



**ANIMAL CARCASS ON-FARM BURIAL**  
**for Animal Carcass Management**  
**Related to a Disaster in**  
**Franklin County, Massachusetts**



**An Agricultural Emergency Response Planning Tool**

*Developed by*

**FRANKLIN REGIONAL COUNCIL OF GOVERNMENTS  
FRANKLIN COUNTY SOLID WASTE MANAGEMENT DISTRICT**

**JUNE 2009**

Funded through a grant by the United States Department of Agriculture Rural Utilities Program

## ACKNOWLEDGEMENTS AND CREDITS

This plan was developed by the Franklin County Solid Waste Management District and the Franklin Regional Council of Governments. This project is funded through a USDA Rural Utilities Program Solid Waste Management grant.

This section of the *Comprehensive Response Plan for Animal Carcass Management Related to a Disaster in Franklin County, MA* is based on the National Animal Health Emergency Management System Guidelines (NAHEMS) *Operational Guidelines: Disposal*, April 2005; the National Agricultural Biosecurity Center Consortium *Carcass Disposal: A Comprehensive Review, Chapter 1, Burial*, August 2004 (<http://hdl.handle.net/2097/662>); and Missouri Department of Agriculture, *Catastrophic Mortality and Associated Material Disposal Standard Operating Guideline No 002* October, 2008 ([www.mda.mo.gov/ah/pdf/animalag\\_guide2.pdf](http://www.mda.mo.gov/ah/pdf/animalag_guide2.pdf)).

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For more information about agricultural emergency response planning contact the Franklin Regional Council of Governments at 413-774-3167 or visit [www.frcog.org](http://www.frcog.org). Information is also available through the Franklin County Solid Waste Management District at 413-772-2438 or at [www.franklincountywastedistrict.org](http://www.franklincountywastedistrict.org).

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## 1.0 INTRODUCTION

On-farm burial of animal carcasses is one disposal option available following an emergency situation. Prior to implementing on-farm burial, it is imperative to complete the associated burial checklist (in the Response Action Plan section), review the town GIS map for potential site limitations (see the Appendices), and conduct a site visit to confirm that the farm is suitable for burial of animal carcasses.

When it has become clear that on-farm burial is the best disposal method for some or all of the animal mortalities, consult with MassDEP, MA Department of Agricultural Resources, and the town's Board of Health. Permits may be necessary.

## 2.0 METHODOLOGY<sup>1</sup>

On-farm burial of animal carcasses is not a complex process. However, there are issues that will need to be addressed and every site will be different. This section walks through the steps of on-farm burial.

It is assumed that the site has an adequate size parcel of land for burial.

### 2.1 Equipment

➤ **Heavy Equipment:** An excavator is typically used to dig and/or fill burial pits. This large, backhoe-type machine, mounted on tracks, sometimes is referred to as a track hoe. Among the machine's advantages is its ability to (a) construct a long, deep, straight-sided pit efficiently; (b) store topsoil separately from subsoil; (c) fill a pit with carcasses or other materials and close it without disturbing the carcasses or other material in the pit; and (d) cause comparatively little site disturbance.

Loaders, bulldozers, road graders, and backhoes (for small jobs) also may be used. With the exception of the backhoe, however, these pieces of equipment tend to be less efficient and to involve continual movement over the site while the pit is being dug, causing greater damage to the site.

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

Use the MA Operational Services Division (OSD) State Contracts to obtain needed equipment. If equipment is not available from State contract firms, obtain it elsewhere, but remember to keep careful track of the procurement process. See the Procurement and

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<sup>1</sup> NAHEMS, Operational Guidelines: Disposal. April 2005.

Record Keeping Section for statewide contracts, FEMA documentation requirements, and FEMA tracking forms.

- **Lighting:** If the situation warrants working after daylight then lighting should be provided. With any lighting system, it will be necessary to provide electricity, either with batteries, generators or drop service from power lines. The use of a drop service will require coordination with the local power company.
- **Communications:** Personnel at each site where carcasses are being collected, moved and transported need to have a means of communication with the Incident Command Post.
- **Personal Protective Equipment:** Personnel on site should have steel-toed boots, hard hats, impermeable gloves, tyvek suits and eye protection.

## **2.2 Carcass Gas Production**

The production of gas from decomposition within unopened carcasses may result in carcass expansion within the burial pit and cracking and heaving of the surface of the pit after it is closed. Depending on the volume of biomass, the pit may bubble and leak fluids, and carcasses may even emerge from the surface of the pit.

A track hoe or other equipment can be used to crush the carcasses in such a manner that opening of individual carcasses will be unnecessary. If this is infeasible, however, large animal carcasses (e.g., cattle, horses, hogs, sheep, and goats) should be opened to permit the escape of gas. This can be accomplished by opening the thorax and abdomen of the carcasses of all species, and the rumen of ruminants and the cecum of horses.

## **2.3 Burial Trench Dimensions**

The dimensions of the trench will depend on the site (soil conditions and available area) and the size, types, and amounts of carcasses to be disposed of. Calculations for the trench size should have been completed as part of the checklist process for determining disposal options.

Keep the excavator in one position as much as possible. Store top soil and sub-soil separately, and disturb the rest of the site as little as possible.

The pit should have vertical sides and be as deep as feasible considering soil, water table, and equipment available. If a bulldozer is used, for example, the pit's width should be no greater than the width of one blade—approximately 10 ft. Otherwise, the equipment operator may find it difficult to push carcasses into the pit from one side and to fill the pit evenly.

The length of the pit will depend on the size and amount of the carcasses and other material slated for disposal. It is important to avoid situations in which the carcasses must be moved after they are placed in the pit. Each bovine carcass requires about three (3) feet of length. Depending on soil conditions and water-table level, burial pits that are 7 feet wide and 9 feet deep are usually acceptable. **Note: Fill the trench 3 feet below grade to allow for covering the carcasses.**

#### **2.4 Filling and Closing the Trench**

Place the carcasses evenly, making sure to crush the large ones as needed. After the burial pit is filled it should be covered with 6 feet of soil, including 3 feet of soil mounded over the burial site starting at ground level. Fine, dry soil is best, if available, as it prevents carcasses from “floating” and it absorbs fats, greases, and decomposition products.

Care should be taken to ensure that the land’s contour and vegetation are restored as closely as possible to their original characteristics.

Using GPS information and any other coordinates necessary, record the location of the burial trench as well as the type and estimated number of animal carcasses buried in an appropriate incident response log.

#### **2.5 Site Management**

The burial site must be inspected on a regular basis after it is completed. The overall objective is to allow the site to return as much as possible to its original contour and condition. Prepare a schedule and assign a worker to do this. Provide report forms. The worker should look for settling, seepage, odor, and appropriate re-growth of vegetation.

The soil covering the site will probably need to be replenished periodically during the first year as the carcasses decompose and the soil settles into a depression. Depressions should be avoided because they can collect surface water that may increase percolation through the burial site and into groundwater.

### **3.0 DOCUMENTATION**

It is imperative to use appropriate documentation for all activities that require labor, equipment, supplies, and trucking services. The EMD should have some level of assurance that any containers of carcasses hauled off site have been properly loaded (not under filled or over filled) and are delivered to the contracted end disposal facility. Logs and written documentation will be required for reimbursement from FEMA. See the Procurement and Record Keeping section for copies of FEMA forms.