis.usda.gov/animal_health/emergency_management/downloads/fmd_responseplan.pdf. USDA-APHIS VS has also developed a national Secure Milk Supply (SMS) plan which provides performance standards that must be met by dairy producers before movement of fluid milk off of premises located in a Control Zone during an FMD outbreak can occur. The national SMS plan can be viewed at <https://fadprep.lmi.org>. These national plans will serve as overarching guides for the national integrated federal/state disease mitigation effort.

If an FMD outbreak were to impact Vermont, the subordinate plan that follows would guide the USDA-APHIS VS Region 1 and the Vermont Agency of Agriculture, through the offices of the New England Area Veterinarian in Charge and the Vermont State Veterinarian, in the aspects of a Vermont-specific response. Similarly, the New England *Plan for Milk Movement During a FMD Outbreak* would provide New England-specific guidance for Incident Command's permitting of fluid milk movement from Vermont farms located in the Control Zone during a FMD outbreak that impacts this state. This regional SMS Plan was developed by the New England States Animal Agriculture Security Alliance (NESAASA) due to the fact that the New England dairy industry has unique characteristics that make portions of the national SMS plan non-applicable to our region. Specifically, New England dairies are smaller than the national average, and Vermont milk haulers generally pick up from multiple premises during a single route, which enhances the likelihood of disease spread as a result of milk hauling conveyances. The New England *Plan for Milk Movement During a Foot and Mouth Disease Outbreak* has been incorporated into Vermont's SEOP. Additionally, that Plan as well as other FMD response resources created by NESAASA including notifications, job aids and standards and forms, can be viewed at

<http://nesaasa.weebly.com/ne-sms-plan.html>. The six New England Governors have approved the regional NESAASA plans, but Vermont's state animal health officials, emergency management agency personnel, other primary and support response personnel, and public information officers should familiarize themselves with these resources in advance of a disease outbreak notification. These resources should be reviewed again concurrent with initial activation of this Vermont-specific plan. Finally, USDA-APHIS VS continually updates an excellent body of FMD response and educational resources at <https://fadprep.lmi.org>. This password protected site is accessible by the Vermont State Veterinarian, and FMD responders should be familiar with these materials as well.

II. GOAL

The goal of this emergency response plan is to detect, control and eliminate a highly contagious disease of animals and to facilitate the ability of Vermont's animal agricultural industries to survive this insult and ultimately return to normal production. This will aid the United States' ability to return to a disease free status and regain its ability to export animal and animal products as quickly as possible. This plan provides general guidance for the coordination of resources to provide protection to human and animal populations from animal disease outbreaks and to effectively respond to those outbreaks should they occur. The plan is subordinate to the SSF11 and the ADEP plans, and the New England *Plan for Milk Movement During a Foot and Mouth Disease Outbreak* is subordinate to it.

Recent events have caused a heightened concern for the accidental or intentional introduction of a FAD or other epizootic/ zoonotic agent into our country's agriculture industry. Although this plan principally addresses a contagious animal disease, much of the response infrastructure would also be applicable to other types of animal health, zoonotic or WMD incidents.

III. SITUATION

Possible scenarios for introduction and occurrence of a highly contagious disease in Vermont include:

- Index case identified within the State of Vermont (Accidental introduction).
- Index cases identified within the State of Vermont (Agroterrorism incident).
- Secondary cases identified within the State of Vermont, stemming from importation of infected animals, byproducts, or fomites from infection in another state.

IV. Assumptions

1. Any high consequence disease or event that impacts agriculture anywhere in the United States or Canada may pose a risk to Vermont's agricultural community.
2. The agricultural sector (including infrastructure, citizens and products) is not impervious to acts of agroterrorism and the introduction of diseases of high consequence.
3. A terrorist attack involving the intentional release of a high consequence animal disease could be virtually indistinguishable from natural outbreaks.

4. Confirmed positive cases of Foreign Animal Disease (FAD) anywhere in the United States and Canada will prompt Vermont to implement preparedness measures to prevent introduction into the state.
5. Eradication and control measures could encompass mass euthanasia of domestic livestock, equines and wildlife.
6. Carcass disposal methods are site specific, flexible and subject to public scrutiny.
7. Cleaning and disinfection of materials, equipment, personnel, vehicles, tires and facilities are hallmark to successful eradication and control.
8. By order of the Vermont State Veterinarian, quarantines may be established around the location of suspect or confirmed cases. Epidemiological data will be used to determine zone limits.
9. Depending on the scope and other characteristics of the outbreak, state and federal animal health officials may utilize vaccination strategies in order to contain and/or eradicate the disease.
10. Due to the complex livestock and dairy product movement patterns within New England, an index case detected anywhere in the NE region would likely result in a multi-state Control Zone and necessitate the activation of the New England *Plan for Milk Movement During a Foot and Mouth Disease Outbreak*.

V. Authorities and Policies

- Provisions exist within current Vermont Statutes for the Agriculture Commissioner or his/her designee to quarantine animals and premises in response to a contagious disease by regulating, restricting or restraining movements of animals, vehicles and equipment into, out of or within the quarantine area. (*Title 6 Agriculture/ Part 5 Livestock Disease Control/ Chapter 102. Control of Contagious Livestock Diseases/ Subchapter 1. General Provisions/ §'s 1157 and 1158.*)
- Provisions exist within current Vermont Statutes for the condemnation and destruction of animals infected with or exposed to a contagious disease. However, indemnification is available from the state only on a limited basis. This would probably be inadequate to facilitate indemnification in a FMD outbreak except on a very limited scale. (*Title 6 Agriculture/ Part 5 Livestock Disease Control/ Chapter 102. Control of Contagious Livestock Diseases/ Subchapter 1. General Provisions/ §'s 1159 and 1160.*)
- Authority should be provided for:
 - Governor's declaration of State emergency. (*Title 20 Internal Security and Public Safety/ Part 1 civil Defense and Military Aid/ chapter 1. Civil Defense Generally/ §'s 9-11*)

- Release of funds to finance emergency response measures. (*Title 32 Taxation and Finance/ Subtitle 1 Finance/ chapter 3. Fiscal Officers and Commissions/ Subchapter 2. Emergency Board/ § 133.*)
- Waiver of licensing requirements for out of state veterinarians cooperating with emergency response. (*Title 3 Executive/ Part 1 Generally/ Chapter 5. Secretary of State/ subchapter 3. Professional Regulation/ § 129(a)(11).*)
- Enforcement personnel in regards to quarantine/ movement restrictions, etc. (*Title 20 Internal Security and Public Safety/ Part 1 Civil Defense and Military Aid/ chapter 1. Civil Defense Generally/ § 8.*)

VI. Basic principles of control and elimination of a FAD

Three basic principles of control and elimination of a FAD should be followed:

- A) Preventing contact between susceptible animals and the disease agent
- B) Stopping agent production/amplification by the infected animals
- C) Increasing the resistance of susceptible animals to infectious agents

A. Methods of Preventing Animal Contact with the Disease Agent

1. Communication
 - Educate the public regarding their disease risk
 - Educate producers and practitioners on clinical signs, case definitions and points of contact for reporting
 - Educate all stakeholders on biosecurity and movement control
 - Encourage all commercial dairy producers to complete the Farm Readiness Survey to facilitate permitting of fluid milk during an outbreak
2. Quarantine
 - Halt all appropriate animal and animal product movements immediately
 - Apply movement control zones (see pg 10)
 - Allow subsequent movements of animals and animal products based on epidemiologic investigatory data
3. Implementation of Biosecurity Activities
 - Use appropriate PPE, and change clothing and footwear between affected animals and non-affected animals
 - Disinfect contact equipment according to established protocols

- Limit employee traffic in order to minimize on-farm cross contamination
- Limit human and vehicle access to premises in the Control Zone to essential traffic only
- Require all vehicles entering and leaving Control Zone premises to be cleaned and disinfected.
- Aggressively clean and disinfect fomites and people
- Minimize contact between susceptible wildlife and domestic livestock species

4. Trace Contacts to Infected Premises

- Identify additional contact premises, preferably within 24 hours of confirmation of index case
- Trace backwards at least 2 incubation periods to find possible sources and spread

5. Implement Surveillance Plans

- Implement a plan within 48 hours that will define the extent of the outbreak, allow the identification of the Control Zone and provide methods to detect new cases
- Implement a plan to identify disease free zones

6. Provide for Surveillance Outside of the Infected Zone

- slaughter surveillance
- serological studies
- investigation of suspect reports
- active surveillance of high risk areas

7. Epidemiological Investigations

- characterize the nature of the FAD, risk factors and mitigation strategies ascertaining possible source and spread, zoonotic potential or suspicious events

B. Methods of Stopping Agent's Production / Amplification

1. Euthanasia and Disposal of Infected Animals

- quickly and humanely euthanize and dispose of infected animals
- euthanasia and disposal methods may be site specific and require collaboration between animal health and environmental officials at the local/state/federal level

2. Euthanasia Considerations

- Plan
 - procedures that can be implemented
 - equipment and materials needed

- staff numbers and their skills
- safety of personnel
- Euthanize animals on the affected site
 - reduces the risk of spread of the agent
- Maintain Biosecurity
 - euthanize infected animals first followed by contact animals
 - utilize appropriate PPE
- Euthanize animals as quickly as possible
 - the interval from diagnosis to culling should be minimal
- Euthanize animals humanely
 - the method chosen should induce loss of consciousness and death without causing pain, distress, anxiety or apprehension and should follow recommendations made by the American Veterinary Medical Association
- Employ skilled operators
- Ensure worker health and safety
 - protect personnel from zoonotic disease, environmental hazards and the method they use to kill animals

C. Increasing the Resistance of Susceptible Animals

1. Vaccination Strategies

- In the case of FMD, Incident Command should give consideration to the implementation of vaccination strategies in the face of an outbreak, including “vaccinate to live” and “vaccinate to slaughter” strategies. The utilization of vaccination strategies will be dependent on the following considerations:
 - Vaccine availability
 - Scope of the outbreak – vaccination more likely to be utilized in larger outbreaks that are more difficult to contain utilizing traditional stamping out protocols
 - Trade implications
 - Political will
- Different vaccination strategies are associated with different time frames for “return to freedom”, which can have significant trade implications. In general, a “vaccinate to live” strategy is associated with the longest “return to freedom” interval, although it has other benefits

VII. Definition of cases and actions

A case is defined as having clinical or pathological signs consistent with a Foreign Animal Disease, laboratory evidence of the suspected agent or epidemiological information indicative of a Foreign Animal Disease.

Cases can be further classified as “presumptive positive” or “confirmed positive”. For a case classified as “presumptive positive”, immediate actions at the local and state levels should be generated to actually diagnose the disease and minimize its spread. A “confirmed positive case” should generate the same actions as a “presumptive positive” but will also generate additional measures on a regional, national and international scale.

Classification of Positive Cases

A. Presumptive Positive (Index) Case

1. Clinical signs consistent with a FAD
2. Sample is positive (antigen or antibody)
3. Epidemiological information is indicative of a FAD

B. Presumptive Positive (Secondary) Case

1. Treat these animals as confirmed cases if the animals manifest clinical signs consistent with a FAD plus one or more of the following:
 - **Sample is positive**
 - **Other epidemiological information is indicative of a FAD**
2. Secondary cases will be responded to as confirmed cases until a laboratory diagnosis is definitive
3. Continued implementation of eradication protocols and expansion of infected and movement control zones will proceed in response to all newly diagnosed cases

C. Confirmed Positive (Secondary) Case Response

1. Confirmation of a secondary index case and any subsequent cases will initiate continued implementation of the response and eradication protocols
2. Reassessment of the epidemiological data and potential exposure to susceptible species will dictate the extent of quarantine, infected and movement control zones.

VIII. Concept of Operations/ Initial Response to a FAD

1. Initial identification of disease by a producer or livestock owner
2. Producer or livestock owner reports to local veterinarian
3. Local veterinarian examines animal(s) and reports any clinical signs indicative of a FAD to State Veterinarian.
4. State veterinarian consults with the Area Veterinarian in Charge (AVIC), or if he/she unavailable, with the federal Veterinary Medical Officer.
5. Concurrently, State Veterinarian notifies VAAFMD Deputy Secretary or Secretary, VAAFMD PIO, and Vermont Emergency Management

6. Based on the demographics of the event, VEM may coordinate with multiple agencies to explore anticipated response issues and consequences specific to the disease.
7. FADD obtains samples and sends to appropriate laboratory with the appropriate Priority for diagnosis
8. When a positive test is confirmed, laboratory officials immediately notify the Vermont State Veterinarian and the AVIC
9. The State Veterinarian and AVIC establish a Unified Command
10. The State Veterinarian notifies VEM and the VAAFMD Deputy Secretary or Secretary of the confirmed positive case; Secretary then notifies the Governor
11. VEM activates the EOC, implements this and other applicable emergency response plans, and coordinates response activities in support of the Vermont Agency of Agriculture
12. VAAFMD Secretary or Deputy activates the Agency’s emergency support structure to support response activities.
13. VEM coordinates with DHS, FEMA, and USDA and may utilize local/regional EOC’s to facilitate response activities

IX. Classification of the likelihood of FAD by the FADD

A. Unlikely or Possible

1. While laboratory results are pending, the State Veterinarian will assess the situation to determine if an official state quarantine is warranted. The State Veterinarian may consult with the AVIC or VMO for this purpose
2. The State Veterinarian will quarantine the premises until laboratory results rule out a FAD
3. The State Veterinarian will notify the AVIC, VAAFMD PIO, Deputy Secretary and/or Secretary of Agriculture of all possible scenarios
4. All premises involved in the “unlikely” classification will remain under quarantine until appropriate control and eradication measures have been implemented

B. Highly likely

1. When the FADD determines that the condition under investigation is “highly likely” to be a FAD, the FADD notifies and consults with the AVIC and the State Veterinarian

2. The FADD submits samples for priority shipment to the FADDL or NVSL
3. The State Veterinarian will notify the AVIC, VAAFM PIO, Deputy Secretary and/or Secretary of Agriculture of all possible scenarios
4. The State Veterinarian will quarantine the premises
5. Movement control zones will be established around the farm.

X. MOVEMENT CONTROL ZONES

Quarantine and Surveillance Zones

1. Infected Zone

The infected zones encompasses all infected and as many of the contact premises as logistically required. Effective animal/product/vehicle/person movement controls should be in place in this zone.

The actual distance in any one direction for the zone is determined by epidemiological factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather, the distribution and movements of susceptible wildlife, the elapsed time since the initial outbreak of disease and known characteristics of the agent. The infected zone should extend at least 6 miles beyond the presumptive or confirmed infected premises.

Protocol for establishment and maintenance of Infected Zones

- Conduct epidemiological investigation to:
 - Identify trace-ins and trace-outs
 - Determine the source of infection
 - Determine extent of spread of the disease
 - Time elapsed since initial outbreak of the disease
- Quarantine restrictions are in place. Such quarantines will apply to all susceptible species and all conveyances of equipment that may have direct or indirect contact with susceptible species.
- Established biosecurity and movement control checkpoints on avenues of transportation into and out of the infected zone.
- To leave the zone all animals, humans and conveyances are subject to the following:
 - Passage is permitted only through biosecure travel corridors, through established biosecurity perimeters and movement control checkpoints.
 - No animals or products can leave the zone
 - Vehicles, equipment and people may leave if strict biosecurity procedures are followed.
 - Information concerning whereabouts and animal contacts is provided
 - All vehicles, equipment and people are cleaned and disinfected

- Personnel shower out
- Human-to-animal contact policies are regulated, appropriate for the specific agent
- Official permitting and permission is provided
- The State may authorize depopulation of all susceptible animals that are considered wither infected or exposed in this zone.
- The State may request voluntary depopulation with indemnity.
- The State may impose stricter quarantine and regulations on owners who refuse slaughter and deny indemnification, and may impose restrictions beyond those outlined above.

2. Surveillance or Movement Control Zone

Defined as the area surrounding an infected zone in which all susceptible animals and potentially contaminated materials are restricted in their movement and subject to aggressive surveillance.

This zone will surround the infected zone. The exact boundary of the zone will be established to assure containment of the outbreak. Early in the outbreak all movement should be stopped. Once the extent of the outbreak is understood, susceptible livestock or poultry can move within and out of the zone with a permit.

Protocol for establishment and maintenance of Surveillance and Movement Control Zones:

- Conduct active case findings and trace backs
 - Increased awareness by all animal health professionals
- Conduct surveillance at concentrations points and epidemiological suspect areas.
- Non-susceptible livestock, poultry, commerce and products can move out of the zone via biosecure corridors, but require appropriate bio-security such as C&D of vehicles.
- Public access to animals and wildlife will be restricted in these zones.
- Any suspected cases of disease found within these zones will be quarantined immediately.

XI. Submission of Diagnostic Samples:

The AVIC/ State Veterinarian should notify the FADDL when the samples are shipped, particularly if they are P1 or P2 Priority Samples. The samples should be sent via courier (i.e. FedEx or comparable service) next day service to the appropriate FADDL. Samples are submitted to the laboratory with different priority ratings, depending on the FADD investigation findings (See IV.C.).

1. **Priority 3 (P3)** - The FADDL will process samples in the same order received, during working hours at the laboratory.
2. **Priority 2 (P2)** - The FADDL will process samples on the same day received at the laboratory.

3. **Priority 1 (P1)** - The FADDL will process samples immediately upon receiving them at the laboratory.

XII. Response Agencies

1. Local Government

2. State Agencies

A. Vermont Emergency Management Agency

- Activates and manages the EOC
- Provides liaisons to affected jurisdictions
- Assists local emergency managers.
- VEM coordinates State response activities with local governments, DHS, FEMA, USDA and assists with coordination of public information broadcasts.

B. Agency of Agriculture, Food and Markets

- Issues state mandated quarantines and other emergency regulations
- Coordinates animal disease diagnosis and control.
- Coordinates with AVIC and USDA to establish euthanasia and vaccination protocols, disease control and eradication measures and carcass disposal options
- Distributes scientific, procedural, epidemiological and diagnostic information to practicing veterinarians and other stakeholders in Vermont
- Provides GIS mapping data of livestock owners and producers in the affected area. Develops GIS maps to determine premises located in quarantine areas and Zones.
- Coordinates efforts of Veterinary Medical Assistance Teams and other support organizations
- Provides VAAFPM staff to SEOC and to the Agricultural Operations Center

C. Vermont Department of Health

- Provides public health guidelines including guidance for the diagnosis and control of zoonotic diseases.
- Assists with epidemiological assessments of the distribution of the disease if public health is impacted
- Assists in the investigation of potential bioterrorism events that impact public health
- Assists VAAFPM with messaging to stakeholders in instances where the disease outbreak represents a real or perceived negative impact on public health.

D. Vermont Agency of Natural Resources

- Provides technical advice on soil types, locations of aquifers, run off potential and leaching related to carcass and hazardous waste disposal.
- Provides technical advice on disposal impact on ground water and air.
- Coordinates native wildlife and natural resources emergency management

E. Vermont Department of Fish and Wildlife

- Conducts surveillance on susceptible wild animal species as requested by VAAFMM
- Establish prohibitions on game, bird and fish products in the affected areas
- Coordinate efforts to depopulate infected or exposed wildlife populations.
- Assists the Vermont State Police with security patrols and movement control orders
- Assists VAAFMM with messaging to stakeholders in instances where the disease outbreak represents a real or perceived negative impact on Vermont's native wildlife species.

F. Vermont State Police

- Provides security, law enforcement and traffic control as required
- Assists with establishing and maintaining biosecurity checkpoints
- Supports response operations
- Assists with security at carcass disposal and other restricted sites
- Supports the transport of specimens to the diagnostic laboratory

G. Vermont National Guard (**responds only at the request of the Governor**)

- Provides traffic control
- Provides heavy equipment for excavating burial sites, moving animal carcasses for disposal and hauling materials for burning or fill.
- Provides air transportation support
- As requested by the State Veterinarian, assist with mass euthanasia efforts
- Through its Civil Support Team network, assists with diagnostic processes as requested by the State Veterinarian

H. Vermont Agency of Transportation

- Provides guidance for re-routing of traffic in the affected area
- Supports traffic control and movement needs
- Provides heavy equipment for excavating burial sites, moving animal carcasses for disposal and hauling materials for burning or fill.
- Assists with the transport of soil, carcasses or debris

I. Mental Health

- Responds to the mental health needs of responders, producers and the public.

J. Vermont Secretary of State

- Assists with emergency licensing of veterinary care workers

K. University of Vermont Extension

- Acts as the primary point of contact to access appropriate expertise at UVM
- Maintains webpage for animal emergency information and links

- Provides education and technical service to Vermont farmers, processors and retailers and their communities
- Collaborates with the State Veterinarian to send messages out to non-licensed/non-registered agricultural entities through Vermont's established Animal Agriculture Alert Network

3. Federal Agencies

A. FEMA, DHS, FBI, USDA, APHIS

4. Other Agencies

A. AVMA, VT Farm Bureau

APPENDIX A: EMERGENCY RESPONSE CONTACTS

Immediate Response Personnel:

State Veterinarian	Dr. Kristin Haas 802-828-2421 (Office) 802-522-7326 (mobile) 802-828-5983 (FAX) kristin.haas@state.vt.us
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Assistant State Veterinarian	Dr. Katherine McNamara 802-828-0696 (Office) 802-522-2296 (Mobile) katherine.mcnamara@state.vt.us
USDA APHIS VMO (VT)	Dr. Joel Russo 802-223-5071 (Office) 802-238-5110 (Mobile) Joel.M.Russo@aphis.usda.gov
USDA APHIS AVIC	Dr. William Smith 508-363-2290 (Work) 508-981-1954 (Mobile) 508-363-2272 (fax) william.g.smith@aphis.usda.gov

Vermont Secretary of Agriculture

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Vermont Deputy Secretary of Agriculture

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Regional FADDs:

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New York FADD's:

Dr. Roger Ellis (NY-DAI):
Dr. Don Russell (NY-DAI):

518-457-3502 (State Office)
518-457-3502 (State Office)

Massachusetts FADD's:

Dr. William Smith-AVIC

see above listing

Dr. Robert Brady

508-865-1421 (Office)
508-865-9317 (FAX)
Robert.C.Brady@usda.gov

Administrative and Support Personnel:

Vermont Agency of Agriculture:

Chuck Ross-Secretary	802-828-1619 802-828-2361 (FAX) chuck.ross@state.vt.us
Diane Bothfeld-Deputy Secretary	802-828-3835 802-828-2361 (FAX) diane.bothfeld@state.vt.us
Alison Kosakowski- Information/ Media Specialist	802-828-3829 (Office) 802-828-3831 (FAX) Alison.kosakowski@state.vt.us
John Jaworski- Supervisor State Laboratory/ Waterbury, VT	802-244-4441 (Office) john.jaworski@state.vt.us

Laboratory Support Facilities:

State of Vermont- Cons. Prot. Lab. Berlin, VT (c/o Marc Paquette)	802-793-6744 (Cell)
Dept. of Health- State Laboratory 195 Colchester Avenue Burlington, VT 05402	802-863-7335 (Office) 802-863-7632 (FAX) 800-660-9997 (Toll-free)
NVSL- Director's Office P.O. Box 844 (letters) 1800 Dayton Road (packages) Ames, Iowa 50010	515-663-7301 (Office) 515-663-7397 (FAX) nvslclient.help@usda.gov
Biological Materials Processing Section	515-663-7212 (Office) 515-663-7359 (FAX)
Diagnostic Bacteriology Laboratory	515-663-7568 (Office) 515-663-7569 (FAX)
Diagnostic Virology Laboratory	515-663-7551 (Office) 515-663-7348 (FAX)
Pathobiology Laboratory	515-663-7521 (Office) 515-663-7527 (FAX)
NVSL-FADDL P.O. Box 848	631-323-2500 (Office) Ext. 3256, 3344, 3017

Greenport, NY 11944-0848

631-323-3366 (FAX)

FEDEX only:

USDA, APHIS, FADDL

40550 RT 25

Orient, NY 11957

631-323-3256

Diagnostic Laboratory- Cornell University

College of Veterinary Medicine

Cornell University

Upper Tower Rd

Ithaca, NY 14853

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diaglab@cornell.edu

Centers for Disease Control (CDC)

1600 Clifton Road

Atlanta, Georgia 30333

404-639-3311 (Office)

CDC EOC

770-488-7100

Connecticut Veterinary Diagnostic Lab.

Sandra L. Bushmich DVM, director

Department of Pathobiology

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603-862-0179 (FAX)

Cooperative Intrastate Agencies

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Chuck Ross Secretary

802-828-2430 (Office)

802-828-2361 (FAX)

Emergency Management, Division of

Michael O'Neil- Director

802-244-8721 (Office)

800-347-0488 (Emergency)

Environmental Conservation, Dept. of

Laura Pelosi Commissioner

802-241-3808 (Office)

802-244-5141 (FAX)

Fire, Police, Ambulance

(refer to Emerg. Mgmt.)

Fish & Wildlife, Department of

802-241-3700 (Office)

Thomas Decker, Chief of Ops	802-241-3295 (FAX)
Forests, Parks & Rec. , Dept. of Michael Snyder Commissioner	802-241-5556 (Office) 802-244-1481 (FAX)
Hazardous Materials/Spills	800-241-5556
Health , Department of Commissioner Harry Chen M.D.	800-464-4343 (Office) 802-865-7754 (FAX) 802-863-7240 (Office)
Mental Health Christine Oliver, Commissioner	802-241-2601 (Office)
Natural Resources , Agency of Jonathan Wood, Secretary	802-241-3600 (Office) 802-244-1102 (FAX)
Public Health Veterinarian Dr. Bob Johnson	802-863-7200
Public Safety , Department of Keith Flynn, Commissioner	802-244-8727 (Office) 802-241-5553 (FAX)
Transportation , Agency of Brian Searles, Secretary	802-828-2657 (Office) 802-828-3522 (FAX)
UVM Extension Julie Smith, DVM PhD Extension Dairy Specialist	802-656-4496 (Office)
Vermont Center for Geographic Information	802-882-3000 (Office)
Vermont League of Cities & Towns Stephen Jeffrey	802-229-9111 (Office)
Vermont State Police Director	802-244-7345 (Office)
Vermont Veterinary Medical Association Kathryn Finnie Exec. Director	802-878-6888 (Office) vvma@gmavt.net

Cooperative Interstate Organizations/ Agencies:

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Connecticut Veterinary Medical Association Mr. Simon Flynn, Executive Director	860-659-9683 (Office) 860-657-8241 (FAX)
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Maine Veterinary Medical Association	207-364-8660 (Office)

Dr. C.W. Hersey, Executive Director	207-364-7209 (FAX)
Massachusetts Bureau of Animal Health Dr. Lorraine O'Connor, State Veterinarian	617-626-1795 (Office) 617-626-1850 (FAX)
Massachusetts VMA Ms. Susan Weinstein, Executive Director	508-460-9333 (Office) 508-460-9969 (FAX)
New Hampshire Dept. of Ag., Mkts& Food Dr Stephen Crawford, State Veterinarian	603-271-2404 (Office) 603-271-1109 (FAX)
New Hampshire VMA Mrs. Joanne Poole, Executive Secretary	603-224-2432 (Office) 603-225-0556 (FAX)
New York Division of Animal Industry Dr. David Smith, Director	518-457-3502 (Office) 518-485-7773 (FAX)
New York Veterinary Medical Association Julie A. Lawton, CAE, Executive Director	518-437-0787 (Office) 518-437-0957 (FAX)
Pennsylvania Bureau of An. Health/ Diag. Dr. Craig Shultz, Director	717-772-2852 (Office) 717-787-1868 (FAX)
Pennsylvania VMA Charlene Wandzilak, Executive Director	888-550-7862 (Office) 717-558-7845 (FAX)
Rhode Island Dept. of Environmental Mgmt Dr. Scott Marshall, State Veterinarian	401-222-2781 (Office) 401-222-6047 (FAX)
Rhode Island Veterinary Medical Assoc. Ms. Sara Rose-Slate, Executive Director	877-521-0103 (Office) 508-643-0141 (FAX)

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Phil Scott, Lieutenant Governor	802-828-2226
William H. Sorrell, Attorney General	802-828-3171 (Office)
Vermont National Guard	802-886-8536 (Office)

Cooperative National/ Federal Agencies:

American Veterinary Medical Assoc.	800-248-2862 (Office) 847-925-1329 (FAX) www.avma.org (website)
USDA APHIS Veterinary Services William Smith- AVIC P.O. Box 787 Sutton, MA 01590	508-363-2920 (Office)

USDA APHIS Wildlife Services
Wildlife Biologist
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USDA FSIS- Philadelphia DO

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Miscellaneous Contacts:

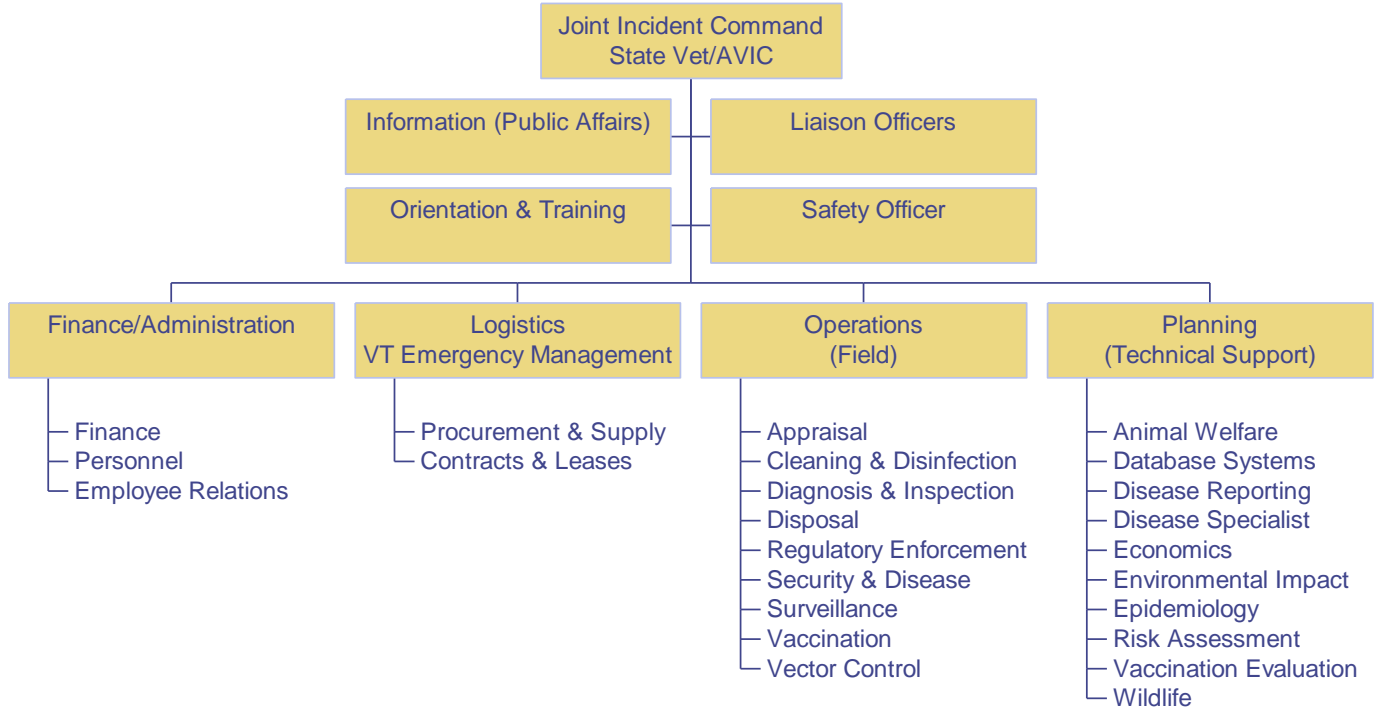
FedEx- pick up

800-463-3339 (Office)

Vermont Animal Industry Contacts

(See Attachments)

**APPENDIX B:
Typical Animal Emergency Response Organizational Structure
At an Incident Command Post**



XV. Incident Command Response for Highly Likely FAD

If the incident under investigation by the FADD appears highly likely to be FAD, following consultation with the AVIC/ State Veterinarian, the designated Incident Commander is alerted and activated. The following procedures are initiated while laboratory results are pending.

1. **The State Veterinarian/ Incident Commander will alert appropriate State Government Personnel and alert and/or activate Key Designated Incident Command Staff.**

VTDAG Administration	VT Emergency Mgmt.	State Governor
Public Information Officer	Planning Section Chief	Liaison Person
Operations Section Chief	Logistics Section Chief	Orientation Person

2. **State Veterinarian/ Operations Section Chief- Early Response Duties**

- a) Assume Operations Chief responsibilities
- b) Ensure that specific biosecurity protocols for suspect premises are in effect (See Appendix C)
- c) Consult with IC/ Planning Section/ AVIC on development of initial response strategy
- d) Brief any newly activated ICS staff on current field status
- e) Determine immediate field operations resources needed (personnel, supplies, transportation, etc.) -submit requests to IC/ Logistics Section
- f) Correlate with Planning Section/ IC/AVIC to determine initial boundaries for quarantine/ movement restriction zones (See Appendix C) and surveillance zones (See Appendix C)
- g) Initiate movement trace outs that may have connections with affected premises (if not already underway)
- h) Alert/ activate Operations Enforcement Branch

3. **Designated Incident Commander- Early Response Duties**

- a) Consult with State Veterinarian (Operations Chief) on current status of incident
- b) Obtain (from Planning Section/ Plants & Industry) appropriate maps, site information, etc. to facilitate initial tactical planning
- c) Consult with Operations Chief/ Planning Chief/ AVIC on development of initial response strategy
- d) Take appropriate steps to facilitate petition for Governor's Emergency Declaration
- e) Coordinate orientation of ICS general staff on current field status of incident
- f) Coordinate alert of other appropriate State agencies/ resources (Appendix A)
- g) Assist PIO with development of initial public information release(s) (this includes producer groups, industry groups and other agricultural related industries)

4. Public Information Officer (PIO) - Early Response Duties

- a) Research available information, outreach resources
- b) Begin development of appropriate initial public information release(s)

5. AVIC Responsibilities- Early Response Duties

- a) Alerts USDA APHIS VS Eastern Regional Office
- b) Alerts VS Emergency Program Staff
- c) Alerts VS Field Staff
- d) May alert USDA OIG
- e) Continue coordination with State ICS response personnel

6. Liaison Person- Early Response Duties

- a) Begin development of resource database that tracks personnel resources being utilized
- b) Correlate with agencies/ departments/ industry resources that are providing personnel or equipment resources

F. Laboratory Results will resemble one or more of the following descriptions:

1. **Negative**- Serology negative, virus isolation negative, clinical signs inconsistent with FAD
2. **Presumed Positive**- Serology for agent positive, virus isolation pending, clinical signs consistent with FAD
3. **Confirmed Positive**- Serology for agent positive, virus isolation positive, clinical signs consistent with FAD

G. ICS Response to Initial Laboratory Results

1. **Negative**- Status of suspect premise is downgraded, quarantine is released if premise is not in otherwise restricted area. If premise is in a restricted area (due to other infected premises- *IP's*), quarantine and movement restrictions are maintained and surveillance on premise is initiated and maintained until incident is closed or until status of suspect premise changes (See Appendix C).
2. **Unknown status**- Quarantine status and other movement restrictions related to premise is maintained pending additional serologic testing and/or completion of virus isolation procedures (See Appendix C).
3. **PRESUMED POSITIVE**- If suspect case has all the characteristics of FAD with the exception of a pending virus isolation procedure, the incident is essentially handled as a FAD outbreak. The response becomes an expansion and acceleration of actions outlined in the section for *the highly likely to be FAD* scenario (pg 8). Confirmation, in the form of positive virus isolation should follow the presumed positive designation in 24-72 hours.

a) Incident Commander- Presumed Positive Response

- 1) Incident Commander will be expected to perform any necessary functions
- 2) Notify adjacent state Animal Health Officials of Presumed Positive and current status of State response
- 3) Finalize preparation of petition for Governor's Declaration of Emergency- Assess immediate need to submit for signature
- 4) Correlate with other sections on immediate tactical strategies
- 5) Implement immediate response strategies (based on input from AVIC/Operations Section/Planning Section)
- 6) Request activation of State Emergency Response Management (to facilitate Logistics Section Function)
- 7) Notify appropriate State/ Industry resources of incident status and begin mobilization of these resources (See Appendix G)
- 8) Fully activate interim Incident Command Post (ICP) facility
- 9) Activate communication protocols and database operations
- 10) Expedite identification and establishment of Infected Zones (IZ), Surveillance Zones (SZ) and movement restrictions with assistance from Operations, Planning and AVIC

b) USDA APHIS VS- Presumed Positive Response

- 1) AVIC or designated representative assumes JIC with State IC
- 2) READEO team proceeds to ICP and Field Operations Center
- 3) Area READEO Director proceeds to the SEOC to lead Federal response
- 4) Preparation for activation of FMD Federal Emergency Response Plan
- 5) Establish JPIC with State PIO

c) State Veterinarian/ Operations Section- Presumed Positive Response

- 1) The Operations Section Chief will be expected to maintain section functions
- 2) Correlate and consult with IC general staff on continued development of operational strategies. Review and revise strategies considered at the "highly likely" point in the response
- 3) Establish Field Operations Center (FOC) location(s)
- 4) Submit itemized list of necessary personnel and/or other resources to IC or Logistics Section
- 5) Designate initial field operations staging area(s) based on IZ locations
- 6) Notify producers in CA concerning quarantine and any applicable movement restrictions (Appendix C)
- 7) Initiate Surveillance of SP's and CP's within the established IZ and/or CA based on trace outs from initial IP(s)
- 8) Continue investigating trace outs; identify additional SP's/CP's
- 9) Monitor compliance with existing quarantines, establish additional

- quarantines as necessary
- 10) Monitor compliance with biosecurity protocols by producers and response personnel
 - 11) Activate quarantine enforcement personnel as necessary to achieve acceptable compliance
 - 12) Initiate appraisal protocol for known IP(s) (Appendix B)
 - 13) Alert designated personnel for Euthanasia/ Depopulation functions
 - 14) Initiate assessment of IP's suitability for on site disposal of carcasses, animal products, animal byproducts, etc.
 - 15) Alert designated C&D resources regarding pending activities following depopulation of IP(s) (Appendices C)

d) Planning Section- Presumed Positive Response

- 1) **The Planning Section Chief will be expected to maintain section functions that are not yet delegated!**
- 2) Manage Information and Resource Database
 - i) Begin receiving and compiling field information
 - ii) Analysis of data received
 - iii) Develop protocols for preparation and distribution of information
 - iv) Initiate preparation of situation status reports
- 3) Documentation of Incident
 - i) Establish protocol for documentation
 - ii) Coordinate and initiate data entry protocol
 - iii) Provide duplication services as needed
 - iv) Begin development of documents for review by ICS general staff
 - v) Ensure security of incident data
- 4) Mapping/ GIS Services
 - i. Provide tactical field maps to facilitate performance of field operations section, public information releases, etc.
 - ii. Provide technical assistance with GIS plotting
 - iii. Facilitate layout of CA(s), IZ(s), SZ(s), etc. on tactical maps
 - iv. Provide visual aids as needed for ICS general staff for review
- 5) Alert and mobilize appropriate resources that will provide technical resources necessary for an effective response effort. These may include, but are not limited to:
 - i) Epidemiologists (could include MD's as well as DVM's)
 - ii) Information technology
 - iii) Environmental impact assessment and recommendations
 - iv) Legal counsel
 - v) Economists or advisors to assess economic impact for industry/ community

- vi) Hazardous waste disposal assessment
- vii) Monitoring and compliance with animal welfare standards
- viii) Human Social Services (counseling, relief, support)

e) Logistics Section- Presumed Positive Response

- 1) Begin procurement and distribution of supplies on an as-needed basis
 - i) Expendable supplies (Appendix F)
 - ii) Non-expendable supplies (Appendix F)
 - iii) Service reusable equipment
 - iv) Tactical and support human resources
- 2) ICP/FOC Facilities
 - i) Begin setup and maintenance of command center facilities
- 3) Development of ground support infrastructure
 - i) Develop provisions to supply and maintain support/ transport vehicles for field response teams
 - ii) Develop and maintain infrastructure to supply food and water to incident response personnel
- 4) Medical
 - i) Develop and institute medical plan for response personnel
 - ii) Develop and maintain emergency medical protocols for response personnel

f) Finance/ Administration Section- Presumed Positive Response

- 1) **The Financial/ Administration Section Chief will be responsible for all functions in this section that have not yet been delegated!**
- 2) Begin compilation of financial information as they are incurred
 - i) Personnel time records related to response
 - ii) OT records related to response
 - iii) Materials/ supplies expenses from other sections
- 3) Begin tracking procurements such as vendor contracts, leases, etc.
- 4) Begin tracking and itemizing response costs as they are incurred
 - i) Identify equipment/ personnel for payment
 - ii) Begin accounting procedures for all cost data
 - iii) Begin making provisions to provide current cost estimates related to incident response
 - iv) Begin maintaining an accurate record of overall incident cost

4. CONFIRMED POSITIVE- Suspect case has all of the characteristics of FAD: clinical signs and lesions, positive serology and positive virus isolation. Response will include all of the actions listed in the Presumed Positive response activities

(see pg 6) and may involve escalation or expansion of the response. **Degree of ICS expansion will correspond to number of IP's and perceived extent of IZ(s).**

A confirmed case of FMD in the United States will result in an extensive response from USDA APHIS VS. If the index case occurs in Vermont or if the affected area is relatively limited, a considerable local Federal response could be anticipated. If cases in Vermont are secondary cases resulting from importation of infected animals/ materials from other states or as a result of a Bioterrorism act, the wider spread nature of the outbreak could preclude an extensive Federal response in Vermont.

a) Incident Commander- Confirmed Positive Response

- 1) Notify Governor/ State agencies of confirmed FAD status
- 2) Submit petition for Governor's Declaration of Emergency to provide access to State resources
- 3) Continue efforts to implement necessary ICS positions.
- 4) Establish and maintain protocol for correlation/ updates with Section Chiefs, PIO and Liaison Officer (if activated)
- 5) Maintain current awareness of incident response status utilizing periodic meetings with general IC staff, correlation with AVIC or JIC and review of documentation/ field reports
- 6) Continue to review tactical response strategies correlate with AVIC/JVIC and modify these strategies as needed to provide an effective response
- 7) May consider classifying entire state as a Surveillance Zone (SZ), restricting movement of all animals and animal products

b) AVIC/ JIC- Confirmed Positive Response

- 1) Request activation of Federal Emergency FAD Response Plan
- 2) Issue Secretary of Agriculture's Emergency Declaration to transfer additional funds within the Agency if necessary
- 3) Stop all interstate movement of susceptible animals, articles and means of conveyance, as needed

c) PIO/JPIO- Confirmed Positive Response

- 1) Maintain regular correlation with IC/JIC on current status of incident
- 2) Initiate release of PSA's to facilitate maintenance of quarantine and movement restriction compliance
- 3) Maintain communication with press/ media on information release

d) Operations Section- Confirmed Positive Response

- 1) The Operations Section Chief will continue to maintain section functions
- 2) Maintain regular correlation with IC general staff on the progress of field operations. Review effectiveness of strategies and consider modifications

of tactics if deemed appropriate

- 3) Maintain regular correlation with all branches of field operations personnel. Ensure that critical information is being relayed up and down the chain of command
- 4) Ensure that supplies and resources necessary for field operations are being acquired, distributed adequately maintained
- 5) Relocate or establish additional field operations staging area(s) as required to maintain effective response
- 6) Maintain communications with producers in CA regarding any changes in quarantine, movement restriction status (Appendix C) or actions related to surveillance, depopulation, disposal or C&D
- 7) Maintain surveillance of SP's and CP's within the established IZ and/or CA based on trace outs
- 8) Continue investigating trace outs; identify additional SP's/CP's
- 9) Continue to monitor compliance with existing quarantines, establish additional quarantines as necessary (Appendix C)
- 10) Monitor compliance with biosecurity protocols by producers and response personnel
- 11) Continue to utilize enforcement personnel as necessary to achieve acceptable compliance
- 12) Complete appraisal protocol for known IP's. Ensure that administrative requirements for indemnity have been completed
- 13) Complete assessment of IP for on site disposal. Select alternative site if IP does not have acceptable disposal location (Appendix E)
- 14) Begin depopulation and disposal of susceptible livestock on eligible IP's. Follow with appropriate disposal of contaminated feed, animal products, animal byproducts (Appendix E)

e) Planning Section- Confirmed Positive Response

- 1) The Planning Section Chief will continue to maintain section functions
- 2) Continue to receive, compile and manage field data that is received
- 3) Maintain analysis, preparation and distribution of situation status reports
- 4) Continue to document incident activities and accomplishments in a format that will facilitate archival as well as, serve as a tool for strategy development
- 5) Maintain security of incident data
- 6) Continue to provide GPS/GIS technical service, provide maps, or other visual aids for field personnel and general ICS staff
- 5) Continue to maintain or acquire, as needed, any appropriate resources that will provide the technical expertise necessary to maintain an effective response effort.

e) Logistics Section- Confirmed Positive Response

- 1) **Logistics Section Chief will maintain section functions not delegated or otherwise provided for!**
- 1) Maintain procurement and distribution of expendable supplies, non-expendable supplies, service reusable equipment or additional support

- personnel on an as-needed basis
- 2) Maintain command center facilities.
- 3) Maintain support/ transport vehicles for field response teams
- 4) Maintain infrastructure to supply food and water to incident response personnel

f) Finance/ Administration Section- Confirmed Positive Response

- 1) **The Financial/ Administration Section Chief will continue to be responsible for all functions in this section that have not yet been delegated!**
- 2) Maintain records on all incident expenses related to personnel time records, OT records and materials/supplies expenditures as they are incurred. Track procurements related to contracts, leases
- 3) Maintain tracking and itemizing response costs as they are incurred, in a format that is appropriate for archival purposes
- 4) Develop and maintain current cost estimates related to incident response

5. Ongoing ICS Response Activities Following Laboratory Confirmation

At the time of laboratory confirmation of FAD, key ICS personnel including *Command Staff, Section Chiefs and appropriate Branches* should be activated, oriented on current status of incident and involved in response activities. Level of operations will be dependent upon extent of the FAD outbreak.

Maintaining enforcement of designated quarantines/ movement restrictions, investigation of other suspect premises, surveillance within the current Control Area (CA), investigation of trace-ins and trace-outs and maintenance of biosecurity measures are among those functions that will hold the highest priorities at this stage of the response effort. Appraisal of Infected Premises (IP), disposal site(s) assessments and early depopulation efforts will also likely in progress. These specific functions will be examined in greater detail in the following pages.

EPIDEMIOLOGY/ TRACE-OUTS/ SURVEILLANCE CONFIRMED FMD

A. Goals:

- 1. Within 24 hours of the first presumptive positive case, a case definition will be established to identify subsequent positive cases and premises. This definition may be modified later, based on additional information or changing needs.
- 2. Identify all additional CP's within 24 hours of identifying the IP or the initial CP's.
- 3. Develop a surveillance plan that will define the extent of the highly contagious disease outbreak and detect new cases quickly, within 48 hours of the identification of the first presumptive positive index case.

B. Guidelines: These functions are imperative to determine progression and direction

of the disease outbreak, to facilitate development and implementation of tactical responses and evaluate effectiveness of control and eradication efforts. Following are general guidelines for respective branch functions. These are detailed in their respective appendices.

1. Planning Section/ Epidemiology Branch

- a)** Gain an understanding of the disease characteristics (clinical signs, incubation period, susceptible population, etc.)
- b)** Identify risk factors associated with the disease occurrence (age, production practices, species, wildlife, vectors, etc.)
- c)** Provide information for decision making that can be utilized to design and implement control measures against the disease being targeted
- d)** Evaluate effectiveness of control measures implemented and modify measures as necessary
- e)** Establish definitions for presumptive positive cases and confirmed positive cases, if not already established

2. Operations Section/ Tracing Branch

- a)** Perform timely and accurate trace-backs and trace-forward of all contacts with infected animals and IP(s)
- b)** Trace should include all movements from the premises (susceptible/ non-susceptible livestock, animal products, crops/ grains, vehicles and people)
- c)** Trace should also consider other potential modes of transmission (wind, water, mechanical/ fomites, vectors, and reservoirs)
- d)** Trace-backs should include a minimum of one or two maximum incubation periods (MIP) prior to the onset of clinical signs in infected animals
- e)** Trace-forward should be carried up to the time that the quarantine is imposed

3. Operations Section/ Surveillance Branch

- a)** Visual inspection of livestock in IZ(s)
- b)** Sample collection from susceptible animals on SP(s) within SZ(s)
- c)** Slaughter surveillance within SA(s)
- d)** Serological surveys within SZ(s)
- e)** Investigate reports of suspected disease within SZ(s)
- f)** Surveillance of susceptible wildlife populations in SZ(s) (VTF&W)
- g)** Surveillance outside of the SZ will consist of slaughter surveillance, serological surveys and investigation of reports of suspected disease

CONTAINMENT/CONTROL/ ERADICATION RESPONSE CONFIRMED FMD/ FAD

Containment will be essential to the success of eradicating confirmed cases of a FAD on a farm. It may also limit the number of animals that ultimately need to be destroyed. Until the extent and distribution of the disease outbreak can be determined, containment of a single area or a widespread area should be considered.

Containment may be achieved by:

1. Natural, physical or environmental barriers (rivers)
2. Artificial barriers (fencing, population centers)
3. Law enforcement agencies providing perimeter control

Enforcement of Quarantine/ Movement Restrictions:

These are critical elements of overall incident biosecurity. Effective quarantine and movement controls are essential to minimizing further spread of a disease agent. Movement control will also enhance the rate and likelihood of successful eradication.

Hopefully, farms and other affected facilities will cooperate with established quarantine and movement restrictions. Even with cooperative efforts, it may be necessary to maintain personnel on IP(s) prior to depopulation and C&D to ensure that biosecurity measures are adhered to. In instances where cooperative efforts are not forthcoming, additional enforcement measures may be required.

It is likely that additional personnel will be required in other locations within the Control Area (CA) to minimize any unknowing or intentional breaches of biosecurity measures. Number of personnel to accomplish this will be dependent on size of control area, numbers of IP(s)/ CP(s), road distribution, traffic patterns, geophysical location, population density or other factors.

Much of the responsibility for these elements will likely fall upon State resources (i.e. municipal law enforcement, County law enforcement, State law enforcement or National Guard), although it is possible that Federal resources could become involved in extreme cases. **General responsibilities for the Enforcement Branch of the Operations Section are as follows**

1. These enforcement measures should be in conjunction with a well-established public information program
2. Maintain communications with Operations Section Chief/ ICP
3. Maintain awareness of Control Area boundaries, locations of IP(s) and CP(s)
4. Maintain quarantine and biosecurity measures on IP(s) and CP(s) (i.e. vehicle movement, non-susceptible animal movement, people movement, etc.)
5. Control vehicle traffic as necessary within CA(s)
6. Enforcement of interstate movement restrictions established by APHIS VS
7. Respond to protesters interfering with FAD response activities
8. Observe for perceived crimes of opportunity
9. Provide support/ protection for response personnel if deemed necessary

A. Public Information Officer Response- Confirmed FAD

1. Develop PSA's regarding quarantines/ movements restrictions and reasons for

implementation.

2. Work with media to develop protocol for keeping the public alerted to Control Areas or other restrictions

B. Appraisal of Animals and Materials- Confirmed FMD/ FAD: Appropriate and effective appraisal and compensation protocols are integral components of a successful response to a disease outbreak or other animal health emergency. They provide for the enumeration and valuation of animals and materials to be destroyed and the compensation of the owner for loss of property. **They also provide the owner with *some* incentive to report cases of animal disease and to cooperate with the rigorous measures necessary to control an outbreak.**

Appraisal protocols, indemnity payments and appropriate forms are outlined in 9 CFR 53.

Appraisal for indemnity purposes should be initiated on the primary premises immediately, upon confirming diagnosis of FMD. Appraisal/ indemnification protocols involving secondary cases may be initiated without laboratory confirmation if they meet specific criteria (see case definition).

1. Appraisal Officer's duties- Confirmed FMD/ FAD

- a) Ensure that complete, current contact information is maintained on people who are willing and qualified to serve as appraisal team leaders and team members.
- b) Assigns personnel to Appraisal Teams and appoints an Appraisal Team Leader to supervise each team.
- c) **Assigns Appraisal Teams to premises and inform other site personnel/ owners of expected arrival times.**
- d) Determine personnel/ other resources necessary to conduct appraisal operations and provide Logistics Section with itemized requirements.
- e) Establish personnel training/ orientation requirements for designated personnel (i.e. **safety precautions, biosecurity protocols, appraisal protocols**, etc.) and provide Training Person with this information.
- f) Review Appraisal Team's determination of fair market appraisal of animals/ materials earmarked for destruction/ disposal and documentation of the basis for determination.
- g) Serve as a technical resource for information regarding current methods and procedures for appraisal of livestock and materials utilizing, as needed, knowledge and expertise of other individuals knowledgeable in appraisal of livestock and/or specific materials.
- h) Maintain or procure documentation to support appraisal findings.
- i) If requested by owner, assist Appraisal Team in securing an *expert appraiser* (i.e. for appraisal of purebred or specialty livestock or in event of contested appraisals).
- j) Correlate with Operations Section Chief to ensure that appraisals are completed in a timely fashion.
- k) Correlate with Finance/ Administration Section to determine appropriate procedures for processing indemnity claim forms.

- l) Verify accuracy and completion of all supporting documents and claim forms.
- m) Submit information to Planning Section for documentation or to APHIS for data entry in EMRS.
- n) Procure appropriate video/ photography equipment to facilitate documentation of appraisal.
- o) Provide information as requested to other IC staff (i.e. IC, PIO) to facilitate media releases, status situation reports, ongoing planning, etc.

2. Appraisal Team Responsibilities- Confirmed FAD

- a) Understand safety precautions as well as hazards and ways to avoid them.
- b) **Observe biosecurity measures for entering or exiting infected premises (See Appendix C).**
- c) During initial consultation with owner, generate a rough map showing the location of each group of animals or contaminated material so that each item can be checked off as it is appraised.
- d) **Use VS Form 1-23 to appraise the fair market value of the animal(s) and/or materials.**
- e) Calculate any indemnity payment due the claimant.
- f) Obtain the required signatures.
- g) Notify the Appraisal officer immediately upon completion of the appraisal.
- h) **Observe biosecurity measures for leaving infected premises (See Appendix C).**

3. Operations Section/ Appraisal Related Duties- Confirmed FAD

- a) Coordinate appraisal, depopulation and disposal branch activities.

4. Public Information Officer- Confirmed FAD

- a) Develop PSA's regarding Appraisal/ Indemnification protocols to inform public and industry of process and justifications.
- b) Develop sound bites, with the media's assistance, to provide accurate information to the public and industry.

5. Planning Section/ Related Branch Duties- Confirmed FAD

- a) Designate Humane Officer(s) to ensure humane care of animals after quarantine, up to and including humane destruction of animals.
- b) Provide professional advisors/ consultants, to assist in appraisal efforts to facilitate a reasonable and accurate appraisal process if disputes arise.

C. Euthanasia/ Depopulation- Confirmed FAD: Destruction of livestock must be performed as rapidly and humanely as possible using agents and methods determined to be acceptable by the AVMA's Panel on Euthanasia

Consideration must be given to the owners and caretakers and their families, during this process. All should be provided with a complete explanation of what to

expect. Psychological supportive services for the affected families must be offered **(See Appendix I)**

State Veterinarians will respond to the infected area and implement a workable strategy for the euthanasia procedure. It should be developed for each facility slated for depopulation *prior to implementation*. Factors to consider include number of animals, species of animals, size and age of animals, working facilities available, access of location to loaders and trucks, personnel resources required, equipment and supplies required, etc. **(See Appendix E for a more detailed discussion of euthanasia issues.)**

1. Euthanasia Branch of the Operations Section- Confirmed FMD/ FAD

- a) Assess individual facilities regarding logistics of euthanasia process (i.e. handling facilities, etc.).
- b) Determine specific euthanasia strategy for individual facility (i.e. appropriate method/ equipment).
- c) Establish the personnel resources and other resources needed for euthanasia procedure. Coordinate needs with Logistics Section.
- d) Strive to perform euthanasia in an acceptable, humane fashion.
- e) Maintain a professional demeanor while performing euthanasia procedures.
- f) Cooperate with disposal team in regards to rate of process and handling of carcasses.
- g) Maintain safe working practices during euthanasia process (livestock handling, firearms, captive bolt guns, etc.)
- h) Maintain biosecurity measures when entering and exiting facility.

2. Operations Section/ Appraisal Related Duties- Confirmed FMD/ FAD

- a) Coordinate appraisal, depopulation and disposal branch activities.
- b) Maintain correlation with respective section chiefs to ensure activities are proceeding according to response strategies.

3. Planning Section/ Depopulation Concerns- Confirmed FMD/ FAD

- a) Provide counseling and support, through HHS or equivalent agency, for farm families, response personnel as necessary.

E. Disposal Issues- Confirmed FMD/ FAD: Effective disposal of animal carcasses and materials is a key component of a successful response to an animal health emergency. **The principle goal is to control and contain the spread of the disease.** A number of options exist for the disposal of carcasses, animal products/byproducts and associated organic materials related to livestock production.

Disposal focuses on responsibilities of disposal personnel, evaluation of disposal sites, selection of appropriate disposal method(s) for carcasses and other materials **(See Appendix E for detailed descriptions).**

1. Disposal Branch Activities- Confirmed FMD/ FAD (See Appendix E)

- a) Develop memorandum of understanding for use of local or regional landfills for disposal if needed.
- b) Assessment of potential disposal sites located on Infected Premises (within 24 hours of site designation).
- c) Create a disposal plan with highest priority given to disposal of highest risk items.
- d) Determine resources required (personnel, vehicles, equipment and supplies) to dispose of livestock and other materials on site or at remote site if on-premises locations are unacceptable. Submit needs to Logistics Section.
- e) Assign personnel to Disposal Teams and appoint a Disposal Team Leader to supervise each team.
- f) Coordinate Disposal Team personnel/ resources with Appraisal Branch and Euthanasia Branch to facilitate efficient depopulation/ disposal operations.
- g) Correlate with environmental agencies/ departments to ensure that disposal activities minimize adverse environmental implications.
- h) Complete records/ documentation of disposal duties and provide to EMRS or Planning Section for archival.
- i) **Maintain biosecurity involving all personnel/ resources involved in disposal process. (See Appendix B)**

2. Operations Section/ Disposal Related Duties- Confirmed FMD/ FAD

- a) Coordinate appraisal, depopulation and disposal branch activities.
- b) Maintain correlation with respective section chiefs to ensure activities are proceeding according to response strategies.

3. PIO- Depopulation/ Disposal Issues- Confirmed FMD/ FAD

- a) Develop PSA's regarding Depopulation/ Disposal protocols to inform public and industry of process and justifications.
- b) Develop sound bites, with the media's assistance, to provide accurate information to the public and industry.

F. Cleaning and Disinfection- Confirmed FMD/ FAD: Cleaning and disinfection is an integral component of biosecurity measures in Vermont's Animal Health Emergency Response Plan. This term refers to the combination of physical and chemical processes that remove and/or inactivate pathogenic microorganisms. Effective C&D is essential for any efforts to eradicate a disease agent such as FMD and to minimize the time between depopulation and recovery efforts following a disease outbreak (See Appendix B for details).

C&D is a critical element of all field operations involved in an animal disease outbreak. As indicated in previous sections of this document, any contact, with an infected premise, animals/ animal products or other contaminated materials from these premises, must include effective C&D to preclude further spread of the disease agent.

1. Specific C&D Risk Elements- Confirmed FMD/ FAD

- a) FADD/ disease investigation personnel, equipment, vehicles.
- b) Enforcement personnel, equipment and vehicles.
- c) Appraisal personnel, equipment and vehicles
- d) Premises owners, family members, employees and other support industry personnel.
- e) Physical facility (buildings, fences, pens, handling facilities, feeders, watering devices, mechanized equipment, vehicles, etc).
- f) All livestock products, byproducts and organic materials related to livestock production that may be contaminated by the disease agent.
- g) Other traffic entering/ leaving premises (delivery vehicles such as mail, UPS, etc., school buses, fuel trucks, others).
- h) Response personnel (Depopulation, disposal, C&D, other adjunct response personnel).

2. Cleaning & Disinfection Branch- Confirmed FMD/ FAD

- a) Branch should include a previously designated leader that has a good understanding of working biosecurity principles. This person will be based at the ICP.
- b) Branch leader should ensure that all field personnel have adequate orientation of biosecurity and C&D principles and are familiar with mechanisms of disease agent transmission.
- c) Branch leader will assign appropriate biosecurity personnel to specific field locations to implement or oversee biosecurity measures
- d) Biosecurity branch leader should ensure that all movements on and off the IP is controlled. This may be accomplished by assigning a Biosecurity team member to establish a premises security system or by assigning properly oriented enforcement personnel to serve as permanent guards.
- e) Branch leader will serve as a technical resource for information on current biosecurity methods and maintain resource materials on these topics. The branch leader will refer to the disinfectant database at www.biosecuritycenter.org for a list of disinfectants.
- f) Branch leader will inform industry groups and others of methods to prevent pathogen transmission.
- g) He/she should also establish and maintain effective working relationships with individuals such as renderers, feed-mill operators, transportation company representatives, livestock and poultry producers, processing plants, etc.
- h) Branch leader should determine number and types of personnel, vehicles and equipment needed to conduct biosecurity operations and relay this information to Operations and Logistics Sections.
- i) Leader should coordinate biosecurity activities with activities from other branches (i.e. investigation, appraisal, depopulation, disposal, etc.).
- j) Leader should ensure timely C&D of IP's following depopulation and disposal of susceptible animals.

- k) Leader should ensure that contaminated products/ materials are adequately decontaminated or disposed of in a manner consistent with acceptable biosecurity measures.
- l) Leader should prepare briefings and situation reports to provide Operations Section Chief on a regular basis and notify him/ her immediately of any problems.
- m) Branch leader should verify the accuracy and completeness of all required reports and submit promptly for entry into EMRS or state database.

G. Vaccination (as a tool for control/ management of a FMD/FAD outbreak):

Increasing consideration is being given to utilization of vaccination as a means to facilitate a less chaotic management of an extensive disease outbreak. Outbreaks that are confined to a relatively small area (point source outbreak) would most likely still employ quarantine, depopulation and C&D as primary strategies. However, there are increasing public and professional concerns about the aesthetics and moralities of massive livestock depopulation efforts, as well as *substantial* logistical and financial issues (i.e. environmental impact, loss of valuable genetics, etc.).

1. **Concerns/ issues** (involving vaccination as a control/ management tool include)
 - a) Disease/ agent involved in outbreak
 - i) Pathogenicity of disease agent involved (morbidity, mortality)
 - ii) Contagion potential of disease agent (relative infectivity)
 - iii) Strictly animal disease
 - iv) Zoonotic potential of disease agent
 - b) Extent of outbreak
 - i) Point source outbreak with minimal movement
 - ii) Point source outbreak with extensive movement (concentration points)
 - iii) Multiple point outbreaks (bioterrorism- foreign/ domestic)
 - c) Trade implications
 - i) Classification of disease agent relative to export policies
 - ii) Extent of industry exports
 - iii) Export restrictions- cost to industry
 - d) Availability of vaccine
 - i) Vaccines for many FAD's are not readily available in U.S.
 - ii) Time frame to acquire vaccine may limit usefulness in outbreak control
 - iii) Available supplies may be inadequate to effectively use in control efforts
 - e) Positive aspects of vaccination
 - i) Vaccination will provide additional tool to aid in controlling spread and manifestation of infectious disease
 - ii) Vaccination will provide for a staged depopulation and eradication program (as opposed to mass depopulation/ disposal and related issues)
 - iii) Vaccination will allow for greater utilization of animals in the human food channels (if appropriate)

- iv) Cost of depopulation/ disposal will be extraordinary if an extensive outbreak exists. State *and* Federal resources may be insufficient to effectively cover these expenses
- e) Negative aspects of vaccination
 - i) Undesirable/ adverse side effects of vaccination
 - ii) Vaccination will likely extend infected status of area/ region
 - iii) Extended infected status will likely prolong trade restrictions may result in unacceptable economic sanctions and financial losses
 - iv) Expense in acquiring, manufacturing, distribution and administration of vaccine
 - v) Vaccination will probably not be 100% effective
 - vi) Vaccination may not eliminate carrier states in vaccinated animals
 - vii) Prolonged infected status will necessarily prolong efforts for surveillance, monitoring and other related biosecurity management, movement restrictions, repopulation, etc.

2. Assessment/ Decision Regarding Vaccination for FMD/FAD

- a) Risk/ benefit assessment should be performed to determine whether vaccination is a viable alternative (this includes potential long-term effects on the agriculture industry regarding the disease status for a given area, state, region or country)
- b) Protocol for vaccination and adjunct activities (monitoring, surveillance, movement restrictions and other biosecurity measures) should be developed by State and/or Federal agencies
- c) If a FAD is involved, final approval for a vaccination program will rest with USDA

- 3. **Vaccination Protocol:** This will be established in a vaccination program developed in response to specific criteria involved in a FMD/FAD outbreak. Development of a vaccination program will be a cooperative effort involving State and Federal agencies and will likely include input from international entities such as OIE or international trade associations/ agreements.

VII. Repopulation/ Recovery Efforts: In the event of a FMD/ FAD outbreak and subsequent depopulation, it will necessary at some point to reconstruct the affected industry. This section will deal primarily with issues related to that effort.

A. Specific concerns related to repopulation/ recovery

- 1. **Assurance that FMD/ FAD has been eradicated:** Following depopulation and C&D, it will be critical to ensure that the disease agent has been eliminated. The following elements will be instrumental in gaining this assurance:

- a) Specific time intervals may be designated by epidemiologists to maximize natural effects of heat, sunlight, drying, etc
- b) Ongoing monitoring/ surveillance in designated zones, states or regions. Typically different levels of surveillance would be implemented depending on risk assessment or proximity to infected zones
- c) Utilization of sentinel animals to detect residual presence of disease agent in the environment (fomites, unapparent carrier animals, unknown vectors)
- d) Facilities must be assessed on an individual basis to determine acceptability for repopulation. This will be based on assessment by epidemiologists or other designated response personnel

2. Special considerations (related to control responses utilizing vaccination)

- a) Response efforts utilizing vaccination will probably result in different time frames for depopulation/ eradication and subsequent repopulation, than responses *not* utilizing vaccination as a tool
- b) Implications of vaccination program as it relates to propagation of in-apparent carrier animals, shedding of disease agent and persistently infected animals
- c) If vaccination is used, and eradication delayed, it may be necessary to designate zone or state infection status.
 - i) Subsequently control and eradication might take the form of currently existing eradication programs such as ones existing for TB, Brucellosis or PRV (Test and cull protocol). This would involve ongoing/ long-term expenses that would likely be funded through State/Federal government entities
 - ii) This would necessarily involve much longer time frames to accomplish eradication. In addition, established trade channel restrictions would likely be prolonged as well.

3. Other considerations for repopulation/ recovery

- a) Re-establishment of genetics lost in depopulation- Hopefully, much of the genetic infrastructure could be re-established through the use of frozen embryos and semen
- b) Although indemnities would have ostensibly been paid to producers, loss of production, lag time in re-establishing commercial production, costs incurred to repopulate, as well as other factors would likely cause additional financial hardships for producers.
 - i) Provisions should be considered for emergency programs such as State/Federal subsidies, emergency loans, forgiveness of farm debt interest, etc.
 - ii) In the absence of ongoing or long-term financial assistance, many farms/ ranches would likely be forced out of business
 - iii) **Serious consideration must be given as well, to subsidiary businesses/ industries that serve the affected agricultural**

industry! This segment of local, regional and national commerce (including feed and equipment suppliers, vehicle dealers, trucking and transportation companies, financial institutions, etc.) may actually suffer losses that exceed the upfront costs to producers and could have far reaching effects on the national *and* global economy.

VIII. Addendum: The occurrence of a significant FMD/FAD outbreak in Vermont or in the United States would have far-reaching implications, affecting a substantially greater area than the immediately affected one. Hopefully, an outbreak, such as the one addressed in this document, remains only a test exercise. However, in today's climate of global, political unrest and ever increasing movement of animals, animal products and people, the likelihood of such an event appears to be escalating.

This animal health emergency response plan should not be considered a final document. As indicated earlier in the document, periodic exercises, evaluation and reassessment should occur and revisions made as deemed necessary.

APPENDIX C:
BIOSECURITY PROTOCOLS
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BIOSECURITY PROTOCOLS/ GENERAL PROVISIONS

I. Introduction: The term biosecurity refers to “measures implemented to preclude transmission of infectious diseases, parasites and pests” (*Blood and Studdert*) among livestock, poultry, wildlife and zoo animals and humans, in the case of zoonotic agents. During a FAD outbreak, biosecurity measures are implemented to prevent or mitigate pathogen spread. Although these measures should be a component in day-to-day activities, such measures are critical during a FAD outbreak.

This appendix will describe the biosecurity measures necessary in an animal disease emergency to:

- A. Exclude disease agents from livestock and poultry populations (i.e. flocks, herds or other groups of animals).
- B. Prevent the spread of disease agents already in the population to susceptible uninfected groups within the population.

These measures, if properly implemented, will reduce the risk of pathogen transmission during the extensive activities (i.e. surveillance, vaccination, appraisal, depopulation, etc.) of a disease campaign that involves movement of personnel and material between premises.

I. General Considerations: An outbreak of a foreign animal disease, particularly one that is highly contagious, has a potentially serious impact on the agricultural industry and, if a zoonotic agent, on public health. Accordingly, veterinarians, owners and other personnel in contact with animal facilities should implement strict biosecurity measures to prevent or impede dissemination of the disease agent. *The biosecurity measures should include provisions for movement of people, animals, vehicles and equipment; animal handling, examination, treatment, euthanasia and necropsy; and disposal of animal carcasses, animal products, animal byproducts, feed, water, bedding, roughage and other materials potentially serving as fomites for disease transmission.*

FAD's may be spread to susceptible species:

- A. Directly, via direct contact of infected animals, the animal's products, secretions, excretions, epidermal outgrowths, aerosol, etc.
- B. Indirectly, via contact with feed, water, fomites, and people or other exposed non-susceptible animals.

III. Mitigation of biosecurity risks *prior to or during* an animal disease emergency:

- A. Minimize exposure potential of susceptible animals to exposed or infected animals.
 - 1. **Housed animals are at reduced exposure risk and should remain housed if possible.**
 - 2. If susceptible animals are maintained outside, prevent fence line contact with neighboring herds (i.e. empty field between distinct herds).
 - 3. Avoid **any** new herd additions during an animal disease emergency.

4. Do not utilize pastures or forage that may have been contaminated by infected or exposed animals.
- B.** Minimize chances for exposure of susceptible animals to disease agent by indirect exposure (i.e. fomites such as people or vehicles)
1. Increase vigilance for any evidence of disease signs and promptly alert a veterinarian if suspicious signs observed.
 2. Minimize traffic **of any type** onto the premises.
 3. Maintain strict biosecurity for any traffic (persons, vehicles, etc.) that enters the premises.
- C.** Animals should be individually identified on the premises and an inventory record of the herd should be maintained. A permanent method of identification is preferred (i.e. metal ear tag, FAIR tag or electronic identification).
1. Identification of individual animals facilitates movement traces of individual animals.
 2. Valuable in the event that herd becomes exposed or infected for appraisal and indemnification.
- D.** Careful attention should be given to apparel worn onto the farm.
1. It is advisable that any visitors to farm (regardless of risk level) be provided disposable coveralls, boots, hats and gloves for use during their premises visit. **Ensure appropriate disposal after use.**
 2. If reusable clothing is used, it must be machine washable. Moisture impervious outerwear will preclude any contamination soaking through to under garments.
- E.** Movement *on to/ off of* premises during an animal disease emergency. **(Refer also to Appendix C: Quarantine and Movement Controls)**
1. Visits to susceptible premises or a *Suspect/ Infected Premises* can be for a variety of reasons. Each visit, to or from a premises, provides an opportunity for introducing the disease agent into a susceptible herd or alternatively, disseminating the disease agent from an IP or SP. Visitors should be categorized according to their risk potential and suitable measures assigned to each risk category. *Any* visitors, to premises within a CA, should be categorized as high-risk visitors.
 - a) **Low-risk visitors** (i.e. persons from an urban area with no other contact with animals or animal facilities)
 - i) Informed of biosecurity measures and asked to comply with these measures.
 - ii) Avoid contact with animals or animal traffic areas.
 - iii) Minimize contact of personal vehicles with soil, mud and manure. (Ideally should park off-premises) If vehicle is allowed on premises, the

windows should be kept closed, its wheels, tires and undercarriage should be washed with soapy water upon arrival *and* departure.

iv) All low risk visitors should be provided with disposable or reusable protective clothing (coveralls, hats and gloves). If footwear is soiled it should be cleaned and disinfected before entering and leaving premises.

b) **Moderate-risk visitors** (i.e. sales people, farm equipment mechanics, property appraisers, utility workers, feed delivery, etc.) All previously discussed measures (*****) should be followed for moderate-risk visitors. In addition:

i) Equipment should be cleaned and disinfected after each use.

ii) Disposable coveralls and boots should be disposed of appropriately and left with the owner for disposal.

iii) Reusable coveralls and boots should be put into a clean plastic garbage bag or other suitable container and cleaned and disinfected after each use.

c) **High-risk visitors** (i.e. veterinarians, AI personnel, maintenance personnel having contact with animals, processing crews, livestock transporters, neighbors with livestock, animal caretakers or other premises employees)

i) In addition to biosecurity measures for low and moderate risk visitors, high-risk visitors should observe additional precautions. (These precautions are detailed on *****)

2. At-Risk premises

a) Minimize any vehicular traffic onto premises.

b) If **any** vehicles enter premises, ensure that driver, vehicle and any associated equipment have implemented biosecurity measures before entering premises.

c) If **any** visitors enter the premises, ensure that visitors and their transportation have followed biosecurity protocols before entering premises.

d) Make provisions for offsite: delivery of parcels, mail, school bus stops, feed delivery, etc. if at all possible, during the animal health emergency.

e) Owner should take appropriate measures for themselves, family members, employees and personal vehicles when entering premises.

f) Provisions should be made to confine any pets or other free-ranging small domestic animals that inhabit premises.

3. **Exposed or infected premises:** these premises will most likely be under direct supervision of response personnel or regulatory/ enforcement. All of the aforementioned measures in (C) (5) (a) would be applicable. In addition to those measures the following measures should be implemented:

a) **All** persons leaving the premises should appropriately handle any contaminated clothing or equipment.

- b) **All** vehicles leaving the premises should be adequately cleaned and disinfected using an appropriate protocol (See *****).
- c) **Any** livestock, livestock products, livestock by-products, etc. should have appropriate permits *and* appropriate measures taken to preclude dissemination of the disease agent.

In an animal disease emergency, premises within the control area should follow guidelines for the high-risk category. Additional guidelines are discussed later in Appendix B (See High-Risk Visits/ Page *)

F. Response Personnel: All emergency response personnel that have contact with animal facilities or contaminated products/ materials will also be categorized similar to high-risk personnel. In addition to biosecurity measures addressed in the preceding paragraphs, response personnel should also be concerned with:

1. Maintaining an appropriate time separation between visits to different premises. An appropriate interval should be established early in the response.
2. If private practitioners are involved in the response effort **or** make calls to herds of susceptible animals during the outbreak, they should also make allowances for an appropriate interval between farm calls.
3. Response personnel having susceptible livestock at home should make provisions to preclude inadvertent transmission of the disease agent to their own livestock.
4. Specific entry/ exit protocols are described in Appendix B: High-Risk Visits.

APPENDIX C: BIOSECURITY PROTOCOLS- QUARANTINE AND MOVEMENT CONTROLS

- I. **Goal:** To prevent the spread of the highly contagious disease agent from infected premises to non-infected premises without imposing undue hardship on otherwise uninvolved entities. (e.g., premises with non-susceptible species, commercial enterprises, transportation routes, etc.)

Tentatively establish a Control Area (CA) (includes the Infected Premise(s) and Surveillance Zones) after determination that a *highly likely to be* status exists. **This CA should be implemented within 12 hours of notification of a presumptive positive (index case) or confirmed positive case status.**

- II. **Guidelines:** Effective quarantine and movement controls are essential to prevent further spread of a disease agent. Movement controls also increase the speed and likelihood of successful eradication.

USDA will impose a Federal quarantine on interstate commerce from the infected State(s) and *request the infected and adjoining States (or country) to provide resources to enforce the quarantine.* Reimbursement formulas for this activity will be set out in a cooperative agreement between the States and USDA. *The State will maintain this quarantine until the disease is eradicated or until such time as an effective control area less than a whole State is implemented.*

- A. **Control Area:** A control area (CA) consisting of infected zones (IZ) and surveillance zones (SZ) will be established, based on location of IP's and CP's, to facilitate the timely and effective containment of the disease. The entire State should initially be declared a control area (i.e. surveillance zone) subject to movement restrictions. All susceptible animal movement within the State should be halted until the extent of the disease outbreak is determined. Factors affecting ultimate size and shape of CA include:

1. Farm density
2. Prevailing wind directions and speeds.
3. Terrain/ geology of area.
4. Natural water features and flows.
5. Traffic flow through or around premises.

B. Infected Premises, Contact Premises, and Suspect Premises

1. **Infected Premise (IP)** is a premise where a highly contagious disease or disease agent is presumed or confirmed to exist. Total movement control is imposed and all susceptible animals are subject to depopulation.
2. A **Contact Premise (CP)** is a premise with susceptible animals or animal products that has been exposed directly or indirectly to animals, animal products, contaminated material, people or air (wind) from an IP. A CP will be quarantined and will be subjected to disease control measures that may include depopulation.

If the susceptible animals on a CP are not immediately designated for depopulation, they will be placed under surveillance for *two or more* maximum incubation periods (MIP). *Surveillance will consist of a minimum of three inspections of animals per MIP.* If a CP is located outside of an infected zone, the CP will have an appropriate surveillance zone established around it

3. A **Suspect Premise (SP)** is one with susceptible animals that are under investigation for a report of clinical signs with no apparent epidemiological link to an IP or CP, or is in the Infected Zone and not classified as an IP or CP. These premises are under movement restrictions and surveillance for two or more MIP's. Surveillance will consist of a minimum of three inspections of animals per MIP. If negative, the premises revert to its previous status. The

PROTOCOLS FOR INFECTED PREMISES, CONTACT PREMISES, SUSPECT PREMISES

- **All IP's, CP's and SP's (i.e., all premises with susceptible species) within the infected zone (IZ) will be quarantined, with no susceptible animals movement, while strict surveillance and inspection are being conducted.**
- Non-susceptible species on an IP, CP or SP may be allowed to move with a permit under special conditions.
- Susceptible animals not located on an IP or CP, but *within the control area* (which includes the Infected and Surveillance Zones) *can move to slaughter only with a permit provided the slaughter plant is within the Control Area (CA).*
- Provisions should be in place for official sealing of conveyances (if deemed appropriate) and maintenance of biosecurity measures (See Appendix C).

owners of animals on a SP that are in an infected zone may elect to depopulate their animal with approval of the USDA and State animal health officials managing the outbreak.

4. **Infected Zones:** The initial Infected Zone will encompass the perimeter of all presumptive or confirmed positive premises and include as many of the CP's as is strategically or scientifically appropriate.

In considering the establishment of the IZ, initially it should be at least 10 km (6.2 miles) ¹ beyond the perimeters of the presumptive or confirmed infected premises.

The boundaries should be modified (expanded or reduced) as new data becomes available. The actual distance in any direction may be affected by factors such as:

- a) Known characteristics of the disease agent.
- b) Characteristics of the terrain.
- c) Livestock movement patterns.
- d) Livestock densities.
- e) Current weather patterns .

PROTOCOLS FOR INFECTED ZONES (IZ'S)

- Conduct epidemiological investigations (Planning Section/ Epidemiology Branch).
- Identify trace-ins and trace-outs (Operations Section).
- Attempt to determine source of infection (if not known).
- Enforce movement restrictions (Operations Section/ Enforcement Branch).
- Prevent animals from leaving Infected Zone, *unless going directly to an approved slaughter establishment that is located within the Surveillance Zone*, and meeting conditions described on a permit to move (under official seal, provisions for biosecurity measures, etc.).
 - **All animal products resulting from slaughter of susceptible animals within an IZ must be considered infected (must be disposed of following protocols for contaminated materials).**
- Maintain biosecurity protocols on vehicles, equipment and non-susceptible animals when leaving IZ (See Appendix C).
- Maintain a public awareness campaign to increase compliance with quarantine and movement restrictions (PIO).

- f) Prevailing winds.
- g) Distribution and movement of wildlife.
- h) Effects on non-risk commodities.

PROTOCOLS FOR PERMITTING ANIMAL MOVEMENT WITHIN A CONTROL AREA:

Permits to move from premises to premises can be issued if:

- No animal on the premises of origin has shown clinical signs for two MIP's for longer.
- No susceptible animals were added to the premises of origin within two MIP's or longer.
- The premise of origin is not an IP, CP or SP.
- Clinical inspection of susceptible species within 24 hours prior to movement revealed no clinical signs of the disease of concern.
- Security of livestock is maintained and transport conveyances meet acceptable biosecurity standards for the IZ or SZ (See Appendix C).

Permits to move to slaughter (for human food) can be issued if:

- The animals are eligible for a permit to move from premises to premises.
- The animals are eligible to move directly to slaughter and meet FSIS requirements to be used for food.
- Security of livestock is maintained and transport conveyances meet acceptable biosecurity standards for IZ or SZ (See Appendix C).

PROTOCOLS FOR SURVEILLANCE ZONES:

- As the extent of the outbreak becomes more apparent, susceptible livestock will be allowed to move within the SZ *by permit*, but not out of the SZ.
- Non-susceptible livestock or poultry can move within and out of a SZ *by permit and under appropriate biosecurity measures*.
- Premises within the SZ that have clinically normal susceptible animals are designated at-risk-premises (ARP).
- Surveillance on ARP's will consist of a minimum of two inspections of animal per MIP of the disease under investigation.
- State will maintain enforcement of established movement restrictions.
- Maintain a public awareness campaign to increase compliance with quarantine and movement restrictions.

5. Surveillance Zones: A Surveillance Zone (SZ) should be established around an Infected Zone (IZ) and around each Contact Premises (CP) located outside of an IZ. Initially, a SZ should encompass the entire State. This distance may be reduced, as epidemiology data becomes available.

6. Movement Permits within a Control Area: A permitting procedure should be established to facilitate control of animal movement in the Control Area. **Movement restrictions and permit protocols should be made clear to the public, producers and transport agents of all types early on in the incident!** Likewise, enforcement measures should be established early in the incident response.

¹The OIE specifically defines the radii of an Infected Zone as either 10 kilometers for intensive farming practices or 50 kilometers for extensive farming practices. They define this zone so that they can better define the standards or in-country zoning of free and infected status for regionalization. A free zone is separated from an infected zone by a surveillance zone that does not have a defined (by OIE) set distance from the infected zone. In the event that the U.S. will apply to have a free zone status with an infected zone in the country, the USDA will apply OIE standard to its infected zones. Therefore all infected farms will have at least a 10 or 50 kilometer radius drawn around it, indicating the OIE definition of Infected Zone, but this will only be enforced if the US applies to have free zones within the country. The only action that must be enforced in the infected zone (so as to have a free zone approved) is stated in this OIE quote: "Within and at the border of an infected zone, there must be effective official veterinary control in operation for animals and animal products, and their transportation".

APPENDIX C: BIOSECURITY PROTOCOLS/ CLEANING & DISINFECTION

I. Introduction: Cleaning and Disinfection refers to a combination of physical and chemical processes that remove or kill pathogenic microorganisms. This combination is critical for C&D to be effective and to minimize spread of the disease organism to susceptible animals. Without preliminary cleaning, the effectiveness of the disinfectants will be compromised. Certain principles should be adopted to ensure safe, effective use of these chemicals:

- A. All organic materials should be removed prior to using the disinfectant, as many of these chemicals are inactivated or have diminished effect when used in the presence of organic materials.
- B. Follow all labeled directions for mixing and application, including the use of PPE if indicated. This not only ensures the most effective use but also provides a safety margin to response personnel.
- C. Use an appropriate disinfectant designed for use on the specific disease agent causing the outbreak (See chart below).
- D. Chemicals used for disinfection should be environmentally acceptable chemicals.

II. Disinfecting Agents: Some of the appropriate, readily available disinfectants effective against FMD are listed in the following chart:

Product	Dilution	Mixing Instructions	Notes
5.25% Sodium Hypochlorite (NaOCl) Household bleach	3% solution	Add 3 gallons of regular strength chlorine bleach to 2 gallons of water and mix thoroughly.	Extra-strength product is roughly 2X the concentration.
Acetic Acid*	4-5% solution	Add 6.5 ounces of glacial acetic acid to 1 gallon of water and mix thoroughly.	Household vinegar is about a 4% solution of acetic acid.
Potassium Peroxymonosulfate and Sodium Chloride (i.e. Virkon-S)	1% solution	Follow labeled directions for mixing and application.	Virkon-S
Sodium Carbonate (soda ash)*	4% solution	Add 5.33 ounces of sodium carbonate to 1 gallon of hot water (or 1 pound to 3 pounds to 3 gallons hot water, mix.	This solution is mildly caustic, but can dull paint and varnished surfaces.
Sodium Hydroxide (NaOH)/ (Lye)*	2% solution	Add 1/3 cup of NaOH pellets (2.7 ounces) to 1 gallon of cold water and mix thoroughly.	This solution is highly caustic! Use PPE! WARNING! Always add lye to water! Never pour water over the lye.

* Section 18 application submitted and EPA approval is pending.

II. Personal Cleaning and Disinfection Procedures

- A. Goals:** The principle goal of personal C&D is to safely eliminate any disease agent contaminating the body or apparel. When performed effectively, decontamination permits the safe movement of personnel from premises to premises. Contamination of personnel can occur anytime when working on IP's and CP's. Heaviest contamination will likely occur: when live, infected animals are being worked on, when slaughtered animals are being inspected and samples being taken, during depopulation measures, during disposal of carcasses and products/ by-products, while removing manure, bedding and debris from livestock facilities.
- B. Personal Decontamination Site:** A PDS should be established near the exit route from each IP, CP or SP. The PDS should be established with regards to the following constraints:
1. The PDS should be placed on the premises as removed as possible from infected livestock and other contaminated areas.
 2. The PDS should allow for expansion if required during the response.
 3. The location should provide for exit from the premises with minimal danger of recontamination.
 4. The PDS should ideally be located on an impervious surface. If this is not practical, a heavy sheet of plastic or tarp (approximately 10yds X 10yds.) may be used.
 5. The PDS should be over-sprayed with an appropriate disinfectant once established.
- C. Personal Decontamination Procedure:** These procedures will apply to any visitors, response personnel or other high-risk persons entering or exiting an IP, CP or SP. In an outbreak situation, all premises visits within a CA should be considered high risk. Generally, the closer a susceptible premises is to an infected premises, the higher the risk for transmission of disease agents to uninfected, susceptible premises. The stringency of biosecurity measures should reflect this greater risk. Following is a detailed outline of steps taken for high-risk visitors entering and exiting premises.
1. **Entrance procedures for high-risk visits.**
 - a) Similar to response personnel, high-risk visitors should maintain an appropriate interval between visits to different premises. Adequate time should be allowed to clear disease agent from the visitors URT. This interval should be established early on in the response effort.
 - b) Appropriate apparel/ PPE should be provided for all high-risk visitors.
 - c) Identify and maintain a clean area in the vehicle (passenger area or compartment). The *clean area* must be kept separate from a *dirty area* in the vehicle, usually the cargo area of a truck, trunk of a car or the back of a station wagon. After entering the premises, a visitor should be considered *dirty* and thus should not go into the *clean area* of the vehicle (e.g. to replace

equipment or supplies) unless he or she has disposed of or cleaned and disinfected exposed clothes, footwear hats, gloves equipment, supplies and any other potential sources of disease agents.

- d) Plan the necessary clothing, equipment and supplies for visits, leaving unnecessary items behind. Necessary small items can be stowed in your pockets. Arrange to have a supply of water to be used for cleaning available near the vehicle parking area.
- e) Before leaving for the premises, place the clean clothing, equipment and supplies in the designated *clean area* of the vehicle.
- f) Check the drainage of the premises to ensure that disinfectant and water used for C&D do not flow off the premises or into nearby water features.
- g) Ensure that vehicle interiors are clean (ideally equipped with easily removable/ cleanable rubber floor mats). Vehicle exteriors and trailers, including tires, wheel wells and undercarriages, should be clean prior to arrival on the premises.
- h) Immediately upon exiting the vehicle at each premises, put on clean disposable or reusable outerwear (i.e. coveralls, coats and jackets) and clean disposable or rubber boots.
- i) Ensure that clean, disposable plastic sleeves and/or gloves are worn whenever direct contact with animals' body fluids, tissues or excrement will occur. Ensure that instruments and equipment are sterile before use. Disposable needles and syringes should be used if possible.

2. Exit procedures for high-risk visits

- a) Using soapy water, remove dirt, debris and organic material from the vehicle's tires, wheel wells and undercarriage.
- b) Use a brush and approved disinfectant to clean and disinfect all reusable clothing and equipment thoroughly, including jewelry and eyewear if not harmed by disinfectant; otherwise, they should be washed thoroughly with soap and water or dipped in vinegar. (See Appendix B: C&D)
- c) Remove all disposable dirty items (e.g. disposable coveralls, boots and supplies) and place them in a plastic garbage bag, to be left on premises for disposal on-site or place in the designated dirty area of the vehicle for transport to an approved disposal area.
- d) After removal of coveralls (disposable or reusable), scrub the bottoms of soiled rubber boots with a brush to remove all dirt and debris. Then clean and disinfect the boots with an approved disinfectant. (See Appendix B: C&D)
- e) Dispose of the disinfectant solution according to the label instructions.
- f) Dispose of all plastic garbage bags containing contaminated supplies, in a manner that precludes exposure to other people or animals.

- g) Clean and/or launder all reusable clothing and equipment.
- h) Take a shower. Personal hygiene should include shampooing hair, cleaning under fingernails and clearing respiratory passages by blowing nose, clearing throat and expectorating into sink with running water.

IV. Vehicle and Machinery Cleaning & Disinfection: Contaminated vehicles, heavy equipment, machinery and their drivers may pose a disease dissemination risk. No vehicle or person may leave the IP or DCP without C&D. A vehicle and machinery C&D station should be established at each decontamination site. There must be adequate equipment, water supply, materials and adequate drainage to decontaminate the expected number of vehicles. Runoff water from the C&D station *must not* flow from the area. If drainage is inappropriate, drainage must be developed to ensure that no effluent leaves the immediate decontamination site.

A. Cars/ Pickups or Other Personal Vehicles: Response personnel vehicles should not enter IP's or DCP's. Site workers should park their vehicles on the road adjacent to the affected premises. These and other vehicles should be power washed and the interiors wiped down with disinfectant. An area with an asphalt/ concrete surface with proper drainage and an adequate water supply may be designated as a regional vehicle disinfection station. A car wash facility is ideal for decontamination of vehicles if one is conveniently located.

Special care should be given to adequately orienting the premises owner, family members and hired help concerning biosecurity protocols for themselves and their personal means of transportation.

B. Livestock Trucks/ Trailers: All organic material, manure, bedding and feed should be removed from the vehicle (including wheels, tires and undercarriage). These materials should be buried, burned or composted. Vehicle should be cleaned down to metal surfaces and then sprayed with disinfectant.

C. Tractors, Heavy Equipment: All organic material, manure, bedding and feed should be removed from the equipment using a power sprayer. Equipment used in depopulation activities at contaminated sites will also be contaminated with tissue, blood or other bodily fluids. Thorough cleaning of all contaminated surfaces should be accomplished as well, using a power sprayer. Disinfectant should be applied to all external surfaces. Interiors should be cleaned as well, and disinfectant applied by spraying or wiping down.

D. Milk Trucks/ Transports: Milk trucks may become contaminated and serve to disseminate the disease agent in the following ways:

1. Picking up infected milk from a dairy during the incubation or prepatent period
2. Allowing contaminated aerosols to be released
3. Mechanical means or fomites (vehicle, equipment and drivers)

All dairy plants have a truck washing port. Milk trucks must be cleaned and disinfected at the end of each day (inside and outside), using an approved

disinfectant that is effective against the disease agent. Disinfectants used within the tank must not leave a residue or they must be completely rinsed from the tank.

When picking up milk in a surveillance zone, it is recommended that milk trucks be disinfected before leaving the farm. Close attention should be paid to wheels, tires and hose inlets. The trucks exhaust vents should be fitted with hydrophobic membrane-type filters rated at 0.2 μm . The filter elements must allow air displacement flow rates during tanker emptying and filling without exceeding tanker vessel design pressures. Filter housings should be selected to permit cleaning and decontamination in place. Filter housing outlets should be protected against the ingress of rain, hose-down water and insects.

Each driver should carry C&D equipment and supplies. Any spilled milk must be disinfected. They must disinfect themselves when leaving each premise within the surveillance zone.

If it is determined that the tanker is carrying contaminated milk, the volume of milk is predetermined, the milk is mixed with the correct strength of disinfectant, agitated, left standing for one hour and then properly disposed of (See Appendix E). The interior of the tanker must be decontaminated along with all hoses and fittings. Principles of vehicle decontamination discussed previously must be observed.

E. Feed Trucks: If tracing determines that a commercial feed truck has been on an IP or DCP, the driver should be notified and takes appropriate C&D actions.

If it is necessary to allow a commercial feed truck onto a mixed species IP or DCP, the route within the IP or DCP should be specified to the driver to minimize contamination of the vehicle. The vehicle and driver must be thoroughly decontaminated before exiting the premises. **A better practice would be to deliver the animal feed to the outer limits of the property and then transferred to the desired location by a vehicle normally stationed at the premises.**

F. Other Commercial Traffic: Other vehicle traffic such as vehicles used by veterinarians, USPS mail service, parcel delivery (FedEx, UPS), vendors, utilities (electric, phone) and school buses, should be avoided if possible. In most cases, arrangements can be made to minimize this type of traffic. If it becomes necessary for these types of vehicles to enter IP's or DCP's, appropriate C&D should be performed on the vehicle and driver/ passengers before leaving the premises.

G. Vehicles at Alternative Disposal Sites: Under extraordinary circumstances, carcasses and other contaminated materials may be transported for off-site disposal. Biosecurity protocols for this activity are described in Appendix E. After the vehicle is loaded, sealed and over-sprayed with disinfectant- the driver, vehicle body, wheels, tires and undercarriage should be cleaned and disinfected before leaving the premises.

H. Dairy Equipment (bulk tanks, pipelines, claws, etc.): There may be varying amounts of milk in bulk tanks on the IP or DCP. Milk can be rendered safe by adding an appropriate volume of disinfectant and agitating. The milk collection system should also be disinfected and rinsed if appropriate. The treated milk should

be held for one hour and then discharged to the sewage system, the manure lagoon or as otherwise described in Appendix E.

V. Building and Facility Cleaning & Disinfection: IP's and DCP's that undergo depopulation should additionally undergo rigorous cleaning and disinfection following depopulation and prior to any attempts to repopulate. Many challenges could face personnel in performing this task, depending on the particular premises.

A. Premises Assessment Considerations: IP's, DCP's or other premises that are slated for depopulation should be assessed early in the process by C&D Branch Official and the designated premises supervisor. The following activities should be coordinated:

1. General inspection and familiarization of the IP/ DCP and associated property.
2. Initiate and maintain a logbook to document events and observations
3. A field map should be developed that adequately represents the premises and features
4. Indicate on the field map areas requiring specific decontamination activity
5. Conversely, indicate on the field maps areas not requiring special decontamination activity
6. Tentatively list activities, in chronological order, that will need to be performed within each area.

B. Premises Assessment: A premises assessment team consisting of the Site Supervisor, C&D Leader, Disposal Team Leader and owner/ manager will conduct an initial premises assessment. This assessment will be used to determine and identify buildings, equipment and areas of animal movement that will ultimately be cleaned and disinfected. This assessment will identify:

1. Areas and amount of manure/ bedding to be removed for disposal
2. Structures and articles that cannot be effectively decontaminated such as wooden buildings, floors doors, linings, roof insulation, etc.
3. Degree of contamination affecting non-animal areas (i.e. machine sheds, workshops, granaries, etc.)
4. Nature, storage type and location relative to livestock, of animal feeds
5. Potential for contamination of utility structures (i.e. overhead and underground wires, cables, pipe; electrical boxes, outlets, switches; water outlets, bibs, valves)
6. Location of all floor/ curb drains
7. Water flow/ drainage patterns
8. Availability of an off-site loading/ unloading area. Availability of comfort stations, lunch areas, etc. for response personnel
9. Appraisal/ valuation of any structures or facilities that cannot be effectively disinfected (This function may be performed by the Appraisal Branch teams)

In addition, the assessment team should estimate the degree of contamination within the HOME and its immediate surroundings. Special attention should be paid

to any porch, mudroom, office, etc. If possible, decontamination procedures to allow the household to safely move off and on the premises will be identified.

C. Preliminary disinfection (Overspray): The goal of preliminary disinfection is to rapidly reduce the amount and distribution of the FMD/ FAD agent on the IP or DCP. Preliminary disinfection should begin as soon as possible after animals are slaughtered. All areas known to be contaminated, including euthanized animals should be over sprayed with disinfectant.

D. Initial Clean-up Procedures:

1. All manure, litter and bedding identified in the premises assessment must be removed and burned, buried or composted. Following removal of this material, a more detailed cleaning (pressure washing) of the building is required, moving from the roof and progressing downward to the floor of the structure
2. All loose insulation material (synthetics, fiberglass and chip/ pressed board should be removed for burial or burning unless they covered by sound, impervious surfaces that can be effectively decontaminated.
3. All rotting wood, unsound walls/ ceilings or other structures that cannot be effectively decontaminated should be removed for burning or burial
4. Feedstuffs determined to be contaminated during assessment, must be removed and buried, burned or composted
5. Feed and water troughs, mangers and racks must be emptied, cleaned out and disinfected- or disposed of by burning or burial if unable to effectively decontaminate.
6. Fixtures and fittings should be dismantled and arranged for C&D
7. Delicate electronic equipment must be protected pending any specialized C&D

E. First Full Disinfection: The goal of the first disinfection is to inactivate the FMD/ FAD agent by removal of all organic matter down to the impervious surface using physical and chemical means.

1. The C&D should start with the roof and proceed downward to the floor
2. An effective C&D program will include the use of a pressure washer, hot water and detergent, followed by an approved disinfectant. This should be performed in a manner that inactivates the disease agent but does not destroy the surface being cleaned.
3. After the first full disinfection, cleaned surfaces are allowed to dry. Surfaces are then inspected to reveal any residual organic matter that will be removed in the second clean up.
4. **Care should be taken to ensure that people, machinery or non-susceptible animals do not recontaminate areas already disinfected.**

F. First Inspection: The goal of the first inspection is to ensure that all tasks detailed on the premises assessment have been performed. The C&D site supervisor and the C&D leader will conduct the first inspection. Aspects to be evaluated on first inspection include:

1. All contaminated materials that are deemed impractical to C&D have been disposed of properly
2. All fixtures and fittings have been dismantled where appropriate so that no organic material remains
3. Complete removal of observable organic material on all exposed surfaces
4. Feedstuffs have been removed and destroyed or decontaminated if applicable
5. Grossly contaminated sites (i.e. euthanasia and disposal) have been effectively cleaned and disinfected
6. All disinfected liquids have been properly managed
7. Conditions of quarantine, particularly at entry/ exit points are being maintained

G. Second Full Power Wash and Disinfection: The second disinfection is a repeat of the first and concentrates activities on areas with residual organic material

H. Final Inspection

1. The final inspection should include a veterinarian on the inspection team and results of the inspection should be documented.
2. If the inspection is satisfactory, any necessary reconstruction can proceed
3. The premises is left empty for a prescribed period of time before restocking with sentinel animals

**APPENDIX D:
EUTHANASIA/ DEPOPULATION
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- I. Introduction:** Depopulation is a critical element of the response effort to a FMD or FAD outbreak. With a highly contagious disease, often the only effective way to control the disease outbreak is to remove reservoirs of the disease agent and to create a "fire break" in an attempt to check the spread of the disease. Although simple in theory, there are many complicating factors that come into play.
- II. Depopulation Considerations:** The Euthanasia/ Depopulation Branch Officer must ensure that these issues are adequately assessed and managed. The process must be coordinated with Appraisal efforts and with Disposal activities. Additionally, depopulation must also take place in a timely fashion to significantly contribute to the effectiveness of any disease control effort. Following is an outline of some of the issues that must be addressed when planning or carrying out a depopulation activity.
- A.** Species of animals involved in depopulation activity
 - B.** Number and age of animals to be euthanized
 - C.** Type and suitability of handling facilities available on the IP or DCP
 - 1. Adequate to handle animals in an efficient manner
 - 2. Capable of handling the animals in an acceptably humane manner
 - 3. Capable of restraining animals adequately to facilitate euthanasia
 - 4. Safety considerations for response personnel
 - D.** Location of handling facilities relative to animal location
 - E.** Location of handling facilities relative to disposal site/
 - F.** Accessibility of handling facilities to vehicles or equipment for transport of carcasses to disposal site
 - G.** Appropriate euthanasia protocol (i.e. penetrating captive bolt guns, firearms, chemical, and electrocution)
 - H.** Personnel requirements to effectively accomplish depopulation
 - 1. Handling and movement of animals
 - 2. Actual euthanasia process
 - 3. Removal of animals from handling facilities following euthanasia
 - 4. Transport of carcasses to disposal site
 - I.** Animal welfare considerations
 - 1. Prior to depopulation- acceptable husbandry, feed, water, etc.
 - 2. During handling/ movement of animals and actual euthanasia
 - 3. Monitoring to ensure that animals are not only insensible but have actually died.
 - J. Ensure that appraisal/ indemnity activities have been completed**
 - K.** Ensuring that logistics involving disposal site and transportation have been adequately addressed
 - L. Provisions should also be in place for counseling to people involved in the depopulation process- not only for farm families but also for response personnel.** It has become apparent in previous instances (i.e. Great Britain), that considerable emotional distress can accompany this activity, affecting owners, as well as response personnel

III. Depopulation Activities

- A. Mobilization of Operations Branches:** If FMD/ FAD is diagnosed in the State, notification and mobilization of field operations personnel should be initiated promptly. Perceived scale of an outbreak, in early stages, will determine the levels of State and Federal involvement.
- B. Assessment of IP's/ DCP's- Preparation:** Upon being designated as an IP or a DCP, assessment of the premises should be performed. This may be performed in conjunction with the premises assessment by C&D personnel. Assessment will serve to provide much of the information necessary to address the logistics for depopulation activities. Preparations for depopulation should be completed as soon as possible after premises designation and appraisal/ indemnification has been completed to gain the most benefit.
1. Determine personnel and equipment resources necessary to depopulate susceptible livestock. In some cases, temporary working facilities may be necessary to facilitate depopulation activities. Large facilities may require multiple crews to facilitate completion of depopulation efforts in a timely manner.
 2. An appropriate euthanasia method should be selected based on number, type and age of animals to be euthanized. **The euthanasia method should be consistent with current AVMA policies.** The Depopulation branch should itemize these needs and submit their request to the Logistics Section
 3. Branch leader should coordinate depopulation activities with Appraisal and Disposal personnel
 4. Branch leader should ensure that teams understand humane handling aspects and personnel should be adequately trained in selected method(s) of euthanasia. Team members should also be trained in assessing status of animals during and after euthanasia.
 5. Team members should understand safe handling and movement of livestock.
 6. Lay personnel involved with the depopulation activity should also be adequately oriented on relevant handling and safety issues
 7. Acceptable husbandry practices and humane standards should be emphasized and maintained up to and during the euthanasia procedure
 8. Team members should understand biosecurity protocols in effect on IP's and DCP's.

C. Depopulation Procedures

1. Team leader should ensure that personnel and equipment resources are in place prior to initiating depopulation activities
2. Depopulation Branch Officer should confirm that the disposal site is prepared and that the Disposal team is ready to begin disposal operations
3. Depopulation team leader should act as coordinator for team and for any other personnel that may be assisting with moving or handling livestock
4. Euthanasia should be performed in a professional, efficient manner, emphasizing humane handling and safety for team members and lay personnel. *Special precautions may be necessary if **firearms** are used as the method of euthanasia*

5. It will be necessary for the depopulation team to work cooperatively with the disposal team, since one activity cannot proceed without the other.
6. Livestock should be brought to restraint facilities in a controlled fashion. Livestock should not be held in alleyways or crowding alleys for extended periods of time prior to euthanasia
7. Reasonable goals should be set for work in a given day. The workday should not be extended to unreasonable hours resulting in excessive worker fatigue and subsequent increase of risk for human error and injury. Seasonal weather may significantly affect work conditions and length of day available to complete work.
8. It may be advisable to designate someone to monitor compliance with humane handling and euthanasia.
9. Upon completion of duties for the day or completion of depopulation efforts on a given premises, the Disposal team leader or a biosecurity team member should ensure that appropriate biosecurity protocols are being followed before site workers exit the premises. Equipment should be cleaned and maintenance performed if necessary. All equipment must undergo thorough C&D upon completion of premises depopulation activities (See Appendix B)
10. Team leader or designee should confirm that all susceptible animals on the premises have been euthanized. Completion of activity should be documented and the report submitted to Operations Section chief for archival.

D. Depopulation Aftermath

1. Cleaning and disinfection of all equipment will be completed as described in Appendix B. This includes equipment remaining on the farm or equipment that will be used on other IP's or DCP's.
2. Provisions should be in place to provide counseling to families and response personnel. This counseling could ostensibly extend to people in the general public.

E. Practical Euthanasia of Cattle

<http://vetmed.iastate.edu/vdpam/extension/dairy/programs/humane-euthanasia>

F. AVMA Guidelines on Euthanasia

www.avma.org/resources/euthanasia.pdf -

APPENDIX E: DISPOSAL ISSUES
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I. Introduction: Effective disposal of animal carcasses and materials is a key component of a successful response to an animal health emergency. The overall goal is to control and contain the spread of the disease.

This appendix will outline in more detail, responsibilities of disposal personnel, evaluation of disposal sites, selection of optimal disposal methods, and disposal of miscellaneous items.

Personnel resources necessary to accomplish disposal will vary considerably depending on disposal site location, numbers of animals and quantity/ types of materials.

II. Disposal Sites: The selection of optimal disposal sites in an animal health emergency involves numerous factors and concerns. This section summarizes some of the primary consideration in site selection, including on-site disposal and additional disposal strategies such as off-site disposal and temporary storage.

A. On-Site Disposal

1. In most situations, the preferred method of disposal on infected premises or dangerous contact premises is burial at a single on-premises site. On-site burial is currently considered the simplest, most expeditious and economical method and is often the least likely method to cause adverse environmental sequelae. Other methods of disposal (i.e. incineration, composting, etc.) may be considered in specific instances.

In general, a single centrally located disposal site on the affected premises is preferable to multiple sites for biosecurity reasons. An additional consideration is the time and effort required in securing permission and approval for multiple sites. However, materials from both infected and dangerous-contact premises can be disposed of at a common site if necessary.

Additional considerations involving on-site disposal includes the following:

- a) Public health and environmental protection laws, including fire codes and other regulations. Appropriate State or local authorities (See Appendix A) should be consulted regarding the need for permits, general advice or recommendations
- b) Availability of alternative disposal sites (i.e. area/ regional landfills)
- c) Suitability of potential sites for burial, incineration or composting near the site where depopulation activities will occur)
- d) Number and species of carcasses and the volume and type of other materials to be disposed
- e) Specific potential hazards that material may pose humans or livestock
- f) Geology of proposed sites (i.e. presence of rock or ledge)
- g) Access to disposal site for trucks/ large equipment (i.e. roads, clearings)
- h) Water table, existing wells/ water supplies, presence of surface water and potential for run-off
- i) Proximity to residential areas
- j) Presence of underground or overhead utilities (i.e. septic tanks, leach fields, lines for sewage, water, electricity, telephone)

- k) Climatic/ weather factors (i.e. strength and direction of prevailing winds, seasonal conditions such as wet or frozen ground)
- l) Availability of equipment and/or supplies necessary to accomplish disposal activity

B. Additional Disposal Strategies: Additional disposal strategies, including off-site disposal and temporary storage, may be necessary under certain circumstances. In some cases, a strategy of off-site disposal may be necessitated by climate (i.e. frozen ground, accessibility concerns), high animal population densities or the presence of wild or feral animals that have the potential to spread disease. Alternatively, it may be necessary to temporarily store carcasses or materials until conditions are more amenable to disposal activities.

1. Off-Site Disposal: In cases where conventional on-site disposal methods (i.e. burial or incineration) are deemed impossible or impractical, the Disposal Officer will need to make provisions for safe, efficient transfer of carcasses and materials to another site for disposal. Examples of such cases include:

- a) Infectious materials from laboratories must be disposed and on-site disposal facilities are limited or unavailable
- b) On-site constraints such as insufficient space, unsuitable soil, high water tables or seasonal conditions make on-site disposal impractical
- c) Site is too close to human habitation
- d) Rendering at off-site facilities is more practical than on-site disposal

2. Transportation of Contaminated/ Infected Material: If contaminated/infected material must be transported from infected premises to off-site locations, special procedures must be followed to minimize chances of spreading disease agents. Some of these precautions include:

- a) Carcasses should be sprayed thoroughly with an appropriate disinfectant prior to loading
- b) Contaminated/infected material should be transported in a large capacity vehicle (i.e. truck or dumpster) that has been made leak proof by caulking spaces around the tailgate or other areas on the side walls
- c) The truck or dumpster should be lined with a tough (3 mil) disposable polyethylene plastic sheet and sealed at the top. The plastic sheet must be large enough to cover the carcasses and be secured to the sides and ends of the box or dumpster. A layer of absorbent material (i.e. hay or bedding) should be placed on top of the plastic liner to prevent punctures (e.g. by horns or hooves)
- d) The bottom of the container should have a layer of sawdust, hay or straw that is at least 1 ft. (30 cm) thick to absorb leaking fluids
- e) Carcasses should be loaded into the truck box or dumpster carefully to avoid tearing the liner
- f) When loading the container(s), ample space should be allowed to provide for expansion of carcasses (~ 2 ft/ 61 cm of space) - depending on ambient

temperature and distance to be traveled. **Carcasses should not be opened prior to loading!**

- g) Once carcasses are loaded, they should be sprayed again with an appropriate disinfectant
- h) After sealing plastic liner, the outside of the liner should also be sprayed with the disinfectant.
- i) Once the plastic liner has been sealed and sprayed with disinfectant, a heavy tarp should be placed over the box or dumpster and secured in place
- j) Appropriate biosecurity measures should be employed on the vehicle prior to leaving the infected premises (See Appendix B)
- k) The vehicle operator should also observe appropriate biosecurity measures prior to leaving infected premises (Appendix B)
- l) After carcasses or contaminated/ infected materials are unloaded, all vehicles should be cleaned and disinfected prior to leaving the disposal site (See Appendix B)

One or more designated representatives should accompany the transport vehicle(s) to provide any additional biosecurity measures. In addition, it may be advisable for an escort vehicle to follow the transport vehicle, monitor for spillage or other breaks in biosecurity and facilitate clean-up if necessary.

The Field Operations Center should be notified promptly in the event that biosecurity is compromised or delays are expected during the off-site transportation of carcasses or contaminated/ infected material.

3. **Temporary Storage:** Prompt carcass disposal after depopulation may be impossible for a variety of reasons. In such a situation, carcasses or other materials awaiting disposal, should be secured to prevent unauthorized access and potential disease spread to susceptible species. Sources of this spread can be human traffic, domestic pets, wild animals, birds, fomites and other disease vectors such as insects and vermin. Temporary storage options include:
 - a) Storage of carcasses/ materials in a closed building (winter seasons)
 - b) Storage of carcasses/ materials outdoors, spraying thoroughly with an appropriate disinfectant and covering with a tarpaulin
 - c) Arrange carcasses/ materials in windrows or piles and temporarily cover with at least 3 ft of soil.
4. Meat products from FMD exposed animals do not constitute a zoonotic threat. Clinically normal animals may be slaughtered and processed for human consumption. Deboned fresh, chilled and frozen meat and meat products should be marketed only within the infected zone. **The slaughter facility would have to be classified as a contaminated facility and slaughter by-products would have to be managed as contaminated material.**

III. Procedures for Disposal by Burial: Although disposal methods may vary according to individual circumstances, it is important to remember the primary goal- To control and contain the spread of the infectious disease agent. In order to minimize opportunities for dispersal of the infectious agent, animal carcasses should be disposed of within 12 hours following euthanasia. Prompt disposal is also important from an aesthetic and public relations perspective.

Disposal methods must satisfy applicable State and/or Federal environmental laws and regulations. The Disposal Branch Chief should ensure that these criteria are met.

Generally accepted methods for disposal of carcass and materials include: burial, incineration (including pathology incineration), air-curtain incineration, rendering, composting and alkaline hydrolysis. Burial is generally the preferred method of disposal where practical, except for situations involving TSE's. Carcasses and materials contaminated with TSE agents should be disposed of using an alkaline hydrolysis tissue digester.

A. Burial: Preparation of the burial site should be initiated as soon as possible after confirmation of a disease diagnosis and site approval. As previously mentioned in Section II, selection of an appropriate burial site involves many considerations. These considerations include:

1. Need to obtain permits and clearances from appropriate authorities to proceed with preparation of site and actual process.
2. Accessibility for excavation equipment and transportation vehicles/ equipment to the site
3. Amount of surface area necessary. Sufficient surface area should be provided to allow for physical burial site, as well as, a surrounding work area
4. Distance from proposed site to areas used by humans (i.e. habitation, roads, and other public areas)
5. Prevailing winds (important with odor control/ management)
6. Sites with potential for disturbance and/or erosion, use of flood plains or use of land with slope greater than 5 percent should be avoided.
7. Space requirements for temporary accumulation of carcasses/ materials awaiting disposal
8. Soil conditions, including stability of soils to accommodate excavation and transportation equipment weight
9. Presence of rock or ledge
10. Presence of underground or overhead utility structures
11. The use of fencing to prevent animal or unauthorized human traffic during site preparation, burial activities and following closure
12. Other environmental factors such as location relative to waterways, reservoirs, wells and water table. It may be necessary to construct diversions, banks or ditches to preclude runoff from burial site

B. Burial Equipment: An **excavator** is typically used to dig and/or fill pits. Advantages of using this type of machine includes its capacity to: (1) construct a long, deep, straight-sided pit efficiently; store topsoil separately from subsoil; (2) fill a

pit with carcasses or other materials and (3) close it without disturbing the carcasses/ material in the pit; and causes relatively little site disturbance.

Loaders, bulldozers, graders and tractor-mounted backhoes (for smaller jobs) may also be used. With the exception of the backhoe, however, these types of equipment tend to be less efficient and involve continued movement over the site while the pit is being made, causing greater site damage.

Because excavators and backhoes remain essentially in a fixed position while digging, they move the soil faster and with less damage to the site surrounding the pit. Most excavators also have an attachable hammer for use with rocks.

C. Burial Pit Dimensions: The dimensions of the burial pit will depend on the site characteristics (i.e. soil conditions and available surface area), the equipment and method of excavation to be used, and the size and number of carcasses or amount of material slated for disposal.

1. The pit should have vertical sides and should be as deep as is feasible (considering soil type, water-table level, and capabilities of equipment).
2. The pit should be as wide as possible; however, it is important that it not be so wide as to limit the even distribution of carcass in the pit. If a bulldozer is used, for example, the pit's width should be no greater than the width of one blade (approximately 10 ft.). Otherwise, the equipment operator may find it difficult to push carcasses into the pit from one side and to fill the pit evenly.
3. The length of the pit will depend on the size and number of carcasses or the volume of other materials slated for disposal.
4. Pits that are 7 feet (2.1 m) wide and 9 feet (2.7 m) deep are usually acceptable. If equipment and soil conditions permit, it may be desirable to dig deeper (12-20 feet) and wider burial pits.
5. Fourteen square feet of surface area should be allowed for an adult bovine carcass. Adult bovine carcasses will displace from 1- 1-1/2 cubic yards of space when first buried. Five adult hogs or sheep can be considered equivalent to one bovine carcass. Approximately 1 cubic foot should be allowed per 45 pounds of poultry.
6. After the burial pit is filled, it should be covered with 6 feet of fine, dry soil to hold carcasses down and absorb fats, gases and decomposition products. (wet, loose soil tends to allow leakage). This depth includes approximately 3 feet of soil that is mounded over the burial site (from ground level) to allow for settling of cover during decomposition.
7. Location of each burial pit should be documented by the disposal team using GPS units and data submitted for entry into the EMRS or other archival format.

D. Other Considerations with Burial Disposal

1. **Gas Production:** The production of gas from decomposition within unopened carcasses may result in carcass expansion within the burial pit and associated cracking and heaving of the soil surface. Depending on the volume of the biomass, the pit may bubble and leak fluids and carcasses may even work their way to the surface of the pit.
2. A track hoe or other equipment may be used to crush and macerate the carcasses to minimize gas distension of carcasses.
3. The carcasses can also be freely slashed, ensuring that the thorax, abdomen, rumen (in ruminants) and cecum (in horses) are opened adequately to prevent gas accumulation. Opening of carcasses in this method should be performed at ground level, near the side of the pit. Workers should stay out of the burial pit during filling.

E. Follow-up Site Management

1. A Disposal Officer or designee should inspect the burial site regularly after closure to detect seepage or any other problems so that appropriate action (i.e. diversions, bank construction) can be taken. The overall objective is to allow the site to return as much as possible to its original contour and condition.
2. The soil covering the site probably will have to be replenished every few weeks for the first year as the carcasses decompose and soil settles. Depressions should be avoided because they can collect surface water that might percolate into the groundwater.
3. Before restocking the premises, a Disposal Officer or a designee should re-inspect the burial site to detect any possible biological or physical risk to people or animals. Since the burial site is a contaminated area, a security fence that excludes people and animals should be maintained for a year.

IV. Disposal by Incineration: In general, incineration should be used only when burial is not feasible. Burning tends to be expensive in terms of labor and materials, however, issues such as environmental protection, high water tables or rocky soil may favor the use of incineration over burial. This document will not cover incineration procedures in detail; however some considerations are identified below:

- A. Site Accessibility:** the site should be readily accessible to heavy vehicles hauling materials and other equipment used to maintain the fire.
- B. Aesthetics:** The prevailing wind direction should be considered to prevent unnecessary quantities of smoke and odors from affecting human habitation or public roads.

- C. Environmental Considerations:** local firefighting officials should be consulted for general advice (i.e. planning for firebreak, procurement of burn permits, if required, prior alert of firefighting districts and availability of equipment if necessary). Disposal officials should consult State and local environmental authorities regarding applicable air pollution regulations.
 - D. Protection of Adjacent Structures:** The fire should be located well away from buildings or other combustible materials. It should also be located away from overhead utilities and underground pipes or gas lines.
 - E. Fuel Supply:** It is imperative to obtain sufficient quantities of suitable incendiary materials for use as fuel. Significant quantities may be necessary to facilitate complete incineration.
 - F. Types of Incineration:** These may include open air burning, pathology incineration or air curtain incineration. Additional information on incineration methods is readily available should it become necessary to utilize this disposal method.
- V. Rendering:** Rendering is the most economical method of carcass disposal, if adequate facilities are available. The movement of carcasses to the rendering facility does pose additional risk for spreading the disease agent. In addition, it is unlikely that rendering facilities with sufficient capacity exist in this area. If the outbreak is limited in nature, however, this may be a viable method.
- The Disposal Branch Officer will coordinate all arrangements for the disposal of carcasses at rendering facilities and will work with the Logistics Section or administrative personnel to contract for the facility's service.
- Transportation of carcasses will involve biosecurity measures discussed previously in the section addressing off-site disposal (Appendix E.2.B)**
- Only rendering facilities having a process that will ensure the elimination of the disease agent should be approved by the Disposal Officer. These standards include the following:
- A.** The particle size of the material to be rendered should be no greater than 1 inch.
 - B. Temperature of the material must be maintained at the prescribed 260°F (127°C).** An adequate alarm system must be in place to notify personnel if the operating temperature falls below the set point. If this is not maintained, the material must be reprocessed.
 - C. Materials must be maintained at the prescribed temperature for at least 15 minutes.** Documentation of rendering temperatures must be maintained.
 - D.** The facility should have adequate security that precludes entry of animals or unauthorized personnel.
 - E.** The receiving side of the facility must be segregated completely from the finished product area.

1. No personnel movement from the receiving area to the finished product area without prior personal C&D measures being followed
 2. No equipment movement that might permit transfer of contaminated material from the receiving area to the finished product area.
 3. No drainage from the receiving area that might contaminate the finished product or vehicles used to transport the finished product.
- F. Rendered material should undergo testing to ensure that it is free of the disease agent and document that the rendering process has resulted in a safe, finished product.
- G. Most rendered materials are considered safe and commercially valuable products. However, any decision to use the rendered material commercially must take into account public concerns, perceptions and possibilities of disease transmission.
- H. Material contaminated with TSE agents should not be rendered. The only acceptable method of disposal for TSE-infected materials is by alkaline hydrolysis.**

VI. Composting: Composting of animal carcasses at the infected premises may be an acceptable method of disposal, if an appropriate site and proper supplies are available. Although the principle of composting is relatively simple, it does require good management.

During the composting process, microorganisms break down organic material to stable humus. Carbon, oxygen, nitrogen and water must be provided in the proper ratio for the composting process to be effective. The heat produced during the process (130°-150°F) is effective in destroying most disease pathogens (**Composting is not considered effective against TSE agents**).

Proper compost management requires the monitoring of compost pile temperatures and the addition of water, air or additional carbon sources as necessary to ensure effective composting. Measures should also be taken to prevent access to compost area by birds, animals or unauthorized personnel, prevent run-off, etc.

Detailed guidance for constructing and maintaining the compost pile is available from **Vermont's ANR-DEC** (See website: www.anr.state.vt.us). Other composting resources include the **Cornell Waste Management Institute** (See web site: www.cfe.cornell.edu/compost/) and the **Alabama Cooperative Extension System** (See web site: www.aces.edu).

It would be highly advisable to have consultation from an appropriate source to ensure proper construction and maintenance of composting operations.

VII. Alkaline Hydrolysis: Alkaline hydrolysis tissue digesters were originally developed to dispose of radioactive animal carcasses generated from biomedical and pharmaceutical research and development. Recent advances in technology and equipment have made this method of carcass disposal an option in situations in which more common disposal methods are unfeasible. The use of alkaline hydrolysis is currently the preferred method for disposal of carcasses contaminated with TSE agents.

With alkaline hydrolysis, sodium hydroxide or potassium hydroxide is used as the agent, which under heat and pressure, digests carcass tissues, leaving only liquid effluent

and the mineral portion of bone and teeth. The effluent has a pH level ranging from 11.4 to 11.7 and therefore, in most cases, can be discharged into municipal sewage systems. If potassium hydroxide is used, the effluent can be dehydrated and used as fertilizer. The bone and teeth can be crushed into a fine powder and sent to landfills.

VIII. Disposal of Other Materials: Most contaminated or potentially contaminated carcasses, animal products, materials and wastes can be disposed of by one of the methods outlined in the preceding text. Special disposal considerations, however, are required for the material listed below.

A. Milk: The disposal of milk presents particular difficulties due to the large volumes that may be involved. It is essential that milk be treated to inactivate any disease agents before disposal measures are implemented.

1. The pH of the milk must be reduced to less than 3.0 or raised to more than 11.0 and held at one of these levels for at least one hour.
2. Acidification of milk can be accomplished using an organic acid (citric acid or acetic acid).
3. Milk can be heated to an appropriate temperature for an appropriate length of time. Time and temperatures necessary to deactivate different agents may be variable. (At this time, TSE's do not appear to be transmitted in milk or milk products)
4. After decontamination, liquid milk can be disposed of by several means including: shallow burial pits, sewage systems or lagoons
5. Milk from herds not known to be infected could be moved to processing plants within a control zone and processed to eliminate any potential disease agent and distributed within that control zone.

B. Dairy Wastewater: Wastewater from dairy farms/ plants contaminated with infected milk must be treated to inactivate disease agents. This must be accomplished in a manner that will still allow disposal in a sewage system.

1. Addition of organic acid sufficient to lower pH level to less than 3.0.
2. If necessary, once decontamination is completed, the acidified water can be buffered to a more neutral pH by using sodium bicarbonate or sodium hydroxide

C. Eggs and Hatchery Waste: Contaminate hatching eggs and hatchery waste should be buried once termination of all life has been verified.

D. Feed, Grain, Hay and Straw: Organic materials that may be contaminated with the disease agent should be burned, buried or composted. This includes stocks or bins over which the owner or other farm workers may have been walking while removing hay or grain. It also includes any grains, forages or bedding materials that infected animals may have had contact with.

1. At least 3 feet of loose material, two layers of bales or one layer of sacks should be removed from such contact areas and burned, buried or composted (See previous sections in Appendix E).

2. Should it become necessary to salvage feed, grain, hay or straw on premises where large quantities are stored, potential and extent of contamination of these products should be carefully assessed. Organic materials that are deemed to be contaminated can be incinerated, buried or composted (See previous sections in Appendix E).
 3. If materials are wrapped or packaged in impermeable, unopened coverings, the outer cover may be treated with an appropriate disinfectant. Care should be taken to prevent recontamination of these products.
- E. Silage:** Contaminated silage will have to be removed and destroyed. Depending on the nature of the disease agent, the remaining silage may need to be sealed off for an appropriate period of time before using as animal feed.
- F. Manure:** Contaminated manure may be burned, buried or composted. Manure that is not burned or buried should be fenced off to prevent access by unauthorized persons or animals. (See Appendix E, Section VI, Composting)
- G. Wool and Mohair:** Wool and mohair are difficult to incinerate. Burial would be the preferred method of disposal these substances.
- H. Germplasm:** FMD may be transmitted by infected semen (virus is shed in semen). The Disposal Branch officer will be required to evaluate any germplasm on premises that are considered infected or dangerous contact premises. If the materials are deemed to pose a risk, he or she will ensure that it is disposed of in an appropriate manner. **Germplasm that is not disposed of can only be moved under USDA permit.**

APPENDIX F: VENDORS & SUPPLIERS

COMPANY/ ADDRESS

SUPPLIES

Koch Supplies LLC

528 East 19th Avenue
North Kansas City, MO 64116
816-448-4300
800-329-5624 (FAX)

Captive bolt guns and related supplies, repairs; PPE; boots; knives, etc.

Nasco Farm & Ranch

901 Janesville Ave.
Fort Atkinson, WI 53538-0901
800-558-9595
www.nascofa.com

Farm & ranch supplies; PPE; sprayers; buckets, etc.

Nasco Sampling Products

901 Janesville Ave.
Fort Atkinson, WI 53538-0901
920-563-2446
920-563-8296 (FAX)

Sampling products (sterile whirl packs)

MWI Veterinary Supply Co.

2201 N. 20th Street
PO Box 47
Nampa, ID 83687
(800) 824-3703

Veterinary supplies (blood tubes, syringes, needles, etc)

Valley Vet Supply

1118 Pony Express Hwy
Marysville, Kansas 66508
800-419-9524
800-446-5597 (FAX)
service@Valleyvet.com

Veterinary supplies (syringes, needles) livestock handling equipment

Pharmacial Laboratories Inc

33 Great Hill Road
Naugatuck, Connecticut 06770
United States
800-243-5350
203-729-5230 (FAX)

Virkon S, other biosecurity products

APPENDIX G:

Vermont Agricultural Organizations

Champlain Valley Holstein Club

President - Martha Seifert, RR 1, Box 42, Orwell 05760; 948-2473
V. President - Tim Howlett, Bridport 05834
Secretary - Gerry Audet, R 1, Box 72, Orwell 05760-9716; 948-2888
Treasurer - Ron Telgen, RFD 1, Box 91-B, Shoreham 05770; 897-5801

Champlain Valley Rabbit Breeders Association

Contact - Robert Bennett, 1 Governor's Lane, Shelburne 05482; 985-8597

Green Mountain Dairy Farmers Cooperative Federation, Inc.

(St. Albans Coop; Independent Dairyman's Coop; Agri-Mark)
President - Leon Graves, DMS c/o St. Albans Co-op, 140 Federal St. 05478; 524-6581
Secretary - Bob Foster, 801 James Road, Weybridge, VT 05753; 545-2629
Treasurer - Bob Wellington, Agrimark, PO Box 5800, Lawrence, MA 01842; (800) 225-0532
Exec. Director - Jane Clifford, Rte. 116 Starksboro, VT 05487; 453-3810

Green Mountain Dairy Promotion, Inc.

President - Elizabeth Kennett, 511 Liberty Hill Road, Rochester 05767; 767-3926
V. President - Sherry Ouellette, 3284 Lake St., Bridport 05734; 758-2262
Reg. Agent - Gary Wheelock, NEDC, 41 IDX Drive Ste 221, So. Burlington 05403-7774;
863-5416
Sec./Treas. - Paul Stanley, 864 Lawyer Rd., E. Fairfield 05448; 827-6145

Green Mountain Horse Association (www.gmhainc.org)

Exec. Director - [Jon Woodhull](#), PO Box 8, So. Woodstock, VT 05071; 457-1509
Operations Mngr.- [Jean Kelly](#), PO Box 8, So. Woodstock, VT 05071; 457-150;

Holstein Association USA, Inc.

President - Doug Maddox (California State) c/o 1 Holstein Place Brattleboro, VT 05301;
254-4551

V. Pres. - Larry Tande, c/o 1 Holstein Place, Brattleboro 05301; 254-4551

Exec. Secretary - John Meyer, 1 Holstein Place, Brattleboro 05302; 254-4551

Chief Exec. Officer email: bchurch@holstein.com

Treasurer - Barbara M. Casna, 1 Holstein Place, Brattleboro 05302; 254-4551

New England Dairy Promotion Board, Inc.

CEO - Gary Wheelock, 20 Canal St., Suite C13, Winooski, VT 802-863-5416

Chairman - Edgar King, 337 King Rd., Schuylerville, NY 12871; (518) 695-6876

Vice Chairman - Bryan Davis, 514 Holland Rd. Derby Line, VT 05830; 802-873-3941

Secretary - Timothy Bryant, 3499 VT Rt. 133 Pawlet, VT 05761; 802-325-3172

Treasurer - Sherry Ouellette, 3284 Lake Street, Bridport, VT 05734

Northeast Kingdom Holstein Club

President - Unknown

V. President - Unknown

Sec./Treas. - Claire Michaud, 109 Michaud Road, E. Hardwick 05836; 472-6682

Northeast Organic Farming Association of VT

Co-Presidents

- Tom Stearns, 813 Brook Rd., Wolcott, VT 05680

- John Hayden, 3727 RT 15, Jeffersonville, VT 05464

Executive Dir. - [Enid Wonnacott](#), P.O. Box 697, Richmond 05477; 434-4122

Secretary - Margaret Klepack, P.O. Box 697, Richmond 05477; 434-4122

Treasurer - Sarah Coblyn Porth, UVM Extension, 111 University Way-Ste 4, Brattleboro
05301

Orange County Farm Bureau

President - [Sam Lincoln](#), 4884 East Bethel Road, Randolph Ctr., VT 05061; 793-1206

V. President - David Silloway, 1089 Silloway Road, Randolph Ctr., VT 05061; 728-5503

Secretary - Alice Doyle, 95 Corinth Road, Chelsea, VT 05038; 685-4662

Treasurer - Ray Rogers, 5 Upper Village Road, Chelsea, VT 05038; 685-7700

Rural VT - REAP (www.ruralvermont.org)

President - John Pollard, 336 Stanley Ln., Mt. Holly 05758; 259-2381
V. President - Mike Eastman, 435 Town House Road, Vergennes 05491; 759-2764
Treasurer - Lindsey Ketchel, 575 Ruby Brace Rd., Starksboro 05487; 434-6361
E-Mail - colin@ruralvermont.org

Southwest Holstein Club

President - Mimi Neff
V. President - Tim Leach, Box 635, Pawlet 05761; 325-3455
Secretary - Brad Thomas
Treasurer - Perry Neff

VT Agricultural Fairs Association

President - Jane Clifford 6147 VT RT 116, Starksboro, VT 05487
V. President - Gary Gilmond, 2555 Ballard Road, St. Albans 05478; 524-4377
Sec./Treas. - Joyce Haggarty, P.O. Box 50, East Middlebury 05740; 388-3335

VT Agricultural Teacher's Association

President - Dick Lutz, SW Career Dev Ctr., 321 Park St., Bennington 05201; 477-0220
V. President - Tom Ostler, Hartford Career Ctr., 1 Gifford Rd, White River 05001; 295-8620
Secretary - J. Mark Wilde, MVU, 100 Thunderbird Drive, Swanton 05488; 868-7311
Treasurer - Dick Lutz, SW Career Dev Ctr., 321 Park St., Bennington 05201; 477-0220

VT Angus Association, Inc.

President - Bob Butterfield, PO Box 746, Barton 05822; 525-4341
V. President - Steve Gintof, 212 Lacross Rd., Springfield 05156; 885-8408
Secretary - Jonathan Ramsay, 1337 Garven Hill Rd., Greensboro Bend 05842; 533-2208
Treasurer - Florence Merrill, 2108 Austin Road, Woodstock 05091; 457-1164
e-mail: dlfelicityfarm@yahoo.com

VT Ayrshire Club, Inc.

President - Linwood Huntington, 3661 Route 5N, Newbury, VT 05051; 866-5438
V. President - Lori Before, 152 Prevost Road, Newport, VT 05855; 334-8198
Sec./Treas. - Arlene A. Conant, 3486 E. Bethel Road, Randolph Ctr., 05061; 728-5283
e-mail: egaaconant@innevi.com

VT Beef Industry Council

Chairman - Tom Magnant, 386 Browns Corner Rd., Franklin 05457; 285-2192
V. Chairman - Ray Miller, 450 Bedell Rd., White River Jct. 05001; 295-2025
Sec/Treas. - Dan DeLaBruere, 1723 East Hill Rd., North Troy 05859; 988-2920

VT Beef Producers Association (www.vermontbeefproducers.org)

President - David Mills, 4960 West Creek Rd., Brandon 05733; 247-8886
V. President - William Emmons III, 1101 Cloudland Rd., Woodstock, VT 05091; 457-1520
Sec. - Justin Poulin, 3302 West St., Brookfield, VT 05036; 276-3227
Treas. - Chip Morgan, PO Box 114, Bridport, VT 05734; 758-2909

Vt Bird Fanciers

President - Brad Tuckerman, PO Box 264, Barnard 05031; 234-7240
V. President - Doug Cummings, 289 Downer Rd., Sharon 05065; 763-8689
Secretary - [Prudence Pease](#), 889-5685
Treasurer - George Annis, 7508 County Rd., Calais 05648; 229-4628

VT Cheese Council

President - Dawn Morin-Boucher, 2183 Gore Road, Highgate Ctr 05459; 868-4193
V. President - Linda Dimmick, 1362 Curtis Road, Randolph Ctr 05061; 728-3429
Secretary - Susan Plumb, Franklin Foods, 68 East Street, Enosburg Falls 05450
Treasurer - Jamie Miller, Shelburne Farms, 1611 Harbor Road, Shelburne 05482

VT Dairy Herd Improvement Association, Inc. (www.vtdhia.org)

1-800-639-8067
226 Holiday Drive, Suite 3
White River Junction, VT 05001
President - Ted Foster, Middlebury, VT; (802) 388-6515
V. President - Sam Dixon, Shelburne, VT; (802) 985-2348
Treasurer - Richard Bates, Cobleskill, NY; (518) 234-2936

VT Dairy Industry Association

President - [Julie Smith](#), 311 Terrill Bldg, UVM, Burlington, 05405; (802) 656-4496
V. President - [Bebe Zabilansky](#), (802) 263-5681
Secretary/Treasurer - [Nate Miller](#), 3029 Weybridge Rd., Weybridge, 05753; (802) 545-2320

VT Farm Bureau, Inc.

President - Jackie Folsom, 2083 East Main St. Richmond, VT 05477 (802) 434-5646
V. Pres. - David Major, 875 Patch Rd., Putney 05346; 426-3559
Ted Foster, 253 Foote St., Middlebury 05753; 388-6515
Secretary - Gladys Miller, 2083 East Main St. Richmond, VT 05477 (802) 434-5646
Treasurer - Bruce Shields, 2083 East Main St. Richmond, VT 05477 (802) 434-5646
Administrator - [Timothy Buskey](#), 2083 East Main Street, Richmond 05477; (802) 434-5646

VT FARMS Association

Exec. Sec. - Diane Conrady, 2 Granger Rd., Berlin, VT 05602: (866) 348-3276

VT Feed Dealers and Manufacturers Association

President - [Mike Tetreault](#) c/o Poulin Grain Co. 24 Railroad Sq. Newport, 05855; 334-6731
V. President - Art Whitman, PO Box 123, No. Bennington 05257; (802) 442-2851
Secretary - [Tim Bates](#), Bates Farm & Home, PO Box 449, Enosburg Falls 05450; 933-4313
Treasurer - Ray MacLaughlin; 273-3181

VT Grass Farmers Association

President - Rebekah Murchison, 511 Upper Dummerston Rd., Brattleboro 05301; (802) 254-7128
V. President - vacant
Secretary - John Hancock, 2993 Stagecoach Rd., Morrisville 05661; (802) 888-4094
Treasurer - Sam Smith, Shelburne Farms; 985-8018

VT Guernsey Breeders Association

President - Brenda Whalley Temple, 1517 Whalley Road, Charlotte 05445; 425-2549
V. President - Dennis Bigelow, Rte 1 Box 150, Bethel 05032; 763-8104
Sec./Treas. - Jonathan Pease II, 292 Potash Road, Tunbridge 05077; 889-5685

VT Holstein Association

President - Don Maynard, 703 Brand Farm Rd., So. Burlington; 355-9209
V. Pres. - Mark Barrett 700 Simpson Hill Rd., Sutton, VT 05867; 467-8380
Secretary - [Marion K. Seifert](#), 259 N. Orwell Rd., Orwell, VT 05760; 948-2473
Treasurer - Karla Barrett, 700 Simpson Hill Rd., Sutton 05867; 467-8380

VT Horse Council

President - Cindy Cross-Greenia, PO Box 392, Underhill 05489; 899-3928
V. President - [Susan Mitchell](#), 307 Culver Hill Rd., Middlesex 05602; 244-5064
Secretary - [Terry Rose](#), 146 Bent Hill Rd., Braintree 05060; 728-6303
Treasurer - Beverly McMullin, 170 Old Rt 100, Moretown 05660; 223-6859

VT Jersey Breeders Association

President - Myles Goodrich, 39 Cow Hill Rd., W. Danville 05873; 563-2413
V. President - Tim Angell, 1192 Claywight Rd., Randolph Ctr., 05061; 728-9057
Secretary - Heather Brigham, 85 Holyoke Farm Dr., St. Albans 05478; 527-0611
Treasurer - Tom Pyle, 2 South Main St.-Ste. 3, Rutland 05701

VT Llama and Alpaca Association

President - Susan Houston, P.O. Box 61 Craftsbury Common, 05827; 586-2873
V. President - Theresa Miller, 474 Brown's Trace Rd., Jericho 05465; 899-1019
Secretary -
Treasurer - Judie Jerger, 2565 Shellhouse Mountain Rd., Ferrisburg 05456; 877-3092

VT Morgan Horse Association, Inc. (www.vtmorganhorse.org)

President - Karen McKnight, PO Box 15, Underhill Center, VT 05490; 899-4185
V. President - Jacqueline Marston, 1295 Belgo Rd., Castleton 05835
Secretary - Nancy Creswell, 765 Center Rd., Montpelier 05602
Treasurer - Anne Brown, 1380 Old Stage Road, Westford, VT 05494; 878-4128

VT Nursery and Landscape Association, Inc. (www.vaph.org)

President - Tim Parsons, 84 South Service Rd., Middlebury 04753; 443-5969

V. President - David Loysen, 208 Shaw Hill Rd., Stowe 05672; 253-2528

Sec./Treas. - Claybrook Griffith, 4379 Ethan Allen Hwy., New Haven 05472; 999-4558

e-mail: admin@vaph.org

VT Organic Milk Producers Association

President - Robert Howe, Tunbridge 05077; 889-3704

V. President - John Putnam, PO Box 255, No. Pomfret 05053

Secretary - Lari Berger, Tunbridge; 889-3242

Treasurer - Gary Mullen, 194 Monarch Hill Road, Tunbridge 05077

VT Poultry Association

President - Richard Paquette, Box 143, Colchester 05446; 655-0444

V. President -

Sec./Treas. - Jackie M. Devoid, PO Box 146, Salisbury 05769-0146; 352-4241

VT Sheep and Goat Association

President - [David Major](#), 875 Patch Road Putney, VT 05346; 802-387-4473

V. President - [Chet Parsons](#), 463 Hardwood Hill Road, Richford 05476; 848-3771

Secretary - Carol Delaney, 1130 Sanders Circle E. Montpelier, VT 05602; 802-229-2950

Treasurer - [Jamie Cherington](#), PO Box 201, Calais 05648; 223-9971

VT State Grange

Master - Clyde Berry, PO Box 452 Hartford, VT 05047; 295-2091

V. President - Linda Sanderson, 229 Mears Rd., Milton 05468; 893-7883

Secretary - Nancy Perkins, 1343 Boltonville Rd., Wells River, VT 05081; 584-3611

Treasurer - Merton J. Snow, P.O. Box 217, Shaftsbury 05262; 442-4526

VT Turkey Growers Association

President - Dave Adams, 1192 Old Stage Road, Westford 05494; 878-4726

V. President - Paul A. Stone, Stonewood Farm, Orwell 05760; 948-2277

Secretary - John Palmer, RD #1, Box 232B, New Haven, VT 05472; 453-4748

Treasurer - Roger Howes, Turnpike Rd., Norwich 05055; 649-1061

APPENDIX I:

GLOSSARY

Area Veterinarian in Charge (AVIC): Designates the lead Federal Veterinarian for APHIS VS in a particular area. Nationally, there are 42 Areas that encompass one or more States.

APHIS (Animal and Plant Health Inspection Service): Designates a part of the USDA that is responsible for ensuring the health and care of animals and pets.

Appraisal: The process of determining fair market value of animals, animal products, feed, etc., to facilitate indemnification. Special appraisals may be performed for the purpose of assessing value on purebred or specialty animals.

Biosecurity: Denotes an implemented status that precludes the transmission of infectious disease agents to susceptible livestock, poultry, wildlife and zoo animals, as well as humans if the disease is a zoonotic agent.

Cervids/ Cervidae: Refers to domestic or captive raised animals in the same family as deer (whitetail deer, mule deer, elk, moose, etc)

Cleaning and Disinfection (C&D): Procedures involving a combination of physical and chemical processes that kill or remove disease agents.

Contact Premises (CP): A premises that an epidemiologist has determined, through sound epidemiology investigation/ evidence, to have some type of exposure, to a known infected premises.

Control Area (CA): A designated area in a disease outbreak response that encompasses Infected Zones and Surveillance Zones.

Dangerous Contact Animal: An animal that is not exhibiting clinical signs of a disease, but because of likely exposure, is treated as an infected animal.

Dangerous Contact Premises (DCP): A premises containing Dangerous Contact Animal(s).

Disease Agent: The organism that is causing the infectious disease.

Emergency Management Response System (EMRS):

Emergency Operations Center (EOC):

Federal Emergency Management Agency (FEMA):

Fomite: Any inanimate object that can serve as a means of passive transfer for an infectious disease agent.

Foot and Mouth Disease (FMD): A highly contagious viral disease affecting cloven-hoofed animals. Classified as a FAD in the United States.

Foreign Animal Disease (FAD): Designates an animal disease that is not currently considered endemic to the United States.

Foreign Animal Disease/ Emerging Disease Investigation (FAD/EDI): Designates an on-site assessment conducted by FADD's, as part of the national surveillance program for exotic or emerging animal diseases. The assessment includes: a history of clinical and epidemiological findings, results of physical examinations, necropsy findings, specimen collection and submission to approved laboratory, reporting, initiating appropriate control measures, etc.

Foreign Animal Disease Diagnostician (FADD): A veterinarian who has been through the foreign animal disease training course at Plum Island and receives continuing education in FAD's and animal health emergency management.

Incident: An occurrence or event, that is either human-caused or a natural phenomenon, that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/ or natural resources.

Incident Commander:

Incident Command Post (ICP): The location at which the primary command functions are executed.

Incident Command System (ICS): The combination of facilities, equipment, personnel, procedures and communications, operating with a common organizational structure, responsible for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Indemnity- Refers to compensation (by State or Federal government) for animals, animal products and by-products destroyed as a result of depopulation measures in an animal disease outbreak.

Infected Premises (IP): A premises that has been determined through laboratory diagnosis and/ or presence of clinical signs, to be infected with an infectious disease agent.

Liaison Officer: A member of the command staff responsible for interacting with agency representatives from assisting and cooperating agencies.

Logistics Section: The ICS section that is responsible for procuring resources to facilitate response support.

Maximum Incubation Period (MIP):

Movement Restriction: Denotes restrictions related to movement of animals, people, vehicles or other things to preclude the spread of an infectious disease.

Operations Section: The ICS section that is generally responsible for most field activities in a disease outbreak response.

Personal Protection Equipment (PPE): Apparel or equipment that aid in preventing personal injury or contamination. Generally is impervious to fluids and either disposable or cleanable.

Planning Section: The ICS section that collects, evaluates, processes and disseminates information concerning the incident. Personnel within this section, also serve as technical resources for the emergency response.

Public Information Officer (PIO):

Quarantine: A legal restriction imposed on a location, animal, vehicle or other thing, limiting movement.

Regional Emergency Animal Disease Eradication Organization (READO): Designates a USDA APHIS VS organization that has trained animal health emergency managers and can be mobilized to support and manage an outbreak.

State Veterinarian: The veterinary officer for a particular State or territory of the United States responsible for animal health activities.

Surveillance: A systematic examination and testing of animals to determine the presence or absence of a particular infectious disease agent.

Surveillance Zone (SZ): A designated area encompassing IP's, CP's and SP's (may be the entire State, initially) where restrictions will reduce the chance of spreading the disease agent. The SZ may decrease in size as data concerning the extent of the outbreak becomes more apparent.

Suspect: Denotes an animal that may have been exposed to the disease agent, warranting quarantine and intensive surveillance. Alternatively, an animal not known to be exposed to the disease agent, but exhibiting compatible clinical signs and requiring differential diagnosis.

Suspect Premises (SP): A premises housing susceptible animals subject to surveillance.

Trace-in/ Trace-out: The process of locating animals, persons or animal products that may be spreading the disease agent.

Zoonosis: A disease that is transmittable between animals and humans.

