Carcass Management

Last Modified:

The purpose of this page is to guide you through carcass management options for emergency planning or response purposes. The response goal for waste management is to properly dispose of contaminated and potentially contaminated materials, including animal carcasses, as soon as possible while containing disease pathogens, protecting the environment, ensuring stakeholder acceptance, and maximizing cost effectiveness.

We offer tools and resources to develop strategies for action plans and response, training and exercise for responders, and science-based information to make informed decisions before and during emergency response. These materials are intended to help with emergency planning and response phases through incremental steps of an incident. There are no simple solutions in response; often multiple strategies may be necessary.

Incident Response–First Steps

Effective carcass management takes planning. Below is step-by-step guidance and tools to assist you in the planning process.

Step 1: Assess the Situation

A. The first step in carcass management is to assess the situation. Identify the types and quantities of animals involved, their average weight, and reason for their illness. You'll also need to consider the number and capacity of roll-off dumpsters available; distances to landfills, rendering, and incineration units; and the space available for compost or burial.

Use the Options, Time, and Cost Calculator (2.21 MB) by entering information in the blue boxes at the top of the tool. The calculator provides a comparison of onsite and offsite disposal options, including the time involved to dispose of carcasses and relative costs. It will help you make quick, informed decisions for planning.

B. Locating a specific premises can easily be done by clicking on the Routing Map. Rendering and incineration facilities, landfills, and State environmental offices will be shown in relation to the premises. Use the measuring tool (ruler icon in the upper right corner) to find the distance to a particular disposal facility. Click on the routing icon to obtain driving instructions for convenience and planning purposes.

Options, Time, and Cost Calculator

Emergency Carcass Management Desk Reference Guide

Step 2: Draft Carcass Management Plan

A. The second step is to draft a Carcass Management Plan. Use the results from Step 1 and the **checklists below.** The calculator in step 1 will identify carcass management options. Then, the checklists ask questions to help you identify the resources you have for each option. Enter the resulting information in the Site-Specific Carcass Management Plan Template (69.29 KB).

Note: Although the calculator includes an option for above-ground burial (referred to elsewhere as "shallow burial with carbon"), there is no additional checklist or planning information for this option; the technology supporting above-ground burials is not proven for all diseases and, if used, must have State approval. View this guidance document (736.36 KB) to learn more.

B. For those options that are feasible, decide how you will implement them. Use the **planning guides below** to estimate needed materials, supplies, and equipment. Enter this information in the Site-Specific Carcass Management Plan Template (69.29 KB).

Indoor Composting

Checklist (15.11 MB) Planning Guide (15.11 MB)

Outdoor Composting

Checklist (15.11 MB) Planning Guide (191.94 KB)

Open Air Burning

Checklist (15.11 MB) Planning Guide (191.94 KB)

Onsite Burial

Checklist (15.11 MB) Planning Guide (191.94 KB)

Mobile Technologies

Checklist (15.11 MB) Planning Guide (191.94 KB)

Landfills

Checklist (15.11 MB) Planning Guide (191.94 KB)

Rendering Plants

Checklist (15.11 MB) Planning Guide (191.94 KB)

Incinerators

Checklist (15.11 MB) Planning Guide (191.94 KB)

Step 3: Review Your Plan With State Officials

The third step is to coordinate with local and State environmental officials. Once you have completed steps 1 and 2 and have a draft plan, discuss the plan with

your State agriculture and environmental officials and make any changes needed to gain their written approval. Use the link below to identify your State's department of agriculture.

The Site-Specific Carcass Management Plan Template (69.29 KB) includes blank approval signature lines at the end for use if desired.

State Departments of Agriculture/Environmental Agencies

- Select a State - ▼

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Carcass Management Contacts

Have Questions?

Please email robert.a.miknis@usda.gov and jose.gallegos@usda.gov for any questions or comments.

Planning and Training

This section offers background planning documents, training modules, and other resources to help you create a carcass management plan.

Expand All

Creating Your Carcass Management Plan

- FAD PReP Disposal Standard Operating Procedures
- State planning templates (42.22 KB)
- Site-Specific Carcass Management Plan Template (69.29 KB)

Background Planning Documents

View the guidelines document for guidance on disposal principles in an animal health emergency. For disease-specific information, view the chapters on depopulation and disposal in the response plans on the pages listed below.

- FAD PReP NAHEMS Guidelines: Disposal (2.88 MB)
- African Swine Fever Emergency Response
- Classical Swine Fever Response Plan (6.91 MB)
- Foot-and-Mouth Disease Emergency Response
- Highly Pathogenic Avian Influenza Emergency Response
- Virulent Newcastle Disease Emergency Response

Carcass Management Training

- Orientation (700.88 KB)
- Emergency Management Tools (1.04 MB)
- Health, Safety, and Personal Protective Equipment (827.31 KB)
- Biosecurity (1.06 MB)
- Secure Transport (623.97 KB)
- Offsite Permitted Landfill (884.28 KB)
- Rendering (715.01 KB)
- Offsite Incineration (539.05 KB)
- Composting (957.46 KB)
- Open Burning (621.17 KB)
- Onsite Burial (635.95 KB)
- Mobile Treatment Technologies (701.79 KB)

Related Training Materials and Resources

- Veterinary Services National Training and Exercise Program
- Carcass Management Video Gallery
- Train to Contain Biosecurity Training (335.43 KB)

ESF #11-Specific Training

- **Training Requirements for ESF #11 Desk Officers:**
  - ICS 100 Introduction to Incident Command
  - IS-200.b ICS for Single Resources and Initial Action Incidents (this is a substitute for ICS-200)
  - ESF #11 Desk Officer Training (CLASSROOM—contact your ESF #11 Coordinator for scheduling)
  - IS-811 ESF #11 Overview
- **Optional for Desk Officers *(required for agency coordinators except ICS 300 & 400):***
  - IS-700.A National Incident Management System
  - IS-800.B National Response Framework
  - IS-293 Mission Assignment Overview
  - ICS 300 Intermediate ICS for Expanding Incidents; sign up in Aglearn
  - ICS 400 Advanced ICS for Command and General Staff; sign up in Aglearn

External Resources

- Introduction to the Incident Command System, ICS 100 (Federal Emergency Management Agency)
- Planning for Natural Disaster Debris (U.S. Environmental Protection Agency)
- Poultry Biosecurity (Iowa State University)
- Carcass Disposal: A Comprehensive Review (Kansas State University)

Tools and Resources

This section offers tools and resources to help with carcass disposal.

Expand All

Disposal Tools

- ASF Response: Depopulation, Disposal, and Decontamination Guidance (3D Summary Guide) (241.92 KB)
- Options, Time, and Cost Calculator (2.21 MB)
- Agriculture Security Module (303.16 KB)

- Livestock Mortality Composting Protocol (2.34 MB)
- HPAI Mortality Composting Protocol (1.75 MB)
- Web Soil Survey (USDA Natural Resources Conservation Service)
- Incident Waste Decision Support Tool (I-WASTE DST) (U.S. Environmental Protection Agency)
    - I-WASTE DST Training (use Adobe Flash Player to view)
- Composting & Environmental Stewardship (Iowa State University, Iowa Pork Industry Center)
- Carcass Disposal Information (Veterinary Compliance Assistance)

Composting Documents

The following documents were developed for a highly pathogenic avian influenza (HPAI) incident, but can be applied in response to other diseases as well.

- Mortality Composting Protocol for Avian Influenza Infected Flocks (1.75 MB) (also in Spanish (1.77 MB))
- Overview of the Composting Process (185.1 KB) (also in Spanish (164.71 KB))
- Pre-Compost Windrows for Avian Influenza-Infected Flocks (186.37 KB) (also in Spanish (245.51 KB))
- Carbon Sources for Windrow Construction (261.59 KB) (also in Spanish (401.88 KB))
    - Finding Carbon Source: What To Say When Calling Potential Vendors (159.17 KB)
- Windrow Construction Protocol for Avian Influenza-Infected Flocks (252.4 KB) (also in Spanish (361.1 KB))
- Temperature Monitoring Protocol of Avian Influenza-Infected Flocks (251.86 KB) (also in Spanish (312.2 KB))
    - Calibration of Analog Thermometers (524.61 KB) (also in Spanish (409.34 KB))
- Initial Compost Windrow Construction Checklist for Avian Influenza-Infected Flocks (211.03 KB)
- Phase 1 Windrow Evaluation Checklist Days 1–14 for Avian Influenza-Infected Flocks (255.01 KB)
- Phase 2 Windrow Evaluation Checklist Days 15-28 for Avian Influenza-Infected Flocks (244.53 KB)

- Initial Site or Farm Assessment and Compost Plan for Avian Influenza-Infected Flocks (407.42 KB)
- Cleaning and Disinfection Basics: Virus Elimination (233.01 KB) (also in Spanish (233.01 KB))

Routing and Transportation

- Routing Map
- Risk Assessment for the Transmission of Foot-and-Mouth Disease via Movement of Swine and Cattle Carcasses from FMD-Infected Premises to a Disposal Site (University of Minnesota)

Coordination

Interagency Coordination

- Stafford Act Tiered Response
- Carcass Management: Authority and Roles Table (21.34 KB)
- Emergency Support Function #11—Agriculture and Natural Resources Strategic Plan, 2016–2020 (367.23 KB)

Coordination

- Landfill Disposal Guidance: Recommended Waste Disposal Practices for Landfills (15.11 MB)
- In-House Composting: Overview of In-House Composting Process (15.11 MB)
- Secure Transport: Loading Procedures (15.11 MB)

Disposal and Related Regulations

- USDA Regulations—Carcass Disposal
- U.S. Environmental Protection Agency Requirements

- DOT: Clarification of 49 CFR Parts 171-180
- Occupational Safety and Health (OSHA) Requirements
    - OSHA Respirator Protection eTool
    - OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER)

Emergency Carcass Management Desk Reference Guide

View the full Emergency Carcass Management Desk Reference Guide (13.12 MB) or browse by section.

- Section 1: Response Process (15.11 MB)
- Section 2: Decision Tools (15.11 MB)
- Section 3: In-House Composting
- Section 4: Outdoor Composting
- Section 5: Open Air Burning
- Section 6: On-Site Burial
- Section 7: Mobile Treatment
- Section 8: Landfills
- Section 9: Rendering
- Section 10: Off-Site Incineration
- Section 11: Secure Transport
- Section 12: Biosecurity
- Section 13: References
- Section 14: Appendices

Other Resources

- International Symposium on Animal Mortality Management
- Emergency Management: Disinfectants
- Carcass Management: Research Articles and Documents
- Biosecurity Mapping Tool (Zoo and Aquarium All Hazards Partnership)

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