

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

ANIMAL MORTALITY FACILITY

(No.)

CODE 316

DEFINITION

An on-farm facility for the treatment or disposal of livestock and poultry carcasses.

PURPOSE

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- Decrease non-point source pollution of surface and groundwater resources
- Reduce the impact of odors that result from improperly handled animal mortality
- Decrease the likelihood of the spread of disease or other pathogens that result from the interaction of animal mortality and predators
- Provide contingencies for normal and catastrophic mortality events

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where animal carcass treatment or disposal are to be considered as a component of a waste management system for livestock or poultry operations. It applies where on-farm carcass treatment and disposal are permitted by federal, state, and local laws, rules, and regulations. It also applies where a waste management system plan as described in the National Engineering Handbook (NEH), Part 651, Agricultural Waste Management Field Handbook (AWMFH) has been developed that accounts for the end use of the product from the mortality facility. This practice includes disposal of both normal and catastrophic animal mortality; however, it does not apply to catastrophic mortality resulting

from disease.

CRITERIA

General Criteria Applicable to All Purposes

Laws and Regulations Systems for animal mortality facilities must be planned, designed, and constructed to meet all federal, state and local regulations. This includes the **Illinois Administrative Code Title 8, Part 90, Section 90.110 “On Farm Disposal (of Dead Animals)”**. Where there is a conflict between NRCS guidance and the state of Illinois “On farm disposal of dead animals act” the more conservative interpretation will be used.

The facility shall be designed to handle normal mortality and/or catastrophic mortality.

The planning and design of animal mortality facilities or processes must conform to all federal, state and local laws, rules and regulations. This includes provisions for closing and/or removing the facility where required.

Design

All structural components integral to animal mortality management shall meet the structural loads and design criteria as described in NRCS conservation practice standard 313, Waste Storage Facility, unless otherwise designated in this standard.

Surface runoff shall be diverted away from the facility.

Location. The location shall minimize the impact of the facility on odor and other air quality issues affecting neighboring residences, as well as minimizing the impact of

the facility

on surface and ground water resources. In addition, the facility, where practical, shall be generally down gradient from a spring or well.

The animal mortality facility shall be located outside the 100 year floodplain. However, if site restrictions require location within a floodplain, it shall be protected from inundation or damage from a 25-year flood event, at a minimum.

The location of the animal mortality facility shall be consistent with the overall site plan for the livestock or poultry operation.

Seepage Control. Where seepage from mortality facilities will create a potential water quality problem and it is deemed necessary to reduce seepage, use AWMFH, Appendix 10D, for clay liner design criteria, or other acceptable liner technology.

(Note: the Illinois Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)" section on composting swine has specific soil non-permeability requirements.)

Criteria Applicable – Normal Mortality

The facility shall be located as close to the source of mortality as practical, considering bio-security issues and the need to keep the facility out of sight of the general public.

Composters.

General. Design of facilities for composting animal mortality shall conform to conservation practice standard 317, Composting Facility, or the guidance in National Engineering Handbook Part 637, Chapter 2 – Composting (NEH 637.0211, Dead Animal Composting).

The design and operation must comply with Illinois Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)". (Note the Illinois Administrative Code listed above has very specific requirements for the composting of dead animals and should be reviewed and followed in detail.

Freezers

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General. Freezer units shall be of the chest type with a construction compatible with the mechanism to be used to empty the freezer. Provisions for protecting the freezer unit from precipitation and direct sun shall be made as deemed appropriate.

The freezer unit design, construction, power source, and unit installation shall be in accordance with manufacturer's recommendations. Freezers shall be constructed of durable material with a life expectancy compatible with other aspects of the waste management system. The freezer container shall be leakproof to minimize odor and leachate pollution.

Where needed, the freezer will be placed on a pad of suitable strength to withstand loads imposed with vehicular traffic consistent with equipment used to load or remove the box or tray.

Temperature. The freezers shall be self-contained units designed to freeze animal carcasses before decomposition occurs. For best results, the temperature of the carcasses shall be maintained between 22^o and 26^o F.

Capacity. Freezer units shall be sized to accommodate the normal maximum volume of mortality to be expected in the interval between emptying. Volume calculations shall include the expected mortality rate of the animal, the period of time between emptying where mortality is given on a per day basis, the average weight of the animal between emptying, and a conversion factor for weight to volume. For broiler operations use a weight to volume conversion of a minimum of 45 pounds per cubic foot. Capacity calculations shall be supported by a removal schedule supplied by an integrator or approved vendor.

Power Source. An alternative source of power, where available, shall be used to maintain the integrity of the freezing process during power outages. Where an alternative power source will not be available, the operation and maintenance plan shall contain contingencies for disposal of the poultry or livestock mortality.

Incinerators

General. All incinerators must be in compliance with the Illinois Environmental Protection Act (415 ILCS 5). Incinerators in Illinois can not be built or operated without a permit from IEPA.

Capacity. Minimum incinerator capacity shall be based on the average daily weight of animal mortality and the length of time the incinerator will be operated each day.

Location. The incinerator shall be located a minimum of 20 feet from any structure. The incinerator shall be placed on a concrete pad with the fuel source as distant as practical. The pad will be designed to withstand vehicular traffic associated with loading and unloading the unit. If the incinerator is covered with a roof, at least six inches are required between the incinerator chimney and any combustible roof parts.

Criteria Applicable– Catastrophic Mortality

General. Processes addressed by this standard shall be limited to burial and composting. Catastrophic mortality shall be collected as soon as practical and moved away from the production facility.

Location. The facility shall be located as far away from neighboring dwellings and the poultry or livestock operation as site conditions permit. Locate on sites with restricted percolation and a minimum of two feet between the bottom of the facility and the seasonal high water table unless special design features are incorporated that address seepage rates and non-encroachment of contaminants into the water table. Use AWMFH Appendix 10D for selection of sites where seepage will be restricted with normal construction techniques.

The Illinois Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)" will still be followed unless a waiver is granted by the Illinois Department of Agriculture.

CONSIDERATIONS

Major considerations in planning animal mortality management are:

- Available equipment at the operation,
- Management capabilities of the operator,
- Degree of pollution control required by state and local agencies,
- Economics of the available alternatives, and
- Effect on neighbors.

Consideration should be given to prevailing wind direction and neighbors when siting animal mortality disposal facilities. A minimum of 900 feet should separate the facility from the nearest neighboring residence, and the facility should be 200 feet from a well, spring, or water course.

The Illinois Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)" has specific requirements for site permeability and setback distances.

Composting of poultry mortality will be hindered if the bird carcasses are allowed to freeze. Birds should be kept in a dry, non-freezing environment until added to the compost mix.

Facility sizes for composting large animal carcasses should reflect the longer compost periods required.

The following table lists factors that could be used in determining minimum daily weight of animal mortality when sizing incinerators:

TYPE OF ANIMAL	DAILY LOSS FACTOR (pounds/day/animal)
Chicken:	
Broilers	0.0024
Laying hens	0.0014
Breeding hens	0.0019
Breeder, male	0.0082
Turkeys:	
Hen	0.0081
Tom, light	0.0193
Tom, feather production	0.0286
Swine:	
Suckling pigs (per sow)	0.0400

Poultry operations often experience higher rates of mortality as the birds reach maturity. The capacity of incinerators should be sized to insure the mortality of the large birds can be

handled within the time frame allowed for incineration.

An alternative to prevent bloating of catastrophic mortality die off could include opening animal thoracic and abdominal cavities and viscera prior to placing required cover.

Incineration produces varying quantities of ash that will need to be properly handled.

Vegetative screens and topography can be used to shield the animal disposal facility from public view, and to minimize visual impact.

State requirements for record keeping vary. Items such as burial site location, type and quantity of mortality, burial date, and other pertinent details should be noted at the time of burial. All burials must comply with Illinois Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)".

Operators should maintain a list of current phone numbers for state and local officials to aid in notification if disease-related catastrophic mortality occurs.

Safety devices such as fencing, warning signs, and freezer locks may be necessary at certain sites.

Bio-security concerns should be addressed in all aspects of planning, installation, and operation and maintenance of an Animal Mortality Facility.

Ground disturbing activities such as excavation and site preparation for disposal facilities have the potential to affect significant cultural resources.

OPERATION AND MAINTENANCE

An operation and maintenance plan applicable to this practice that includes, but is not limited to, the items listed below will be developed with the operator, and will become a part of the overall waste management system plan. The requirements in the individual operation and maintenance plan shall be consistent with the practice purposes, intended life, and design criteria. Safety considerations shall be prominently displayed in the plan. Facility operation must comply with Illinois

Administrative Code Title 8, Part 90, Section 90.110 "On Farm Disposal (of Dead Animals)".

Normal Mortality

Animal mortality facilities will normally be operated or used on a daily basis. At each operation or use, the facility shall be inspected to note any maintenance needs or indicators of operation problems.

Catastrophic Mortality

Possible locations for catastrophic animal mortality facilities shall be located during the planning process to be operated as needed.

Burial of catastrophic mortality shall be timed to minimize the effects of mortality expansion during early stages of the decay process. Where possible and permitted by state law, mortality shall remain uncovered or lightly covered until bloating has occurred. Some topsoil shall be retained to re-grade the disposal site after the ground has settled as the decay process is largely completed.

Where composting is used for catastrophic mortality disposal, the operation and maintenance plan shall identify the most likely compost medium, possible compost recipes, operational information, and equipment that will need to be readily available.

PLANS AND SPECIFICATIONS

Plans and specifications for animal mortality facilities shall be in keeping with this standard and shall describe the requirements for applying this practice to achieve its intended purpose.

REFERENCES

Agricultural Waste Management Field Handbook (AWMFH)

National Engineering Handbook, Part 637, Chapter 2, Composting

NRCS GM 420 Part 401 – Cultural Resources

NRCS National Handbook of Conservation Practices

State of Illinois Administrative Code, Title 8: Agriculture and Animals, Part 90 Illinois Dead Animal disposal Act, Chapter I: Department of Agriculture, Section 90.110 On-The-Farm Disposal

<http://www.legis.state.il.us/commission/jcar/admincode/008/008000900001100R.html>