State of Oklahoma
Department of Agriculture, Food, and Forestry

J. Kevin Stitt
Governor

Blayne Arthur
Secretary of Agriculture

CARCASS DISPOSAL OPTIONS

1. RENDERING

2. LANDFILLS

   See landfill list enclosed.

3. BURIAL – (See attached State Statutes & Rules and Applicable NRCS Fact Sheet addressing this method)

   The general carcass burial disposal guidelines follow:

   a. Burial of dead livestock requires the construction of a pit.

   b. Do not locate the burial pit closer than one foot (1') vertically above the flood plain, or within two feet (2') of the water table or bedrock.

   c. Do not locate the burial pit within three hundred feet (300') of wells, waters of the state, neighboring residences, public areas, or property lines.

   d. After placing the deads in the trench, cover the deads with a minimum of two and a half feet (2 ½') of topsoil. Inspect burial sites routinely to ensure that wild animals are not digging and dragging deads away.

   e. Also, refer to the Criminal Code of the Oklahoma Statutes (enclosed).

4. INCINERATION

   Open-air incineration of carcasses is not allowed, unless the animal died of any contagious or infectious disease. Self-contained, closed incinerators and air curtain incinerators are allowed.

5. COMPOSTING

   Please note that licensed Concentrated Animal Feeding Operations and Registered Poultry Feeding Operations must receive permission from the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF), Agricultural Environmental Management Services (AEMS) Division (405/522-4659) prior to composting or burial (only exception is if AWMP allows for composting).

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CARCASS DISPOSAL

This Oklahoma Department of Agriculture, Food, and Forestry (ODAFF), Agricultural Environmental Management Services (AEMS) Division’s booklet describes animal and poultry carcass disposal options and requirements. Contents include: Title 2 § 2-18.1 – Oklahoma Criminal Statutes; portions of the Oklahoma Agriculture Codes and Rules; recommendations and guidelines from USDA NRCS pamphlets and codes, other state’s carcass disposal practices and recognized, published scientific documents.

OKLAHOMA STATUTES
TITLE 21 CRIMES AND PUNISHMENTS

Section 1222 – Duty to Dispose of Domestic Animals Dying of a Contagious or Infectious
It shall be the duty of the owner of any domestic animal in the State of Oklahoma, which may hereafter die of any contagious or infectious disease, either to burn the carcass thereof or bury the same within twenty-four (24) hours after he has notice or knowledge of such fact so that no part of such carcass shall be nearer than two and one-half (2 ½) feet of the surface of the soil: provided, That all hogs dying of any disease shall be burned. It shall further be unlawful to bury any such carcass as mentioned in this section in any land along any stream or ravine, where it is liable to become exposed through erosion of the soil, or where such land is any time subject to overflow. “Owner”, as used in this section, shall mean and include any person having domestic animals in his possession, either by reason of ownership, rent, hire, loan, or otherwise, and shall be subject to all the pains and penalties of this article.

Section 1223 – Leaving Carcass in Certain Places
It shall be unlawful for any person to leave or deposit, or cause to be deposited or left the carcass of any animals, chicken or other fowl, whether the same shall have died from disease or otherwise, in any well, spring, pond or stream of water; or leave or deposit the same within one-fourth (1/4) mile of any occupied dwelling or of any public highway, without burying the same as provided in the preceding section of this act.

Section 1224 – Penalty
Every person who violates the two preceding sections, shall be guilty of a misdemeanor.

Revised 7/29/14
Oklahoma Statutes Citationized

- Title 2. Agriculture
  > Chapter 1 – Agriculture Code
    => Article Article 2 – State Board of Agriculture
      * Section 2-18.1 – Pollution of Air, Land, or Waters Unlawful – Powers of Board
        – Orders, Penalties

A. It shall be unlawful and a violation of the Oklahoma Agricultural Code for any person to cause pollution of any air, land or waters of the state by persons which are subject to the jurisdiction of the Oklahoma Department of Agriculture, Food, and Forestry pursuant to the Oklahoma Environmental Quality Act.

B. If the State Board of Agriculture finds that any of the air, land, or waters of the state which are subject to the jurisdiction of the Oklahoma Department of Agriculture, Food, and Forestry pursuant to the Oklahoma Environmental Quality Act have been or are being polluted, the Board shall make an order requiring that the pollution cease within a time period determined by the Department, or require a manner of treatment or of disposition of the water or other polluting material as may in the judgment of the Board be necessary to prevent further pollution. In addition, the Board may assess an administrative penalty pursuant to Section 2-18 of this title. The person to whom the order is directed shall fully comply with the order of the Board and pay any fine and costs assessed.

C. 1. Manure shall not be defined as or be considered a hazardous substance or hazardous waste as those terms are defined by state law.
   2. For purposes of this subsection, “manure” means any feces, urine, urea, or other excrement from livestock and shall also only include:
      a) associated nonhazardous bedding, compost, raw materials, or other nonhazardous materials commingled with the excrement,
      b) nonhazardous process water associated with the excrement or materials, or
      c) nonhazardous byproducts, constituents, or substances contained in or originating from the excrement, materials, or process water.
   3. This subsection shall not be construed to affect or limit the applicability of any other provision of the Oklahoma Agriculture Code.

❖ Oklahoma Statutes Citationized

- Title 27A. Environment and Natural Resources
  > Chapter 1 – Oklahoma Environmental Quality Act
    => Article Article 1 – Environmental Agencies
      * Section 1-1-201 – Definitions

10. “Pollution” means the presence in the environment of any substance, contaminant or pollutant, or any other alteration of the physical, chemical or biological properties of the environment or the release of any liquid, gaseous or solid substance into the environment in quantities which are or will likely create a nuisance or which render or will likely render the environment harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life, or to property.

NOTE – Interpretation: No animal or poultry carcasses are allow to lay in air, land, or waters of the state and naturally decompose. Carcasses should be properly disposed of by one of the methods listed on the front page of this document.

Revised 7/20/14
Disaster Recovery Planning for Catastrophic Mortality, Large Animal Disposal via Trench or Pit using the USDA NRCS Web soil survey. If you are not familiar with this tool, you may want to contact your local NRCS office for assistance.

This tool is intended to be used as a general guideline and on site field observations of soil properties and site conditions should be verified.

If you are familiar with this tool, follow the following general instructions for general site selections.

From a computer navigate to https://websollsurvey.sc.egov.usda.gov
Proper Disposal of Routine and Catastrophic Livestock and Poultry Mortality

Josh Payne
Area Animal Waste Management Specialist

Proper management of on-farm animal mortalities is vital to every farming operation. Improper disposal of dead animal carcasses can negatively impact surface water and groundwater from carcass leachate. If the animal died of an infectious disease, pathogenic bacteria and viruses may be present within the carcass. These pathogens can be spread by insects, rodents, predators, and subsurface or above ground water movement, as well as through direct contact with other livestock or poultry leading to increased disease transmission risks. In addition, Oklahoma has rules regulating the disposal of livestock and poultry mortalities. Concerns associated with improper disposal can be avoided by practicing state approved carcass disposal methods.

State Approved Methods

The Oklahoma Department of Agriculture, Food and Forestry, or ODAFF, regulates livestock and poultry mortalities. In the event of a catastrophic mortality loss, ODAFF must be notified immediately. Catastrophic mortalities are defined as any death loss that exceeds the capacity of the current disposal system to accommodate those losses within 24 hours. For both routine and catastrophic mortalities, the state approved methods for carcass disposal are:

- burial
- landfills
- incineration
- rendering
- composting

Burial

Perhaps the most common method of disposal is burial. When proper guidelines are followed, burial is a safe option. However, poor site selection, such as sandy soils or areas with high water tables, may pose a threat to groundwater. Figure 1 illustrates the proper placement of a burial site with respect to distance from water bodies. The current (2009) Oklahoma burial guidelines are listed below. For additional regulations on carcass burial, refer to Oklahoma Statutes Title 21 Sections 1222 and 1223 found by searching www.oscn.net.

- Burial of dead livestock and poultry requires the construction of a pit.
- The bottom of the burial pit must be at least 1 ft. above any floodplain level and at least 2 feet above the seasonal high water table. If there is bedrock in the area, the bottom of the pit must be at least 2 ft. above the bedrock.
- The burial pit must be located at least 300 ft. away from any wells, waters of the state, neighboring residences, public areas or property lines.
- Carcasses must be covered with a minimum of 2.5 ft. of topsoil after placement in the pit. Burial pits should be routinely inspected to ensure wild animals do not dig and drag carcasses away.

Figure 1. Site selection for burial.
Landfills

Disposing of carcasses at a licensed landfill that accepts animal mortalities is another form of burial. Landfills may require notification before delivery and/or documentation from a licensed veterinarian stating the cause of death. Landfill tipping fees should be assessed and may range from $20 to $30/ton. Other considerations are transportation costs and breeches of biosecurity by moving carcasses off-farm. For a list of Oklahoma landfills that accept dead animals, visit www.poultrywaste.okstate.edu.

Incineration

Incineration is a safe and effective means of carcass disposal, especially from the standpoint of biosecurity. The carcass is completely consumed by fire and heat within a self-contained incinerator. In Oklahoma, an air quality permit may be required by the Department of Environmental Quality (DEQ). This requirement is based on the size and quantity of carcasses burned. For questions concerning permit requirements, contact the DEQ at (405) 702-4100.

Incineration is mainly designed for smaller carcasses and fuel costs should be considered. Due to odor and emission concerns, open air incineration is not allowed in Oklahoma unless the animal died of an infectious or contagious disease.

Rendering

Another state approved carcass disposal method is rendering. This is a heat driven process that cooks the product while killing pathogens and converting it into a value-added product such as an animal feedstuff. These feedstuffs, such as meat and bone meal, are generally used as pet food ingredients. Although rendering is a very effective method, currently, there are few rendering services available. The transportation expense of collecting small volumes creates a financial obstacle for most rendering companies. Some rendering facilities require the producer to transport carcasses to the plant and pay a fee. Biosecurity and disease transmission risks should be considered when allowing vehicles on the farm and when transporting carcasses off-farm. Visit www.poultrywaste.okstate.edu for a current list of available rendering services.

Composting

Composting dead animal mortalities is an inexpensive, biosecure and environmentally sound approach to addressing the issue of carcass disposal. By definition, composting is a controlled biological decomposition process that converts organic matter into a stable, humus-like product. The carcass (nitrogen source) is buried in a bulking agent (carbon source), such as wood shavings, allowing for the proper carbon to nitrogen ratio (C:N) required by microorganisms to successfully decompose the carcass while absorbing excess moisture and filtering odor (Figure 3). The high temperatures (130 F to 150 F) achieved through proper composting will destroy most pathogens. Microorganisms will degrade the carcass leaving only a few small bone fragments, which are brittle and break easily. This valuable by-product can then be land-applied as a fertilizer source, adding nutrients and organic matter to the soil or recycled for new compost piles. As with burial, site selection is important. The site should be located in an area that does not pose a risk to surface or groundwater contamination.

Catastrophic losses are best composted in windrows of bulking agent due to the increased quantity of carcasses. Height, width and length of these windrows are dependent on the size and amount of carcasses to be composted. For both routine and catastrophic composting, piles must be appropriately managed to achieve proper decomposition and prevent scavenger invasion.

For additional information on composting livestock carcasses, refer to these resources:


Figure 3. Illustration of composting livestock.

Summary

Proper livestock and poultry mortality disposal is essential to the sustainability and environmental stewardship of farming operations. In addition, state laws regulate disposal methods. By practicing the state approved methods, disease transmission risks to humans and animals can be reduced. If you have questions about any of these carcass disposal methods, contact the ODAFF Agricultural Environmental Management Services at (405) 522-4659 or visit your local County Extension Office.
The Oklahoma Cooperative Extension Service
Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designed to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.
DEALING WITH CATASTROPHIC LOSSES

Mortality is a normal part of animal operations. Normal mortality should be addressed with composters or other appropriate carcass disposal methods. This job sheet addresses only catastrophic losses due to natural events. Catastrophic losses due to disease must be reported to the State Veterinarian and the Animal and Plant Health Inspection Service (APHIS). For assistance in dealing with normal mortality, contact your local NRCS or Conservation District office.

BEFORE DISPOSAL BEGINS

Proper disposal of carcasses is important to prevent livestock disease transmission and to protect air and water quality. The Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) requires licensed confined animal feeding operations (CAFO's) and registered poultry feeding operations to have plans for handling losses of normal mortality and catastrophic losses. In the event of a catastrophic loss, ODAFF should be notified before beginning carcass disposal.

METHODS OF DISPOSAL

There are various methods available for handling catastrophic losses - landfill, incineration, field composting, rendering, and burial are all acceptable methods of disposal. This job sheet describes the burial method of disposal. Not every method will work on every farm. Contact your local NRCS or Conservation District office to assist in finding out which methods could be used on your farm.

Disposal by Burial

Burial of dead animals requires a backhoe or other trenching machine for construction of a pit in preparation of receiving carcasses.

General considerations for using burial pits

- Do not locate the burial pit closer than 1 foot vertically above the flood plain; or the bottom of the burial pit within 2 feet of a water table or bedrock.
- Do not locate the burial pit within 300 feet of wells, springs, streams, neighboring residences, or public areas.

August 2013
• Burial pit bottoms shall be relatively level. Length of burial pits may be limited by soil suitability and slope. If more than one pit is required, they shall be separated by a minimum of 3 feet of undisturbed or compacted clay soil.
• Do not locate the burial pit where surface water runoff could enter the pit.
• Do not locate the burial pit where soil erosion could deteriorate the pit or cover material.

Using NRCS Soil Interpretations
Each local NRCS office maintains a listing of suitability for burial by map unit soil component. Each soil that is mapped in the county will fall into one of the following categories:
• Not Limited – Soils are adequate for burial. These are the preferred areas for locating burial pits.
• Somewhat Limited – Soils may be used for burial, as long as the limiting considerations are addressed.
• Very Limited – Soils are not adequate for burial. No burial pits may be constructed in these soils. Alternative methods of disposal will be required if these are the only available soils on the farm.

Site suitability for catastrophic loss pits must be completed in the field by NRCS personnel.

PROCEDURES FOR USING BURIAL PITS
• Dig a trench at least four feet wide to a minimum depth of 3 feet. Maximum vertical trench wall is 4 feet. For trenches deeper than 4 feet vertical, the earthen wall shall be sloped back at 2 feet horizontal and 1 foot vertical.
• Begin placing animals in one end of the pit. One layer of carcasses will be followed with a minimum depth of soil equal to the carcass depth, not to exceed 3 layers of carcasses and covered with a minimum of 2 1/2 feet of soil above the last layer. For poultry, multiple layers of carcasses can be used, not to exceed two feet in thickness.
• As the animals begin to decay, it may be necessary to place additional soil material in areas that subside.
• Vegetate the fill areas or insure that vegetation establishes naturally.

OVERCOMING LIMITATIONS
Not all soils located on a farm may be suited for burial without adequately addressing the limitations that prevent dead animals from being disposed by burial in an environmentally sound manner. The following limitations may be identified for your soils.
• Slope – Overhead water must be diverted around the burial location by the use of short diversions.
• Depth to Rock – The bottom of the pit must be kept shallow and adequate volume created by "mounding" of sidewalls above original ground elevation. Cover over carcasses must consist of a minimum of 2 1/2 feet of soil.
• Flooding – Dikes must be installed to keep floodwaters out of burial area.
• Fragments or Stones – There are no specific construction requirements to meet, but difficulty will be encountered during mechanical excavation of pit.
• Apparent Water Table – Mounding, as listed in Depth to Rock.
• Perched Water Table – There are various methods available for addressing perched water tables.

Each limitation presented also lists procedures for overcoming those limitations. In some cases, there may be multiple limitations that must be addressed for a given soil or location. Example procedures include:
• Mounding, as listed in Depth to Rock.
• Providing drainage of the perched water table with perforated drainage pipe to open drainage ditches. (The integrity of the burial pit must be maintained and the pit, with its protective soil layer, must be left undisturbed with the installation of any drainage system.)
• Sealing off perched zones with compacted backfill.
• Using a 30 ml geosynthetic containment liner, overlapping at the top.
Typical deep burial pit cross section, length varies depending on volume of carcass disposal needed.

Typical shallow burial pit cross section for smaller species, length varies depending on volume of carcass disposal needed.
## MUNICIPAL SOLID WASTE LANDFILLS

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<th>Facility Name</th>
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<th>Accepts Dead Livestock</th>
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<tr>
<td>Beckham</td>
<td>Elk City Municipal Landfill</td>
<td>(580) 225-3248</td>
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<td>Beckham</td>
<td>Sayre Municipal Landfill</td>
<td>(580) 926-3420</td>
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<td>Canadian</td>
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<td>(405) 483-5402</td>
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<td>Carter</td>
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<td>(580) 226-1276</td>
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<td>Comanche</td>
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<td>(580) 581-3468</td>
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<td>Comanche</td>
<td>Ft. Still Landfill</td>
<td>(580) 442-5241</td>
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<td>Garfield</td>
<td>City of Enid Landfill</td>
<td>(580) 249-4917</td>
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<td>Garvin</td>
<td>Paula Valley Landfill</td>
<td>(405) 238-2012</td>
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<td>Grady</td>
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<td>(405) 785-2060</td>
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<td>Grady</td>
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<td>(405) 818-0000</td>
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<td>Jackson</td>
<td>City of Altus Landfill</td>
<td>(580) 477-0120</td>
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<td>Kay</td>
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<td>(580) 767-0417</td>
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<td>Lincoln</td>
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<td>(405) 567-3806</td>
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<td>McClain</td>
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<td>(405) 343-2070</td>
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<td>(580) 584-9445</td>
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<td>(580) 280-5300</td>
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<td>Major</td>
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<td>(580) 776-2255</td>
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<td>Muskogee</td>
<td>Muskogee Comm. Landfill &amp; Rec. Center</td>
<td>(918) 682-7284</td>
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<td>Noble</td>
<td>Northern Oklahoma Regional Disposal, Inc.</td>
<td>(580) 628-2445</td>
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<td>Oklahoma</td>
<td>Oklahoma Landfill</td>
<td>(405) 745-3091</td>
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<td>Oklahoma</td>
<td>SE Oklahoma City Landfill</td>
<td>(405) 672-7379</td>
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<td>East Oak Sanitary Landfill</td>
<td>(405) 427-1112</td>
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<td>Okmulgee</td>
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<td>(918) 733-4558</td>
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<td>Osage</td>
<td>American Environmental Landfill</td>
<td>(918) 245-7786</td>
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<td>(918) 338-3159</td>
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<td>Payne</td>
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<td>(918) 421-4987</td>
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<td>(918) 426-0985</td>
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<td>Pontotoc</td>
<td>City of Ada Municipal Landfill</td>
<td>(580) 436-1403</td>
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<td>Pottawatomie</td>
<td>Absolute Waste Solutions, Inc. Landfill</td>
<td>(405) 598-3893</td>
<td>Call to Inquire ¹</td>
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<td>Pushmataha</td>
<td>Clinton Lewis Construction Co. Landfill</td>
<td>(580) 298-3729</td>
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<td>Seminole</td>
<td>Sooner Land Management Landfill</td>
<td>(405) 257-6108</td>
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<td>Sequoyah</td>
<td>Sallisaw Solid Waste Disposal Facility</td>
<td>(918) 775-4127</td>
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<td>Tulsa</td>
<td>Quarry Landfill</td>
<td>(918) 439-7835</td>
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<td>Woodward</td>
<td>NW Oklahoma Solid Waste Disposal Authority</td>
<td>(580) 259-3975</td>
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Some landfills require prior notification before delivery of dead livestock. It is recommended that you contact the facility before transporting any carcasses to the landfill.

Some landfills require documentation to be completed and signed concerning livestock's cause of death which could require a 24-hour time period.

* prefers low volume, 1 or 2 at a time
* less than 10
* may accept, call to inquire before coming
* may limit quantity

Landfill list taken from www.deq.state.ok.us/pdnnew/SW/landfill.htm. Landfills contacted by ODAFF AEAMS re: acceptance of dead livestock.

Revised 8/1/14