

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

POND SEALING OR LINING

CATIONIC EMULSION-WATERBORNE SEALANT

(No.)
CODE 521D

DEFINITION

Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

PURPOSE

Reduce seepage losses in ponds to an acceptable level.

CONDITIONS WHERE PRACTICE APPLIES

Where water loss from a pond through leakage is, or will be, of such proportion as to prevent the pond from fulfilling its planned purpose, or where leakage can damage land and crops or can cause waste of water or environmental problems, and where a seepage reduction of 70 to 95 percent can adequately solve the leakage problem.

CRITERIA

Ponds to be lined shall be constructed to meet NRCS standards for Irrigation Pits or Regulating Reservoirs (552), Irrigation Storage Reservoirs (436), Ponds (378), Waste Treatment Lagoons (359), Waste Storage Ponds (425), or Wildlife Watering Facilities (648), as appropriate.

For electrochemical sealing (in the surface 2 in.) soils shall have properties approximating the USDA textural soil classification for:

- Very fine sands, fine sands, medium sands, coarse sands, and very coarse sands.
- Non-expansive loamy sand and sandy loam.

If the soil is relatively uniform throughout the entire pond, the seepage rate before sealing shall exceed 1 ft/day, measured vertically. If isolated sections in an area are suspected of causing most of the seepage loss, the seepage rate in the area before sealing shall exceed 1 ft/day.

The minimum rate of application shall be based on small-scale field tests with infiltration cylinders unless sufficient data are available on the field performance of previously tested soils that are similar in texture and chemical properties to the soil to be sealed.

In the absence of field test results for the soils to be sealed, the minimum application shall be 1 gal/yd².

CONSIDERATIONS

Consider the effect upon components of the water budget, especially effects on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

Variability of the practice's effects caused by seasonal or climatic changes.

Downstream flows or aquifers that would affect other water uses or users.

The volume of downstream flow to prohibit undesirable environmental, social, or economic effects.

Short-term and construction-related effects on the quality of the pool and downstream water.

Water level control on the salinity of soils, soil water, or downstream water.

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

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Water level control on the temperatures of downstream waters to prevent undesired effects on aquatic and wildlife communities.

Trapping of nutrients and pesticides and altering their effect on surface and ground water quality.

Wetlands or water-related wildlife habitats.

Visual quality of the pool and downstream water resources.

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PLANS AND SPECIFICATIONS

Plans and specifications for sealing ponds with cationic emulsion waterborne sealant shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATIONS AND MAINTENANCE

Provisions shall be made as necessary for operations and maintenance requirements and may include a formal plan for larger or more complex designs.