

SOIL CONSERVATION SERVICE
WASTE MANAGEMENT SYSTEM (NO.)

Definition

A planned system in which all necessary components are installed for managing liquid and solid waste, including runoff from concentrated waste areas, in a manner that does not degrade air, soil, or water resources.

Scope

This standard establishes the minimum acceptable requirements for planning and operating waste management systems. It does not apply to the design and installation of the system components.

Purpose

To manage waste in rural areas in a manner that prevents or minimizes degradation of air, soil, and water resources and protects public health and safety. Such systems are planned to preclude discharge of pollutants to surface or ground water and to recycle waste through soil and plants to the fullest extent practicable.

Conditions Where Practice Applies

This practice applies where: (1) Waste is generated by agricultural production or processing; (2) waste from municipal and industrial treatment plants is used in agricultural production; (3) all practice components necessary to make a complete system are specified; and (4) soil, water, and plant resources are adequate to properly manage the waste.

Planning

General. Waste, as used in this standard, includes both liquid and solid waste, waste water used in processing, and polluted runoff such as that from a feedlot.

A waste management system for a given enterprise shall include the components necessary to properly manage waste and prevent degradation of air, water, soil, and plant resources. A system may consist of a single component, such as a diversion, or may consist of several components. Components shall not be installed until an overall waste management system has been planned.

All federal, state, and local laws, rules, and regulations governing waste management, pollution abatement, health, and safety shall be strictly adhered to. The owner or operator shall be responsible for securing all required permits or approvals and for performing in accordance with such laws and regulations. Regulations published by the Environmental Protection Agency are listed on page WI-1-1 of the Agricultural Waste Management Field Manual. Responsibility for enforcement of the EPA regulations in Wisconsin is under authority of the Department of Natural Resources.

Components. Components of complete waste management systems may include, but are not limited to, the following:

Debris basins	Irrigation systems	Surface drains
Dikes	Irrigation water conveyance	Waste storage ponds
Diversions		Waste storage structures
Fencing	Pond sealings or linings	Waste treatment lagoons
Grassed waterways or outlets	Subsurface drains	Waste utilization

Design criteria for individual components shall be according to standards in the National Handbook of Conservation Practices. The criteria for the design of components not included in this handbook shall be consistent with sound engineering principles.

Section IV of the Wisconsin Technical Guide may be used where reference is made to National Handbook for Conservation Practices.

Planning Considerations

1. Waste should be used to the fullest extent possible by recycling it through soil and plants. If very little land is available, such practices as lagoons and oxidation ditches may be needed.
2. Clean water should be excluded from concentrated waste areas to the fullest extent practical.
3. Manure shall be collected and safely spread on land, treated, or stored until it can be safely spread. Adequate storage must be provided to allow spreading during favorable weather and at times compatible with crop management and available labor.
4. Polluted runoff and seepage from concentrated waste areas shall be intercepted and directed to storage or treatment facilities for future disposal or be directly applied to land in an acceptable manner.
5. Waste water from processing shall be collected and directly applied, stored, or treated before using it.
6. Adequate drainage, erosion control, and other soil and water management practices shall be incorporated to prevent system-related problems.
7. The overall system shall include sufficient land for proper use or disposal of waste at locations, times, rates, and volumes that maintain desirable water, soil, plant, and other environmental conditions. Appropriate waste-handling equipment shall be available for effective operation of the system.
8. The system should be outside major viewsheds to conserve visual resources. Vegetative screens and other methods should be provided, as appropriate, to improve visual conditions.

9. When planning waste management systems the location of homes and other facilities must be considered to provide for a total system which is environmentally sound and esthetically acceptable to people who live or work in the vicinity.
10. Fencing should be provided to exclude livestock from access to streams. Crossings should be constructed to allow passage of livestock across the channel. Watering ramps should be provided for controlled watering access.
11. Liquids from milk rooms and milking centers can be conveyed to waste storage ponds or tanks for storage until spread onto the land. Waste storage ponds and tanks will not be used to collect or store human wastes.
12. In dairy operations, barnyard plans must take into account the sanitation requirements of the milk market involved. Cattle must not have access to manure piles, and good fly control measures must be observed. Plans should account for the type of housing, the number and type of cattle, the method of feeding, the method of manure handling, and possible future expansion of the operation.
13. Soil Surveys and topographic maps are useful tools for site planning. Soil surveys should be made on land proposed for disposal areas.
14. Waste storage structures and ponds loaded by manure pumps must take the operating characteristics of the pumps used into account.
15. Facilities shall be provided for emptying holding ponds without polluting surface or ground water. Application rates of nutrients should not exceed the amount which the crops are anticipated to use in one year. See Waste Utilization (633) standard.
16. Crushed limestone and similar material may be used as a subbase material in barnyards. Requirements for design criteria are given in the standard for "Heavy Use Area Protection".
17. The following table provides data on minimum horizontal distances from any portion of the storage facility to wells and the minimum vertical separation between bedrock and/or highest ground water level to follow when planning and designing waste management systems:

Minimum Distances Relating to Wells,
Bedrock, Ground Water and Waste Storage Facilities

Type of Storage Facility	Minimum Horizontal Distance to Well	Minimum Vertical Distance Above Bedrock or Ground Water Level	Specific Design Requirements
1. Temporary manure stack or storage platform	100 feet	3 feet	1. Liquid-tight reinforced concrete floor
2. Liquid-tight concrete holding tank	100 feet	3 feet	1. Steel with glass lining or 2. concrete
3. Solid or semi-solid manure storage facility	200 feet	5 feet	1. Liquid-tight concrete floor 2. Drainage with picket dams or equivalent drainage.
4. Solid or semisolid manure storage facility	150 feet	5 feet of clay	1. Liquid-tight concrete floor 2. Drainage with picket dams equivalent drainage. 3. Clay must have PI of 7 or more.
5. Storage pond	250 feet	3 feet	
6. Reception tanks or hoppers	75 feet	3 feet	

When the vertical distances between bedrock and/or highest ground water stated above cannot be met, variances may possibly be provided if:

1. Minimum horizontal distances are increased, and
2. A design providing comparable protection is planned and approved by appropriate authorities.

Sequence of installation. System components shall be planned and installed in a sequence that insures that each will function as intended without being hazardous to others or to the overall system.

Safety. Safety features and devices shall be included in waste management systems, as appropriate, to protect animals and humans from drowning, dangerous gases, and other hazards. Fencing shall be provided as necessary, to prevent livestock and others from using the facilities for other purposes.

System Operation

The owner or operator shall be responsible for operating and maintaining the system. An operation plan shall be prepared for this use. It should provide specific details concerning the operation of each component and should include:

1. Timing, rates, volumes, and locations for application of waste and, if appropriate, approximate number of trips for hauling equipment and an estimate of the time required.
2. Minimum and maximum operation levels for storage and treatment practices and other operations specific to the practice, such as estimated frequency of solids removal.
3. Safety warnings, particularly where there is danger of drowning or exposure to poisonous or explosive gases.
4. Maintenance requirements for each of the practices.

Plans and Specifications

Plans and specifications for waste management systems shall be in keeping with this standard and standards for individual system components.