

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

MILKING CENTER WASTE WATER TREATMENT SYSTEM

(No.)

CODE 719

DEFINITION

A milking center wastewater treatment system is a permanent structure to biologically treat milking center wastewater in an organic medium.

PURPOSE

To treat milking center wastewater biologically, year round in order to minimize pollution of the soil, water and air.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies where:

1. Current methods of disposing milking center wastewater are polluting the soil, water and/or air.
2. Wastewater is generated from washing tanks, pipelines, milking machines, and associated equipment. It may include wash water from animal preparation and parlor floors. It shall not include waste milk or sewage from restrooms.
3. Manure from the animal housing system is handled as a solid or semi-solid and liquid wastes are not wanted in the manure. Where the manure is handled as a liquid, the milking center wastewater should be added at the barn to aid in transporting the manure to the storage area.

CRITERIA

GENERAL

The milking center wastewater treatment system consists of a settling tank, grease trap, pipeline distribution system and organic treatment bed. The milking center wastewater treatment system

shall be designed in accordance with the procedure shown in Agricultural Waste Management Field Handbook (AWMFH), Chapter 10, Section 651.1004(k), NH Amendment 1, "Milking Center Wastewater Treatment Systems".

The treatment system shall be located such that the potential for water quality pollution is minimized. An evaluation of the ground water pollution potential for the site shall be made according to the procedure shown in NENTC Geology Technical Note 5, "A System For Early Evaluation of the Pollution Potential of Agricultural Groundwater Environments".

The milking center wastewater treatment system shall be located above the 25-year flood plain and wetland areas. The maximum slope of the site where the system will be installed shall be 8 percent.

All precast concrete materials shall be constructed in accordance with ASTM C-913, Precast Concrete Water and Wastewater Structures.

The facility and all components shall comply with applicable federal, state and local laws and codes.

SOLIDS TRAP

A settling tank shall be added to parlor systems to trap solids generated by flushing manure. Systems which generate more than 1 cubic foot of manure per day being flushed out of the parlor should consider using a settling basin first before overflowing into a settling tank. The basin is an above ground tank which can be cleaned with tractor and loader.

A grease trap shall be used for both pipeline milking systems and milking parlor systems.

Standard 1000 gallon, precast concrete, septic tanks are recommended for both settling tanks and grease traps.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service. New Hampshire supplement is underline.

**NRCS, NHFOTG
December 1997**

Provisions shall be made for periodic cleanout of the settling tanks and the grease trap. Proper disposal of this material shall be in a manure storage structure or by application on the land.

DISTRIBUTION SYSTEM

The distribution system shall be designed for gravity flow, if possible. An air trap shall be placed between the milking center and the grease trap to prevent odors from entering the building.

Minimum slope for gravity pipelines shall be 1 percent or 1/8 inch per foot.

A pump shall be used between the grease trap and the distribution box, if gravity flow is not possible. A precast concrete pump station with a riser and cover shall be used for year round access. A standard household pumping station is recommended.

The pipeline shall be ASTM D-3034, 4 inch minimum diameter, SDR 35, PVC pipe, with a minimum cover of 12 inches. Where heavy traffic will occur over the pipe, ASTM D-1785, Schedule 40, PVC pipe shall be used with a minimum cover of 24 inches.

A precast distribution box shall be used to distribute the effluent evenly throughout the treatment bed.

Air vents shall be installed between the grease trap and the settling tank and just before the distribution box to maintain aerobic conditions.

ORGANIC TREATMENT BED

The treatment bed shall be located in soils with moderate permeability. The bottom of the treatment bed shall be at least 48 inches above bedrock and 24 inches above the water table.

A minimum of one soil boring or test pit shall be taken in order to classify the soil and rate the disposal area. The boring or pit shall extend at least 4 feet below the bottom of the proposed bed or to bedrock, whichever is less. The boring shall be recorded to show any limiting features.

The treatment bed shall not be located in a drainage way. All non-polluted runoff shall be diverted around or away from the treatment bed by installing a berm on the uphill end and along both sides of the treatment bed.

The treatment bed shall not be located where it will intercept a seasonal high water table, unless

sufficient subsurface drainage is used to ensure that the ground water will not rise into the bed.

Minimum bed length shall be 30 feet. The bed shall be fenced to exclude equipment, people and animals.

Provisions shall be made for periodic replacement of the organic matter material. Proper disposal of this material shall be by application on the land.

CONSIDERATIONS

The following shall be considered when designing a milking center wastewater treatment system:

- The availability and cost of discharging milking center wastewater into a municipal sewer.
- On-farm traffic patterns and accessibility to the milking center.
- Adjacent land uses and visibility.
- Effects of odor on surrounding areas due to prevailing winds.
- Visual aesthetics to blend the system into the surrounding landscape.

PLANS AND SPECIFICATIONS

The construction drawings for the milking center wastewater treatment system shall comply with this standard.

Plans and specifications shall describe the site specific requirements for implementing this practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be developed that is consistent with the purposes of this practice, its intended life and the criteria for its design. The operation and maintenance plan shall address the following items:

- Semi-annual cleanout of the grease trap and the settling tank. Proper disposal shall be in a manure storage structure, land application or by other acceptable means.
- Periodic replacement of the organic material used in the treatment bed. Proper disposal of the used material shall be in a manure storage structure, land application, composting or other acceptable means.

- Maintain vegetative growth on diversion ditches in a vigorous condition. This shall include liming, fertilization and reseeding when necessary. Vegetation height shall be controlled by mowing.
- Repair of vandalism, vehicular or livestock damage to any earthfills, fences, pipes, or other appurtenances.
- Maintain lids and openings to underground structures to ensure year round access.
- Maintain grates on drains and subsurface drainage systems to ensure they are functional and that rodent guards are in place.
- **Avoid dumping waste milk** into the treatment system. A large amount of milk solids will overload the system and will rapidly plug the soil causing failure.