

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

INTERIM STANDARD
WASTE FIELD STORAGE

(Ea.)

CODE 749

DEFINITION

Waste field storage is the temporary outside storage of solid or semi-solid animal manures under a non-structural cover in such a manner that the soil, water, air, plant, and animal resources are adequately protected.

PURPOSES

Waste field storage is used to temporarily store manure/litter in an environmentally safe and cost-effective manner while allowing improved nutrient utilization and conservation, and greater convenience and efficiency in the overall farm operation.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where a waste management system has been planned, and where temporary storage of manure/litter is required by the plan because (1) land area is limited and split applications of manure/litter are required for proper nutrient management and water quality protection, or (2) clean-out of animal housing units must be accomplished at a time when wastes cannot be readily land-applied due to weather, soil conditions, or farm management requirements.

CRITERIA

Laws and Regulations. All planned activities shall comply with all federal, state, and local laws and regulations. The Alabama Department of Environmental Management (ADEM) Rules require owners/operators of animal feeding operations and associated waste management systems to fully implement and regularly maintain effective best management practices (BMP's) that meet or exceed NRCS technical standards and guidelines to prevent discharges and to ensure groundwater and surface water quality.

All construction activities must implement adequate construction BMP's. In addition, to comply with the National Pollutant Discharge Elimination System

rules, all construction activities involving one acre or more of land disturbance shall have and follow a construction best management practices plan prepared by a qualified credentialed professional until construction is complete and all disturbed areas are stabilized. All construction activities related to waste contact or containment, including design, installation, modification, and closure are to be certified by a professional engineer licensed in the state of Alabama.

Cultural Resources. Ground disturbing activities such as excavation and site preparation for animal waste facilities have the potential to affect significant cultural resources. A cultural resources review shall be completed prior to ground disturbing activities to assure that existing cultural resources will not be adversely impacted.

General. This practice shall be included as part of the Agricultural Waste Management System (AWMS) component of the conservation plan. The plan map shall show the location of all storage areas, access roads to these areas, slopes, surfaces to be graded, necessary cuts and fills, and location of sites subject to pollution such as wells, springs, streams, and floodplains. Auxiliary practices such as access roads, diversions, waterways, subsurface drains, and vegetation shall be used and shown on the plan maps as required.

Siting. Waste field storage sites shall be located with respect to the following features:

- no farther than 150 feet from the top of a slope unless a diversion is installed.
- at least 1 ft. vertically above the floodplain of the 25-year, 24-hour storm.
- where year-round access to the waste storage will be practical during periods of wet weather.
- near natural windbreaks, where possible, to protect the covering from blowing winds.
- where the seasonal high water table will be no closer than 3 feet below the bottom of the stored

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard contact your Natural Resources Conservation Service [State Office](#), or download it from the [electronic Field Office Technical Guide](#) for your state.

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wastes, unless a concrete pad or synthetic liner is used.

Covering. Field stored wastes shall be covered with opaque plastic sheeting having a minimum thickness of 6 mil. The sheeting must be placed over the pile with care to prevent tearing. Reusable flexible membranes or tarpaulins may be used if they remain flexible and impermeable. Weighted objects or secured ropes which will not damage the material shall be placed over the cover to anchor it and prevent tearing during high winds. The covering shall be trenched, diked, or otherwise fastened at the perimeter of the pile to prevent any contact by rainfall runoff with the wastes and to prevent uncovering of the edge of the pile.

Size. Waste field storage shall be designed to store the waste required for proper nutrient management as identified in the plan. Long-term storage for periods of time greater than 180 days can be accommodated using a permanent structure (Alabama NRCS conservation practice standard Waste Storage Structure, Code 313) or through a combination of permanent and temporary storage practices and/or better scheduling of waste removal from livestock confinement facilities.

The size of the pad on which the wastes will be stored shall be determined on the basis of the volume produced and the anticipated height of the stack (maximum height 7 feet). Sufficient horizontal freeboard shall be allowed around the edges of the stack to properly anchor the covering. The pad shall have positive drainage from the stack in all directions or shall be protected from runoff by diversions.

Semi-solid wastes, which stack at a lower profile than solid wastes, may require the construction of small earthen berms to contain the wastes. Where berms are used, provisions shall be made for drainage of the pad when wastes only partially fill the pad or are not stored on the pad. Wastes within the containment berms shall also be covered with the protective sheeting.

Soils and Foundation. Field storage of litter and other dry manures shall not be placed on soils with rapid or very rapid permeability class (> 6 in./hr.) unless:

- the pad is made of concrete, or
- a synthetic liner with minimum thickness of 20 mil is installed, or
- a one-foot layer of compacted clayey material (sc, cl) is used as the pad

If a synthetic liner is used, the pad shall be over-excavated one foot and all sharp stones and other sharp material removed to prevent puncturing the liner. The liner shall then be covered with one foot of the best fine-grained soil locally available. Manufacturer's recommendations shall be followed for the gradation of the soil base and backfill.

Soil pads for storage of wastes shall be installed under optimum moisture conditions in lifts not exceeding 9 inches before compaction. The pad shall be essentially level with only enough gradient from the center of the pad to allow drainage of water. All excavated side slopes shall not be steeper than three (3) horizontal to one (1) vertical.

Seepage. Pads and berms for storage of semi-solid wastes with seepage potential shall meet the liner requirements in Alabama NRCS conservation practice standard Waste Treatment Lagoon, Code 359.

Waste Removal. When wastes are removed from the temporary storage site, they will be removed to such extent that no loose wastes remain on the surface of the site. All ruts and ridges made by the loading equipment shall be smoothed so there are no depressions that will hold water when the storage site is uncovered between storage periods.

Vegetation. Immediately prior to use, the storage site shall be free of vegetation in order to make waste removal and clean-up easier. When no longer intended for use as a waste storage site, the site shall be vegetated to permanent vegetation according to Alabama NRCS conservation practice standard Critical Area Planting, Code 342.

While in use as a temporary waste storage site, the area down-gradient from the site (minimum 50 feet) shall be vegetated and maintained according to the Alabama NRCS conservation practice standard Filter Strip, Code 393.

CONSIDERATIONS

Waste field storage facilities should be located as near the source of manure as practicable and as far from neighboring dwellings or public areas as possible. It is highly recommended that storage facilities meet the minimum distance requirement from public or private facilities as shown in Table 1. These distances should be increased wherever possible in order to minimize any negative impacts of the waste storage. In no case shall the facility siting distances be less than the minimum distance requirements as required by the ADEM Administrative Code Chapter 335-6-7, as amended. ADEM's regulatory minimum distances are

summarized in the ADEM/NRCS Buffer Distance Summary for Animal Feeding Operations.

Table 1. Minimum Distance Requirement for Waste Field Storage Facilities	
Public or Private Use Facilities	Minimum Distance from Storage Site
Any public use area or DCSHP ^{1/}	700 feet
Well, up-gradient	150 feet
Well, down-gradient	300 feet
Natural Water Courses	200 feet
Milking Parlor	100 feet
Drainage Ditches	100 feet
Area specified by state or local ordinance	Greater of state or local distance or distance shown above

^{1/} DCSHP: Non-owner existing occupied Dwelling, Church, School, Hospital, or Park

Waste field storage may include land shaping, access roads, diversions, and such other practices as needed to protect the resource base.

Proper construction of the pad/berm and maintenance of the covering should prevent contaminated leachate or percolation water from passing into the groundwater. Additional runoff from the covering should be considered in water management planning around the storage site.

Consider spreading and securing the impermeable cover over the site when not used for storage. This will eliminate most of the runoff contamination and will control unwanted vegetation until the next storage period.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared in accordance with this standard for specific field sites and will normally be part of the overall conservation plan. Plans and specifications include construction plans, photographs, drawings, job sheets, construction specifications, narrative statements in conservation plans, and other similar documents.

All disturbed areas beyond the edges of the stored wastes shall be seeded to an approved vegetative cover as shown in the plans and specifications according to Alabama NRCS conservation practice standard Critical Area Planting, Code 342.

OPERATION AND MAINTENANCE

Soil pads may require reconstructing if soil materials are inadvertently removed during the waste removal process. The plastic covering will be subject to damage from weather, animals, equipment, etc. Frequent inspections and prompt repairs or replacement should be made, as needed, to assure the protection of natural resources and to provide a suitable product for land application.

Internal drainage from a bermed storage area is allowed to occur only when the drainage poses no pollution hazard.

REFERENCES

[Waste Field Storage - Code 749 - Construction Specification](#)

ADEM Administrative Code, Chapter 335-6-7, as amended

[ADEM/NRCS Buffer Distance Summary for Animal Feeding Operations](#)

Alabama NRCS Conservation Practice Standards:

[Critical Area Planting, Code 342](#)

[Filter Strip, Code 393](#)

[Waste Storage Facility, Code 313](#)

[Waste Treatment Lagoon, Code 359](#)

[NRCS Cultural Resources Handbook](#)