

**Natural Resources Conservation Service  
Conservation Practice Standard**

**POND SEALING OR LINING  
BENTONITE SEALANT  
(No.)  
CODE 521C**

**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**

To reduce seepage losses in ponds to an acceptable level.

**CONDITIONS WHERE PRACTICE APPLIES**

This 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 will damage land and crops or cause waste of water or environmental problems.

**CRITERIA**

Ponds to be lined shall be constructed to meet the SCS standard 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.

Soil properties. Sealing with bentonite or similar materials is more applicable on coarse-grained soils where more than half of the soil material is larger than that passing the No. 200 sieve size.

Rate of application. The rate of application shall be based on laboratory tests unless sufficient data are available on the field performance of previously tested soils that are similar in texture and chemical properties to the soils to be sealed.

In the absence of laboratory tests or field performance data on the sealed, the minimum application shall be:

Pervious Soil	Application method	Application Rate lb/ ft <sup>2</sup>
Clay	Mixed layer	1.0-1.5
Sandy silt	Mixed layer	1.0-1.5
Silty sand	Mixed layer	1.5-2.0
Clean sand	Mixed layer	2.0-2.5
Open rock or gravel	Clay or sand mixed layer	2.5-3.0

Thickness of treated blanket. The minimum thickness of the finished treated blanket shall be 4 in. for water depths up to 8 ft. Additional thickness shall be provided for greater water depths and for areas subject to wave action.

**CONSIDERATIONS**

Water quantity

- Effects 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.
- Effects on downstream flows or aquifers that would affect other water uses.
- Potential use for water management to conserve 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.

Water quality

- Effects on the movement of sediment, pathogens, and soluble material substances carried by seepage water.
- Effects on the visual quality of the downstream water resources.
- Short-term and construction-related effects of this practice on quality of the pool and downstream water.
- Effects of soil water level control on the temperatures of downstream waters to prevent undesired effects on aquatic and wildlife communities.

5. Effects on wetlands or water-related wildlife habitats.

**PLANS AND SPECIFICATIONS**

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

**Natural Resources Conservation Service  
Construction Specification**

**POND SEALING, BENTONITE**

**1. SCOPE**

Work shall consist of the furnishing and installing of all bentonite sealing material in accordance with plans and at locations shown on the plans or as staked in the field.

The bentonite and soil shall be thoroughly mixed to the specified depth with disk, rototiller, pulverizer, or similar equipment. Each treated layer shall be compacted to a dry density of 90 percent or more of standard Proctor with soil at optimum moisture content.

**2. SITE PREPARATION**

The area to be treated shall be cleared of all vegetation, trash, stones, or other objects large enough to interfere with operation of the mixing and compacting equipment. The area shall also be drained and dried sufficiently for mixing and compacting equipment operation.

Treated areas shall be protected from puncture by livestock trampling. Areas near the normal waterline and at points of concentrated surface flow into the pond shall be protected against erosion.

Applications shall be carried out in such a manner that erosion and air and water pollution are minimized. The completed job shall present a good workmanlike finish.

**3. PLACEMENT**

Sealing material shall be distributed evenly over the surface to be treated. If broadcast by hand, the area must be staked or otherwise marked in grids of 100 ft.<sup>2</sup>

**4. CONSTRUCTION DETAILS**

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