



Standard Operating Procedure: Deceased Horses at U.S. Ports of Entry

Introduction

This protocol describes the procedures to address the disposition of horses shipped to or through the United States by air that are 1) dead on arrival at a U.S. port of entry, 2) must be euthanized on arrival, or 3) die or must be euthanized before completing import quarantine, as well as disposition of other horses in the shipment. APHIS developed these procedures to prevent the introduction of foreign animal diseases (FADs) and other reportable diseases that can impact U.S. equine populations. These are collectively termed “equine diseases of concern on import” as further detailed in the Appendix.

A limited number of equine diseases are known to progress to death of the horse quickly (e.g., within typical transport timeframes) or to cause sudden death without prior symptoms. On first look, the cause of death may appear to be traumatic injury; however, the potential for underlying disease cannot be ruled out on visual examination. For example, disease manifesting as distress or neurologic deficits could cause the horse to behave in such a way as to predispose to trauma. As a result, and also due to the severe consequences of introducing equine diseases of concern on import into the United States, APHIS considers all deceased horses at U.S. ports of entry as potentially affected—irrespective of presentation or cause of death—leaving disposition of the cohort animals dependent on testing and monitoring during import quarantine.

APHIS regulations require refusal of all horses in the same shipment with a deceased horse, unless it can be determined that death was not related to foreign animal disease (9 CFR 93.306). APHIS may also refuse cohort horses that are non-negative on routine import testing, non-negative on other tests required by APHIS, or exhibiting evidence of communicable disease during import quarantine (9 CFR 93.308).

Regulations

9 CFR 93.306
9 CFR 93.301
9 CFR 93.308
9 CFR 93.314
9 CFR 93.324

Definitions

Category II Accredited Veterinarian (AV): A veterinarian authorized by APHIS/VS to perform accredited duties described in 9 CFR 161.1(g)(2) on both Category I and Category II animals; all livestock, including equines, are considered Category II animals.

Cohort: All horses arriving to the U.S. port of entry on the same conveyance (plane, truck, trailer, etc.) and/or housed together for the purpose of import quarantine and testing.



Deceased horse: A horse that is dead on arrival at a U.S. port of entry or that dies or must be euthanized before completing import quarantine.

Equine diseases of concern on import: Foreign animal diseases (FADs) routinely regulated by APHIS in imported horses and diseases designated on the U.S. [National List of Reportable Animal Diseases \(NLRAD\)](#) as notifiable.

Importer of record: Individual to whom APHIS issued the import permit.

1. Procedures for Horses Importing by Air

A. Horses Dying on Arrival

1. If a horse is dying on arrival at the U.S. port of entry and must be euthanized, an attempt may be made to collect blood for testing for diseases routinely regulated by APHIS during import quarantine (dourine, glanders, equine infectious anemia (EIA), and piroplasmiasis) if doing so does not impose a safety risk to APHIS personnel, airport personnel, or the remaining animals in the shipment. At no time will euthanasia of the horse be delayed to collect blood samples.
 - a. Blood must be collected by a Category II Accredited Veterinarian (AV) under APHIS oversight or directly by an APHIS Veterinary Medical Officer.
 - b. Samples must be collected prior to death or administration of any treatment.
 - c. The importer of record must arrange the AV and is responsible for associated costs.
 - d. The USDA APHIS National Veterinary Services Laboratories (NVSL) will examine the blood samples and determine whether it is suitable for import testing.
2. The cohort horses must be transferred directly to the import quarantine facility in accordance with standard port of entry operating procedures. See Section 1.I for cohort disposition.
3. The importer of record, in collaboration with APHIS, is responsible for arranging the transport and disposition of the carcass in accordance with Sections 1.F–H.

B. Horses Dead on Arrival

1. No attempt will be made to take blood samples for import testing from deceased horses.
2. The importer of record, in collaboration with APHIS, must ensure that the carcass is immediately removed from the jetstall/airstall into a biosecure conveyance for transport directly to necropsy and/or incineration in accordance with Sections 1.F–H.
3. The cohort horses must be transferred directly to the import quarantine facility in accordance with standard port of entry operating procedures. See Section 1.I for cohort disposition.
4. The importer of record, in collaboration with APHIS, is responsible for arranging the transport and disposition of the carcass in accordance with Sections 1.F–H.

C. Horses That Die During Transport to Import Quarantine

1. If a horse dies during transport to an approved import quarantine facility, no attempt will be made to collect blood for testing for equine diseases of concern on import. **Note:** See Section 1.A if a horse is dying on arrival to the quarantine facility.



2. Any other horses on the conveyance will be offloaded at the import quarantine facility. See Section 1.I for cohort disposition.
3. The importer of record, in collaboration with APHIS, is responsible for arranging transport of the carcass directly to necropsy and/or incineration in accordance with Sections 1.F–H.

D. Horses that Die During Import Quarantine

1. The import quarantine operator must immediately report any death or suspected illness of horses in quarantine to the Port Veterinarian in Charge (Port VIC) (9 CFR 93.308(c)(3)). See Section 1.E.
2. The carcass must be transported in a biosecure manner as soon as possible to an APHIS-approved necropsy or incineration facility. **Note:** Equine import quarantine facilities must have provisions in place for such transport and either have a suitable necropsy facility onsite or specify an alternate APHIS-approved facility as a condition for APHIS approval to operate (9 CFR 93.308(c)(3)).
3. The importer of record, in collaboration with APHIS, is responsible for arranging the transport and disposition of the carcass in accordance with Sections 1.F–H.

E. Notification of Deceased or Dying Horses

1. The Port VIC must immediately notify APHIS VS Live Animal Imports (LAI) (LAIPolicy@usda.gov), the APHIS VS Equine Health Team, the APHIS VS Area Veterinarian in Charge (AVIC), and the State Animal Health Official (SAHO).
2. Initial notification should include information on the deceased horse and cohorts (including all import documentation related to the shipment), a summary of the situation, tentative diagnosis by the AV, location of the necropsy and/or disposal facility, and expected date to receive necropsy results (if applicable).
3. APHIS LAI will notify other APHIS VS units, the Centers for Disease Control and Prevention (CDC), other agencies, and trading partners as necessary.
4. The Port VIC will keep APHIS VS LAI, the AVIC, the Equine Health Team, and the SAHO apprised of all diagnostic testing results for the deceased horse and cohorts.

F. Disposition of the Deceased Horse

1. APHIS considers all horses presented at the port of entry as potentially affected by a FAD. This includes the carcasses of deceased horses, irrespective of the presentation or description of the cause of death/status regarding equine diseases of concern on import.
2. The deceased horse may undergo necropsy *provided that* the carcass can be transported in a biosecure manner (see Section 1.G) and a necropsy facility of sufficient biosafety level (BSL) is available (see Section 1.H).
3. Carcasses of deceased horses must be disposed of in a biosecure manner as determined by the Administrator to prevent spread of disease (9 CFR 93.308(c)(4)(v)(F). Incineration is the preferred method of disposal; APHIS will consider other options on a case by case basis.

G. Transportation of Deceased Horses

1. The importer of record, in consultation with APHIS and the import quarantine operator, is responsible for arranging transport of the carcass of the deceased horse in a biosecure



manner to the necropsy and/or incineration facility. Transport must commence within 4 hours of discovery of the horse's death.

2. The transport must occur under APHIS seal or direct APHIS supervision.
3. **APHIS must approve all arrangements for transport, necropsy (if applicable), and disposal of the deceased horse before the carcass is removed from the import quarantine facility.**
4. The conveyance used must be cleaned and disinfected with an APHIS-approved disinfectant under direct APHIS supervision.
5. All waste and refuse arriving with the horses must be disposed of as [regulated garbage](#).

H. Necropsy

1. APHIS does not require necropsy of deceased horses but will support necropsy if APHIS determines that it can be accomplished without undue risk of introducing or disseminating a communicable disease of horses. Guidelines for determining the required minimum BSL of the necropsy facility are described below in point 1.H.5.a–c. If a necropsy is conducted, APHIS may use the results to inform testing and release of the cohort animals as described in Section 1.I.
2. The importer of record is responsible for working with APHIS and contracting an AV to arrange transport, necropsy, and disposal of the deceased horse. **APHIS must approve all arrangements prior to implementation.**
3. The AV must contact the necropsy facility to schedule the necropsy, complete all necessary request forms, and arrange payment for services.
 - a. If bloodwork was submitted for equine diseases of concern on import, the NVSL accession number must be included on the necropsy request form.
 - b. Submission forms must include the Port VIC and LAIPolicy@usda.gov as recipients of the results.
4. Necropsy would optimally occur at the facility designated by the equine import quarantine facility specified on the import permit.
 - a. The Port VIC, in consultation with LAI, may determine that the necropsy must be conducted under higher BSL conditions than afforded by the specified facility (see Section 1.H.5).
 - b. In this instance, the necropsy may be conducted at an alternate National Animal Health Laboratory Network ([NAHLN](#)) facility or a laboratory capable of performing necropsies under the appropriate BSL and pre-approved by APHIS for this purpose, whichever is geographically closer.
 - c. Necropsies not performed at a NAHLN facility must be performed by a veterinarian board-certified by the American College of Veterinary Pathologists (ACVP).
5. The minimum BSL required for necropsy is based on the animal health status of the originating or transited countries. Necropsy under BSL conditions less than those described in this section is prohibited.
 - a. Necropsy of deceased horses originating from or transiting countries in which Hendra or Nipah viruses or African Horse Sickness (AHS) have been reported (see the Appendix) must be performed at a **BSL-4 facility**.



- b. Necropsy of deceased horses that did not originate from or transit countries affected by Hendra, Nipah, or AHS and that have **not tested negative for glanders** must be performed at a **minimum BSL-3 facility**.
- c. Necropsy on deceased horses that did not originate from or transit countries affected by Hendra, Nipah, or AHS, and that have **tested negative for glanders** may be performed at a **minimum BSL-2 facility**.
- 6. If a necropsy facility of sufficient BSL is not available, necropsy is prohibited, and the importer of record must arrange for the carcass to be disposed of in a biosecure manner as determined by the Administrator to prevent spread of disease (9 CFR 93.308(c)(4)(v)(F). Incineration is the preferred method of disposal. If the necropsy facility does not have the ability to incinerate the carcass, APHIS may consider other options on a case by case basis.
- 7. The importer of record must arrange for the carcass and all its parts to be transported in a biosecure manner under direct APHIS oversight (see Section 1.G).

I. Disposition of Cohort Horses

- 1. General Provisions
 - a. All horses that arrive to the U.S. port of entry on the same conveyance and/or are housed together for the purpose of import quarantine and testing are considered cohorts.
 - b. In general, disposition of the cohort horses is determined by the animal health status of the country of origin and transited countries, whether the deceased horse was tested for APHIS-regulated diseases specified in current [Veterinary Services Guidance 13407 Testing of Horses During Import Quarantine](#) (VSG 13407), and monitoring / testing during import quarantine.
 - c. Disposition of the cohort horses is not influenced by necropsy results unless there is clear evidence of infection with an equine disease of concern on import that necessitates additional testing of the cohort animals or refusal of the shipment.
 - d. APHIS will **refuse entry of the entire shipment (all cohort horses)** if the following diseases are diagnosed or suspected on necropsy of the deceased animal or detected in a cohort animal: AHS, EIA, Hendra virus, Nipah virus, Venezuelan equine encephalitis (VEE) and emerging diseases of concern.
 - e. APHIS will **refuse entry of individual cohort horses** classified as non-negative for dourine, equine piroplasmiasis, glanders, Japanese encephalitis, surra, leishmania, and other diseases as determined by LAI, PS, and EHT. Cohort horses classified as negative to the disease of concern may be released from import quarantine if they satisfy all other import requirements.
 - f. APHIS may **conditionally release shipments** with one or more cohort horse(s) classified as non-negative for the following diseases, after treatment and clinical recovery of the affected horse(s), and with notification of the destination SAHO: eastern equine encephalitis, equine rhinopneumonitis/equine herpesvirus-1 myeloencephalopathy, screwworm, West Nile virus, western equine encephalitis, Japanese encephalitis, and other diseases as determined by the APHIS evaluation



team. APHIS or the SAHO may require follow-up examination(s), testing, and/or monitoring of the cohort horse(s) after import quarantine release.

- g. APHIS will **refuse entry of all cohort horses** if an importer of record elects to remove one or more cohort horses from import quarantine (re-export or euthanize) before final determination on the disposition of the cohort.
- h. The importer(s) of record are responsible for arranging re-export or euthanasia of refused cohort horses within ten (10) calendar days of refusal. Cohort horses may not re-present for import into the United States within 60 days of refusal.

2. Quarantine

- a. Cohorts of deceased horses that **originated from or transited a country affected with AHS** will be held in quarantine for a minimum of 60 days from the last exposure to the deceased horse. **Note:** Shipments originating from or transiting a country that APHIS considers AHS-affected may only import through the New York Animal Import Center.
- b. Cohorts of deceased horses that did not originate from or transit a country affected with AHS may be eligible for release from import quarantine once they meet all standard import testing and monitoring timeframes if the **deceased horse tested negative for dourine, glanders, EIA, and piroplasmiasis**.
- c. **All other cohorts** of deceased horses will be held in import quarantine for a minimum of 14 days from their last exposure to the deceased horse, tested as per Section 1.I.4, and monitored as per Section 1.I.5. Even if death is determined to be from direct trauma or natural causes, cohorts must undergo import quarantine, testing, and monitoring since the disease status of the deceased horse—and therefore the exposure status of the cohorts—is unknown.
- d. In the rare instance where one or more cohort horses are released prior to death of a cohort horse in import quarantine (or a referral hospital):
 - i. An APHIS evaluation team will determine if follow-up action is necessary.
 - ii. If so, APHIS will contact the SAHO(s) of the destination State(s) and request that the cohort horses be held at their current location for a minimum of 14 days from their last exposure to the deceased horse, tested as per Section 1.I.4, and monitored according to a plan established by the Port VIC in collaboration with the AVIC and SAHO.
 - iii. Samples will be collected by an AV under APHIS oversight or directly by an APHIS employee and submitted by APHIS to the NVSL for testing.
- e. Cohort horses requiring extended or extensive medical care may finish out their quarantine period at an approved clinic.

3. Diagnostic Testing

- a. Dourine, EIA, glanders, and equine piroplasmiasis—cohort horses will be subject to import testing for these diseases, as per current [VSG 13407](#). Horses that are non-negative on initial testing will be dispositioned/retested as per current [VSG 13407](#).
 - i. If the deceased horse was tested for these diseases and classified as negative, retesting of the cohort horses for these diseases and subsequent dispositioning will occur in accordance with current [VSG 13407](#).



U.S. DEPARTMENT OF AGRICULTURE
Animal and Plant Health Inspection Service
Veterinary Services

- ii. If the deceased horse was not tested for these diseases, the cohorts will be retested for these diseases at 14 days.
 1. If all cohort animals are classified as negative for these diseases based on the test results, the shipment may be released once the horses meet all other import requirements.
 2. Shipments with animal(s) that are non-negative for one of these diseases on the 14-day retest will be refused.
 3. **Note:** Testing for dourine will also detect horses infected with surra.
 - b. VEE—Horses that originated from or transited a country APHIS considers affected with VEE that are febrile on two consecutive temperature checks are subject to VEE testing.
 - c. AHS—Cohort horses of deceased equines that originated from or transited a region that APHIS considers affected with AHS will be tested for AHS by polymerase chain reaction (PCR) on a whole blood sample after day 45 of import quarantine.
 - d. Other diseases—APHIS may require additional testing to ensure that the cohort horses are free of equine diseases of concern on import (9 CFR 93.308(a)(4) and 93.308(c)(3)). Such testing should be informed by necropsy findings (if available), clinical signs, and the origin and transit countries of the shipment.
4. Monitoring
- a. VS personnel will visually examine and take the temperature of all cohort horses during import quarantine, as outlined in current [Veterinary Services Guidance 13424 Procedures for the Import of Equines into the United States and Approved Quarantine Facilities](#).
 - b. For sick horses requiring veterinary attention that cannot be provided at the import quarantine facility, APHIS will follow *APHIS VS Standard Operating Procedures: Management of Sick Horses under Federal Import Quarantine* for referral to an approved veterinary clinic.
 - c. If clinical signs of an equine disease of concern on import are observed and/or a sick cohort horse is referred to an approved clinic during import quarantine, the Port VIC will notify APHIS VS LAI at LAIPolicy@usda.gov.

J. Costs

1. Each importer of record is responsible for all costs associated with the attempted import, independent of whether a horse is alive or deceased.
2. All APHIS services are subject to User Fees pursuant to [9 CFR130](#) (see also [Veterinary Services Import/Export User Fees](#)), charged to the importer of record.

2. Procedures for Horses Importing by Land

A. United States/Canada Border Ports

1. APHIS does not require import quarantine for horses importing from Canada by land.
2. Shipments arriving at a U.S.–Canada border port with a deceased horse will be refused entry (deceased horse and cohort horses).
3. Cohorts of deceased horses may not re-present for import for at least 60 days after refusal.



B. United States/Mexico Border Ports

1. APHIS requires import quarantine for horses from Mexico importing by land. Quarantine occurs at APHIS-approved facilities associated with border ports of entry. Approved facilities may be on the United States or Mexican side of the border.
2. APHIS considers shipments containing a deceased horse that arrive at a United States–Mexico land border port *after release* from an APHIS approved equine import quarantine facility in Mexico to have met APHIS import quarantine requirements. These shipments may enter the United States with disposition of the carcass in accordance with State requirements.
3. Shipments containing a deceased horse that arrive at a U.S.–Mexico land border port that *have not* completed import quarantine at an APHIS-approved equine import quarantine facility in Mexico (i.e., entering to quarantine on the U.S. side) will be refused entry. Cohorts of deceased horses may not re-present for import for at least 60 days after refusal.
4. APHIS will disposition horses that die during import quarantine and their cohorts in accordance with Sections 1.D–H, with the importer(s) of record responsible for all costs, as per Section 1.J, except that:
 - a. APHIS does not regulate the conditions for transport and necropsy of deceased horses or carcass disposition in Mexico; and
 - b. APHIS will not consider the results of necropsies or diagnostic testing conducted outside of the United States when determining disposition of the cohort horses.

3. Procedures for Horses Transiting by Air

1. APHIS permits horses to transit through a U.S. port of entry enroute from one country to another (i.e., third country transit), under certain health conditions and APHIS oversight while the shipment is in the United States.
2. APHIS will remove deceased horses from transit shipments if required by the airline and doing so does not impose a safety risk to APHIS personnel, airport personnel, or the remaining animals in the shipment.
3. The importer of record, in collaboration with APHIS, is responsible for arranging the transport and disposition of the carcass in accordance with Sections 1.F–H.

Appendix—Equine Communicable Diseases of Concern on Import

APHIS regulates against the introduction of equine FADs via (1) certification by the exporting country that the horses have not been exposed to certain FADs pre-export (9 CFR 93.314(a)(6)), and (2) mandatory testing and/or monitoring for specific FADs during import quarantine (9 CFR 93.301, 93.308(a)(1-4), and 93.324). APHIS further regulates against introduction of “communicable diseases” of horses by requiring inspection of the horses in the exporting country and certification that they show no evidence of communicable disease ((9 CFR 93.314(a)(2)) and ad hoc testing, inspection, disinfection, and/or precautionary treatment during import quarantine as necessary to determine freedom from communicable diseases (9 CFR 93.308(a)(4) and 93.308(c)(3)). APHIS defines “communicable diseases” in this context as those specified in the regulations as well as those considered notifiable on the U.S. [National List of Reportable Animal](#)



[Diseases \(NLRAD\)](#) (i.e., emergency, emerging disease, and regulated disease incidents that are immediately reportable by Animal Health Professionals). Several of these diseases may cause sudden death.

Communicable diseases subject to mandatory testing and/or monitoring in import quarantine:

- African horse sickness (AHS)*[±]
- Contagious equine metritis (CEM)
- Dourine^δ
- Equine piroplasmiasis (EP)^δ
- Equine infectious anemia (EIA)[±]
- Glanders^δ
- Screwworm
- Venezuelan equine encephalitis (VEE)^δ

Other communicable diseases requiring certification of no pre-export exposure:

- Epizootic lymphangitis
- Surra^δ
- Ulcerative lymphangitis
- Vesicular stomatitis

Other communicable diseases notifiable according to NLRAD, including:

- Eastern equine encephalomyelitis (EEE)
- Equine rhinopneumonitis/equine herpesvirus-1 myeloencephalopathy (EHV1-EHM)
- [Hendra](#)^{¥±}
- Japanese encephalitis^δ
- [Nipah virus](#)^{§±}
- Western equine encephalitis (WEE)
- West Nile virus (WNV)
- Other emerging diseases

*AHS-affected countries: The continent of Africa (except for Morocco), Malaysia, Oman, Thailand, and Yemen (see also [APHIS Animal Health Status of Regions](#) webpage)

[±]Entire shipment refused entry if detected

^δNon-negative horse refused entry

[¥]Hendra virus has been reported in Australia (contact LAIPolicy@usda.gov to confirm distribution)

[§]Nipah virus has been reported in Bangladesh, India, Malaysia, and the Philippines (contact LAIPolicy@usda.gov to confirm distribution)