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Disposal of Animal Carcasses and Non-Disease Related Mass Mortality Events

This guidance document has been produced by the Nebraska Department of Water, Energy, and Environment (DWEE) to help Nebraska livestock producers in the event of animal mortality and to plan for a non-disease related catastrophic animal mortality event. Animal deaths may result from several factors including environmental, biological, chemical or toxic agents, and disease. A licensed veterinarian should be contacted for an evaluation of the mortality if the death resulted from biological events. This document does not apply to rendering facilities.

If animal carcasses are managed as the result of an emergency with the potential to impact immediate or long-term animal or public health and safety, the Nebraska Department of Agriculture (NDA), DWEE, and local emergency management authorities should be contacted.

Livestock producers are encouraged to develop their own routine and emergency mortality management plans. A rapid response during an emergency will be more effective when disposal sites are pre-selected. Statewide planning documents such as the NDA's Monograph on Catastrophic Mortality and Associated Material Disposal have been developed to assist planners and emergency managers. For mass mortality events (MMEs), the following information on burial and composting of animal carcasses is only applicable to animals that have been euthanized with sodium nitrite.

Disposal Methods

Note: Nebraska Statute §54-2946 limits disposal to burial, incineration, composting, rendering, or landfilling. Burial, incineration and composting must be performed on-site or on an adjacent property. Veterinary clinics and laboratories have other options. Restrictions apply. Questions concerning these statutory requirements should be directed to the NDA. If alternate disposal methods are necessary due to an emergency, contact the NDA or DWEE for more information.

On-Site Burial

Burial is an acceptable method of disposal when performed in compliance with state and local regulations and is often the disposal method of choice for catastrophic livestock losses. Animals must be buried within thirty-six hours of knowledge of death and in accordance with the separation recommendations below to lower the possibility of spreading disease. Failure to address animal carcasses within thirty-six hours could lead to disposal issues under Nebraska [Title 132 – Integrated Solid Waste Management Regulations](#).

A permit for burial on-site or on an adjacent property is not required but there are obligations under Nebraska statute to protect groundwater resources. It is recommended to select a disposal site with knowledge of the environmental conditions including land topography, depth to groundwater, surface water drainage, and soil type and depth.

Recommended separation distances for burial sites:

- 5 feet of separation from the bottom of the pit to the seasonal high groundwater level
- 4 feet of compacted soil cover above the pit
- 1,000 feet from public water supply wells
- 500 feet from domestic wells
- Outside of any wellhead protection areas
- 300 feet from domestic water intakes, streams, creeks, ponds, springs, and lakes
- At least 100 feet from the edge of a major cut or embankment
- 500 feet from residences, livestock facilities, and adjacent pastures owned or leased by another person
- 300 feet from a road
- 1,000 feet from a primary highway
- 500 feet from a secondary highway
- Avoid above and below ground utilities

The depth, width, and length of any burial trenches should be considered before site planning or excavation begins. See Attachment 1: Trench Size Worksheet and Attachment 2: Disposal Checklist, for guidance on trench planning.

Above-Ground Burial (AGB)

AGBs have only been field tested and should be implemented on a limited scale. NDA State Investigators should be consulted prior to field implementation in an MME. AGB requires approval from the NDA prior to implementation and interested parties should contact the NDA Emergency Response Coordinator. Animal carcasses must be buried within thirty-six hours of knowledge of death and at least two feet below ground surface in a single layer. A permit for burial on-site or on an adjacent property is not required and the same recommendations as for on-site burial should be followed.

On-Site Incineration

Disposal by burning requires the use of an incinerator permitted by DWEE. Incineration is often a difficult method to employ quickly with a large number of animal carcasses and open burning with an air curtain incinerator is usually not allowed. During an emergency such methods may be approved by DWEE on a case-by-case basis. The DWEE Air Quality Program must be contacted if any form of burning or incineration is under consideration.

On-Site Composting

Composting of animal carcasses is an approved method of disposal. Proper equipment, material, and management are required for this method to be successful. The NDA should be contacted if this method will be used.

Rendering Service

Contact a licensed rendering service for the proper transportation and disposal of dead animals.

Off-Site Burial

Disposal of animal carcasses in pits or trenches not on-site or on an adjacent property may be appropriate in emergency situations when authorized under the Nebraska Emergency Management Act and under the direction of the NDA. Individuals are not allowed to relocate animal carcasses to off-site properties by themselves.

Landfill Disposal

Animal carcasses may be disposed of at any permitted municipal solid waste landfill in Nebraska. Landfills may elect not to receive animal carcasses and should be contacted before transportation of carcasses by a licensed rendering service. Disposal of animal carcasses in a landfill is only allowed if they are non-contagious to humans and local wildlife as determined by the NDA.

RESOURCES:

- DWEE Home Page <https://dwee.nebraska.gov/>
- NDA Home Page <https://nda.nebraska.gov/>

Contacts:

- DWEE Main Number (402) 471-2186
- NDA Animal Health Main Number (402) 471-2351
- DWEE Toll Free Number (877) 253-2603
- DWEE Hazardous Waste Compliance Assistant (402) 471-8308
- Email questions to: DWEE.moreinfo@nebraska.gov

DWEE Publications:

- [Title 129 – Nebraska Air Quality Regulations](#)
- [Title 132 – Nebraska Integrated Solid Waste Management Regulations](#)

Titles are available on the DWEE website by clicking “Visit Nebraska Department of Environment and Energy (DEE),” selecting “Resources and Services,” “Laws & Regulations,” and “Rules & Regulations.”

Attachment 1

Trench Size Worksheet for Pre-Selecting Cattle Disposal Sites

This worksheet is intended to provide a quick method of calculating the trench size necessary for mass disposal based on the number and size of cattle on site.

The Standard Animal Unit (SAU) is equivalent to one 1,000 lb. steer, which has a volume of approximately 42 cubic feet (cu ft). The number of SAUs on site will dictate the size of the trench needed. The SAU value for any animal is the average weight divided by 1,000. For this worksheet, feeder cattle average 850 lbs., or 0.85 SAU, and calves average less than 400 lbs., or 0.40 SAU. If your cattle are larger or smaller, you can adjust the calculation below accordingly.

Total Cubic Feet of Material Calculation:

Part One:

Number of Cattle _____ X 0.85 = _____ SAU

Number of Calves _____ X 0.40 = _____ SAU

Total SAU = _____ (add SAU for Cattle and Calves)

Part Two:

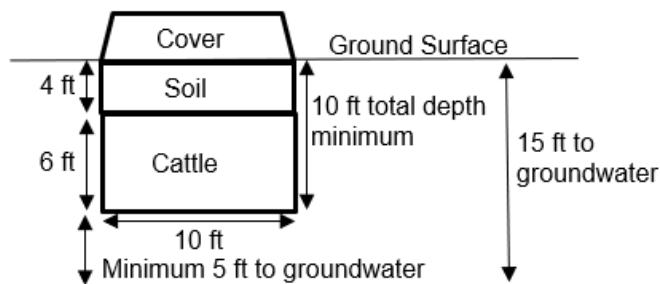
Standing SAU On Site _____ X 42 cu ft = _____ cu ft

Other contaminated materials such as bedding, manure, decontamination waste, etc. is about 20% of above _____

X 1.20 = _____ Total cu ft of material

Trenches should be 10 ft deep and 10 ft wide. The bottom of your trench must be at least 5 ft above groundwater depth which means you must have a minimum depth to groundwater of 15 ft at the burial site. You must also allow for burial at least 4 ft below the ground surface.

Trench Cross Section:



Part Three:

The total volume of trench filled with carcasses is 10 ft wide by 6 ft deep (see diagram above), or 60 square ft in cross section. The total length of your trench will be the total cu ft of material divided by 60.

Total cu ft of material _____ / 60 = _____ Total length of trench

Example: 200 Cattle = 170 SAU = 7,140 cu ft X 1.20 = 8,568 total cu ft / 60 = 143 ft long trench

If space is short, multiple trenches may be dug side-by-side. Allow at least 18 feet between trenches.

Trench Size Worksheet for Pre-Selecting Swine Disposal Sites

This worksheet is intended to provide a quick method of calculating the trench size necessary for mass disposal based on the number and size of pigs on site.

The Standard Animal Unit (SAU) is equivalent to one 1,000 lb. steer, which has a volume of approximately 42 cubic feet (cu ft). The number of SAUs on site will dictate the size of the trench needed. The SAU value for any animal is the average weight divided by 1,000. For this worksheet, pigs average 250 lbs., or 0.25 SAU, and piglets average less than 50 lbs., or 0.05 SAU. If your pigs are larger or smaller, you can adjust the calculation below accordingly.

Total Cubic Feet of Material Calculation:

Part One:

Number of Pigs _____ X 0.25 = _____ SAU

Number of Piglets _____ X 0.05 = _____ SAU

Total SAU = _____ (add SAU for Pigs and Piglets)

Part Two:

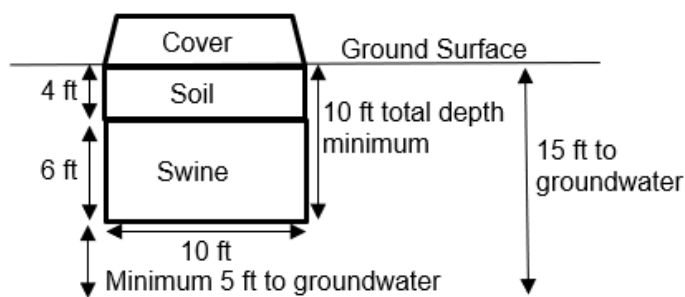
Standing SAU On Site _____ X 42 cu ft = _____ cu ft

Other contaminated materials such as bedding, manure, decontamination waste, etc. is about 20% of above

_____ X 1.20 = _____ Total cu ft of material

Trenches should be 10 ft deep and 10 ft wide. The bottom of your trench must be at least 5 ft above groundwater depth which means you must have a minimum depth to groundwater of 15 ft at the burial site. You must also allow for burial at least 4 ft below the ground surface.

Trench Cross Section:



Part Three:

The total volume of trench filled with carcasses is 10 ft wide by 6 ft deep (see diagram above), or 60 square ft in cross section. The total length of your trench will be the total cu ft of material divided by 60.

Total cu ft of material _____ / 60 = _____ Total length of trench

Example: 1,000 pigs = 250 SAU = 10,500 cu ft X 1.20 = 12,600 total cu ft / 60 = 210 ft long trench

If space is short, multiple trenches may be dug side-by-side. Allow at least 18 feet between trenches.

Attachment 2

Disposal Checklist for On-Site Burial

- Is the burial area close to the mortality site to avoid unnecessary transport of carcasses that may spread disease? ☐ Yes ☐ No
- Is the area at a location accessible by large trucks if cover material will be transported to the site from off-farm sources? ☐ Yes ☐ No
- Has an adequately sized area been identified? ☐ Yes ☐ No
- Is the disposal site located on a relatively flat area with less than 2% slope and with low permeability soils? ☐ Yes ☐ No
- Has the location of all buried utilities been mapped for the proposed burial area? ☐ Yes ☐ No
- Is the area on a well-drained location that is not subject to runoff or pond water and is outside of wetlands and the 100-year floodplain? ☐ Yes ☐ No
- Is the area at least 500 feet from homes, 1,000 feet from primary highways, 500 feet from secondary highways, and 300 feet from any other road? ☐ Yes ☐ No
- Is the area within a designated wellhead protection area for a public water supply well, within 1,000 feet of a public water supply well, or within 500 feet of a private drinking water well? ☐ Yes ☐ No
- Is the seasonal high groundwater static water table at least 15 feet below ground surface? ☐ Yes ☐ No