

The National Veterinary Stockpile

A Planning Guide for Federal, State, and Local Authorities

April 2007



The processes and procedures in this document are subject to change. As they change, we will issue new versions of the guide. We encourage comments about the guide.

Please email them to: NVS@APHIS.USDA.GOV

Executive Summary

The introduction of an animal disease, like foot-and-mouth, could potentially devastate American agriculture, seriously affect the economy, and, for zoonotic diseases, threaten the public's health. Having enough vaccines, personal protective equipment, and other critical veterinary supplies to deal with such outbreaks will be crucial.

Many states stock supplies, but catastrophic disease outbreaks, particularly those set simultaneously in multiple locations by terrorists, will deplete the supplies. The National Veterinary Stockpile (NVS) exists to augment state and local resources in the fight against such disasters. Established by Homeland Security Presidential Directive-9 (HSPD-9) in 2004, the NVS must deploy within 24 hours "sufficient amounts of animal vaccine, antiviral, or therapeutic products to appropriately respond to the most damaging animal diseases affecting human health and the economy..."

The NVS' rapid delivery of massive amounts of critical veterinary supplies, however, is not enough. States must be prepared to respond. Before disaster strikes, they must plan systems to receive, manage, and distribute NVS assets.

This guide gives federal, state, and local officials the information they need to create their plans. It has two purposes. The first is to inform officials about the NVS: how to request it, how it will deploy, and what it will provide. The second is to recommend actions that officials should plan before an event to request, receive, sort, store, stage, manage, and deliver the material in the NVS along with state and local resources.

The context for our recommendations is one to which officials have never had to respond: multiple, simultaneous, catastrophic releases by terrorists. That scenario is likely to be larger and wider spread than anything the nation has confronted in the past. Planning for it now will allow authorities to deal effectively with smaller outbreaks. Not planning for it, while assuming that methods used in the past will suffice, will dramatically reduce the chance of success.

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Section 1

Introduction

The National Veterinary Stockpile (NVS) is the nation's repository of vaccines, personal protective equipment (PPE), and other critical veterinary items. We augment state and local resources in the fight against dangerous animal diseases that could potentially devastate American agriculture, seriously affect the economy, and threaten the public's health.

Homeland Security Presidential Directive 9 (HSPD-9) established the NVS in 2004. It required us to deploy within 24 hours "sufficient amounts of animal vaccine, antiviral, or therapeutic products to appropriately respond to the most damaging animal diseases affecting human health and the economy..." HSPD-9 reflects the nation's concern that terrorists could simultaneously, in multiple locations, release animal diseases of an unprecedented magnitude, thus requiring an NVS that could deliver rapidly and with less cost, large quantities of critical veterinary supplies and equipment to the right place at the right time for as long as necessary.

The NVS provides the U.S. Department of Agriculture's (USDA's) Animal and Plant Health Inspection Service (APHIS) new options for responding to and eradicating animal diseases:

- *Logistics expertise concentrated on fighting disease:* Previously, groups of specialists responding to an outbreak managed their own logistics support. This approach created several problems: (1) Groups duplicated the work of others; (2) The coordination of resources from multiple sources managed by multiple groups was difficult before and during an event; and (3) The cost of response was high because each group purchased supplies in smaller quantities and at higher prices.
- *Large quantities of vaccine delivered rapidly:* In the past, APHIS eradicated disease outbreaks by depopulating infected and potentially exposed animals. The unprecedented magnitude of an animal disease that terrorists could release, however, makes the exclusive use of depopulation less likely. Vaccine in the NVS gives APHIS another option.

The NVS has two primary goals.

1. Within 5 years, we will acquire countermeasures against the 10 worst animal diseases including Highly Pathogenic Avian Influenza, foot-and-mouth disease (FMD), Rift Valley Fever (RVF), Exotic Newcastle Disease (END), and Classical Swine Fever.
2. Within 10 years, we will acquire countermeasures against all 17 of the most dangerous diseases.

As the NVS grows to achieve all HSPD-9 goals, we will provide more of the resources required for responding to future outbreaks. But large-scale responses will always require federal, state, and local resources. It is important therefore, that authorities at all levels understand the resources that each will provide to ensure effective coordination and use of the resources. One

purpose of this guide is to inform state and local officials about the NVS: how to request it, how it will deploy, and what it will provide.

A second purpose is to recommend actions that federal, state, and local authorities should plan for receiving, storing, staging, and delivering the NVS, along with state and local resources (for brevity we refer hereafter to all resources as the NVS unless we state otherwise).

The recommendations in this guide are directed to those organizations responsible for responding to catastrophic events such as an agroterrorist attack. That scenario is likely to be larger and wider spread than anything the nation has confronted in the past. Planning for it will allow authorities to deal effectively with smaller outbreaks. Not planning for it, while assuming that methods used in the past will suffice, will dramatically reduce the chance of success.

We are indebted to our sister organization, the Strategic National Stockpile (SNS) in the Department of Health and Human Services, for letting us model much of this guide on its guide. Those who are aware of the SNS and its planning will be familiar with what we recommend. Logistically, the functions that must occur to deliver critical supplies are essentially the same for both programs:

- Request assistance
- Receive shipments
- Sort, store, and stage receipts
- Deliver supplies and equipment to responders
- Manage the flow of supplies and equipment
- Support management with communication equipment and processes
- Protect supplies, staff, facilities, and equipment.
- Recover unused and reusable supplies

Many people will be involved with these functions. Federal personnel will include the Area Veterinarian in Charge (AVIC), members in APHIS' emergency operations center (EOC), NVS Program staff, the on-site incident command team (ICT), other APHIS personnel in the incident command post (ICP), and perhaps federalized staff from industry. State personnel will include the state veterinarian, the commissioner of agriculture if the position exists, perhaps the governor, members of the ICP, and local staff who will receive, manage, and deliver the NVS.

In the remainder of the guide, we assume that you have responsibility for supporting responders with NVS assets. We, therefore, speak directly to "you." We also assume that you may not be familiar with agricultural abbreviations. We define them the first time we use them, use them sparingly, and include them in Appendix A.

This guide consists of two major sections. Section 2 describes the NVS, while Section 3 recommends actions that you should plan to request, receive, manage, and deliver the NVS and other resources.

We appreciate all suggestions for improving this guide and on how we expect to respond when you request our assistance. Please e-mail us at nvs@aphis.usda.gov.

Section 2

The National Veterinary Stockpile

This section describes the NVS—its mission, goals, organization, deployment, and inventory. While we build the NVS over the next several years, the magnitude of our response and the items we deliver may be less than you expect. You need to know when, how, and with what we will respond so you can plan your part in an effective joint response.

Mission, Goals, Organization

This section states our mission and goals. It then describes how we are organized to accomplish our mission and attain our goals.

Mission

Deliver within 24 hours vaccines, PPE, vaccines, and other critical veterinary supplies to the site of a dangerous animal disease outbreak.

Goals

Goal 1: In 5 years, we will acquire the capability of responding to outbreaks of the 10 most dangerous animal diseases listed in Table 2-1. (Those diseases are listed first in the table.)

Goal 2: Within 10 years, we will acquire the capability of responding to outbreaks of all dangerous animal diseases listed in Table 2-1.

Table 2-1. Dangerous Animal Diseases

Agroterror agent	Animal industries affected	Public health threat?
Highly pathogenic avian influenza (HPAI)	Poultry	Yes, may be lethal
Foot-and-Mouth disease	Cattle, swine, sheep	No
Rift Valley Fever	Cattle, sheep	Yes, may be lethal
Exotic Newcastle disease	Poultry	Yes, minor effects
Nipah and Hendra viruses	Swine (Nipah), horses (Hendra)	Yes, may be lethal
Classical swine fever	Swine	No
African swine fever	Swine	No
Bovine spongiform encephalopathy agent	Cattle	Suspected
Rinderpest	Cattle, sheep	No
Japanese encephalitis	Swine, equine	Yes, may be lethal
African horse sickness	Equine	No
Venezuelan equine encephalitis	Equine	Yes, may be lethal

Table 2-1. Dangerous Animal Diseases

Agroterror agent	Animal industries affected	Public health threat?
Contagious bovine pleuropneumonia	Cattle	No
Ehrlichia ruminantium (Heartwater)	Cattle, sheep, goats	No
Eastern equine encephalitis	Equine	Yes, may be lethal
Coxiella burnetii	Cattle, sheep, goats	Yes, may be lethal
Akabane	Cattle, sheep, goats	No

Organization

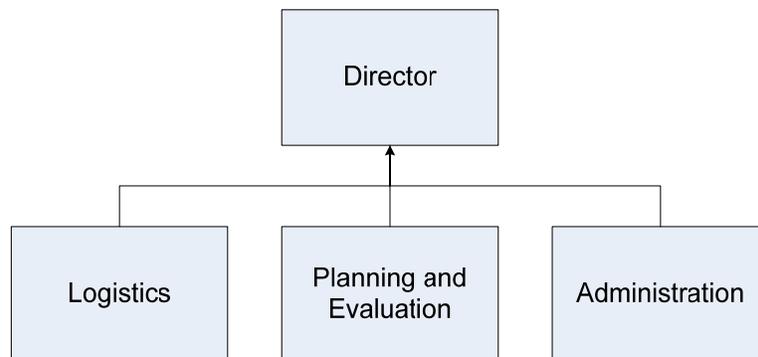
The NVS Program is part of Emergency Management and Diagnostics in USDA’s Animal Plan Health Inspection Service. Figure 2-1 illustrates our position in USDA.

Figure 2-1. NVS Program Position in USDA



Figure 2-2 shows how we have organized to conduct business. Team leads for logistics, planning and evaluation, and administration report to the director.

Figure 2-2. NVS Organization



Teams have the following responsibilities:

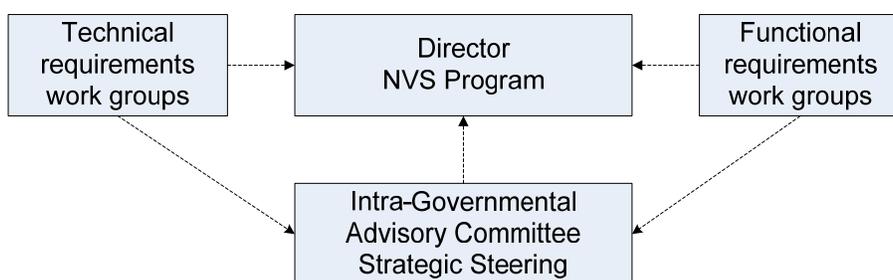
- Logistics
 - Acquire the capabilities that the NVS delivers.
 - Manage the processes for storing and maintaining supplies and equipment that the NVS holds in its inventory. (We refer to these items as stockpile-managed inventory, or SMI.)
 - Oversee the storage and maintenance of supplies and equipment that vendors hold, which the NVS owns or has guaranteed access to. (We refer to these items as vendor-managed inventory, or VMI.)
 - Manage the deployment of SMI and VMI to the site of disease outbreaks.
- Planning and Evaluation
 - Develop and maintain the NVS's strategic plan.
 - Coordinate the creation of the NVS's processes, procedures, and policies.
 - Evaluate the NVS's readiness, quality, and efficiency.
 - Model potential disease outbreaks to support intervention strategies and identify economic benefits and costs.
 - Train NVS staff and partners (federal, state, and local) to request, receive, store, stage (RSS), deliver, and use NVS assets during an event.
 - Manage the NVS's participation in exercises with state and local partners.
- Administration
 - Support the efforts of other NVS teams.
 - Project and track the NVS's expenditures.

- Receive and distribute performance reports from NVS teams and supporting organizations.
- Manage the NVS's human resources.

Our staff consists of government and contracted personnel, with the latter providing temporarily the specialized skills we need to create a vibrant, efficient organization.

Figure 2-3 illustrates the intra-governmental steering committee and work groups that advise the director in overseeing accomplishment of the NVS's mission. The committee convenes twice a year to discuss general threats and countermeasures, present the findings of work groups that examine specific threats, and review our progress toward achieving HSPD-9 requirements.

Figure 2-3. Advisory Committees and Work Groups



Membership of the steering committee consists of decision makers from the following organizations:

- USDA's Centers for Veterinary Biologics, Epidemiology and Animal Health, Emergency Management, and Agricultural Research Service
- Department of Homeland Security
- Environmental Protection Agency
- Department of Health and Human Services, Centers for Disease Control and Prevention
- Food and Drug Administration, which has jurisdiction over some products contained in the NVS.

Work groups convene as necessary to advise the director and the committee on functional and technical matters. Membership varies but may include technical experts from various parts of USDA and other federal agencies, state representatives, industry representatives, and representatives from other countries. Functional work groups recommend what the NVS should do, while technical work groups recommend how to accomplish what the NVS decides to do.

Deployment

Goals

This section discusses our planning and testing for deploying the NVS. We have four goals:

1. Arrive at the site of an outbreak within 24 hours
2. Provide sufficient supplies to support response efforts for 10 days
3. Organize and label shipments so responders can find specific items quickly
4. Establish contracts with commercial sources to provide reliable, ready sources of material to support the NVS and other responders beyond the first 10 days.

Planning

We will arrive within 24 hours. We have procedures in place for deploying day and night, weekdays and weekends. We conduct tests several times a year to ensure we can recall warehouse personnel. We have pre-packaged and palletized our shipments into modules that require minimal effort to pull from the shelf and load onto trucks. Our arrangements with multiple carriers give us a redundant capability of moving NVS material by air or ground.

Storage Locations

To prevent weather, sabotage, or other factors from interfering with our arrival in 24 hours, we store NVS material in multiple, secure, geographically dispersed locations. For security reasons, we do not divulge these locations. Although state officials may be more comfortable if they knew what NVS material was stored in their state, they should have no doubt that they will receive the NVS support they need when they need it.

Shipments

Some of our modules will deploy every time. Others will only deploy for specific outbreaks. A module that contains disinfectant supplies and a second with large equipment (e.g., generators to power disinfectant sprayers) will always deploy. But a module that contains PPE for responders will only deploy for outbreaks that threaten people. Similarly, modules that we assemble for outbreaks in specific species (such as swine, poultry, or cattle) will only deploy for those outbreaks.

We refer collectively to the modules that we deploy irrespective of their content as a push package, a term coined by the SNS for its immediate response to public health emergencies. Once we know the disease and species, we will ship (i.e., push to the state) whatever is needed to support responders. If a response continues for more than 10 days, the ICP will purchase what it needs from the commercial sector or request additional NVS shipments.

Some items will arrive within 24 hours that will not be part of a push package. Vendors who hold some of our products—particularly those with high cost or expiration date—will ship them at our direction when an outbreak occurs. In the interim, the vendor eliminates our cost of expiration by selling older items in our stock to its commercial customers and replacing those items with new material from its production line. An example is live fowl pox H5 recombinant avian influenza vaccine for day-old chicks. The manufacturer owns the vaccine and guarantees

our right to purchase up to 500 million doses. The manufacturer will ship 25 million doses within 24 hours and thereafter continue shipping large quantities. We get access to the vaccine at a fraction of the cost of buying it (\$1M vs. \$75M), eliminate the cost of expiration, and purchase the vaccine only when we need it and then with emergency funding.

Procedures

We will deploy when a state requests assistance and the APHIS Deputy Administrator approves that request. We describe the state process for requesting assistance in the following section, where we discuss actions that the state should plan. After we receive the order to deploy, the following will occur:

1. Our logistics team will:
 - a. Call the ICP to determine the locations to which we should deliver NVS assets. We refer to this location as the RSS facility. During this call, we will also discuss characteristics of the location to ensure our delivery vehicles can easily approach the facility and offload our shipment.
 - b. Recall warehouse and headquarters' staff members if we receive the order after working hours. To ensure that we can reach our staff, we issue a cell phone to all members and exercise their recall twice a year.
 - c. Order transportation. The transportation we will use depends on several factors:
 - i) For shipments of short distances, we will use one or more trucks, each with a driver.
 - ii) For shipments of longer distances that a truck can still reach within 24 hours, we will put two drivers in each truck so the truck continues moving when the drivers reach their legal driving limit.
 - iii) For distances that a truck cannot reach within 24 hours or when weather prevents a truck from arriving on time, we will use air transport. Trucks will take our shipments from the warehouse to the aircraft. The aircraft will land at the airport nearest the outbreak and offload onto trucks for delivery to the destinations that the ICP specifies.
2. Our warehouse staff will pick pre-packed and palletized modules quickly and load them onto transport. A manifest will be attached to every pallet that we pick to help responders at the scene rapidly find what they need. For large-scale responses, one of our logistics members will meet the shipment at destination to provide technical support to the incident command team.
3. After the NVS assets are en route, our logistics team will monitor their progress using global positioning system technology. Our headquarters staff and incident commanders will have in-transit visibility of all assets until the moment of arrival.
4. Following the incident when responders are standing down, our logistics team will work with the ICP to recover unused and reusable NVS assets.

NVS Items and Quantities

Requirements Definition

We use a formal process to identify, prioritize, and specify the material and equipment that we deliver. This process—requirements definition—continuously evaluates changes in threats, countermeasures, technological developments, economic risks, and funding constraints. It considers

- the threats (diseases or agents including vectors) that exist and to which the NVS may need to respond;
- the importance of each threat;
- the size of populations and their locations;
- the response time and duration of response;
- the research, surveillance, epidemiology, economics, and policy associated with each threat; and
- the life-cycle costs of purchase, storage, maintenance, replenishment, and ultimately, disposal.

Acquisition Methods

After we decide what we must provide, we determine functionally and technically how to acquire the capabilities, maintain them until they are needed, protect them against loss or damage, and deliver them when outbreaks occur—all within available funding.

We use three basic acquisition methods.

1. Purchase and hold products in our distribution centers. We use this method when we will need products immediately, but we may not be able to get them quickly enough from the commercial sector. We refer to these products as SMI because we own the products and manage their storage and shipment. PPE is an example of these products.
2. Purchase and have vendors hold the products. We use this method for products that have an expiration date, little commercial application, or an intermediate processing step before we can ship them. Avian influenza vaccine (killed) for older birds is an example. The vendor holds our antigen until we direct its conversion into vaccine for shipment. By holding antigen rather than vaccine, we avoid much of the cost of expiration since the antigen has a much longer shelf life than the vaccine. We refer to this method as VMI.
3. Contract for guaranteed access to products. We use this method when a product has an expiration date, and the vendor has a vigorous commercial customer base. By paying the vendor to hold larger post-production inventories from which it sells to its commercial customers, we avoid the cost of purchase, storage, and expiration. The vendor perpetually replenishes its stocks by selling older products and replacing them with fresh products from the production line. We only buy the product when we need it. In the interim, the vendor pays the cost of storage. Our contract for vaccine to protect day-old chicks is an example. For a fraction of the cost of purchase, we have guaranteed access to a large amount of vaccine.

Life-cycle cost is a major factor in determining which of these methods we use. Over its lifetime, a product generates multiple costs in addition to the cost of purchase. For example, it costs money to store the product (more if it needs refrigeration), maintain the product, manage it, extend its shelf life (if tests indicate it remains efficacious after expiration), replenish it, and ultimately dispose of it. Because of these costs, we generally use an acquisition method that minimizes our life-cycle costs without affecting our readiness.

Inventory

Because the NVS is a countermeasure against agroterrorism, the inventory that we hold is sensitive information. Appendix B describes the items in our inventory and its characteristics for storage and shipment. We distribute this appendix separately to select authorities.

Section 3

Federal, State, and Local Planning Considerations

This section discusses the logistics functions that federal, state, and local authorities should perform to ensure personnel on site get the resources they need to respond to an outbreak. While the functions are essentially the same for all outbreaks, the processes in your plan will be unique to your state.

Previously, we noted that our recommendations are similar to those the state has planned for distributing the SNS during public health emergencies. We strongly suggest that you talk to your state SNS coordinator. In many cases, the coordinator will have worked on SNS planning for several years and should be able to help you avoid problems in your NVS plan.

Necessary Functions

The functions that should be in your plan for supporting the material requirements of your responders include the following:

- Requesting NVS assistance
- Receiving NVS material (remember, we include state and local supplies when we refer to the NVS) at a facility near the outbreak
- Sorting receipts by type (such as PPE, animal handling equipment, and disinfectants) to make it easier to find specific items
- Storing temporarily receipts that are not required immediately, particularly vaccines that must remain chilled but not frozen
- Staging supplies by final destination to support responders working in more than one location
- Delivering supplies to responders on-site
- Replenishing supplies as they are issued (by purchase or additional NVS and state shipments) to ensure they are not exhausted
- Recovering unused and reusable supplies and equipment to reduce the cost of fighting future outbreaks.

In addition to these basic functions, your plan should also include

- a process for managing the smooth and uninterrupted operation of each of the functions,
- tactical communications to support management and coordination of the functions, and
- security to protect material, staff, facilities, and equipment.

After addressing development of your plan, we discuss each of these functions in subsections below.

Developing the Plan

The coordinated efforts of many trained and exercised people and organizations must occur to effectively respond to a catastrophic event. It is essential that you prepare a plan that describes in detail how and with whom that coordination will occur, including the following:

- Who, for example, will be responsible for requesting the NVS (you want more than one for redundancy)? Whom will those individuals call? How should they justify the request?
- How will you interface with the state's emergency management organization and plan?
- How will the state's emergency management staff, law enforcement, and public works be involved?
- How will the NVS distribution team communicate with law enforcement to protect material, facilities, people, and equipment?
- Who will the incident command post (ICP) call in the commercial sector to order additional supplies from existing NVS contracts?
- How will industry be involved? What about the military?
- Who will provide the facility where you will receive the NVS and other supplies?

You need to document the answers to these and many other questions to ensure you have considered everything that must occur, understood how it will occur, and know with whom you must coordinate to make it occur. Only then will you be able to train individuals who must perform and to begin exercising all involved to test your response.

You should coordinate with at least the following organizations:

- State emergency management and homeland security offices
- Public health for zoonotic outbreaks
- Law enforcement to protect personnel who manage the delivery of resources, the facilities that receive and stage the resources, and the vehicles and drivers that deliver the resources

- Public works that provides delivery vehicles and drivers
- Military installations that may provide landing fields for delivery of the NVS and buildings from which to receive, store, stage, and deliver the NVS
- Industry and other commercial organizations that provide space, personnel, and equipment.

We recommend that you identify the organizations that may need to provide help, discuss that help with their senior managers before an outbreak, and gain the managers' commitment to providing help during outbreaks. Recognize that many of these organizations may also be supporting your state's distribution of the Strategic National Stockpile. We should discuss the role of these organizations with your SNS coordinator before you meet with the managers so that you can clarify how the organizations may support both of your needs.

Command and Control

We refer to the methods by which federal, state, and local authorities (e.g. political, emergency management, agriculture, law enforcement, and public health leaders) manage their response to an outbreak as command and control and the system they use as the incident command system (ICS). The federal government and an increasing number of states have adopted the National Incident Management System (NIMS), which Homeland Security Presidential Directive-5 established as the nation's ICS for managing the response to disasters. If your state has not fully implemented NIMS as its ICS, we recommend you use the following website:

<http://training.fema.gov/emiweb/is/crslist.asp>, to learn more about NIMS and to train on how to operate within it.

At a local level, command and control will typically occur at an incident command post where the state veterinarian and federal AVIC will act as joint incident commanders to coordinate the local response. In a large outbreak, they will oversee the activities of others working in five sections: command, operations, planning, logistics, and finance/administration. Each of these sections will have some part in the timely delivery of the NVS. If simultaneous outbreaks occur in different parts of a state or region, an area command typically at the state emergency operations center (EOC) may be formed to oversee NVS support activities for each of the areas responding to an outbreak.

Location of the NVS Distribution Team within NIMS

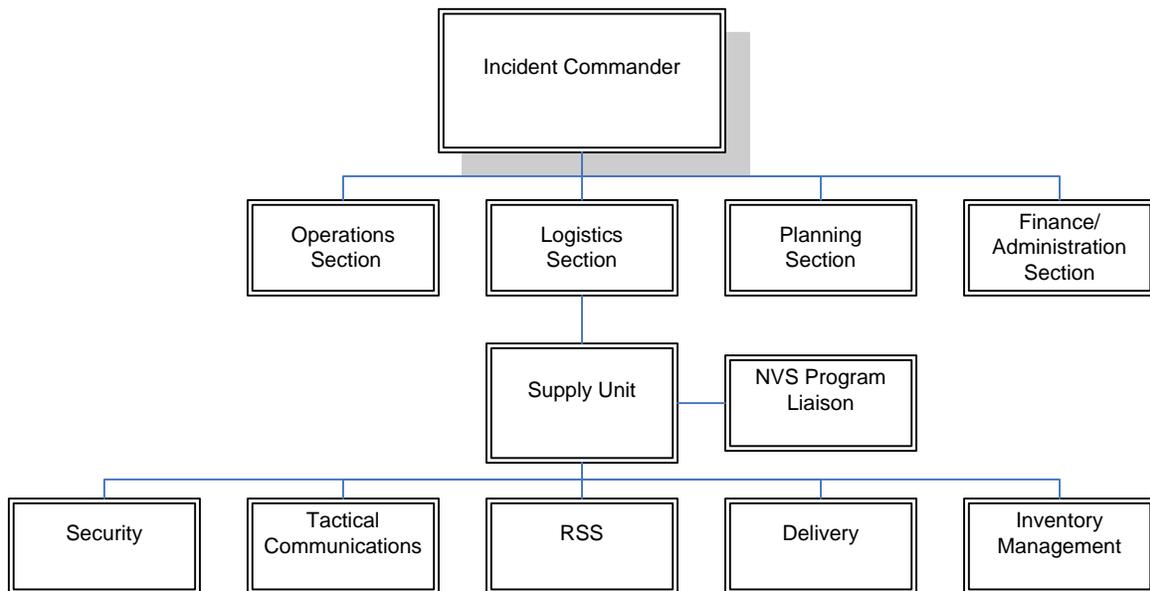
NIMS is particularly effective for managing the delivery of the NVS because of its

- common terminology,
- integrated communications,
- modular organization,
- unified command structure,
- manageable span of control,

- consolidated action plans, and
- comprehensive resource management.

Figure 3-1 illustrates the typical reporting relationship within NIMS of the team that must receive, manage, and deliver NVS assets to responders in the field. We refer hereafter to this team as the NVS distribution team. Where NVS assets represent the bulk of resources during an event, the ICS supply unit leader and the manager of the NVS distribution team may be one and the same. When the ICP must also manage large quantities of resources from other sources, the NVS distribution team manager and the supply unit leader may be two separate people with the former reporting to the latter.

Figure 3-1. Typical Position of the NVS Distribution Team and its Functions within NIMS



Communications and Reporting

Irrespective of the ICS that you use, you should develop procedures by which participants and organizations involved in the delivery of NVS assets communicate and report requirements, status, and directives. Responders on-site need to know the location where you hold NVS assets (the RSS facility). They also need to tell incident command how their work is progressing. The RSS needs to report to incident command information such as deliveries it makes, availability of inventory, replenishment requirements, and operational problems. Workers in the NVS distribution team need to communicate with one another and with management to coordinate the smooth, uninterrupted flow of supplies to responders.

Your plan for delivering the NVS should address the methods that you will use to communicate and report, whether by e-mail, phone, cell phone, fax, radio, or some combination.

Critical Command and Control Issues

It's important that command and control for the NVS address the following:

- Chain of command. Who is responsible for directing actions to distribute the NVS? This information is particularly important during outbreaks in multi-state or multi-jurisdictional areas where more than one RSS facility may be operating in an environment or where initial shipments of NVS assets are insufficient to satisfy all requirements.
- Decision making. What is the process for making decisions about the organization and management of NVS assets? Who can make decisions about allocating those assets?
- Tactical communications. How will federal, state, and local responders communicate with command leadership? How will the information flow be managed, including the monitoring of real-time information among response organizations supporting NVS distribution? What medium will you use (radio, phone, priority phone, or fax)? What formats will you use? Will you use written or verbal reports?

Regional Command and Control Issues

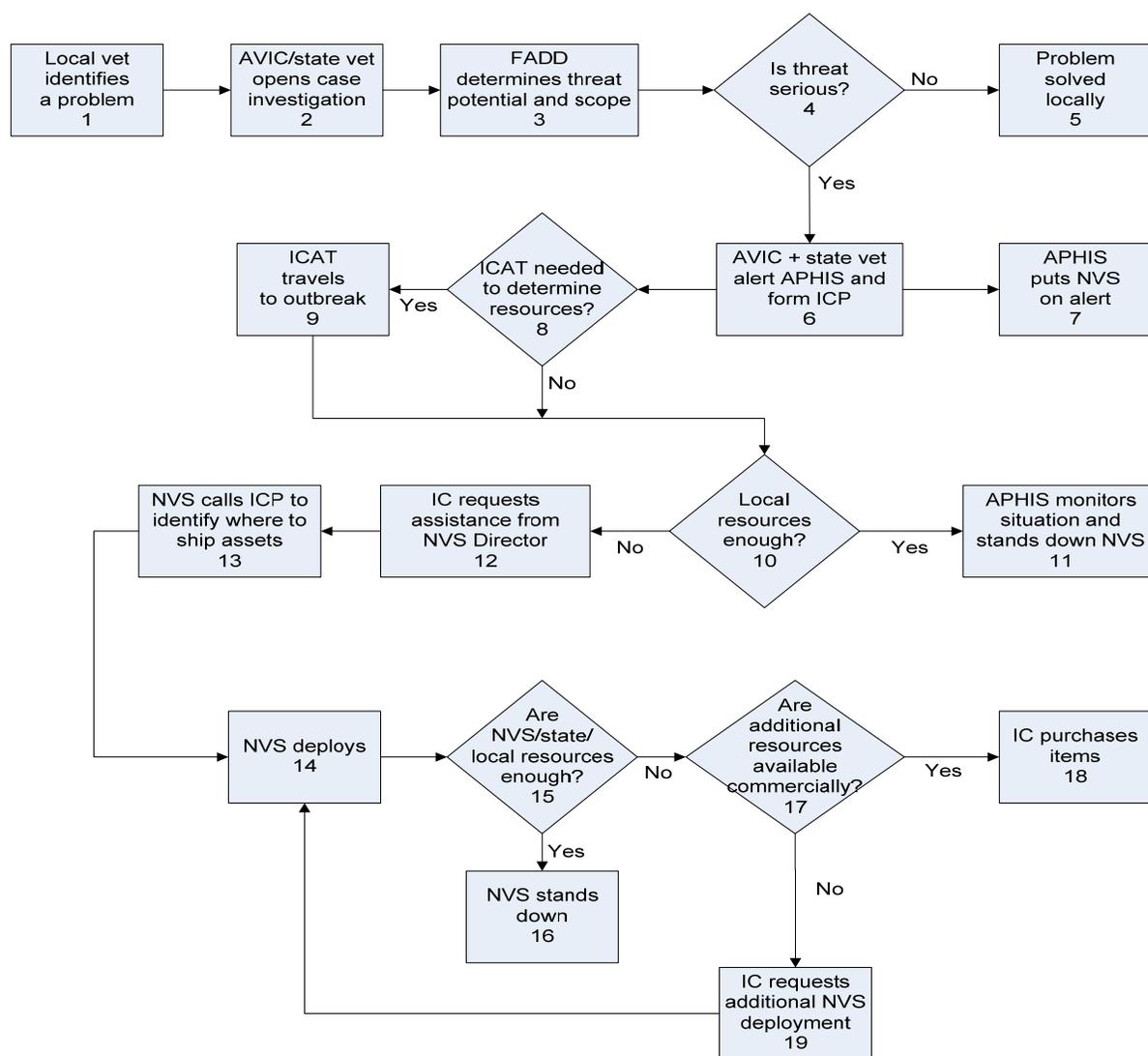
When outbreaks occur in multiple jurisdictions, management of the response becomes considerably more complex. In such situations, your plan should address how you will coordinate a regional response that includes methods for

- requesting NVS, state, and local resources from several sources;
- deciding on one or multiple locations for receiving, storing, and staging NVS assets to serve the region;
- identifying how to staff the RSS facility; and
- determining how much to distribute to each outbreak site if receipts initially are insufficient to meet all needs.

Requesting NVS Assets

The decision to deploy the NVS will depend upon the type and scale of an outbreak and the decision by state and federal authorities that local supplies are insufficient. Figure 3-2 illustrates the general process for requesting assistance. We use the term “general” because the process may be different in your state. It typically starts when a local veterinarian investigates sick animals. If the disease is serious, the state veterinarian and the federal AVIC will form an ICP to deal with it. At some point, a state authority, possibly the state veterinarian, commissioner of agriculture, or governor (remember it depends on the processes in your state), will conclude that the state needs additional resources from the NVS. They need only call the NVS director to request deployment (see Appendix C for contact information). The director, in turn, will get the authorization to deploy. We expand on each of the steps in this general process below.

Figure 3-2. NVS Request Process



Note: ICAT=Incident Complexity Analysis Team.

NVS Request Process Steps

1. The request for the NVS starts when a local representative, usually a veterinarian, detects a problem and reports it to authorities (typically the AVIC or the state veterinarian).
2. The AVIC or state veterinarian opens a case file and assigns a foreign animal disease diagnostician (FADD) to investigate.
3. The FADD identifies the threat and estimates its potential scope.
4. Authorities decide whether the threat is serious enough to establish an ICP to deal with it.
5. If the threat is not serious, local or state resources typically will be sufficient.

6. A serious threat will usually prompt the formation of an ICP of federal, state, and local officials. In many cases, the AVIC and state veterinarian will act as joint incident commanders (we assume such below) who alert APHIS.
7. APHIS may place the NVS on deployment alert.
8. Depending upon the complexity of the event, the incident commander (IC) in conjunction with APHIS may decide to deploy an incident complexity analysis team to help determine the amount and type of resources that the event requires.
9. The Incident Complexity Analysis Team (ICAT) travels to the outbreak.
10. The IC determines whether local or state resources are sufficient to deal with the threat.
11. If local or state resources are sufficient, APHIS will continue to monitor the response but will probably notify the NVS to stand down from its alert status.
12. If local or state resources are insufficient, the IC will typically request NVS assistance from the director of the NVS, who will deploy once higher authority approves.
13. The NVS Program calls the ICP to identify where to ship NVS assets.
14. The IC's request for the NVS and the Deputy Administrator's subsequent deployment order will start the clock on the 24-hour response time.
15. At some point after the receipt of the NVS, the IC will determine if the combined NVS, state, and local resources are adequate to support the response.
16. If the combined resources are adequate, the NVS will stand down.
17. If the combined resources are insufficient and additional resources are available commercially, the IC will purchase them. The sources from which the IC makes the purchases will increasingly use contingency contracts, which the NVS establishes.
18. If the combined resources are not adequate and additional resources are unavailable commercially, the IC will request additional NVS deployments.

After You Request the NVS

Following the federal order to deploy, we will call incident command to obtain the information we need to respond effectively. In that call, we will:

- Identify:
 - the threat, size, and type of potentially affected populations;
 - the persons with whom we should coordinate the inbound delivery of NVS assets and the methods we should use to communicate;
 - the size and contents of the NVS shipment.
- Determine the location and characteristics of the RSS facilities you intend to use.
- Request a copy of your plan for distributing the NVS to responders.
- Validate that appropriate security exists to protect our transportation vehicles, drivers, assets, and staff that accompany our shipments.

- Discuss our transport of the NVS including an estimated time of arrival at RSS facilities.
- Provide incident command information for tracking NVS shipments en route and the name of the NVS staff person who will arrive to advise the incident management team how to unpack and use the NVS.

Activating Your Plan

After you request the NVS, you should activate your plan for receiving, managing, and delivering it. You should include the following actions in your plan:

- Establish command and control to track inbound and receive the NVS.
- Call key members of the NVS distribution team that will be responsible for receiving, sorting, storing, staging, and delivering the NVS.
- Identify the locations to which the RSS facility will ship NVS assets.
- Identify how much of the assets to send initially to each RSS facility if more than one exists.
- Recall personnel on the NVS distribution team.
- Establish and test communication systems with all functional groups in the distribution team and the organizations that support the team.
- Activate:
 - Law enforcement and security agencies to establish operations to secure all aspects of the distribution system
 - The teams responsible for managing the RSS and controlling its inventory.
 - Assemble and brief the RSS security staff to ensure that the RSS facility is properly secured before initiating RSS operations.
- Identify and activate the RSS facility.
- Arrange the delivery of material handling equipment (MHE), such as pallet jacks and forklifts, to the RSS facility.
- Assemble and brief the staff to receive, store, and stage NVS assets when they arrive.
- Monitor the inbound progress of the NVS and its estimated time of arrival.
- Establish local methods for transporting NVS material from the RSS to responders on-site.
- Activate your inventory control system to manage the items and quantities of the material that will arrive.
- Assemble and brief delivery staff; ensure delivery vehicles have adequate fuel and are equipped with straps and other devices for securing cargo.
- Establish coordination with appropriate state and local law enforcement to protect trucks that will move material from the RSS facility to outbreak sites.

Management of NVS Distribution Efforts

This section discusses how you should manage the distribution of NVS assets. At the ICP, the incident commander deals with the overall response to an outbreak. The team dedicated to the distribution of the NVS reports to the ICS Logistics Section chief and through that person receives support and guidance from the incident commander (IC). While the IC tells the distribution team what to do, he/she does not tell the team how. The NVS distribution team must determine how to get resources to responders and to then manage the receipt, sorting, storage, staging, and delivery of the NVS.

Command and Control

We anticipate that the IC will provide the following support and guidance to the distribution team:

- Identify the sites to which the RSS facility must deliver resources.
- Arrange sufficient staff or material and equipment support for each of the NVS distribution team functions, such as RSS, delivery, security, and communications.
- Specify the amount of NVS resources that the RSS facility should deliver to each outbreak site.
- Coordinate security escorts, traffic control, and communications to facilitate the movement of NVS delivery vehicles.

Distribution Team

This team deals exclusively with RSS operations, security, tactical communications, and delivery. If you are responsible for planning the state's distribution of the NVS and sustaining that capability over time, you are probably the best qualified to act as the team's leader. In states with large, widely distributed agricultural populations, you may need to plan multiple NVS distribution teams to support responders throughout the state.

We recommend management of the NVS distribution team consist of the following:

- Distribution management group. This group, comprising of a manager and staff, reports to the incident command logistics section chief and coordinates all NVS activities. If you anticipate day and night operations, the group will require a deputy. Its leadership needs an intimate knowledge of how NVS distribution must occur to successfully manage the entire system.
- Tactical communications group. This group coordinates and supports others in the NVS distribution system. It should consist of a manager, deputy, and staff, who ensure the movement of information between distribution team leadership to the ICP and from team leadership to functional group heads and staff performing NVS distribution actions. Management of this function should have a background in communications and be capable of
 - monitoring and coordinating the efforts of each NVS functional group;
 - receiving requests, sending situational reports, and exchanging information;

- ensuring NVS groups have functioning communications equipment, including adequate batteries for prolonged use;
- repairing communications equipment that fails; and
- interacting with the IC to request support from other response functions such as law enforcement.
- Security group. This group protects NVS supplies, personnel, facilities, and equipment. Consisting of a manager, deputy, and staff, it interfaces with law enforcement and other agencies that are responsible for the security of your entire distribution effort. The leaders of this group may be law enforcement officials who act as liaisons between the NVS distribution team and local law enforcement agencies.
- RSS group. This group receives, sorts, stores, stages, and manages NVS material and equipment. It consists of a manager, deputy, and staff (particularly an administrative person to maintain records, enter issues, track inventory levels, and request replenishments), who manage the operation of the RSS facility. The managers should be experienced in warehouse operations.
- Delivery group. This group moves NVS material and equipment from the RSS facility to responders, and, when the response is over, moves unused and reusable equipment back to the RSS facility for return to the NVS. It also consists of a manager, deputy, and staff. Its managers should have a broad transportation background to ensure responders receive needed material and equipment on time. The group should have experienced transport dispatchers who can schedule vehicles, track deliveries, and solve problems that prevent drivers from delivering their loads.
- Training and exercise group. This group ensures all members of the distribution team know their jobs and have practiced performing them. Consisting of a manager and staff, it ensures that team members are trained and tested to respond. This responsibility is a constant effort. New members of the distribution team need training to learn what they should do and how they should coordinate with group members and other groups. Existing members of the team need to practice their response continuously in exercises. An exercise that validates the effectiveness of your NVS plan this year is no assurance that your plan will be effective in years to come. Without a constant training and exercise effort, the actual response of your NVS distribution team may not be effective.

Tactical Communications

Effective, reliable communications between incident command and the distribution team is essential for the successful support of the responders working on-site. To achieve this goal, you should select your voice and data communications. Your choices include paper memos, radio, phone, fax, cell phone, e-mail, and satellite phone. Because of the remote locations of some agricultural operations where an outbreak may occur, conventional methods may not be reliable. Satellite phones and access to the Internet may be the only way for the incident command and the distribution team to stay in contact.

Whatever methods you choose, you should know how to contact those with whom you must communicate. If, for example, you rely on phones, cell phones, fax, or satellite phones, you will need to know numbers to call. If you use radios, you will need to know the frequencies to use. If you use e-mail, you will need a list of e-mail addresses. While radios are necessary to communicate with your delivery truck drivers, you should remember that radio signals deteriorate rapidly with the distance from a transmission tower. You may need to install repeater stations or use an existing radio network that has repeaters.

Given the many individuals who will be involved in a major outbreak response, you may find it easier to establish contact phones, frequencies, and e-mail addresses in advance. After you establish the contact information, you should periodically confirm its continued accuracy.

Listed below are several actions that you should consider when planning communications for NVS distribution:

- Command and control (ICP or state EOC organized under ICS, unified command, or area command) will communicate with the following:
 - Responders on-site to identify the supplies and equipment they need.
 - NVS operations manager for status of the NVS distribution system.
 - Law enforcement and other departments to resolve problems that affect the distribution system.
- NVS distribution management group will communicate with the following:
 - Incident command logistics section chief to provide operational status reports about NVS assets.
 - Delivery locations to receive information and provide direction on NVS deliveries that must be made.
 - Law enforcement for security.
 - Responders in the field to monitor their needs.
- Inventory control team will communicate with the following:
 - NVS distribution management group to provide inventory status, including issues, replenishments, and possible shortages.
 - Responders on-site for ordering supplies.
- RSS facility group will communicate with the following:
 - NVS distribution management group to report operational status and problems.
 - Inventory control group to process orders for delivery.
 - NVS program technical liaison to coordinate receipt of additional NVS assets.
 - Staff working at the warehouse.

- Delivery group will communicate with the following:
 - NVS distribution management group to report operational status and problems.
 - Law enforcement for traffic control and en-route protection.
 - Public works for repair and fuel.
 - Drivers to report their locations, problems, and delivery status.
 - Delivery sites for delivery directions.
 - Staff members working on delivery.

Security Support

While terrorists are unlikely to remain after releasing a dangerous animal disease, you should consider how sabotage could affect your ability to provide NVS support to responders. You should have some means of protecting your distribution system's inventory, staff, facilities, and equipment. All distribution team members should have badges that provide appropriate access to distribution locations like the RSS facility and outbreak deliveries sites.

Receive, Sort, Store, and Stage NVS and Other Resources

This section discusses the desired characteristics of your RSS facility and the responsibilities you should assign to your RSS group.

RSS Facility Characteristics

In this subsection, we address three characteristics of the RSS facility: location, size, and security.

Location. We suggest you locate RSS facilities close to animal populations to minimize the time between responder requests for support and the provision of that support. Prudent planning for an agroterrorist attack dictates that you plan a secondary RSS facility you can use if you are unable to use your primary location. If an outbreak is widespread, you may need multiple facilities to support local responses.

To minimize the possibility of sabotage during an agroterror event, each RSS facility should have multiple access routes for the 53-foot tractor-trailers that we may use to deliver NVS assets. After we receive the order to deploy, we will contact the ICP to determine the location of your facility and confirm that our delivery vehicles will be able to reach it and offload to it.

Size of facility. The size of your RSS facility will depend on many factors including the following:

- The size of animal populations in a particular area. The response to outbreaks in larger populations will require larger quantities of supplies for depopulation, vaccination, decontamination, disinfection, and disposal.
- The species of affected animals. The response to outbreaks in larger animals may require larger equipment for handling, depopulation, disinfection, and disposal. Some of the equipment may be stored outside, which will reduce the amount of covered

storage you will need, but it increases the requirement for space adjacent to the RSS facility.

- The amount of supplies and equipment from state and local sources. States that hold large supplies of their own inventories will space to hold those supplies as well as NVS shipments.
- The scale and nature of an outbreak. A catastrophic, agroterrorist attack in multiple locations will need to process and distribute extensive supplies over an extended period of time. Initial shipments from the NVS and other sources may not be sufficient and may still be in the RSS facility when additional supplies arrive. Your RSS facility should be able to hold and process initial shipments, purchases from the commercial sector by the incident management team, and additional NVS shipments. If you decide to vaccinate, the RSS facility will need chilled storage to hold the vaccine and space to stage portable vaccine shipment containers that you will use to deliver the vaccine.

When laying out your RSS facility, plan aisles so you can access all of your material. Shipments from the NVS and other sources will typically come on pallets. The footprint of most pallets is 40" × 48." Many pallets will require materiel handling equipment, such as pallet jacks or forklifts, for offload and movement around the facility. Pallet jacks typically require 4' aisles, while forklifts require at least 6' aisles.

Listed below are numerous facts that will help you evaluate the above factors to determine the size of your RSS facility and its adjacent yard space:

- Our shipments currently occupy little space. Our push pack of PPE is eight pallets. Its foot print is 110 square feet. The average weight of a pallet is approximately 500 pounds. A push pack protects 10 responders changing 5 times per day for 10 days. We currently have 31 push packs.
- In the near future, we will have push packs capable of protecting 1,000 responders for 40 days. When funding allows, we will assemble response kits of animal handling equipment and other supplies for specific species. This approach will allow us to ship only what you need when you respond to an outbreak in a specific species.
- Our push pack does not include vaccine. If you decide to vaccinate, we will ship the vaccine separately along with diluent if it is needed. The size of the shipment will depend upon the amount of vaccine and diluent. The cold packs that we include in our shipment will maintain the vaccine at 2° to 7°C (35° to 45°F) for approximately 1 day. After that day, you will need some method to keep the vaccine at proper temperature while it is in storage and staging at the RSS facility, during transit to outbreak sites, and on site until you administer it.
- Appendix B provides detailed information on the items that we may deploy. We will update this appendix when we increase our deployment capabilities.
- Although we do not know all of the factors you should consider, we believe that an RSS facility with 6,000 square feet of covered space should be sufficient. You will need this space to

- Receive NVS, state, and local resources
- Store the resources temporarily until they're needed
- Stage deliveries to outbreak sites
- Hold empty pallets for future deliveries
- Provide space for personnel who manage the request, receipt, and delivery of NVS and other resources
- Your RSS facility should be large enough to allow collocation of all managers in the NVS distribution team to facilitate communications. If your NVS functional groups are separated, communications will be more difficult, increasing the chance of errors that could prevent proper support of responders.

In addition, we suggest your RSS facility have the following:

- Loading docks with hydraulic load and offload ramps.
- Approach areas that allow a tractor and 53-foot trailer to back easily into loading ramps.
- Facility and perimeter security to prevent entry of unauthorized personnel.
- Uninterruptible electrical power from an emergency generator.
- Space for and supplies of empty pallets (approximately 500 square feet).
- An unload dock area with approximately 600 square feet of obstacle-free space for movement of MHE into and out of trailers.
- An area in front of the docks that is at least 100 feet deep to allow our trucks with their 53-foot trailers to back up to the dock.
- If possible, multiple, pneumatic, or portable loading docks for faster offloading and loading of trucks and with fewer people. Warehouses without docks, but with doors at roughly the height of a trailer, may be able to use dock plates between the warehouse floor and the trailer bed for movement of containers to storage.
- MHE, including trained and certified operators:
 - Forklifts: The number of forklifts you need will depend on whether your warehouse has proper loading docks. Without proper docks, you will need two 3,000 to 5,000 pound capacity forklifts to receive shipments and two other forklifts to stage outgoing deliveries and load trucks. We do not recommend forklifts larger than 6,000 pounds. They are not efficient. If you anticipate staging large items adjacent to the facility in unpaved areas, your forklifts should be able to operate in rough terrain.
 - Pallet jacks: You should have as many as six pallet jacks, three to support picking material, one for quality assurance, and two for staging and loading and unloading shipments if forklifts are not available.
- Fuel for forklifts.

- Office equipment, including the following:
 - A computer and printer for inventory management, forms printing, and communicating, if e-mail is available. Basic software should include word processing, spreadsheet, database, local reporting and emergency management software and Internet access.
 - A facsimile machine if you intend to use fax for communications.
- Staff. We estimate that you will need a staff of 20 to run your RSS facility for an 8-hour shift. That staff should consist of the following:
 - Warehouse/safety manager—1
 - Inventory control—lead plus 1
 - Storage/picking—lead plus 8 (four teams of 2)
 - Quality control—lead plus 1
 - Shipping/receiving—lead plus 2
 - Floaters—2
 - Shift lead—1
- Conditions in your RSS facility should provide a productive working environment and keep NVS assets at the proper temperature and humidity. The RSS facility will need power for lights, computers, printers, radios, portable refrigeration units, repackaging, and other electrical equipment. If we ship vaccines, they will be packed in containers with cold packs that keep the vaccine at the proper temperature for approximately 1 day. After that time, you will need some method to keep the vaccine at proper temperature while in storage and staging at the RSS facility, during transit to outbreak sites, and while on-site until you administer it.
- Supplies. Operating an RSS facility will require the following supplies that you should either stock or have delivered:
 - Fuel for forklifts: Units that use propane will require a tank of fuel every 8 to 12 hours. Electric units will require battery replacement every 8 to 12 hours and a changing station to do the replacement. We do not recommend the use of gasoline-powered units because of their emissions in an enclosed facility. Check with your forklift providers for instructions and personal safety supplies for filling tanks and changing batteries.
 - Pallets: Your staging and delivery operations will require numerous wooden pallets. The RSS team will pick assets from pallets onto wooden pallets that hold material for a specific site and move the material to the staging area. There they will consolidate the picks onto pallets destined for specific locations and load the pallets onto delivery trucks. Delivery vehicles will leave pallets loaded with material at delivery sites. Drivers may not have time to return empty pallets to the RSS facility. We recommend that you establish a contingency contract for 40" × 48" oak pallets. The contract should call for delivery of 100 pallets to the RSS

facility and provide for more as you require them. While the RSS facility is in operation, someone should be responsible for ordering more pallets when your supply gets low. Never have fewer than 20 pallets on hand.

- **Stretch wrap:** Stretch wrap is similar to the cellophane covering on commercial products. It allows you to stack a wide variety of material onto a pallet and to hold it in place while in transit. Warehouse supply companies are good sources for pallet-wrapping stretch film. You should start with 10 rolls. You should also order a handle for manually wrapping a pallet if your RSS facility does not have an automated wrapping machine.
- **Triwall containers:** These containers may be a faster method for moving staged material than a wrapped pallet. They are triple walled, thick cardboard units that come with their own lids. They rest on a 40" × 48" pallet and are 30 inches high. Once a container is filled, its lid is taped on. Several triwall containers can be stacked on top of one another for maximum cube use of a delivery vehicle. Again, warehouse supply companies are a good source for these containers. Triwall containers will probably be delivered folded flat and require setup.
- **Cotton gloves:** Order enough cotton gloves with rubber grips to supply each RSS team member with at least one pair per shift.
- **Disposable ear plugs:** Order enough disposable ear plugs to supply each forklift operator with at least one fresh pair per shift.
- **First aid kit:** Order at least one kit with bandages, pain medication, and eye cleaner for each RSS facility.
- **Office supplies:** Order pens, pencils, paper, colored poster board (for signage), bills of lading, file folders, scissors, tape, staplers, staples, clipboards, and printer cartridges.

Security. You should protect your RSS facility because of the critical function it performs. Sabotage, maliciousness, and other acts could threaten your entire distribution operation. Listed below are several security-related actions you should consider:

- Install perimeter fences. Fences will keep unauthorized persons away from the site.
- Secure doors. Locked doors will prevent unauthorized entry.
- Provide multiple access. Each RSS facility should have multiple methods for personnel and vehicles to enter and exit that can be secured with gates or guards.

RSS Team Responsibilities during Outbreak Response

Activate the RSS Facility

The amount of effort required to activate your RSS facility to receive NVS assets, store them temporarily, and stage them for delivery will depend in part on the way the facility is used before an emergency. If it functions as a warehouse, it will typically have loading docks, MHE, and personnel support services. If not, activation of the facility will require the delivery of MHE and other items so it can process shipments from the NVS and other sources.

If the facility is unused prior to the emergency, activation should include the establishment of basic functions, such as light, heat, ventilation, electricity, phones, and personnel support services. If it is actively working as a warehouse, the goods stored in it should be moved aside or moved out along with all motor transport used for other purposes.

Each of these considerations applies equally to your secondary RSS facilities if circumstances prevent you from using your primary location.

Receive and Store NVS Assets

You should offload NVS shipments and those from other sources when they arrive at your RSS facility. The capabilities at your facility, such as loading docks and MHE, and the amount of material shipped will determine the time and staff you need. As material comes off of trucks, someone should count it and provide the count to the inventory management group for entry of the receipts into the system (electronic or manual) that you use to manage your inventory.

We recommend that you sort and position receipts by product type (such as keeping all PPE receipts together). A manifest on the side of each of our pallets will list its contents. Products that do not arrive on pallets should be placed on pallets so you can move them with MHE. The aisles between rows of pallets should be 72” to 96” wide so you can use a forklift to move an entire pallet to the staging area. Documents that identify the contents of a pallet should face outward into the aisle.

When planning your facility, you should remember that a large-scale event will probably involve multiple shipments from multiple sources. It is entirely possible that these shipments will arrive faster than you can store, stage, and deliver them. Your plan should anticipate an overflow of shipments and include items such as the following:

- Backup space for temporarily storing NVS shipments in the RSS facility:
 - Unloaded trailers (temperature controlled, if applicable) when space in the warehouse is not available
 - Tents (temperature controlled, if applicable)
 - Portable storage containers (temperature controlled, if applicable).
- Additional security if temporary storage is not in the secure RSS facility.
- Methods for moving stored items from a temporary location to the RSS facility.
- Additional MHE to offload, relocate, and distribute material at temporary sites.
- A semi-tractor to move trailers to the RSS facility unload dock if they are not dropped initially at the dock.

Ideally, NVS shipments that cannot be offloaded immediately into the RSS facility should be stored adjacent to the facility.

Deliver NVS Assets

When you have received and stored the NVS and other supplies, incident command will likely know what material needs to be delivered, how much, and where. It will provide that information to the inventory management group for creation of issue documents. Warehouse personnel will use the documents to pick supplies and to stage them by responder site for delivery. After the warehouse workers stage the material by site, they will inform the delivery group how many pallets it must deliver to each site so it can schedule the delivery vehicles. Later, the inventory management group will use records of issues by site to recover unused and reusable equipment that the NVS needs to use for future deployment.

Care of Inventory

Most supplies from the NVS and other sources will not require refrigeration. Vaccines and some diagnostic test kits are the exception—they need to be stored at 36° to 46°F. Some of our vaccines require diluent. The diluent does not require refrigeration, but it should not be frozen. A response to high pathogenic avian influenza will require shipments of antivirals that provide responders with a prophylactic against contracting the disease. You must keep the antivirals at controlled room temperatures (58°F to 86°F) to ensure their potency. Your RSS facility and delivery vehicles should be capable of maintaining the temperatures for the antivirals during very hot and very cold periods. Your sites and vehicles should have inexpensive thermometers or circular temperature chart recorders to monitor and ensure proper temperatures for the antivirals, vaccines, and other products that we may eventually provide.

Managing Inventory

A catastrophic event where NVS, state, and local supplies flow into an RSS facility will require a system to manage the inventory so that incident command knows what it has and when it must order more or request additional deployment of the NVS.

The system you use to manage inventory can be manual or automated, but you must use a system. Without one, you will not be able to keep track of your inventory or recover unused and reusable NVS assets. If you intend to automate the management of your inventory, you have several options including a computerized database or spreadsheet program.

Whatever system you use, it must track

- receipts;
- the source of the receipt, such as the NVS, state, and local;
- on-hand balances;
- issues; and
- outstanding orders (for replenishment).

The system should be operational when the first shipment arrives at your RSS facility to record what your RSS group physically receives. When you record the receipt and issue of an item, the system should adjust its on-hand balance. The system should also record the locations to which you deliver material and equipment so you can recover unused and reusable assets after an event.

Your inventory control group should have the following responsibilities:

- Recording the receipt, storage location, orders, and issues of all resources, including the assets that you ship to each outbreak site to enable the recovery of reusable NVS materiel and equipment.
- Processing requests for assets from responders and other locations.
- Tracking the type, quantity, location, and configuration (how the resources are packaged) that you have on hand.
- Ordering more assets when supplies run low and tracking the quantity, type, and configuration of the resources that are ordered.
- Knowing the address of all responders to whom you may ship the assets.
- Setting up an automated or manual inventory-management system prior to receipt of the first shipment from the NVS, state, or local sources.
- Entering the quantity, configuration, and source of each item received from records supplied by the RSS team after their physical receipt of a shipment.
- Issuing orders to the RSS team to pick specific items for staging and delivery to specific responders.
- Recording the locations to which all material and equipment are sent.
- Monitoring inventory levels and ordering more inventory when levels are low.
- Recovering NVS equipment, unused material, and reusable items after an event.

Delivering NVS and Other Resources

Your delivery network should be capable of moving large amounts of material and equipment to responders at multiple sites over potentially poor access roads for many days.

Planning Factors

Listed below are several factors you should consider when designing your network.

- The number and locations of potential outbreak sites to which you may have to deliver supplies.
- The distance of those locations from the RSS facility. The longer the distance, the more time trucks will spend driving to and from the locations; and thus, the more trucks you will need.
- The transportation resources the state may supply.
- The existence of local and state transportation resources, such as delivery vehicles, drivers, or helicopters.
- The speed with which a given amount of material moves to outbreak sites (a tractor-trailer will move a large amount of material slowly, while a helicopter will move a small amount quickly).

- The existence of adequate security to protect vehicles and drivers while en route and to escort them through congestion.

It is beyond the scope of this guide to explain how to optimize a network for the fastest delivery of material with a fixed amount of transportation resources. We recommend that you contact representatives from well-established trucking firms in your area to gain their insight and help in designing your delivery network. Their insight will reflect the following general principles of network design:

- Goods that flow through multiple levels of distribution will arrive slower than goods that flow through fewer levels.
- Multiple levels of distribution generally will require more people and equipment to operate than fewer levels.
- The more times a shipment is touched before delivery, the greater the chance that it will be delayed, damaged, lost, or stolen.

Transportation Requirements

Your preparations should anticipate the following requirements for various transportation modes:

- All modes
 - The ability to maintain NVS material at appropriate temperatures during transit to ensure its efficacy upon arrival.
 - Fuel, repair, and recovery services 24 hours a day for the duration of the emergency. To avoid time wasted returning to a government source of fuel, drivers should have a credit card for the purchase of fuel at any commercial location.
 - Two-way communication with delivery vehicles at all times.
- Truck
 - Full-sized pickups or larger vehicles.
 - Restraining straps to keep loads from shifting.
 - Tarps to protect loads in open-bed trucks from the weather.
 - Hydraulic lifts on the back of trucks to eliminate the need for a forklift or an unloading dock at delivery locations.
- Forklifts or cranes to load and offload material.

Transportation Resources

The scope of an event will affect the amount of transportation resources that you will need and the efficiency with which those transportation resources operate. In most cases, trucks will be your primary method of delivery. If you do not have enough trucks or drivers, the delivery of material and equipment to responders will be slowed.

Even with a sufficient number of trucks and drivers, traffic congestion may increase the time to deliver supplies. You should develop methods for controlling traffic so that your trucks can move freely.

Listed below are other federal, state, and local agencies that you should contact to identify vehicles, helicopters, drivers, fuel, maintenance, security, and communication capabilities for your delivery network:

- State and local departments of transportation for air, ground, rail, and water traffic management
- State and local and federal law-enforcement agencies for security (shipment protection and traffic control)
- State and local departments of public works for vehicles, drivers, fuel, and repair
- Other state and local departments that have fleets of vehicles and drivers, such as departments of parks and recreation or education.

Delivery Group Composition

Your NVS deliver group should consist of the following:

- vehicle drivers
- mechanics to keep vehicles running
- other personnel to fuel and recover broken vehicles
- dispatchers to assign deliveries to specific drivers and track the movement of vehicles to ensure they arrive at delivery points and return to the RSS facility as expected
- a supervisor to ensure the distribution team has adequate staff and support and that it operates effectively.

These personnel will work closely with members of the RSS and security groups.

NVS Distribution Team Actions Before an Event

Before an event, you should take the following actions:

- Test the recall of all team members to ensure you can contact them and that they will arrive promptly.
- Create maps that identify each delivery location, the best route to get there, and the exact point where to deliver material to minimize the amount of time drivers take to make deliveries. If you use helicopters, pilots will need charts to identify drop locations from the air.
- Maintain fresh batteries in all radios and test the radios to make sure they work.
- Perform radio checks between managers, drivers, delivery locations, dispatch, inventory control, law enforcement, supporting organizations, and your jurisdiction's EOC to confirm that your NVS distribution team will be able to communicate with

them. These communication checks should be one of the first actions that occur at the onset of an event.

- Badge drivers and identify vehicles so that they do not encounter problems from authorities as they deliver material. This action is particularly important if you use a military installation for any part of your NVS distribution system (such as a landing field or your RSS facility). Similarly, you should work with local transportation and law enforcement authorities to ensure they recognize your vehicles and drivers as part of the emergency response. Otherwise, your distribution team will waste valuable time at the onset of an emergency getting clearance and recognition for its vehicles and drivers.

Operational Information for Supporting an Event

During an emergency, your distribution team will require the following information to make deliveries:

- Locations of delivery sites
- Maps and charts to each location with routes marked that avoid poor roads and significant congestion
- How and with whom to communicate at each delivery location
- Transportation resources
 - Number of available trucks and drivers
 - Location of major road and bridge closures that may affect delivery routes
 - Locations of airports and the existence of any air-traffic control problems that may impair the use of aircraft
- Communications
 - Assigned radio frequencies for communications with vehicle dispatchers, delivery points, and security forces, which is critical for the smooth operation of your distribution network because of the problems that traffic congestion may produce
 - Problems with various communication capabilities, such as phone, fax, cell phone, or e-mail that may affect the use of those capabilities.

Dispatching Vehicles

Vehicle dispatch will be the command center for your distribution team. It should assign deliveries to specific drivers, monitor each driver's progress, and reassign deliveries based on problems that drivers encounter. Dispatch should have a manual or automated system to keep track of the following:

- Material and equipment staged at the RSS facility for delivery by customer
- Material and equipment in transit to outbreak sites including the location of the delivery vehicle
- Preferred routes

- Locations of problems, such as congestion, closed roads, and downed bridges, that may require the rerouting of vehicles
- Drivers who need repair, security, relief, or other support.

The least complicated dispatch system is a large wall chart that identifies all delivery locations and the preferred routes to those locations. Your dispatcher should indicate the location of each vehicle on that chart as it travels to each outbreak site with deliveries or returns to staging for additional pickups. The chart should show the location of all problems and help incoming dispatchers understand the status of the delivery system as they relieve outgoing dispatchers.

Appendix A

Abbreviations

APHIS	Animal and Plant Health Inspection Service
AVIC	Area Veterinarian in Charge
END	Exotic Newcastle Disease
EOC	Emergency operations center
FADD	Foreign animal disease diagnostician
FMD	Foot-and-Mouth Disease
HPAI	Highly Pathogenic Avian Influenza
HSPD-9	Homeland Security Presidential Directive-9
IC	Incident commander
ICAT	Incident Complexity Analysis Team
ICP	Incident command post
ICS	Incident command system
ICT	Incident command team
MHE	Material handling equipment
NIMS	National Incident Management System
NVS	National Veterinary Stockpile
PPE	Personal protective equipment
RSS	Receive, store, stage
RVF	Rift Valley Fever
SMI	Stockpile-managed inventory
SNS	Strategic National Stockpile
USDA	U.S. Department of Agriculture
VMI	Vendor-managed inventory

Appendix B

NVS Inventory

Avian Influenza Virus Vaccine, Subtype H5 or Subtype H7, Killed Virus Vaccines

Q. What refrigerated storage capacity should we plan for the vaccine?

A. Your specific requirements for refrigeration will depend on the size of local populations that you need to vaccinate and the number of facilities that hold those populations. Population size determines the number of doses you will need to store. The number of facilities drives the number of storage containers in your staging area prior to delivery.

Our manufacturers package their vaccine in 500 ml/1000 dose containers. One container of 1,000 doses is the minimum shipment size. Each container is about 4.5 inches tall by 3 inches in diameter and weighs slightly less than 1.2 pounds. The National Veterinary Services Laboratories (NVSL) will ship each container in a 16" x 10" x 10" TC-34 insulated shipping box with two 1-pound ice packs. Shipping weight is 4 pounds. Two containers of vaccine would also arrive in a TC-34 box. NVSL will use larger boxes to hold up to 20 containers, but it expects to limit the weight of a single box to less than 25 pounds for ease of handling.

When the vaccine arrives, you will need some method to keep it at 2° to 7°C (35° to 45°F) while it is in storage, staging, in transit, and on-site. The vaccine will stay at 2° to 7°C in its original shipment box with cold packs for approximately 1 day after arrival. Thereafter, you will need some method of keeping it chilled until it is administered. If you anticipate handling large amounts of vaccine, we recommend you consider renting a reefer van for each of the sites where you expect to receive and stage vaccine.

Q. Is diluent included in vaccine shipments?

A. Avian Influenza Vaccine, Killed Virus, is an adjuvanted, liquid ready-to-use vaccine; no diluent is required.

Q. Are needles or syringes included in the vaccine shipments?

A. No.

Q. What environmental conditions should the vaccine be kept at?

A. Vaccine must be stored at 2° to 7°C (35° to 45°F). Freezing or excessive or prolonged heat will destroy the vaccine. Vaccine containers should be protected from light or immersion in liquid. The oil-adjuvanted vaccine is viscous and difficult to administer at low temperature. Warm it to 18° to 30°C (65° to 85°F) immediately before use.

Q. How should I dispose of unused quantities of vaccine?

A. You should use the entire contents of a vaccine container immediately after it is opened. You should discard opened containers and residual contents immediately after use to prevent the inadvertent administration of contaminated or compromised vaccine. Disposal of the vaccine requires no special attention.

Q. Whom should I contact for information on vaccination protocols, such as how to handle complications or to dispose of some material?

A. For questions, concerns, or complications related to the use of this product, contact the Program Coordinator at the USDA-APHIS Center for Veterinary Biologics, 515-232-5785.

Avian Influenza, Fowl Pox Vaccine, H5 Subtype, Live Fowl Pox Vector

Q. Under what environmental conditions should I keep the vaccine?

A. You must store the vaccine at 2° to 7°C (35° to 45°F) until you administer it. Freezing or excessive or prolonged heat will destroy the vaccine. Cold packs in our shipping container will maintain the vaccine at 2° to 7°C for approximately 1 day. Thereafter, you will need some method to keep the vaccine at 2° to 7°C while it is in transit, staging, storage, and on-site. Once you rehydrate (dissolve) the vaccine with diluent, you must use it within 1 hour.

In addition to maintaining the vaccine at proper temperature, you should also prevent its exposure to light and its immersion in liquid.

Q. What refrigerated storage capacity should I plan for the vaccine?

A. Your specific requirements for refrigeration will depend largely on the size of local populations that you have to vaccinate.

The minimum quantity of vaccine we will ship is 1 million doses. We package the vaccine in 3ml vials. Each vial is 1.5 inches tall and 0.5 inches in diameter. A maximum of 50 vials will fit into a shipping carton that is 8" x 4" x 2" in size. Depending on antigen concentration (virus titer), each vial may contain 1,000, 2,000, or 4,000 doses. As a result, one shipping carton may contain 50,000 to 200,000 doses of vaccine. At the lowest concentration of antigen, 50 million doses will occupy approximately one cubic foot of storage.

Q. Does the vaccine require diluent?

A. Yes. The vaccine requires 200 ml of diluent per 1,000 doses.

Q. Does diluent come with the vaccine shipment?

A. Yes.

Q. What storage capacity should I plan for the diluent?

A. Your requirement for storage will depend on the size of local populations that you may need to vaccinate. We package diluent in translucent plastic IV soft bags that have an injection port and vary in size. The following table describes our potential shipments of diluent. (Note: the weight of a pallet that we ship will likely require MHE (such as a forklift or pallet jack) to offload and move the pallet.

Table B-1. Diluent Storage Information

	Configuration 1	Configuration 2	Configuration 3
Diluent bag size in ml ^a	200	400	800
Bags in a box	36	24	16
Boxes on a pallet (5 rows, 10 boxes per row)	50	50	50
Box size in inches	12 x 16 x 10	12 x 16 x 10	12 x 16 x 10
Approximate box weight in pounds	21	26	33
Pallet size in inches	40 x 48 x 54	40 x 48 x 54	40 x 48 x 54
Pallet weight in pounds	1,054	1,289	1,660
Vaccine doses each box of diluent will rehydrate	36,000	48,000	64,000
Vaccine doses each pallet of diluent will rehydrate	1.8 million	2.4 million	3.2 million

^a Diluent does not require refrigerated storage. You may store it under normal warehouse conditions.

Q. Are needles or syringes included in the vaccine shipment?

A. No.

Q. How should I dispose of unused vaccine?

A. You must burn or autoclave opened containers and residual contents prior to disposal.

Q. Whom should I contact for information on vaccination protocols, such as how to handle complications or to dispose of some material?

A. For questions, concerns, or complications related to the use of this product, contact the Program Coordinator at the USDA-APHIS Center for Veterinary Biologics, 515-232-5785.

Push Pack of Personal Protective Equipment

Q. What are the size and weight of your push pack?

A. Our push pack of PPE is currently eight pallets. Each pallet is 40” x 48” and approximately 50” tall. The average weight of a pallet is approximately 500 pounds. We pack the pallet using a standard protocol so that each pallet in each of our push packs contains the same items. A manifest on the outside of each pallet describes its contents. We pack the pallet so that it is

protected against the weather while in transit. When its weather proof cap and stretch wrap is removed at destination, the pallet’s contents must be protected against the weather.

Q. What does a push pack contain?

A. The following table lists the contents of a push pack.

Table B-2. Push Pack Contents

Item description	Material
Impermeable apron	Polyethylene
Disposable glove, medium	Nitrile
Disposable glove, large	Nitrile
Disposable glove, X-large	Nitrile
Purell 4.25 oz	Plastic Flip-Top Btl
Trash bag, bio hazard 50 gallon	Polyethylene
Gas cans, 5 gallon	Polyethylene
Portable pressure washer 3600PSI/13 HP	3600 PSI 13 HP
Car wash brush 20"	Soft bristles
Bottled water 1 liter	
Boot/shoe scraper	
EMS shears, 7-1/4"	
ChemTape 2"	
PAPR	Powered air purifying respirator
NiCAD battery/PAPR	
Canister filter/PAPR	
Battery charger/PAPR	
Tychem suits and boot covers	Polypropylene coated
Tychem C coveralls, small	
Tychem C coveralls, medium	
Tychem C coveralls, large	
Tychem C coveralls, X-large	
Tychem C boot covers L-XL	
Virkonn S, disinfectant	
Wading pools	Preformed plastic
2 gallon sprayer	Plastic
5 gallon bucket w/cover	Plastic
Powdered gatorade	
Tychem C coveralls XXL	
Container, potable water	
Caution tape Y&B	
Virkon test strips	

Appendix C

National Veterinary Stockpile Director's Contact Information

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